APPENDIX S

From: Nathan Holland
To: caisdrmp@ca.blm.gov
Subject: Requesting ISD Draft RMP
Date: 03/26/2010 10:57 AM

I would like to request a cd of the Imperial Sand Dunes draft RMP. Please send the cd to the address listed below.

Thanks,

Nate Holland

Advanced Resource Solutions, Inc.
3420 Coach Lane, Suite 13
Cameron Park, CA 95682
Tel: 530.676.1095
Fax: 530.676.1023
nate@arsplanning.com

From:	Karen Schambach
Sent By:	csnckaren@gmail.com
Reply To:	csnckaren@gmail.com
To:	caisdrmp@ca.blm.gov
Subject:	Re: Draft Imperial Sand Dunes Recreation Area Management Plan is Now Available
Date:	03/26/2010 12:45 PM

Will you please send me a CD with the Imperial Sand Dunes draft RMP, to the address below?

Thanks,

Karen

On Fri, Mar 26, 2010 at 10:58 AM, <caisdrmp@ca.blm.gov> wrote:

> (Embedded image moved to file: pic08480.jpg)

--
Karen Schambach
California Field Director
Public Employees for Environmental Responsibilty
P.O. Box 4057
Georgetown, CA 95634
Phone: 530-333-2545
capeer@peer.org

From:	Klockenga, Gary
To:	caisdrmp@ca.blm.gov
Subject:	BLM's Imperial Sand Dunes Draft Recreation Area Management Plan and Draft EIS
Date:	03/26/2010 03:38 PM

Hello,

Please send us one copy of the CD-ROM version of this document.

We are:
Science/Industry/Govt. Publications Section
San Diego Public Library
820 E Street
San Diego CA 92101

Thank you.

Gary Klockenga
Government Publications Librarian

gklockenga@sandiego.gov

From: Cheri Klusman
To: caisdrmp@ca.blm.gov
Subject: Re: Draft Imperial Sand Dunes Recreation Area Management Plan is Now Available
Date: 03/27/2010 11:20 AM

Please remove Don from your mailing list; he passed away in December. If you could pass this on to your counterparts--I would appreciate it.

Thank You,

Cheri Klusman
----- Original Message -----
From: <caisdrmp@ca.blm.gov>
To: <Daniel_Steward@ca.blm.gov>; <Kynan_Barrios@ca.blm.gov>; <Linda_Hughes@blm.gov>; <Thomas_Zale@blm.gov>
Sent: Friday, March 26, 2010 10:58 AM
Subject: Draft Imperial Sand Dunes Recreation Area Management Plan is Now Available

>
>
> (Embedded image moved to file: pic08480.jpg)
>
>

From: Kevin Newby
To: caisdrmp@ca.blm.gov
Subject: cd-rom
Date: 03/27/2010 01:38 PM

Yes I would like a cd-rom of the "draft rec area mgmnt plan" Thanks Ex-Dune patrol ranger DP42..Kevin Newby 571 w. Vermont ave. Escondido, Ca 92025

From: sanduners@aol.com
To: caisdrmp@ca.blm.gov
Subject: Re: Draft Imperial Sand Dunes Recreation Area Management Plan is Now Available
Date: 03/26/2010 12:07 PM

Hi, I would like a CD please.

Jim Colln
9333 Gardendale St.
Bellflower, CA 90706-2144

Thanks,
Jim

-----Original Message-----
From: caisdrmp@ca.blm.gov
To: Daniel_Steward@ca.blm.gov; Kynan_Barrios@ca.blm.gov; Linda_Hughes@blm.gov; Thomas_Zale@blm.gov
Sent: Fri, Mar 26, 2010 10:58 am
Subject: Draft Imperial Sand Dunes Recreation Area Management Plan is Now Available

(Embedded image moved to file: pic08480.jpg)

From:	Catherine Portman
To:	caisdrmp@ca.blm.gov
Subject:	on line EIR
Date:	03/30/2010 02:16 PM

Hello,

Can you please not send me hard copies (3 pounds of paper) in the mail? Instead I'll use your post card alert to access the EIRs on line.

Thanks,

C. Portman
Sierra Club
14841 County Road 91 B
Woodland, CA 95695

From:	CGutierrez
To:	caisdrmp@ca.blm.gov
Subject:	ISDRA-Ramp
Date:	03/30/2010 08:48 AM

To Whom it May Concern,
I am the Representative from Yuma Metropolitan Planning Organization (YMPO) in Yuma, AZ. I received the Draft Plan Copies and I will review them. If there is a meeting anytime soon please advise me.
Thanks

Side note: I am an avid user of the Dunes. Thanks!

Charles A. Gutierrez
Traffic Data Management Supervisor
Yuma Metropolitan Planning Organization
502 S. Orange Ave
Yuma, AZ 85364
928-783-8911

cgutierrez@ympo.org

ympo.org

From:	Ken25440@aol.com
To:	caisdrmp@ca.blm.gov
Subject:	Imperial Sand Dunes
Date:	03/29/2010 09:02 PM

Public land belongs to all the public, even the motorized public and should remain open to all the public. We need more public land opened for all recreational use, including off hwy vehicles. Do not close any more public land! My family including our children and grandchildren rides ATV bikes in the Imperial Sand Dunes area and it is good clean wholesome family recreation. It needs to be expanded, not more restrictive. Lets start worrying more about humans needs for recreation than some weeds, insects or other stuff.

Ken Dunn
1158 W. Queenside Drive
Covina, CA 91722

ken25440@aol.com

From: Chris Brooke
To: caisdrmp@ca.blm.gov
Subject: land grab
Date: 03/29/2010 07:32 PM

You guys keep taking more and more. To this day I have only seen one desert tortoise in the desert and that was crossing the road I 40 even though there were the tortoise fences in place. You put up fences for restoration at Gorman then a fire comes along every few years and the fires are much worse than they otherwise would have been without the interference of these undertakings. I love our planet and I love my sports but this constant overregulation is in and of itself disturbing. Is it your goal to confine us to such a small area that at last you can say there is damage to the dirt and all that lives in it. The planet replenishes itself just fine without our interference. It survives the floods tornadoes and hurricaines throughout time whether we are on the planet or not. Get Real Go after the real problem which is the big cities. Do you think the earth really likes all that cement and asphalt over the many many square miles filled with homes streets and parking lots. The surface water cannott even find any dirt to soak into. It all goes out to sea. Where are all the animals displaced by that. I think they moved. Hmmmmm By that analogy the off roaders are probably a better solution than more cities. We all need 40 acres to live on. That way we can grow our own food and the earth will not be deprived of the water it needs. By the way the big coastal cities should be desalinating the sea water and leave the water from the mountains to the people who are closer to the source..THE FARMERS!!!!!!!! CB

From: Michele Madden
To: caisdrmp@ca.blm.gov
Subject: RAMP CD-ROM
Date: 03/29/2010 07:26 PM

I am requesting a CD-ROM of the draft RAMP and draft EIS statement.

Thank you for sending the postcard notice of these being available

Don Madden
368 Anita St. #39
Chula Vista, CA 91911-4126

From: Leo B. Morstad
To: caisdrmp@ca.blm.gov
Subject: Imperial Sand Dunes
Date: 03/29/2010 05:37 PM

Folks,

Please supply us with the CD-ROM on the Imperial Sand Dunes

Thank You.

Leo B. Morstad
2480 Lindley Way
Klamath Falls,OR. 97601

From: Glenn Gaeke
To: caisdrmp@ca.blm.gov
Cc: ggaeke1@cox.net
Subject: OHV Use in Imperial Sand Dunes Recreation Area
Date: 03/29/2010 05:30 PM

I have been an off-road enthusiast for nearly twenty years. I have seen many changes in the Imperial Sand Dunes over the years. Many of these changes have been for the betterment and safety of the general public, some are purely a nuisance. The biggest nuisance is closures of vast parcels of land perfect for off-road use, but not much else. They claim the closures are for the purpose of environmental impact studies. These closures are not in the public's interest at all, they only serve a small minority of tree-huggers. In fact, in my nearly twenty years of driving off-road vehicles I have yet to see anybody skipping threw the dunes barefoot, sniffing the weeds they seem so worried about. The off-road community spends a great deal of money to enjoy their sport and tons more just for parking. This money provides thousands of jobs and adds to taxes collected by the state. How much money does the state take in from the tree-huggers?

From:	Phillips, Coleman
To:	caisdrmp@ca.blm.gov
Cc:	Jody2 Phillips (phillipsfam1995@sbcglobal.net); Chris Phillips; CONNY DESPAIN
Subject:	Comment on Draft Plan for Imperial Sand Dunes Recreation Area
Date:	03/29/2010 03:09 PM

Attn: Carrie Simmons

Carrie,
The Imperial Sand Dunes is an awesome place and to be able to ride there and experience the vastness is simply one of the best experiences a family could have. OHV is very much a family sport and the ability to get children and grandchildren off the TV/video games/cell phones etc. to enjoy an activity all can enjoy together is a very special event. The shifting sand is a very rough and tough environment and to enjoy it one must be able to be on some form of motorized vehicle. The thought of walking the dunes in that heat is not going to happen. With that said, Alternative 7 is by far the most desirable Alternative. It gives ground for the Peirson's Milkvetch and can be controllable with very little effort.

Thanks,

Jody
Jody Phillips
69487 Sharp Road
North Bend, OR 97459
Phone: 541-840-3640

From: Themistersnoid@aol.com
To: caisdrmp@ca.blm.gov
Subject: OHV Riding Areas
Date: 03/29/2010 02:46 PM

Please do not shut down any more riding areas, how about opening up more areas for OHV useage? Thank you, R Jump

From:	Lary Dilsaver
To:	CAisdrmp@ca.blm.gov
Subject:	Imperial Sand Dunes Management Plan
Date:	03/29/2010 02:23 PM

Hello BLM Official,

I would like to receive a CD-ROM copy of the Draft Recreation Area Management Plan and EIS for Imperial Sand Dunes. I am continuing to conduct research on the California Desert Conservation Area in cooperation with the DMG. Send it to the address below. Thank you for your consideration.

Lary Dilsaver

Lary M. Dilsaver
Professor
Department of Earth Sciences
University of South Alabama
Mobile, AL 36688
(251)460-6381

From: Tmrv4fun@aol.com
To: caisdrmp@ca.blm.gov
Subject: SAND DUNES
Date: 03/29/2010 01:40 PM

KEEP LANDS OPEN FOR RECREATION. THANKS TED, MARSHA HALL

From: Jay Moyes
To: caisdrmp@ca.blm.gov
Subject: CD-ROM of ISDRA draft RAMP/EIS
Date: 03/29/2010 01:16 PM

Please send a CD-ROM to the below address. Thank you. JAY MOYES

Jay I. Moyes, Esq.
Moyes Sellers & Sims
1850 N. Central Ave.
Suite 1100
Phoenix, AZ 85004
jimoyes@lawms.com
602-604-2106
602-274-9135 (fax)

From:	Christine Asiata
To:	'caisdrmp@ca.blm.gov'
Subject:	Sand Dunes Recreation Area Management Plan
Date:	03/29/2010 10:33 AM
Importance:	High

To whom it may concern:

The State Clearinghouse received the above named project today March 29, 2010. We received 1 hard copy of your project, however, this document needs to go the State Clearinghouse for state review.
We will need 15 copies of the entire document on CD and 15 hard copy issue summaries to accompany each CD.

Please refer to our website for document submission for more information. http://www.opr.ca.gov/index.php?a=sch/environmental.html

For the issue summaries you are welcome to use the form on our website or you may use a similar form of your own: http://www.opr.ca.gov/planning/publications/Sample_Summary_Fillable_Form.pdf

Please note that your project is on hold at the moment due to the above mentioned missing information.
As soon as we receive your document (please refer to the timeframes of receiving documents in the State Clearinghouse) we will start the review process.

Christine Asiata Rodriguez
Governor's Office of Planning and Research
State Clearinghouse
P.O. Box 3044
Sacramento, CA 95812
916 445-0613
Fax: 916 323-3018

From: Christine Asiata
To: 'caisdrmp@ca.blm.gov'
Subject: RE: Sand Dunes Recreation Area Management Plan
Date: 03/29/2010 12:30 PM

Thanks so much!!

Christine Asiata Rodriguez
Governor's Office of Planning and Research
State Clearinghouse
P.O. Box 3044
Sacramento, CA 95812
916 445-0613
Fax: 916 323-3018

-----Original Message-----
From: Erin_Dreyfuss@ca.blm.gov [mailto:Erin_Dreyfuss@ca.blm.gov] On Behalf Of caisdrmp@ca.blm.gov
Sent: Monday, March 29, 2010 12:30 PM
To: Christine Asiata
Cc: Thomas_Zale@blm.gov; Linda_Hughes@blm.gov
Subject: Re: Sand Dunes Recreation Area Management Plan

Hi Christine -

Thanks so much for the email.

We will be coordinating and sending the correct materials for you to begin your review.

Thank you!

Erin Dreyfuss
Environmental Protection Specialist
Bureau of Land Management
California State Office
2800 Cottage Way, Suite W-1834
Sacramento, CA 95825
Office: (916) 978-4642
Fax: (916) 978-4657

Christine Asiata <Christine.Asiata@OPR.CA.GOV> 03/29/2010 10:33 AM

To: "'caisdrmp@ca.blm.gov'" <caisdrmp@ca.blm.gov>
cc:
Subject: Sand Dunes Recreation Area Management Plan

To whom it may concern:

The State Clearinghouse received the above named project today March 29, 2010. We received 1 hard copy of your project, however, this document needs to go the State Clearinghouse for state review.
We will need 15 copies of the entire document on CD and 15 hard copy issue summaries to accompany each CD.

Please refer to our website for document submission for more information.
http://www.opr.ca.gov/index.php?a=sch/environmental.html

For the issue summaries you are welcome to use the form on our website or you may use a similar form of your own:
http://www.opr.ca.gov/planning/publications/Sample_Summary_Fillable_Form.pdf

Please note that your project is on hold at the moment due to the above mentioned missing information.
As soon as we receive your document (please refer to the timeframes of receiving documents in the State Clearinghouse) we will start the review process.

Christine Asiata Rodriguez
Governor's Office of Planning and Research
State Clearinghouse
P.O. Box 3044
Sacramento, CA 95812
916 445-0613
Fax: 916 323-3018

From:	Stephen Jarrett
To:	'caisdrmp@ca.blm.gov'
Cc:	'STEPHEN JARRETT'
Subject:	Glamis Closure - Public Comment
Date:	03/31/2010 08:12 AM

To whom it may concern,
We suggest that the existing closure of the sand dunes continue and there be no additional changes to the management of the sand dunes. We take our family there often and would be distraught if there were any more closures.

Thanks,

Stephen Jarrett - 951.756.2631
1024 Christina St.
Beaumont, Ca. 92223

From:	Jim Waggoner
To:	caisdrmp@ca.blm.gov
Subject:	Imperial Sand Dunes
Date:	04/22/2010 10:16 AM

Hi, to whom it may concern. I have been going to the sand duns for over 41 years. I go back when all of the dunes were open. Please reopen the existing dunes that are closed and keep the existing open. It is a beautiful area and we still enjoy them to the very day.

Thank you for working with Industrial Process Equipment Inc.,

Jim Waggoner
President

Industrial Process Equipment Inc.
1700 Industrial Ave.
Norco, Ca. 92860
Office 1 951 808-9192 Ext 313
My Fax 1 951 808-9193
Cell 1 714 984-4783 Ext 313
My e mail: jimw@ipeontime.com
Our Website: www.ipeontime.com
or www.lasernut.com

From: Jim Waggoner
To: caisdrmp@ca.blm.gov
Subject: RE: Imperial Sand Dunes
Date: 04/22/2010 10:18 AM

Hi, to whom it may concern. I have been going to the sand duns for over 41 years. I go back when all of the dunes were open. Please reopen the existing dunes that are closed and keep the existing open. It is a beautiful area and we still enjoy them to the very day. We are in favor of alternative one. It would be the best choice.

Thank you,

Jim Waggoner
President

Industrial Process Equipment Inc.
1700 Industrial Ave.
Norco, Ca. 92860
Office 1 951 808-9192 Ext 313
My Fax 1 951 808-9193
Cell 1 714 984-4783 Ext 313
My e mail: jimw@ipeontime.com
Our Website: www.ipeontime.com
or www.lasernut.com

Comment Form
Bureau of Land Management
El Centro Field Office
California Desert District

Draft Imperial Sand Dunes Recreation Area Management Plan

Name: Howard Buswell, Jr. _ _

Address: 741 N. Handy Street, Orange, CA. 92867

( ) I have no comments at this time, however, please add me to the mailing list.

I am writing this up to follow up from the meeting I attended in San Diego on Tuesday evening April, 13, 2010. I would like to thank the BLM for allowing my voice to be heard and write my comments here. I would however like to comment that these three small meetings regarding these issues with poor at best announcement to the general public; is a disservice to all of the people who use the ISDRA. Not only is the ISDRA a World class recreation area but MOST of the users of these dunes come from OUTSIDE the greater San Diego area where most of your meetings are held.

While I believe the useable area for motorized traffic will improve with this new revised BLM Version 8, I think there are larger issues to deal with regarding the Pearson Milkvetch and a greater study should be required!

Why is the PMV on the Endangered Species List? I have been going to the ISDRA since the early 70's and have never seen so many PMV plants in the dunes as I have seen this past season. As most Biologists will attest to; this is due to the large amount of rainfall. If this is the case, why it is even listed if it's seasonal?

Also, Don Fife, a geologist with 8 years of service to four Secretaries of the Interior has stated that the Pearson's Milkvetch is a" Noxious weed that farmers, ranchers and Federal and State agencies have been trying to eradicate for the last century." Fife goes on to state in his article "The PMV plant not only causes delusions but blindness, birth defects and even death in animals-including humans."

What happens if the Pearson's Milkvetch is so well preserved by these BLM Ramps that it makes it way into the Imperial and Coachella Valley farming Areas? Have the losses been calculated if it ruins fields of Alfalfa, Wheat or other high valve crops? If it graduates into animal feed sources; what happens to the animals that eat these leaves? Who will pay for these losses?

I believe the BLM should temporarily reinstate their previous Version 1 since the PMV count has shown no effect by OHVs and enact a further PMV study completed by a group of licensed biologists employed by the US Government. These reports could not only affect the long term usage of the ISDRA but also the economy and well being of America, especially the greater Imperial and Coachella Valleys.

Regards, Howard Buswell, Jr.

Comments may be mailed / hand-delivered to: 1661 S. 4th Street
EI Centro, CA 92243
Attn: ISDRA RAMP COMMENTS
Comments may also be emailed to: faisdrmp@ca.blm.gov
Comments may also be faxed to: (760) 337-4490, Attention: ISDRA RAMP COMMENTS

From:	HBuswellJr@aol.com
To:	caisdrmp@ca.blm.gov
Cc:	HBuswellJr@aol.com
Subject:	ISDRA RAMP COMMENTS
Date:	04/20/2010 10:32 PM
Attachments:	BLM RAMP meeting April, 13 2010.rtf

See attached RAMP comments form filled out per meeting instructions. Thank you. Howard Buswell, Jr.

From:	Kevin Williams
Reply To:	kevin@rndconstruction.com
To:	caisdrmp@ca.blm.gov
Subject:	sand dunes
Date:	04/20/2010 02:49 PM

Thank you for your time, I think alternative 1 is the best option.

Kevin Williams
General Superintendent, Vice President
RND Construction, Inc.
A California Golden Gate Subcontractor Since 2005
2175 La Mirada Drive
Vista, California 92081
(760) 599-6400
(760) 535-3525 mobile
(760) 599-6460 fax
kevin@rndconstruction.com

Subject: Creation of a World Class ORV/Recreational area.

1) Alternative 7 is my prefer option.
2) Remove all closure south of Patton Valley, and add them to the north section or Mammoth Wash.
3) Close Mammoth Wash and add it to the wilderness area. This would more than double the removed closed areas that would be reopen from the south.
4) Remove Buggy Flats from the rain closure option and no limits on campers
5) Create a scenic drive from Gecko to Gordons Well. Provide paved pull-out parking for day visitors only. Paved road can only be used for Highway vehicles.
6) Add paved pull-outs around wilderness areas in the north (like trail heads) for day hikers and backpackers to use.
7) Add a visitor center or ranger station at Gordons Well.
8) Hikers in an OHV area must wear orange type highway vest for safety and leave the area by sunset.
9) Add a permit/ fee for day hikers and backpackers in wilderness area.
10) Provide a RV dump at Gordons Well.

These are just a few of my suggestions to help make this area a world class area. I believe these ideas benefit all.

Thanks Pete Buell

Po Box 340
Bonita , Calif. 91908

From:	Buell, Peter
To:	caisdrmp@ca.blm.gov
Subject:	2010 Imperial Sand Dunes Recreation Area Management Plan
Date:	04/20/2010 01:54 PM
Attachments:	World class OHV area.doc

To Whom It May Concern: After attending the Ramp meeting San Diego, I felt it is necessary to provide some of my suggestion to the new RAMP plan. Please review my suggestions and please consider them for the benefit of all concerned. Thanks

Pete Buell
619-691-6432

From: sgmckee@roadrunner.com
To: caisdrmp@ca.blm.gov
Subject: Fwd: RAMP @ Glamis Dunes
Date: 04/20/2010 12:05 PM

Hello again Carrie,

After all that I said, I did not give my recommendation for my preferred alternative but I will have to side with the ASA and say that Alternative 1 RAMP is the preferred. As I stated in my other email which should be attached, I would prefer an alternative that protects only the area shown in green. In each alternative, there should never be a configuration to cut off the dunes. Just like the culverts they put in for little animal crossing under the highway, any closure should have access to cross out of the dunes to the sand highway.

Stephen G. McKee
Moreno Valley, CA

Attention Carrie Simmons

I was not able to make it to the meeting but I wanted to comment. I hope this has some effect on the plan. I have been attending the dunes for over 30 years. I will tell you up front that I am pro-dune use. I also believe that the Pearsons Milk Vetch is safe from extinction.

I have reviewed the maps of the different alternations. There are protected areas of all shapes and sizes. It almost appears that the main criteria of the RAMP is to close a fixed amount of acreage rather than do what the plan is meant to do which is to protect the plant. It is clearly from the different exhibits, that the Vetch is concentrated on the westerly side or prevailing wind side of the dunes. This extends on both the north and south side of Highway 78. I believe the area shown in green to be a low valley area. I expect that all of the plants are in the valleys. If closed areas are necessary, which I don't believe they are, the closers should only be in that area shown in green. Of course the areas north of Highway 78 has been closed for years by a previous agreement. There are some areas in the south dunes where the plant (green) has worked its way through the east-west valleys. These areas should not be a part of any closure. It very important to leave access through the dunes from Highway 78 to Highway 8. This is an important part of off road recreation that has been absent for the past ten years with the current temporary closure.

I said that I felt that closure was unnecessary. Let me explain further. Duning as I refer to it is enjoyed in the clean smooth sands of the high dunes. The valleys are not the places which the duning recreationist like to go. It is no fun running through the weeds. The duning community are respectful people and I believe that an education and sign plan would work well. Educate people to stay out of the valleys and post sign to the affect and I believe it will accomplish what is needed. I realize that this would be unacceptable to those from the Center for Biological Diversity because they have an entirely different agenda. Their agenda is to close everything and also to bring lawsuits because the government reimberses them for their expenses. They are in it for the money. All they have to do to make more money is to file more lawsuits. They have a great business going living off of the taxpayers money. Sorry, I didn't mean to get off subject but I am sure you know what I am talking about.

I have a dream. That dream is to extend Gecko Road to Highway 8 with turnouts and small cul-de-sac camping areas along the way. I even made a T-shirt with the map. It is my MLK weekend T-shirt.

Thanks for you attention. After ten long years, maybe there is hope that we will be able to go back to our riding areas.

Sincerely
Stephen G. McKee

From: sgmckee@roadrunner.com
To: caisdrmp@ca.blm.gov
Subject: RAMP @ Glamis Dunes
Date: 04/20/2010 11:30 AM

Attention Carrie Simmons

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Thanks for you attention. After ten long years, maybe there is hope that we will be able to go back to our riding areas.

Sincerely
Stephen G. McKee

From: Simasc1@aol.com
To: caisdrmp@ca.blm.gov
Subject: ISDRA DRAMP
Date: 04/20/2010 10:36 AM

I think alternative 1 is the best option

Sincerely,

Joe Simeone

From:	RDT DLT
To:	caisdrmp@ca.blm.gov
Subject:	Draft RAMP
Date:	04/19/2010 08:27 PM

I would like to add to the comments the alternative 1 is the best choice
Debi Trent
3777 Paseo De Olivos
Fallbrook, CA 92028
760-419-9514

From:	poledanzer
Reply To:	poledanzer
To:	caisdrmp@ca.blm.gov
Subject:	Draft RAMP
Date:	04/19/2010 08:25 PM

I would like to add to the comments the alternative 1 is the best choice.

Robert Trent
3777 Paseo De Olivos
Fallbrook, CA 92028
760-419-9514

From:	Tracy Cummins
Reply To:	tcummins@mediacontrolsys.com
To:	Robert Mason; 'BLM Ramp Comments'
Cc:	'ASA Board'; 'Tracy Cummins'; 'Aaron & Amy Mundinger'; 'Al McDonald'; 'Andy Buchanan'; 'Dawn Powers'; 'Eric & Christina Gage'; 'Erich Smithey'; 'Erin Beitner'; 'George Beitner'; 'Glynna Hoekstra'; 'Jacquie Ramsey'; 'Jeremy Clifton'; 'Jerry Nichols'; 'Jessica TAYLOR'; 'Jim Thompson'; 'Larry & Cheryl Taylor'; 'Mark Easley'; 'Mark Etheridge'; 'Mark Hoekstra'; 'Mike Cohen'; 'Mike Gravitt'; 'Nikki Heimaster'; 'Nikki Kniss'; 'Pam Cummins'; 'Paul and Torrey'; 'Rachael Cummins'; 'Richard Seaton'; 'Roger Ball'; 'Sarah Cummins'; 'Shad Bodenstadt'; 'Suzi & Wayne Milburn'; 'Terra Smithey'; 'Terry McClain'; 'Tracy Tunnell'; 'Troy Buchanan'; 'Tony Olsen'; 'Tom McCoy'; 'Stuart Chambers'; 'Steve Stovey'; 'Steve Castle'; 'Steve Bailey'; 'Shaun Gabriels'; 'Ryan Opeka'; 'Ron Reckrodt'; 'Rod Rhoads'; 'Rocky Castellini'; 'Rick J Gruba'; 'Richard Ray'; 'Randy Brown'; 'Patrick Tackitt'; 'Owen Beitner'; 'Nick Spoon Petersen'; 'Nick Barnett'; 'Mike Turner'; 'Mike Roark'; 'Mike Gilchrist'; 'Mike @ Cookie Gilchrist'; 'Michael Smith'; 'Michael Dohrn'; 'Meghan Voeltner'; 'Mark Buckman'; 'Mark Brogdon'; 'Larry Middlebrook'; 'Kevin Cummins'; 'Justin \"roll it\" Gravatt'; 'John Soto'; 'Joel Raguindin'; 'Jim Ponder'; 'Jim Knorr'; 'Jeff Ervin'; 'Jason Cummins'; 'Greg @ Debbie Dagher'; 'Gary Logan'; 'Gar Parrott'; 'Fritz \"Gunther\" Renner'; 'Frank Woolrich'; 'Duane Tackitt'; 'Dorothy Minor'; 'Donny Tunnell'; 'Dk'; 'David Fischer'; 'Danny Smith'; 'Curt Schlumpberger'; 'Craig Conley'; 'Cory Gruba'; 'Charlie Cassens'; 'Charles Cummins'; 'Burt Wiley'; 'Buddy Harris'; 'Bryan Voeltner'; 'Brian Speidel'; 'Brian Ollier'; 'Bret Barrowclough'; 'Bob Johnson'; 'Bob Avery'; 'Anson McDaniel'; 'Andrew Tackitt'; 'Amy Mundinger'; 'Jim Thompson'
Subject:	RE: ISDRA RAMP Comments
Date:	04/15/2010 04:16 PM

Thanks Bob,
We look forward to and value the ASA's comments.

Tracy

-----Original Message-----
From: Robert Mason [mailto:rwmskm@cox.net]
Sent: Thursday, April 15, 2010 4:08 PM
To: tcummins@mediacontrolsys.com; 'BLM Ramp Comments'
Cc: 'ASA Board'; 'Tracy Cummins'; 'Aaron & Amy Mundinger'; 'Al McDonald'; 'Andy Buchanan'; 'Dawn Powers'; 'Eric & Christina Gage'; 'Erich Smithey'; 'Erin Beitner'; 'George Beitner'; 'Glynna Hoekstra'; 'Jacquie Ramsey'; 'Jeremy Clifton'; 'Jerry Nichols'; 'Jessica TAYLOR'; 'Jim Thompson'; 'Larry & Cheryl Taylor'; 'Mark Easley'; 'Mark Etheridge'; 'Mark Hoekstra'; 'Mike Cohen'; 'Mike Gravitt'; 'Nikki Heimaster'; 'Nikki Kniss'; 'Pam Cummins'; 'Paul and Torrey'; 'Rachael Cummins'; 'Richard Seaton'; 'Roger Ball'; 'Sarah Cummins'; 'Shad Bodenstadt'; 'Suzi & Wayne Milburn'; 'Terra Smithey'; 'Terry McClain'; 'Tracy Tunnell'; 'Troy Buchanan'; 'Tony Olsen'; 'Tom McCoy'; 'Stuart Chambers'; 'Steve Stovey'; 'Steve Castle'; 'Steve Bailey'; 'Shaun Gabriels'; 'Ryan Opeka'; 'Ron Reckrodt'; 'Rod Rhoads'; 'Rocky Castellini'; 'Rick J Gruba'; 'Richard Ray'; 'Randy Brown'; 'Patrick Tackitt'; 'Owen Beitner'; 'Nick Spoon Petersen'; 'Nick Barnett'; 'Mike Turner'; 'Mike Roark'; 'Mike Gilchrist'; 'Mike @ Cookie Gilchrist'; 'Michael Smith'; 'Michael Dohrn'; 'Meghan Voeltner'; 'Mark Buckman'; 'Mark Brogdon'; 'Larry Middlebrook'; 'Kevin Cummins'; 'Justin "roll it" Gravatt'; 'John Soto'; 'Joel Raguindin'; 'Jim Ponder'; 'Jim Knorr'; 'Jeff Ervin'; 'Jason Cummins'; 'Greg @ Debbie Dagher'; 'Gary Logan'; 'Gar Parrott'; 'Fritz "Gunther" Renner'; 'Frank Woolrich'; 'Duane Tackitt'; 'Dorothy Minor'; 'Donny Tunnell'; 'Dk'; 'David Fischer'; 'Danny Smith'; 'Curt Schlumpberger'; 'Craig Conley'; 'Cory Gruba'; 'Charlie Cassens'; 'Charles Cummins'; 'Burt Wiley'; 'Buddy Harris'; 'Bryan Voeltner'; 'Brian Speidel'; 'Brian Ollier'; 'Bret Barrowclough'; 'Bob Johnson'; 'Bob Avery'; 'Anson McDaniel'; 'Andrew Tackitt'; 'Amy Mundinger'; 'Jim Thompson'
Subject: RE: ISDRA RAMP Comments

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Thx for your support.

Bob Mason, President

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Sent: Thursday, April 15, 2010 3:31 PM
To: BLM Ramp Comments
Cc: ASA Board; Tracy Cummins; Aaron & Amy Mundinger; Al McDonald; Andy Buchanan; Dawn Powers; Eric & Christina Gage; Erich Smithey; Erin Beitner; George Beitner; Glynna Hoekstra; Jacquie Ramsey; Jeremy Clifton; Jerry Nichols; Jessica TAYLOR; Jim Thompson; Larry & Cheryl Taylor; Mark Easley; Mark Etheridge; Mark Hoekstra; Mike Cohen; Mike Gravitt; Nikki Heimaster; Nikki Kniss; Pam Cummins; Paul and Torrey; Rachael Cummins; Richard Seaton; Roger Ball; Sarah Cummins; Shad Bodenstadt; Suzi & Wayne Milburn; Terra Smithey; Terry McClain; Tracy Tunnell; Troy Buchanan; Tony Olsen; Tom McCoy; Stuart Chambers; Steve Stovey; Steve Castle; Steve Bailey; Shaun Gabriels; Ryan Opeka; Ron Reckrodt; Rod Rhoads; Rocky Castellini; Rick J Gruba; Richard Ray; Randy Brown; Patrick Tackitt; Owen Beitner; Nick Spoon Petersen; Nick Barnett; Mike Turner; Mike Roark; Mike Gilchrist; Mike @ Cookie Gilchrist; Michael Smith; Michael Dohrn; Meghan Voeltner; Mark Buckman; Mark Brogdon; Larry Middlebrook; Kevin Cummins; Justin "roll it" Gravatt; John Soto; Joel Raguindin; Jim Ponder; Jim Knorr; Jeff Ervin; Jason Cummins; Greg @ Debbie Dagher; Gary Logan; Gar Parrott; Fritz "Gunther" Renner; Frank Woolrich; Duane Tackitt; Dorothy Minor; Donny Tunnell; Dk; David Fischer; Danny Smith; Curt Schlumpberger; Craig Conley; Cory Gruba; Charlie Cassens; Charles Cummins; Burt Wiley; Buddy Harris; Bryan Voeltner; Brian Speidel; Brian Ollier; Bret Barrowclough; Bob Johnson; Bob Avery; Anson McDaniel; Andrew Tackitt; Amy Mundinger; Jim Thompson
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Thanks for your consideration,

Tracy L. Cummins
647 Bison Ct.
El Cajon, CA 92019
Ph. 619-588-1850
e-mail. tcummins@mediacontrolsystems.com

From:	Robert Mason
To:	tcummins@mediacontrolsys.com; 'BLM Ramp Comments'
Cc:	'ASA Board'; 'Tracy Cummins'; 'Aaron & Amy Mundinger'; 'Al McDonald'; 'Andy Buchanan'; 'Dawn Powers'; 'Eric & Christina Gage'; 'Erich Smithey'; 'Erin Beitner'; 'George Beitner'; 'Glynna Hoekstra'; 'Jacquie Ramsey'; 'Jeremy Clifton'; 'Jerry Nichols'; 'Jessica TAYLOR'; 'Jim Thompson'; 'Larry & Cheryl Taylor'; 'Mark Easley'; 'Mark Etheridge'; 'Mark Hoekstra'; 'Mike Cohen'; 'Mike Gravitt'; 'Nikki Heimaster'; 'Nikki Kniss'; 'Pam Cummins'; 'Paul and Torrey'; 'Rachael Cummins'; 'Richard Seaton'; 'Roger Ball'; 'Sarah Cummins'; 'Shad Bodenstadt'; 'Suzi & Wayne Milburn'; 'Terra Smithey'; 'Terry McClain'; 'Tracy Tunnell'; 'Troy Buchanan'; 'Tony Olsen'; 'Tom McCoy'; 'Stuart Chambers'; 'Steve Stovey'; 'Steve Castle'; 'Steve Bailey'; 'Shaun Gabriels'; 'Ryan Opeka'; 'Ron Reckrodt'; 'Rod Rhoads'; 'Rocky Castellini'; 'Rick J Gruba'; 'Richard Ray'; 'Randy Brown'; 'Patrick Tackitt'; 'Owen Beitner'; 'Nick Spoon Petersen'; 'Nick Barnett'; 'Mike Turner'; 'Mike Roark'; 'Mike Gilchrist'; 'Mike @ Cookie Gilchrist'; 'Michael Smith'; 'Michael Dohrn'; 'Meghan Voeltner'; 'Mark Buckman'; 'Mark Brogdon'; 'Larry Middlebrook'; 'Kevin Cummins'; 'Justin \"roll it\" Gravatt'; 'John Soto'; 'Joel Raguindin'; 'Jim Ponder'; 'Jim Knorr'; 'Jeff Ervin'; 'Jason Cummins'; 'Greg @ Debbie Dagher'; 'Gary Logan'; 'Gar Parrott'; 'Fritz \"Gunther\" Renner'; 'Frank Woolrich'; 'Duane Tackitt'; 'Dorothy Minor'; 'Donny Tunnell'; 'Dk'; 'David Fischer'; 'Danny Smith'; 'Curt Schlumpberger'; 'Craig Conley'; 'Cory Gruba'; 'Charlie Cassens'; 'Charles Cummins'; 'Burt Wiley'; 'Buddy Harris'; 'Bryan Voeltner'; 'Brian Speidel'; 'Brian Ollier'; 'Bret Barrowclough'; 'Bob Johnson'; 'Bob Avery'; 'Anson McDaniel'; 'Andrew Tackitt'; 'Amy Mundinger'; 'Jim Thompson'
Subject:	RE: ISDRA RAMP Comments
Date:	04/15/2010 04:07 PM

Tracy

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Sent: Thursday, April 15, 2010 3:31 PM
To: BLM Ramp Comments
Cc: ASA Board; Tracy Cummins; Aaron & Amy Mundinger; Al McDonald; Andy Buchanan; Dawn Powers; Eric & Christina Gage; Erich Smithey; Erin Beitner; George Beitner; Glynna Hoekstra; Jacquie Ramsey; Jeremy Clifton; Jerry Nichols; Jessica TAYLOR; Jim Thompson; Larry & Cheryl Taylor; Mark Easley; Mark Etheridge; Mark Hoekstra; Mike Cohen; Mike Gravitt; Nikki Heimaster; Nikki Kniss; Pam Cummins; Paul and Torrey; Rachael Cummins; Richard Seaton; Roger Ball; Sarah Cummins; Shad Bodenstadt; Suzi & Wayne Milburn; Terra Smithey; Terry McClain; Tracy Tunnell; Troy Buchanan; Tony Olsen; Tom McCoy; Stuart Chambers; Steve Stovey; Steve Castle; Steve Bailey; Shaun Gabriels; Ryan Opeka; Ron Reckrodt; Rod Rhoads; Rocky Castellini; Rick J Gruba; Richard Ray; Randy Brown; Patrick Tackitt; Owen Beitner; Nick Spoon Petersen; Nick Barnett; Mike Turner; Mike Roark; Mike Gilchrist; Mike @ Cookie Gilchrist; Michael Smith; Michael Dohrn; Meghan Voeltner; Mark Buckman; Mark Brogdon; Larry Middlebrook; Kevin Cummins; Justin "roll it" Gravatt; John Soto; Joel Raguindin; Jim Ponder; Jim Knorr; Jeff Ervin; Jason Cummins; Greg @ Debbie Dagher; Gary Logan; Gar Parrott; Fritz "Gunther" Renner; Frank Woolrich; Duane Tackitt; Dorothy Minor; Donny Tunnell; Dk; David Fischer; Danny Smith; Curt Schlumpberger; Craig Conley; Cory Gruba; Charlie Cassens; Charles Cummins; Burt Wiley; Buddy Harris; Bryan Voeltner; Brian Speidel; Brian Ollier; Bret Barrowclough; Bob Johnson; Bob Avery; Anson McDaniel; Andrew Tackitt; Amy Mundinger; Jim Thompson
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Thanks for your consideration,

Tracy L. Cummins
647 Bison Ct.
El Cajon, CA 92019
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e-mail. tcummins@mediacontrolsystems.com

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Reply To:	tcummins@mediacontrolsys.com
To:	Tracy Cummins; Aaron & Amy Mundinger; Al McDonald; Andy Buchanan; Dawn Powers; Eric & Christina Gage; Erich Smithey; Erin Beitner; George Beitner; Glynna Hoekstra; Jacquie Ramsey; Jeremy Clifton; Jerry Nichols; Jessica TAYLOR; Jim Thompson; Larry & Cheryl Taylor; Mark Easley; Mark Etheridge; Mark Hoekstra; Mike Cohen; Mike Gravitt; Nikki Heimaster; Nikki Kniss; Pam Cummins; Paul and Torrey; Rachael Cummins; Richard Seaton; Roger Ball; Sarah Cummins; Shad Bodenstadt; Suzi & Wayne Milburn; Terra Smithey; Terry McClain; Tracy Tunnell; Troy Buchanan; Tony Olsen; Tom McCoy; Stuart Chambers; Steve Stovey; Steve Castle; Steve Bailey; Shaun Gabriels; Ryan Opeka; Ron Reckrodt; Rod Rhoads; Rocky Castellini; Rick J Gruba; Richard Ray; Randy Brown; Patrick Tackitt; Owen Beitner; Nick Spoon Petersen; Nick Barnett; Mike Turner; Mike Roark; Mike Gilchrist; Mike @ Cookie Gilchrist; Michael Smith; Michael Dohrn; Meghan Voeltner; Mark Buckman; Mark Brogdon; Larry Middlebrook; Kevin Cummins; Justin \"roll it\" Gravatt; John Soto; Joel Raguindin; Jim Ponder; Jim Knorr; Jeff Ervin; Jason Cummins; Greg @ Debbie Dagher; Gary Logan; Gar Parrott; Fritz \"Gunther\" Renner; Frank Woolrich; Duane Tackitt; Dorothy Minor; Donny Tunnell; Dk; David Fischer; Danny Smith; Curt Schlumpberger; Craig Conley; Cory Gruba; Charlie Cassens; Charles Cummins; Burt Wiley; Buddy Harris; Bryan Voeltner; Brian Speidel; Brian Ollier; Bret Barrowclough; Bob Johnson; Bob Avery; Anson McDaniel; Andrew Tackitt; Amy Mundinger; Jim Thompson
Cc:	Carrie Simmons; BLM Ramp Comments
Subject:	BLM RAMP Meeting
Date:	04/15/2010 12:21 PM
Attachments:	RAMP Alternative 1.pdf RAMP Alternative 7.pdf RAMP Alternative 8.pdf

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Hey Desert Rats,
If you get this twice sorry, that just means your really popular and/or on 2 of my favorite people lists.

Several of us attended the BLM meeting Tuesday in San Diego and this is my own observation for what it is worth:

For starters the BLM representatives were very helpful and made every attempt to make sure everyone in attendance was able to voice their concerns and I believe everyone that wanted to speak did. My hats off to them for listening to us! The BLM's job here is to come up with a plan to meet the requirements set forth by fish and game. I wish Fish and Game would have been there!
The BLM has outlined 8 alternatives for OHV access to the ISDRA, they pretty much have already decided to recommend alternative 8 which I have attached a copy of. This is the plan they feel they can get fish and game to buy into to satisfy the PMV requirements! Keep in mind, if the PMV were to be de-listed none of this would be needed. Grant it, they are recommending opening up a lot more acreage for OHV's but it sure screws up access to the dunes if you camp in dune buggy flats! The valley between dune highway and the dunes would be off limits. To dune you would need to head east toward test then run the dunes north through the middle or from the east side of the dunes. I could see lots of campers moving to the east side of the ISDRA if this occurs. Also in this proposal they would close dune buggy flats entirely for camping if rain fall thresholds are met in any given rainy season until it dried out. Based on rain fall totals over the past 10 years this would have closed dune buggy flats for camping less than 5 times I believe, don't quote me this though. Alternative 8 might be acceptable if they were to provide more access corridors through the closure areas and dump the dune buggy flats camping closure all together. The best alternative in my opinion would be alternative 1 or 7 which I have also attached a map of. All other alternatives pretty much just suck! Alternative 1 opens up the entire south dunes but closes more of the north dunes (BLM does not feel this alternative satisfies fish and game requirements, alternative 7 keeps a strip closure north of Patton Valley between dune highway and the dunes but opens up everything else and keeps the north dunes open I think this could be a better alternative to 1 or 8 even if they added some additional closures in the north dunes as seen on alternative 8 because it seems to build a buffer zone around the PMV they are so desperately trying to protect. Alternative 8 would be bad since it would create 2 corridors between dune buggy flats and the dunes that would become OHV superhighways accessing the dunes. I'm sure we can all imagine the huge safety issues this would create. I'm sure we are looking at 2 to 3 years before something like this could get implemented so we will more than likely be status quo until then. In the mean time I would suggest you send your comments to the BLM! I have copied this e-mail to Carrie Simmons (Carrie_Simmons@blm.gov) and the e-mail address the BLM has provided for ISDRA RAMP comments (caisdrmp@ca.blm.gov)

Send your comments to the BLM and support the ASA, the sign up link is below and you will get up to date info as it is released.

http://www.americansandassociation.org/P11f06v.php

Banzai!

Tracy L. Cummins
Media Control Systems
1050 Pioneer Way Suite Q
El Cajon, CA 92020
Ph. 619-599-1050
Fax. 619-599-1051
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Subject:	ISDRA RAMP Comments
Date:	04/15/2010 03:32 PM

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Ph. 619-588-1850
e-mail. tcummins@mediacontrolsystems.com

From:	Douglas Holbert
To:	caisdrmp@ca.blm.gov
Subject:	DRAFTs of Recreation Plan & Enviornmental Statement
Date:	04/13/2010 01:39 PM

I would appreciate the CD-ROM.

Thank you.

Douglas Holbert
2828 West Cindy Lou Lane
Yuima, Arizona 85365-8040

April 13, 2010

Dear Honorable Committee Members

My name is John Gunnar Box a native Californian. You may find it interesting that I too am a federal employee. I am proud to say that I was appointed by the President of the United States to serve this great country. Although I have great honor working for the President, today I am speaking as an individual.

First of all, I would like to applaud this committee for the tremendous amount of work accomplished.

I am here before you today to "beg" for your understanding and response with regard to the Imperial Sand Dunes. I have been enjoying and respecting the Imperial Sand Dunes with friends and family for over 25 years. The majority of the people you are trying to restrict are just like you and I. They are "good people" with pride and joy that are trying to raise quality families in a chaotic world. The family values that this country once took for granite are also "endangered" and should also be protected.

First of all, I am not an expert regarding the issues that are before this committee. With that said I have a few questions and concerns? It seems that the current should be considered:

Peirson's Milk Vetch Preservation (PMV)
If the PMV plant is the vital reason for changing the use of Imperial Sand Dunes, I would like to recommend that this commission accept research that may allow the PMV to be transplanted and flourish in areas that are not populated. With that said, as I understand even with the ohv use in the past 25 years the PMV's population still has not been affected. Have members of this commission actually been to the Imperial Sand Dunes to see the large number of plants growing in open and closure areas? Reference information can be found in study conducted by the U.S. Fish and Wildlife Service that less then 1% of the PMV open area are affected by OHV's.

Economic Impact
Also, please don't underestimate the economic impact of changes proposed? If I am correct in the amount of money that is spent by this group, it is approximately 10 billion dollars annually. And the money is spent nationwide across various industries from raw materials to finished goods and services. As I understand, President Obama and his administration are trying hard to get this economy moving. It would be counter productive to choose an independent path.

I have a couple more questions?

- Does the Endangered Species Act provide for the proposed "Extra Ordinary Protection" within the Act?
    - And is there scientific support for the proposed closures for any reason?
- Finally, will additional camping areas be provided to offset any proposed closures?

Based on facts that you have before you it is clear that the OHV are not impacting the survival of PMV and that OHV are increasing in numbers nationwide. Therefore I would ask that this committee further explore a plan to allow more people not less to access the Imperial Sand Dunes for cultural and economic reasons.

In closing, I challenge this committee to pursue a democratic decision process by responding to the majority that is before you today.

Respectfully yours,

John Gunnar Box
159 Oldenburg Lane
Norco, CA 92860
714-496-3588
johngunnarbox@gmail.com

From: CGutierrez
To: caisdrmp@ca.blm.gov
Subject: RE: ISDRA-Ramp
Date: 04/12/2010 04:43 PM

Erin,
I am unfortunately not going to make any of the meetings this week. We are going through some budgetary issues with our entities and it requires me to be here for some of the issues. I would like to know if I can get some of the information from you that will be presented, if possible. I would greatly appreciate that from BLM. I am almost completed with the two volumes of the draft and am very interested in being included in the process. Thanks for your help.

-----Original Message-----
From: Erin_Dreyfuss@ca.blm.gov [mailto:Erin_Dreyfuss@ca.blm.gov] On Behalf Of caisdrmp@ca.blm.gov
Sent: Tuesday, March 30, 2010 11:02 AM
To: CGutierrez
Subject: Re: ISDRA-Ramp

Thank you Charles -

http://www.blm.gov/ca/st/en/info/newsroom/2010/march/CDD45_ISDRA_RAMP.html

Try this link for a news release announcing the public meeting dates and locations.

Erin Dreyfuss
Environmental Protection Specialist
Bureau of Land Management
California State Office
2800 Cottage Way, Suite W-1834
Sacramento, CA 95825
Office: (916) 978-4642
Fax: (916) 978-4657

CGutierrez <cgutierrez@ympo.org>
03/30/2010 08:45 AM

To: "caisdrmp@ca.blm.gov" <caisdrmp@ca.blm.gov>
cc:
Subject: ISDRA-Ramp

To Whom it May Concern,
I am the Representative from Yuma Metropolitan Planning Organization (YMPO) in Yuma, AZ. I received the Draft Plan Copies and I will review them. If there is a meeting anytime soon please advise me.
Thanks

Side note: I am an avid user of the Dunes. Thanks!

Charles A. Gutierrez
Traffic Data Management Supervisor
Yuma Metropolitan Planning Organization
502 S. Orange Ave
Yuma, AZ 85364
928-783-8911

cgutierrez@ympo.org

ympo.org

From: Gil.Tapia@aps.com
To: caisdrmp@ca.blm.gov
Subject: RAMP
Date: 04/10/2010 02:43 PM

Unfortunately I am not available for the meeting here in Phoenix, but would like to add a few comments in regards to the proposal. Currently the Imperial sand dunes is one of the largest recreational areas in the nation of its type. This area generates a revenue stream not only for the city, county, and state, but also for independent citizens. The ideal goal is for all to enjoy the land, not for one group or entity to dictate who can do what on said land. Proposal one would be great, but to be realistic the proposal 7 and 8 would be the most likely options. I say this not because I agree with the proposals (7&8), but that would most likely be the best alternative to all groups involved. I do feel that the off road community has lost a great deal in the area and continues to lose more as time goes on. I do understand that self inflicted perceptions aid in that greatly and unfortunately we cannot all be responsible participants in the area.

I do notice that some key wording is involved in some of the proposals such as "close under certain conditions" that is a very broad term. This would leave one to speculation on what those conditions are. Also, the previous study indicated that only <.1% of the PMV are damaged by OHV. Why the push for additional closures? Do the utilities desire this spot for use? If so, is the land cheaper for the utilities? Does the State or Federal Govt benefit from a utility lease or purchase?

I myself work for a utility in Arizona, and in this area there is an enormous amount of space available for such utility projects. The most recent area is in Gila Bend, AZ.

The bottom line is that in today's world, more and more areas are being shut down, over regulated and it is all done with what appears to be legitimate reasons. Time and time again we have seen those reasons go to the way side for personal gain or personal satisfaction.

Thank you
Gil Tapia

From: kim bauer
To: caisdrmp@ca.blm.gov
Subject:
Date: 04/09/2010 03:45 PM

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with all the proposed energy development any more degradation of the desert eco-systems is a bad idea and my comment is that this is negative.

From:	Tom Hedrick
To:	caisdrmp@ca.blm.gov
Subject:	Glamis Dunes
Date:	04/06/2010 05:50 AM

My family and I have been enjoying Glamis for over 10 years; please do not take our dunes away.

Thank you,
Tom Hedrick
909-754-2182

From: mshevlin@cox.net
To: caisdrmp@ca.blm.gov
Cc: asaboard@americansandassociation.org
Subject: Comments on the 2010 Imperial Sand Dunes Recreation Area Management Plan
Date: 04/05/2010 10:55 PM

2010 Imperial Sand Dunes Recreation Area Management Plan Review

After reviewing the plan, I was impressed by the level of work that went into the plan. There seems to be a lot of detail in the plan. I have the following comments.

1) As an avid off-roader, I like Alternative 1, going back to the open space that existed prior to the temporary closures. Barring some sort of miracle, I don't think that will happen. So, I feel that Alternatives 1 and 2 should be the bookends or extremes, and that the final plan should be somewhere in between them.
I am greatly against Alternative 3, it closes too much of the dunes.
I like some aspects of Alternatives 4, 5, 7 and 8 in that they allow the center dunes to be open from Glamis to Gordons. Please keep this in the final plan.
I cannot support Alternative 8 as the preferred one because the closure requirement due to rain is too extreme. Closing the Dunebuggy Flats campground from January 15 to June 30 would greatly impact many people. In the south dunes, there are not many camping alternatives. If Gordons Well were closed, Buttercup would be overrun and Ogilby is too far from the dunes to have much fun. Many people might also divert to Glamis for camping during the closure, which is too crowded already. Also, it appears that the closed area in Alternative 8 is positioned between where people camp at Dunebuggy Flats campground and the dunes. How will people access the dunes? Will there be defined paths to go through, like there is from the sand freeway to Patton Valley?
In summary, I am OK with Alternative 8 without the closure due to rain of Dunebuggy Flats campground and some sort of access from Dunebuggy Flats campground through the closed portion to the dunes.

2) Table 4-4, ESTIMATED INCREMENTAL CHANGE IN CO2 EMISSIONS DUE TO OHV ACTIVITY, in section 4.2.4 is very misleading and may not be correct. I would estimate that the same number of people would go to the dunes no matter which alternative is selected. That would mean that the CO2 levels for the duners would not vary much for each alternative. The big difference then must be with the gravel mining; locatables mining, including gold and silver, which for some reason are also included in the table. These seem un-related to OHV as we think of it.

3) The Recreation and Public Purposes (R&PP) Act of June 14, 1926, as amended (43 USC 869 et seq.), is used primarily for providing land to fulfill the need for public services (parks, monuments, schools, community buildings, hospitals, sanitary landfills) due to urban expansion. The 1954 Revision of the R&PP authorizes the lease and/or conveyance of BLM-administered lands for recreational or public purposes to state and local governments and to qualified nonprofit organizations under specified conditions at less than the fair market value. Has any state, local government or qualified nonprofit organization approached the BLM to get the land? I have reviewed other cases under this act in which the BLM conveys the land to another organization and it appears this approach may be feasible.

Thank you for reviewing my comments.

Michael Shevlin

From: Daniel Thompson
To: caisdrmp@ca.blm.gov
Subject: RAMP
Date: 04/02/2010 07:13 AM

To whom this may concern-

My Name is Daniel Thompson. I have been traveling to the state of California 3-8 times a year for The past 25 years to ride in the Imperial sand dunes with my family and friends. The reason for my E-mail
Is to just state how special of a place this is to me and my family. I really wish I could put into words the feeling
that I get riding in the sand on a late afternoon, when all the stress of work and the busyness of life disappear.
The confidence and that my son has built going and riding, and the talks around the fire after a long days ride.

There is a lot of things endangered out there the least of them are plants. Please give the ISDRA back to the people.
It will be preserved by myself and many others who take care of the things we love. People who don't ride through
plants and other such wild life. People who pick-up trash not only in are camp but all-around the ISDRA. Law abiding citizens
such as myself. In regards of the RAMP please look the big picture. look at how much is closed right now, too close more
would be unjust to the off-road enthusiast. I do understand something's need to preserved but there needs to be a
balance.

In closing Thanks for your time and I will leave you with this. A friend and riding partner of mine once told me

"Out Riding the dunes is proof that God wanted us to strap on a helmet and go "

Daniel Thompson

From: Kenny
To: caisdrmp@ca.blm.gov
Subject: Fw: Imperial Sand Dunes
Date: 04/22/2010 01:09 PM

What is going on ?? You stated in your meeting that "where there was no OHV activity, there were less concentration of PMV". Doesn't this tell you something??? Why are we even addressing this. I know the CBD keep suing over this issue, but with the economy in shambles, what better time then now to expose these people for what they are, LAWYERS who can't make it in the REAL world. We, as responsible users of OUR land, have been quiet for to long, and now we need to be given the same respect that you have shown, or should I say been extorted via litigation, by these EXTREME Environmentalist groups. The studies are in. The plant thrives, when there is water. The Dunes are the Dunes for a reason, THERE'S NO WATER (as in the words of the late Sam Kenason). Why not get the networks involved in this. I know I plan to send letters to the big three and the Fox network. In talking to other people, users and non, they are at a loss as to why we are wasting our tax resources over this issue, when there is really no environmental impact. I am also a member of the COD, just so I can keep an eye on what they're up to. If you look at their latest "venture", it's unreal. In closing, I would like for you to consider re-opening up the closed area's, using "good science" as the basis of your decision.
Thank You
Ken Harayda
Tucson, Az.

"Help keep the Public, in Public Lands"

From:	Carmickle, Gene
To:	caisdrmp@ca.blm.gov
Subject:	DRAMP 2010 Comments
Date:	05/17/2010 04:27 PM
Importance:	High
Attachments:	DRAMP2010.doc My Alt 8 Map Suggestions.pdf

Carrie

Attached are my comments and a map.

Thx

Gene

June 3, 2010

RAMP Team Lead
1661 South 4th Street
El Centro, CA 92243

Subject:

Comments on the March 2010 Draft Recreation Area Management Plan and Draft Environmental Impact Statement

Richard Holliday
13667 Jordan Ct.
Rancho Cucamonga, CA 91739-2030

To preference my comments I would like to address two overriding issues that seem prevalent throughout the DRAMP/EIS document. These are a lack of consistency and a lack of scientific support for some elements of your alternatives. For example in your decisions to close certain areas to camping you show an inconsistency from one alternative to another without any scientific documentation to support the closures of these traditional camping areas. These areas have been open to camping since this area has been populated by humans so to now recommend a restriction on camping in these areas needs some scientific data to support such a closure at this point in time. It would seem that if there is the necessity to close these areas to camping in one alternative that this same necessity should be in all alternatives. The overriding issue with this plan is the protection of a listed species so if it is required to close an area to camping in one alternative to protect the plant if would seem that this protection should appear in all alternatives. Likewise the inconsistent suggested restrictions on recreation need to have a basis in science to support these restrictions on recreation activities that have been occurring in this area since the invention of motorized vehicles. Some of these areas have been temporally closed for the last 10 years but some of the proposed closed areas are currently available to recreation.

What is the scientific reason to now suggest that these areas be closed to recreation?

Another area of inconsistency is the inclusion or prohibition of renewable energy development. In some alternatives renewable development is allowed, in others prohibited and in still others there is hybrid approach to this development. If your intent was to be politically correct (PC) than you should have a consistent approach to this development. Either support development everywhere or not allow development anywhere and have a defensible position for whatever position you select. But this all over the place, PC solution is not defendable either in logic or scientific documentation. We all know that there will never be renewable development the 26,000 acre wilderness area so in reality renewable development should be prohibited, in all your alternatives, in the recreation areas of the Imperial Sand

Dunes Recreation Area (ISDRA) as well. This would be a logical approach that is not supported by any science but may be defendable by logic. (Unfortunately the use of logic may now be a lost human ability.)

In regard to supporting any one of the 8 alternatives presented it seems that only alternative 1 complies with the requirement to select an alternative that is supported with currently available science. As there is no science to determine what an acceptable number of PMV plants is normal, it seems that more thorough monitoring needs to be completed to determine what is a normal level for this plant. Once a normal amount of plants for any give precipitation level is known then a determination of what will be required to sustain this normal level can be developed. This plant has been around for thousands of years and yet we have no science to tell us whether humans have affected the viability of this plant or not. We have a 26.000 acre wilderness area that has not seen a motorized vehicle for over 38 years yet the PMV in this wilderness area is no more prolific than in the areas where motorized vehicle activity has continued to occur so it would seem that much more scientific monitoring needs to be done to generate a better understanding of what is a normal level of occurrence of this species.

Following are my comments on individual sections of the DRAMP/EIS but I would hope that the final document would have the preferred alternative supported by logical and consistent decisions supported with sound scientific data.

Comments on the ISD Draft RAMP and DEIS

- This draft document does not include all the available documentation on the status of the *Astragalus magdalenae var. peirsonii (PMV).* All the available scientific documents about the PMV should be included in this RAMP, as the primary restrictions on recreation proposed in this document is based on the presence of the PMV in the recreation area. Therefore ALL pertinent information that has been published on the PMV must be included to allow the public to make an informed decision on the validly of the claims and on BLM's proposed restrictions on recreation.

- The RAMP proposes to restrict camping in Dunebuggy Flats when a certain rainfall threshold is met, presumably to provide additional protection for the PMV. However, neither the camping closure nor the rain threshold which would trigger it are supported by technical studies or related scientific data. A proposed camping restriction of this magnitude must have some scientific basis before it can be considered for adoption and implementation. For example, BLM must demonstrate why it believes the proposed rainfall threshold is correlated to increased PMV production. Likewise, BLM must demonstrate why it believes the proposed camping restriction is needed during these rain events to ensure PMV reproductive success. So far, no such demonstration has been made. As a result, the proposed camping closure in Dunebuggy Flats should be removed from consideration.

- If there is the requirement to restrict the camping area that is used by approximately 25% of the ISD visitors then there needs to be some alternate accommodations to absorb an increase in visitation in other ISD areas. I would suggest that additional camping pads be constructed in the Buttercup area and along Gecko road to provide increase hard surface camping areas. The cost of these additional camping facilities should not be borne by the visitors to the recreation area. Just as species monitoring is prohibited from using visitor fee revenues any requirement for mitigation due to species related closures should not come from visitor fee revenue but should come from BLM appropriated funds.

- The RAMP proposes to eliminate camping on the east side of the ISDRA from Wash 25 to Wash 69 in the preferred alternative 8. According to the DRAMP, this closure is necessary to protect the microphyll woodland habitat that exists in this area. While I recognize the value in protecting this important habitat type, the proposed camping closure is too large and not supported by technical scientific evidence. Specifically, there is no data showing that camping in the microphyll woodland has damaged the habitat or otherwise affected the species that use or reside in the habitat. The only evidence provided in support of the proposed closure is the PRBO Bird Study, attached as Appendix O to the RAMP. This study did not address camping impact; instead, it focused exclusively on OHV-related impacts. In addition, the Bird Study, by its own admission, is fraught with methodological defects. (See discussion of Appendix O, below.) Moreover, the study's authors acknowledge that, although the microphyll woodland in the open area is not as dense as that in Wilderness Area, it nevertheless supports a great many birds species and is considered high value habitat, even with continued recreational use. The study also determined that the microphyll woodland in the Wilderness Area contained an unusually high number of birds, a finding which, according to the study's authors, may have been caused by surveyor error. For these reasons, it is unfair and scientifically misleading to suggest that the microphyll woodlands in the open area have somehow been damaged by recreational uses. In light of these things, it would seem that restricting camping from Wash 40 to Wash 69 would be sufficient to achieve the desired protection for that area if scientific data can show this is required. There currently is no valid scientific data to support such the closure proposed in Alternative 8 of the RAMP. Please provide any relevant peer reviewed scientific data that would support such a closure. If no such data exists, the proposed camping closure at Washes 25 through 69 should be eliminated from further consideration.

- In the Mammoth Wash area, the closure of critical habitat (CH) to OHVs will result in a barrier between the east and west side of the open areas, increasing the chance of incursions into the CH. To address this problem, BLM should establish two or three vehicle paths or corridors through this CH area to allow vehicles to travel between the east and west open areas. Without designated connecting corridors, OHVs may travel through the CH areas at many different locations, potentially affecting PMV recovery efforts. A designated corridor, by contrast, will become the preferred route, sharply reducing unauthorized incursions into CH.

- In the south dunes adjacent to the Dunebuggy Flats campground, the CH creates a barrier between the Sand Highway on the west and the open area on the east. This barrier may result in incursions through the CH. As in the Mammoth Wash area discussed above, this problem could be eliminated by establishing a couple of travel corridors through this CH area at selected locations. These will allow for vehicle connections between the sand highway and the east open area. In addition, the travel corridors would permit emergency vehicles to access the open areas. Without designated connecting corridors, OHVs may travel through the CH areas at many different locations, potentially affecting PMV recovery efforts. A designated corridor, by contrast, will become the preferred route, sharply reducing unauthorized incursions into CH.

- A system of fee collection that is Federal Lands Recreation Enhancement Act (FLREA) compliant should be implemented. The Individual Special Recreation Permit (ISRP) fee should be charged so those visitors that are actually using the recreation area for motorized recreation. This can be accomplished by charging a fee to each vehicle that is used off road at the recreation area. This is the method of fee collection that is used at some other BLM OHV areas and is not without precedent.

Comments on specific sections of the DRAMP

Abstract

In the abstract the BLM tries to explain the differences with the various alternatives however this explanation of the alternatives seem to be at odds to the actual intent of the restrictions that are included in each alternative. For instance the following statement seems to say that alternative 3 "*places emphasis on preservation*" however it does not include any prohibition on camping in the Microphyll Woodlands area but does restrict OHV operation in the Microphyll Woodland area yet in

Alternative 8, the preferred alternative there is a prohibition on camping but not on OHV operations. This dichotomy seems at odds to the description of the alternatives described in the abstract.

Page ES-7 Table ES-1

Please explain the differences for the restrictions or non-restrictions on solar and wind renewable energy development.

Why in one alternative would the development of these renewable resources be compatible with the BLM Mission of managing the land and yet not be compatible in other alternatives?

The practice of picking and choosing restrictions without any scientific data seems to be prevalent throughout this document.

These seemly arbitrary inclusions of restrictions or the absence of the same restrictions on renewable energy development, camping restrictions and other items seem to have no basis in any scientific documentation or peer reviewed studies.

Page 1-2 Section 1.1.1

According to the RAMP/EIS, "*BLM seeks to provide a comprehensive management plan to . . . manage the Planning Area for recovery and delisting of the Peirson's milk-vetch (PMV; Astragalus magdalenae var. peirsonii)* ……". However, the RAMP/EIS does not explain what constitutes "recovery" of the PMV. As there is no "Recovery Plan" for this species, BLM and the United States Fish and Wildlife Service (FWS) should articulate some criteria which, if met, would indicate that the PMV has recovered and may be considered for delisting.

To the extent that BLM or FWS have identified recovery criteria for the PMV, please identify the technical data from which these criteria were derived.

There are many references in this document to the necessity of closing the PMV CH to allow for the "recovery" of the PMV. I believe that all references to recovery should be removed from this document as there is no recovery plan or metric that defines what constitutes a recovery of this plant. There is not even any data to support what a normal or acceptable level of PMV plant production is. Without a defined set of criteria and metrics on what constitutes recovery there should not be a closure of any public recreation land until such a plan is produced. Again if the BLM has such a plan it needs to be included in this document as justification for the closing of the public's recreation area.

There is no Environmental Species Act (ESA) requirement to close areas that the FWS has designated as CH for the PMV. Therefore, the RAMP/EIS must provide a rationale for closing all PMV CH to recreational use. That is, BLM must explain why the closures are necessary to the conservation and recovery of the species. Again if there is no scientific data to determine if such a closure of the existing

CH will in fact allow the BLM to "*manage the Planning Area for recovery and delisting of the Peirson's milk-vetch*" then there should be no justification for closing any recreation areas until such peer reviewed scientific documentation is available.

Page 1-3 Section 1.2

The BLM states "*Although not a part of the ISD SRMA, this Limited Use Area ERMA is included as a part of the Planning Area*."

If the ERMA around the ISDRA is governed by the NECO RMP, which route designation will hold sway, the NECO designation or the one proposed in the RAMP? The legal route designations for the NECO area include the travel in navigable washes and the ability to camp within 300 feet of the centerline of a designated route in the limited use areas of the NECO plan. Will these rights and restrictions be honored in the ISD RAMP?

Will BLM be required to amend the NECO plan to ensure consistency with the ISD RAMP?

What authority does one need to change a current plan designation? It seems that there could be a conflict between these two California Desert Conservation Area Plan amendments.

Please explain if the navigable washes in this area will continue to be available for OHV use? Also will camping still be available within 300 feet of legal routes in this area?

The reference to the requirement for a permit to recreate in the ISD SRMA and Limited Use Area ERMA needs to be referenced to the CDCA plan that authorizes the collection of these fees. The NECO CDCA plan, in which some of the ERMA is located, does not require a fee for recreation. The fee description should reference the Federal Lands Recreation Enhancement Act (FLREA) section that allows fees to be collected in the CDCA NECO planning area.

Also as it is legal to recreate in the NECO without the requirement to pay a recreation fee please explain how visitors that are not recreating at the ISD SRMA will be excluded from the requirement to pay the ISD SRMA recreation fee.

Please explain why on **page 1-13 (Section 1.5.1.8 referenced below)** that the designation for the ERMA of the WECO area that overlaps the ISD planning area is being kept as designated but the ERMA for the NECO area that overlaps the planning area is being changed.

"The WECO planning area overlaps the ISD Planning Area—the western portion between the SRMA boundary and the Planning Area boundary (i.e., the western ERMA). When approved, the ISD RAMP will maintain the WECO plan decisions in the overlap area."

Page 1-4 Section 1.3.1 Public Scoping

As part of the requirement for preparation of this document public scoping meetings were held three locations.

Please explain why the Los Angeles and Inland Empire area were not included in these scoping meetings? The Los Angeles and Inland Empire areas contains a large percentage of the ISD visitors. There are many more ISD visitors located in the Los Angeles and Inland Empire area than there are in the El Centro area. While the three locations where meetings were held are certainly areas of interest the BLM should also make available this scoping opportunity to the visitors from the Los Angeles and Inland Empire areas. An area that contains a large number of interested ISD visitors.

The BLM also did not make available the opportunity for a public meeting, where comments could be made about this plan to the Los Angeles and Inland Empire area visitors.

This omission seems to have prevented a large segment of the ISD visitors from participating in the scoping and informational meetings associated with the preparation and commenting on this DRAMP/EIS.

Page 1-10 Table 1-2

I question the designation of Dunebuggy Flats and the Ogilby areas as Class L (limited use).

These areas have usage as intensive as the Glamis area and more fit the definition of Class M or Class I. Also the designation of Mammoth Wash area as Class I seem to be incorrect as this area should be designated as Class M. The designation of the Glamis area as class M and Mammoth Wash as class I just do not make sense.

Please describe in detail the rationale for these designations.

Page 1-14 Section 1.5.1.10 New Information

In the bullet item at the bottom of page 1-14 there is the statement *"See above discussion in Section 1.3.6 related to critical habitat."* Unfortunately there is no Section 1.3.6.

Please either remove the reference to this missing discussion or add a section 1.3.6 .

Page 1-15 Section 1.6

"The BLM will strive to provide a world class recreational experience, while aiding in the recovery of listed species."

Please explain in more detail how the BLM will aid in the recovery of listed species when there is no published criterion for recovery?

If the BLM has a recovery criteria please add this to the document otherwise do not say you are working toward recovery when there is no approved recovery plan, metric or criteria to ascertain when this species has recovered or is declining.

There are additional studies and data on the abundance of the PMV that have not been included in this document. Below is a comment on the requirement to include de all available documentation associated with the status of the PMV as this is the basis for most of this planning document and as such should contain ALL data referencing the status of the PMV.

- This draft document does not include all the available documentation on the status of the *Astragalus magdalenae var. peirsonii (PMV).* All the available scientific documents about the PMV should be included in this RAMP, as the primary restrictions on recreation proposed in this document is based on the presence of the PMV in the recreation area. Therefore ALL pertinent information that has been published on the PMV must be included to allow the public to make an informed decision on the validly of the claims and on BLM's proposed restrictions on recreation.

As will be addressed in subsequent comments, the bird study (Appendix "O") referenced in this section should not be included in this document or used as a basis for determining the suitability of restrictions of recreation opportunities due to the poor quality of the data used in this study. The authors mention in many places that they are suspect of the data quality and the methods used to collect this data. Therefore I would not characterize this as "New Information" and this study should be removed from the final ISD RAMP.

Page 2-3 Section 2.2

*"Decisions such as route designation and **vending area designation** are not planning-level decisions, but rather are implementation-level decisions. Individual routes will be designated as motorized, non-motorized, and unavailable."*

Please explain this statement. As I understand the vending rules at the ISD, the current restrictions on vendors were put in place through the 2003 RAMP. The conventional wisdom is that these rules cannot be changed by local BLM management because they are part of the 2003 RAMP. Is the statement above changing this assumption to say that now "vendor area designation" will be a local implementation based decision?

The local BLM office says they can't change any of the current restrictions on vendors because the rules were defined in the 2003 RAMP.

Does the above statement now imply that changes to the vending rules and regulations at the ISD can now be done on a local level by the local managers?

Page 2-12 Section 2.3.5.1.2 Management Actions Common to All Alternatives

In the second bullet on this page is a statement to track the condition of "Special Status Species" with a reference to Appendix E. In my copy of this DRAMP Volume 2 it has Appendix E as "Rainfall Threshold Rationale".

The reference should be redirected to Table 3-6 on Page 3-34 for a listing of the current BLM listed "Special Status Species".

Page 2-14 Table 2-1

This table needs more information on the scientific basis for making these choices.

For example, what data is used to exclude the microphyll woodlands from OHV use only in alternatives 3, 4 and 5 but allow microphyll woodlands OHV use in alternatives 2, 6, 7 and the preferred alternative 8? Likewise please provide the scientific data that would support the closure to camping in the microphyll woodlands in the preferred alternative 8 but allow camping in this same area in all the other alternatives.

What makes camping in the microphyll woodlands acceptable in all alternatives except alternative 8?

By the same token what makes camping in the microphyll woodlands unacceptable in alternative 8 but acceptable in all other alternatives?

This table also shows that that alternative 8 is not listed for *"Open a portion of microphyll woodlands south of Wash 20 to OHV recreation" where* on map 2-26 it shows this area as "Open to OHV use - No Camping". Please explain the difference in the designation of this area as far as OHV use is concerned.

As there is a reference (in table 2-1) to opening the area from Wash 25 to Wash 69 to OHV use for alternative 8 please explain what the status of the microphyll woodlands between wash 20 and wash 25 will be in the preferred alternative as to OHV use in this area.

Page 2-26 Section 2.3.7.1.1 Goals and Objectives

"Maintain, enhance, and restore habitats for the survival and recovery of species listed under the ESA and to prevent proposed or candidate species from becoming listed as endangered or threatened under

the ESA. ***Perform management actions that contribute to recovery and delisting of species listed under the ESA****."*

This statement again goes to the goal of recovery and delisting of listed species in the ISD SRMA. As there is no recovery plan for the PMV how is this goal and objective ever to be carried out? Simply restricting OHV use in critical habitat areas will not result in a delisting of the listed species without some criteria or metric that describes when the species is recovered. A better goal would be to consult with the FWS and generate a valid recovery criterion that has some metrics that can be used to gage the recovery strategy.

Please include the BLM's detailed plan for the recovery and delisting of the PMV in the final RAMP or remove all references to recovery and delisting from these documents.

Page 2-27 Table 2-4

This table seems to have some conflicting information on the camping restrictions for the Microphyll woodlands areas. This table shows that camping is allowed, in alternative 4 & 8, within designated areas of Mohave Desert tortoise habitat.

Is not the area designated as a camping closure from wash 25 to wash 69 in desert tortoise habitat?

There seems to be many conflicting items in this table.

This table also shows that in alternative 7 that the management actions of this recreation plan will "Open BLM sensitive species habitat to all motorized use". Is not the PMV a "BLM sensitive species" as described on page 3-32 under section 3.7 special Status species? The first sentence of this section states "*Special status species, as defined in BLM Manual 6840 (Special Status Species Management), include: 1)* ***species listed*** *or proposed for listing* ***under the ESA****; and 2) species requiring special management consideration to promote their conservation and reduce the likelihood and need for future listing under the ESA, which are* ***designated as BLM sensitive species****"*

It seems that in table 2-4 that you are saying that all areas of BLM sensitive species are open to motorized use but you are implying in Map 2-17 that there is a wide area that is closed to motorized use.

Please explain the contradictions between table 2-4 and map 2-17 in regards to the status of motorized use in "*Open BLM sensitive species habitat*".

Page 2-48 Table 2-9

Please explain the rationale for the differing allocations of areas that are or are not available for wind and solar energy development.

Is there some thoughtful reasoning behind these designations? It looks to be an arbitrary selection process.

Please detail the reasons for each of the designations in each alternative for either allowing or the prohibition of wind and solar energy development.

Page 2-50 Table 2-10

Please explain the rational for the differing allocations of areas that are or are not available for geothermal energy development.

Is there some thoughtful reasoning behind these designations? It looks to be an arbitrary selection process.

Please detail the reasons for each of the designations in each alternative for either allowing or the prohibition of geothermal energy development.

Page 2-59 Section 2.3.14.2 (last bullet item)

"Allow camping and OHV recreation within the Dunebuggy Flats Campground"

Why is Dunebuggy flats campground specified in this section for "General Management Actions Common to All Alternatives"?

If this statement is in here so should the statement to allow camping and OHV recreation in all the camping areas. I realize that is a special case for this area in alternative 8.

Please explain why this campground is specifically mentioned in this section.

Page 2-60 Section 2.3.14.3

"There would be only one SRMA designated within the Planning Area. The ISD SRMA encompasses 164,209 acres (including the North Algodones Dunes WA) of BLM-administered lands (Map 2-12). There is one ERMA within the Planning Area. The Limited Use Area ERMA extends beyond the SRMA boundary into the NECO and WECO planning areas. This planning effort will address impacts to the area one mile beyond and parallel to the ISD SRMA boundary, encompassing 50,722 acres of BLM-administered lands (Map 2-12)."

Please explain how this planning document can trump the approved NECO document?

Is a separate NEPA document required to change route designations in the NECO area?

Page 2-62 Section 2.3.14.3.2

Under "Recreation Niche" in the last paragraph on this page is a reference to "semi truck/trailer combinations" when addressing the vehicles that will be accommodated in these camping areas. As there have been several citations issued for the parking of and driving of semi trucks in these areas and

the driving of these large commercial vehicles on these BLM access roads will these vehicles now be legal to operate via this designation of this RAMP document?

Will the BLM be improving these roads to accommodate these larger vehicles?

These large vehicles, if allowed to operate on many of the BLM maintained roads, will cause considerable damage as the majority of these roads were not originally constructed to support the weight of these commercial vehicles.

Will this section trump the vehicle restrictions put on these roads by local BLM law enforcement?

Page 2-65 Section 2.3.14.3.2 (Limited RMZ)

"The Limited RMZ would be managed for its limited motorized recreational opportunities and for natural qualities. There are three potential types of limited opportunities in the RMZ. The Limited RMZ is also managed under the NECO and WECO plans where OHV travel is permitted on designated routes."

The RAMP must add navigable washes to the list of places where OHV travel is allowed in the limited use area of the NECO plan.

Page 2-67 Management Actions Common to All alternatives

In Bullet 10 you state to "Prohibit the burning of wood with non-combustible items (pallets)". While this is desirable rule or action this item needs to address all the items contained in the proposed supplementary rules that are currently working their way through the BLM system. This rule is not currently available for enforcement until the supplementary rule has been noticed in the federal register. If this RAMP can in fact designate rules that override or replace existing supplementary rules than the other aspects of the proposed supplemental rule needs to be included in this document. If the proposed supplementary rules take precedence over this document then this requirement should be removed from this document.

Page 2-68 Section 2.3.14.4 (Limited Areas)

This section quotes the CDCA plan, which allows camping within 300 feet of the centerline of a route in Limited Use areas. Does this CDCA camping policy apply to the Ted Kipf Imperial County road? If not, please explain why not?

Ted Kipf road is listed in Table 2-15 as a route of travel. As this area may see increased camping use with any periodic closure of the Dunebuggy Flats campground, the RAMP should clearly state that camping is allowed along this route.

Page 2-80-81 Section 2.3.16.1.2 Acquisition

"Currently, the BLM is actively acquiring flat-tailed horned lizard habitat as mitigation for impacts to lost habitat resulting from several projects, including the Arizona State Highway project, Drop 2 Water Reservoir, and the All-American Canal lining. Compensation monies are being used to make the purchases of lands from willing sellers. Sections of land, or portions thereof, in various stages of the acquisition process lie within the Planning Area."

Please identify where these lands are located in the planning area and where the funds for the purchase of these lands are coming from. If these lands are in OHV open areas are there any restrictions on recreation contained in the purchase of these lands as mitigation for the lost habitat for the FTHL?

Page 2.3.16.2.3 Communication Sites

I don't see the new Buttercup Ranger station listed as a communication site. Is this site now or in the future going to be a BLM communication site?

Are there any United States Border Patrol communication facilities that should be included in this section?

Page 3-107 Section 3.14.3 Special Recreation Permits

"Within the Planning Area, SRPs are required for OHV recreation and vendors. Recreationists may purchase their SRPs through various offsite vendors before they arrive, or they may choose to purchase from onsite vendors or BLM once they arrive at the Planning Area. One permit is needed per primary vehicle. A primary vehicle is any street-legal vehicle used for transportation to the recreation site. A permit is required immediately upon arrival to the Planning Area"

The requirement for each vehicle that enters the recreation area to have an Individual Special Recreation Permit (ISRP) is not a valid requirement under the Federal Lands Recreation Enhancement Act (FLREA).

16 USC 6802 (e) (2) prohibits the BLM from charging an entrance fee on any BLM managed lands. By requiring every vehicle that enters the recreation area to pay a fee for entrance, even for casual visitation, is not permitted by the FLREA. Please reference the FLREA section that allows the BLM to charge every vehicle that enters the recreation area an entrance fee.

Furthermore the area in the NECO area that overlaps the planning area does not require a FLREA ISRP for recreation in the NECO area if the visitor is not using the ISD for motorized recreation.

The term "Primary Vehicle" is not a valid FLREA term. And as such should not be used for the definition of a requirement for having an ISRP.

16 USC 6802 (h) defines the requirement for an SRP to compensate the BLM for the extra costs of providing motorized recreation on public lands and as such the ISRP fee should be collected from those visitors that are using the recreation area for motorized recreation and not casual visitation.

Page 3-123 Section 3.16.4 Withdrawals

This section states that the withdrawals in the planning area are illustrated on Map 3-10.

Perhaps the scale is too small to see the noted withdrawals on the map but I can't see where the withdrawals associated with the United States Bureau of Reclamation (USBR) canals of depicted on map 3-10.

Please supply a map that shows the all the withdrawals, including all USBR withdrawals, that affect the ISD.

Page 3-148 Section 3.18.4.3 On-Site Vendors

This section describes the on-site vendor situation as it is now. This current situation is a result of definitions contained in the 2003 RAMP.

Appendix C seems to list vending requirements but is described as “Typical Management Actions and Best Management Practices” however this seems to be just boiler plate and does not seem to be actual requirements.

The RAMP does not describe the requirements for on-site vending; nor does it address the concerns of the existing vendors which have been expressed to BLM over the last six years and provided to the BLM during the scoping phase of this documents preparation.

Does the RAMP itself regulate on-site vending or do the district managers delegate that regulatory authority, through the RAMP, to the local field office?

If the on-site vendor regulations are designated at the local district level, that fact should be disclosed in the RAMP document. On the other hand, if these on-site vendor regulations are designated by the RAMP, as was done in the 2003 RAMP document, then this RAMP should include a more detailed description of those regulations.

The vendor regulations that were put in place in the 2003 RAMP to address a concern from the local businesses that the seasonal vendors were taking business from the local businesses should not be an issue in the current environment. The local businesses have set up locations on their private property to allow for seasonal vending. This establishment of seasonal vending locations on private property negates the argument that the seasonal vendors on BLM land diminish the sales from the local businesses.

BLM should adjust the 2003 vendor regulations so that vendors on BLM land can occupy their concessions without having to move off-site each week. As an alternative, BLM could expand the full-time vending locations to include specific areas of Buttercup and Glamis Flats. This would be similar as the full-time locations at the intersection of Gecko Road and Highway 78, and would be assigned via a lottery system.

Page4-29 Section 4.7.2.1

This section has some interesting observations. The following statement, if accurate, seems to suggest that the simple act of walking in the dunes could result in "Adverse modification" of the habitat for the PMV. If this is the case then perhaps the wilderness area should also have a probation on hiking and equestrian use. I think that it is well documented that OHV use results in less than 1% damage to PMV in areas that are open to OHV use. This statistic is consistent for monitoring of PMV (Page H-2, H-3 and H-6) and Algodones Dunes Sunflower (Page H-4, Section A.2).

"OHV recreation or walking may disturb the sand surface and may result in increased evaporative water loss in the dunes (Porter et al. 2005) and reduced water availability to PMV. The impacts to PMV habitat from recreational activities would also include crushing of plants via OHV and other vehicle traffic. Occasional non-motorized (e.g., hiking, equestrian) use could also result in damage to individual plants."

Also this section comments on the adverse modification that renewable resource activities could impact on the PMV.

"Adverse modification of PMV critical habitat could result from construction activities (e.g., geothermal, wind, solar, recreation facilities) that destroy or adversely modify important habitat features."

If this is real concern than why is not the prohibition of renewable resources not included in all alternatives, especially the BLM preferred alternative 8 that would restrict camping at several locations, but allows renewable resource development in the whole ISD area?
Please explain how renewable energy development would be acceptable in the preferred alternative 8 but not in some of the other alternatives.

Page 4-30 Section 4.7.2.2

This section also addresses the impact on the Desert Tortoise from the effects of renewable energy development as well as OHV activity.

"Energy development sites result in direct and indirect loss of habitat, fragmentation of habitat and population, and increase access roads which can lead to direct mortality from vehicle use (Boarman 2002)."

If this is real concern then why is not the prohibition of renewable resources not included in all alternatives especially the BLM preferred alternative 8 that would restrict camping at several locations but allows renewable resource development in the whole ISD area? Some of the alternatives specifically support renewable energy development in Desert Tortoise habitat in the ERMA. How does this renewable energy development support co exist with the statement above that such development "*can lead to direct mortality from vehicle use"*?

Pages 4-32/4-34 Section 4.7.4.1.1

It seems in these sections that you are explaining which areas are available for renewable resource development but do not explain why you think one alternative is suitable for this development and yet another alternative area is not.

If there are going to adverse modifications to an area from this development, in one alternative, what keeps that same development from not having the same impact in another alternative?

You need to provide the rationale for allowing the same development in one alternative but not others. Without this explanation it looks that your inclusion or exclusion of renewable development is purely arbitrary.

Page 4-68 Section 4.14.1

Not to beat a dead horse here but again in this section you describe the impacts of your alternatives but do not explain any rationale for these decisions. The following statement is an example of describing the action but I don't see any reasonable explanation of why this action has been selected.

"Under Alternatives 1, 2, 4, 5, 6, and 7, camping would continue to be allowed within the microphyll woodlands between SR 78 and I-8, and within the Dunebuggy Flats campground. Under Alternative 3, there would be the potential for campgrounds in the Dunebuggy Flats and Gecko areas to be closed. Under Alternative 8, campgrounds south of Wash 25 and north of Wash 69, as well as the Dunebuggy Flats campground would be closed to camping but open to OHV use."

As this type of statement seem to be used throughout this document perhaps you could have one place where the rationale for these decisions, that have the same impacts but are being applied differently in each of the alternatives, could be explained. This would seem to be helpful in understanding your approach to minimizing these impacts.

Appendix D Page D-4 Table D-1

Vehicle Counters

Please explain why the vehicle counters at some locations were omitted from this analysis. There are vehicle counters at Glamis Flats, Osborne Overlook and Dunebuggy Flats that should be included in the monitoring of visitor use patterns. This is critical given that each of these three areas will likely see significant changes in visitorship following implementation of any camping closure at Dunebuggy Flats, as contemplated under Alternative 8. These locations are included on Page D-8 but are omitted from this table D-1.

Rainfall Monitoring

This table reflects that the BLM will be monitoring rainfall at *"Remote area weather stations located at Buttercup and Cahuilla Ranger stations".*

It would seem that as in your preferred alternative that you will be impacting recreational opportunities based on the rainfall monitoring that the BLM should install increased rainfall monitoring at the locations where this rainfall threshold is to be applied. As it is widely known that rainfall does not occur consistently across the entire dune area, the monitoring for the camping ban threshold should occur at

the location of the closed dune area to provide an accurate representation of the rainfall that will actually affect the area of PMV plants that you are trying to protect.

As you mention in another area that you plan to install additional rainfall monitoring (Appendix D, Page D-8 (*more weather stations are necessary to enable good interpretation of the monitoring data collected*)) would seem to acknowledge that you have insufficient resources to adequately monitor for your rainfall threshold that will trigger the camping closure proposed in Alternative 8.

This seems to acknowledge that you don't have the data to fairly impose a camping closure based on rainfall in the affected closure area. This has been an ongoing theme in my comments and that is you don't have the necessary historical monitoring data to adequately determine the success or failure of a camping closure to increase PMV viability and/or seed germination. Until such data is available no camping closure based on unsound or unproven criteria should be imposed.

Appendix D (Precipitation Monitoring)

At page D-8, this documents states that *"BLM would monitor rainfall to assess the likelihood of PMV germination, and to determine whether the rainfall threshold is met (1.82 inches of rainfall during the months of October, November and December) that would trigger the closure of the Dunebuggy Flats campground. The closure of the Dunebuggy Flats campground in high rainfall years would add an additional layer of protection to allow PMV to germinate and set seed, thereby aiding in recovery of the species."*

Nowhere, however, does the document explain the significance of the 1.82 inch rain threshold in terms of PMV germination or reproductive success. Likewise, the document does not explain why a camping closure, if imposed once the 1.82 rain threshold is met, will aid in the conservation and/or recovery of the PMV. Without such explanations, and without supporting technical scientific data, the proposed rain threshold and attendant camping closure are completely arbitrary and should not be included in your final preferred alternative.

If the intent is to have increased protection to the already closed CH areas perhaps increased law enforcement in these critical areas would be justified. The increased law enforcement costs could be paid for with the revenue that would have been lost by closing the campground area. Increased closure signage would go a long way to preventing the inadvertent incursions that this campground closure seems to be trying to prevent.

Please evaluate increased signage and law enforcement of closed CH areas rather than closing of recreation camping areas to provide your implied extra protection of the PMV.

Also please take into account that throughout this document almost all credible studies consistently show that less than one percent of monitored plants are damaged by OHV operation. This statistic is consistent for monitoring of PMV (Page H-2, H-3 and H-6) and Algodones Dunes Sunflower (Page H-4, Section A.2).

Data from other referenced studies show that many plants consistently show increased levels in areas open to OHV recreation. This has been shown in the BLM PMV monitoring and the Luckenbach and Bury report on page H-8. Quoting this report *"…what data were collected showed that PMV density and cover were actually higher in the OHV area than in the closed area…"*

It seems that neither the BLM nor FWS can explain why these plants seem to do better in areas open to OHV than in areas closed to OHV recreation.

Data such as this would question the advisability and need to restrict camping in areas adjacent to the proposed closed areas.

Perhaps that with increased monitoring you may find that the PMV density could actually be improved by allowing OHV activity in these areas of CH. It seems that most studies show that PMV density is higher in open areas than in closed areas would support not closing any areas at this time.

Page D-6 Peirson's Milk-vetch Monitoring

In this section you attempt to define the methodology for the monitoring of the occurrence of PMV plants. While this approach may satisfy the need for counting plants it does nothing to evaluate the effect of rainfall on the occurrence of this plant.

It would be preferable to have a consistent monitoring approach that would allow the FWS and the BLM to have accurate and consistent data and be able to correlate the effects of rainfall on the number of PMV plants. By only looking at years that have above average rainfall will produce skewed results and not allow the BLM and FWS to have accurate data that could actually tell them when the plant is doing well or is not. This is the premise on many of my comments on the lack of detailed information on what is a normal amount of these plants. As there is no data, at this time, to tell if the plant is doing well or not it would seem that a consistent monitoring regime that is done on an ongoing basis, regardless of the rainfall criteria would provide a much better baseline for evaluating the health of the PMV.

Please consider adding such a monitoring approach in the final RAMP.

Appendix O

Photo at Page 8, Figure 3:

This photograph has no business in this document. It is not germane to the discussion of bird monitoring at the ISD and is an inflammatory depiction of alleged illegal OHV recreation. Moreover, it depicts a location that is not even within the ISDRA. Finally, there is no way to substantiate that this is fact illegal OHV operation. By including this photograph in the bird report, the authors portray an inherent bias against OHV activity, which in turn renders the study's analysis and conclusions suspect .

Page 18

On page 18 of the study, the authors indicate that they had "severe problems" with key aspects of their analysis, including:

- Heaping (low frequencies of detections close to the observer, with much higher frequencies at specific distances for each bird species);
- Small sample sizes; and
- Surveyor tendency to mis-record distances.

As a result of the problems, "*abundance estimates based on estimates of detectability were not helpful in relating patterns of abundance to covariates in the study area.*" (Page 18) This inability to discern patterns of abundance largely eviscerates the entire bird study and its conclusions.

Page 19

Ultimately, the RAMP/EIS should be careful **not** to rely heavily on the bird study for assertions that OHV use reduces bird abundance and diversity in the microphyll woodlands of the east dunes. The study itself cautions against drawing such conclusions: "*Although we have found significantly more breeders and migrants at non-OHV use sites within the North Algodones Dunes Wilderness, these differences should not be assumed to result from recreation pressure alone. Rather, the habitat within the North Algodones Dunes Wilderness may simply be of higher quality than habitat outside the Wilderness."* (Page 19)

In addition, the authors of the bird study could not fully explain why the surveyors detected so many birds in the dunes wilderness. According to pages 20 and 21 of the report, the habitat parameters of the wilderness, while quite good, did not suggest that the bird numbers would be unusually high. The authors were of the opinion that surveyors counted many *juvenile* birds as adults, thus skewing the numbers. If this is true, then the comparison between the *wilderness* microphyll woodland and the *open area* microphyll woodland, at least on the question of bird abundance and diversity, is invalid.

Appendix P Page P-10 Concessions RFD

"*The vendor supplies and maintains the automated pay stations, collects the funds, and periodically pays the BLM a percentage of the revenue on a sliding scale based on the gross revenue."*

This statement is in error as the current fee contractor does not provide automated fee machines. There are no fee machines currently at the ISD.

And Finally:

The BLM has a formidable task in preparing the DEIS and the DRAMP. The laws, regulations and guidelines that BLM must adhere to in preparation of these documents are numerous. Notwithstanding these guidelines it is incumbent on the federal agency to prepare a document that is understandable by the general public. The ISDRA DRAMP fails this test. The organization of the document is not "reader friendly." The redundant and inconsistent presentation of recommendations and proposals renders this document impossible for most of the interested public to understand and provide comments. Hopefully the final documents will contain consistent and scientifically supported decisions in a format that the public is able to read and understand.

Valerie Kastoll/CASO/CA/BLM/DOI
05/20/2010 07:47 AM

To Erin Dreyfuss/CASO/CA/BLM/DOI@BLM
cc
bcc
Subject Fw: elcentro feedback - DRAMP comment

History: This message has been forwarded.

—— Forwarded by Valerie Kastoll/CASO/CA/BLM/DOI on 05/20/2010 07:46 AM ——

billyzman@yahoo.com
05/19/2010 07:58 PM
Please respond to billyzman@yahoo.com

To vkastoll@ca.blm.gov, mwest@ca.blm.gov
cc
Subject elcentro feedback

name = Bill Zimmerman

organization =

email = billyzman@yahoo.com

subject = Comment re: DRAMP

FeedbackType = Comment

request_comment = Hello
I just viewed the DRAMP, and subsuquent Maps showing Closure Alternatives 1-7.

I have been visiting the Algodones Dunes for over 25 years.

When I was young, the BLM closed the North Algodones Wilderness portion of the dunes in order to protect ALL species.

This has worked. With that 12-mile closure in the 1970's, all plants and animals have had continued prosperity.

Closing additional portions within our open riding areas is simply not needed. It is pressure from Environmental groups that has caused all of this spending and frustration. Do not fear thier lawsuits. Hold the court hearings somewhere other than San Francisco.

I recommend Alternative #1
please leave everything south of Hwy 78 open.

Thank you.
Bill Zimmerman

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http://www.blm.gov/ca/st/en/fo/elcentro/recreation/ohvs/isdra/dunesinfo/docs/i

Lucas, Ken R - San Diego, CA

Subject: BLM - Glamis, The Draft Imperial Sand Dune Recreation Management Plan

BLM Leadership,

Regarding the proposal to limit / reduce camping at the Imperial Sand Dune Recreational Area. I am against this plan. I have enjoyed the dunes with family and friends for five decades. Before us our fathers and grandfathers enjoyed the dunes. For generations we have enjoyed the dunes and all that they bring. We have built many family traditions around our family fall, winter and spring vacations at the dunes. We have raised our children to respect the dunes and to act responsibly. We have all learned to camp, ride and explore the great outdoors and how to enjoy nature. It would be a great detriment to present and future generations if these rights were infringed upon. Less and less of our wild lands are available to us, the American people, to enjoy. Even less wild lands are available to enjoy as we do the dunes. Because of the growing scarcity of such wild lands, the Imperial Sand Dune Recreational Area is now visited during "duning season" by Americans from all over the country. Many travel great distances to enjoy the dunes. Whole industries and economies have sprung up to support this activity. To limit camping, to limit the areas of the dunes that are available restricts the ability of all Americans to enjoy this area. Whole generations of citizens are at risk of losing traditional access to these lands due to special interest groups continually manipulating laws and regulations to inch by inch close the dunes. If these special interest groups are allowed to proceed with their agenda, it will be a great dis-service to the very people who use and enjoy the dunes the most.

Ken Lucas

27819 Rosemary Street

Murrieta, California 92563

From: Sheila and Harry Savell
To: caisdrmp@ca.blm.gov
Subject: ISDRAMP attention: Carrie Simmons
Date: 05/15/2010 10:17 AM

To the BLM,

I would first say that opening all the currently closed areas would be my first preference. There is already a wilderness area in the Algodonas Dunes. I would like to ask BLM to please consider adopting Alternative 7 in maps page 7. It will add more area of PMV critical habitat area to the preserves we have. As a visitor to the dunes for near 30 years, I cannot see any advantage to more closure. I have lived in the desert for most of my life, I am now 53. I have observed the desert wild life up close and personal. When it rains plant and animal life is in abundance. When it is a dry period, plants and animals are more scarce. No studys can change that well known fact.

Thank You,

Harry Savell
12521 E. 40th Place
Yuma, Az 85367
928-342-2107
Yumasavells@yahoo.com

COUNTY OF IMPERIAL

DEPARTMENT OF PUBLIC WORKS

155 S. 11th Street
El Centro, CA
92243

Tel: (760) 482-4462
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ICDPW

Public Works works for the Public

May 11, 2010

Daniel Steward / Acting Field Manager, El Centro
US Department of the Interior
Bureau of Land Management
1661 S 4th Street
El Centro, CA 92243

SUBJECT: Imperial Sand Dunes Draft Recreation Area Management Plan and Draft Environmental Impact Statement

Dear Mr Steward:

This letter is in response to your submittal received on March 29, 2010 for the aforementioned project The Imperial Sand Dunes Draft Recreation Area Management Plan (RAMP) and Draft Environmental Impact Statement (EIS) describes and analyzes eight alternatives for managing approximately 214,930 acres of Bureau of Land Management-administered lands within the Imperial Sand Dunes Special Recreation Management Area in Imperial County, California.

Department staff has reviewed the package information and the following comments should be addressed:

1) Under Alternatives Pg ES-2
The Draft Environmental Impact Statement should address the traffic impacts to Imperial county roads under all proposed Alternatives. There are over 1.4 million OHV visitors per year and is intensify on holiday weekend, thereby adversely impacting surrounding county roads A traffic Study may determined the necessary road improvement at proposed recreation area access points

2) Under Pg 3-121 the following are county maintained roads abutting the proposed recreational area: Evan Hewes Highway, Ogilby Road, Noffsinger Road, Nider Road, and Titsworth Road Ted Kipf Road, Whitlock Road, Holtville Dump Road, Sidewinder Road, Walker Way, Vista Mine Road, Beal Road, Flowing Wells, Haley Road, Schoneman Road, Shank Road, Nelson's Pit Road, and Kavanaugh Road. It is requested that an Irrevocable Offer of Right of way be provided to meet its specific road classification as per Imperial County Circulation Element

3) An encroachment permit shall be secured from the Department of Public Works for any and all new, altered or unauthorized existing driveway(s) to access the properties through surrounding roads.

4) Under Economic Impacts PG 4-87 most of County maintained roads within the proposed recreational area are not structurally design to handle the OHV vehicles or the existing turn radius at road intersection also are not design to handle this type of vehicles. Due to the amount of traffic generated on County's paved and unpaved roadway , it does create a significant impact to the County road maintenance funds.

5) The County reserves the right to add comments as the project develops.

Should you have any questions, please do not hesitate to contact this office. Thank you for the opportunity to review and comment on this project.

Respectfully,

William S. Brunet, PE
Director of Public Works

By: Manuel Ortiz

Manuel Ortiz
Assistant County Engineer

Fp/ga

Cc: Jurg Heuberger, Planning Director

KD ENTERPRISES/KD CYCLE
2341 E. 16TH STREET
YUMA AZ. 85365
928-329-1908
928-329-1970 fax

May 14, 2010

I would like to make public comments on the DEIS and DRAMP proposals. My name is Kathleen Godley and am the owner of KD Enterprises and KD Cycle, address listed above.

The first comment is concerning the DEIS pg 3-9 paragraph 4.

The reference of the dune season being 197 in a season is inaccurate. The dune season should also reflect the usage during the hotter summer months making the dune season 365 days. The dunes are used by many, including myself and my staff during this time. We and others ride at night when it is cooler, some camp during the days, and those who are local will go home.

The extension of the dune season to reflect 365 days would impact all the subsequent projections used in the DEIS and DRAMP.

Air Quality pg 4-82 section 4.9

These paragraphs and items on establishing baseline visits with the ISDRA are once again based on inaccurate counts and perceptions of vehicles and usage. The ISDRA should not be assessed as other parks elsewhere within the US, as it a unique recreational area world known. A correct count cannot be assessed by a counter placed at the entrance as it does not reflect the following.

1, Vendors coming and going on a daily basis. Example being myself and my staff, which could count as up to 4 trips.

2. Day visitors, not operating OHV's. An example being my family who comes to visit and stays in a hotel for 2 nights, so that could count as 2 visits daily.

3. Law enforcement vehicles, BLM vehicles, emergency vehicles.

4. ISDRA visitors who for example go to own for groceries and other supplies.

5. Not all visitors use OHV's. An example is Father, Mother, two children but only the father ride his quad while Mother and kids stay in camp. There are many visitors who not operate an OHV during their stay. Therefore they should not be counted toward the carrying capacity of riding areas, or OHV use and emissions. Counting these people reflects an inaccurate count.

Air Quality DEIS pg 4-85 sections 4.11.1.1 and 4.11

Again not all visitors operate and OHV. Users do not operate their OHV 6 hours as the figure used to base emissions. Most OHV users will ride a short period, rest and ride for another short period. Most OHV's are designed so that a continuous 6 hour operating time would harm the OHV. The more frequent and avid duner will ride approximately 4 hrs a day. The majority of the OHV use does not occur after sunset.

The DEIS does not take into consideration the advent of four stroke and lower emission vehicles and is not reflected in 4.11 Air Quality.

Motorized Vehicle Generated Dust DEIS pg4-89 Section 4.11.1.2

The ISDRA visitation cannot be regulated by PM10 emission caused by visitation with inaccurate data to begin with. Proper monitoring within the ISDRA only, will give accurate statistics for that area and in turn give Imperial County true thresholds.

It does not also consider the impact of the new Mesquite Mine landfill and the increased truck traffic that will occur specifically through the Glamis area.

Mitigation Measures Air Quality DEIS pg 4-101 section 4.11.3

The statement to suspend all operations when wind speeds exceed 25mph is not realistic or reasonable. Does that include Law Enforcement, OHV use and Vending? In my 17 years as a vendor at Glamis I have experienced and observed the following.

1. When the wind blows, so does the sand, causing high dust in the air. It will blow dust and sand regardless if there are OHV's or not.

2. OHV use comes to a standstill as OHV operators will stay in camp and not operate their OHV. Some will even choose to leave all together. Would they then be in violation under the new regulations?

3. Vendors who are stationary should not be included in this term "all operations ".

4. If the sand is damp as it was often with rains during the 09-10 season, the sand does not blow creating dust.

5. Again I bring up the subject of the Mesquite Landfill. If the wind is blowing from that direction the dust created would blow over the ISDRA in the Glamis area and combine creating the illusion of dust from OHV use. Would the Mesquite Landfill also ceases operation in sustained gust of 25mph?

6. Again if someone whose to leave due to wind, use the public restroom which they would need to drive to, would they be in violation and subsequently fined.

The definition of "All Operations "needs to be clearly defined. Enforcement and the cost of such is not mentioned nor studied.

Socioeconomics DEIS pg 3-48 section 3.4.1

Socioeconomic impact is far broader than Imperial and Yuma Counties. The OHV industry is far wider than these two counties, and any reduction would be far reaching and devastating to the industry and communities they support.

Pg 4-29 section 4.4.1

Expenditures by OHV and ISDRA users in the statement "purchase goods "in their home county does not reflect the true ISDRA consumer. As and OHV related business in both Yuma and ISDRA, I can attest that yes the capitol purchase of the OHV may occur in their home county. The highest percentage of sales by the ISDRA consumer occurs at or in the counties surrounding the ISDRA. It has been my experience that the ISDRA users wait until they arrive at the ISDRA to purchase goods. Many come to the ISDRA to shop first then ride. Tax revenues from these purchases with the ISDRA benefit Imperial County directly. On any given weekend or holiday the gas stations in both Yuma and Imperial County are full. The restaurants parking lots are full of vehicles with OHV trailers. There is no study to support the assumptions made in this section of the DEIS.

Section 4 General Comment pg ES-5 table ES-2 DEIS

The implantation of the proposed curfew would only in increase the cost and usage of Law Enforcement. It would be difficult for LEO's to enforce. Again, in my years of ISDRA experience the majority of users stop recreating and using their OHV by 8:30 pm. The Zero Tolerance policy of law enforcement in the past years has impacted night usage. Where as a vendor I used to stay open until midnight or later, I am now closing much earlier due to the lack of users at those hours.

An Alcohol Ban would be difficult to manage and enforce. The idea that comes to mind is LEO's now going into camps and areas to see if alcohol is present. This would utilize law enforcement more, therefore raising the cost.

The ISDRA is not a lawless place overrun with "Lawless Behavior ". The perception of lawlessness may well be by the increase of minor citations issued within the past few years due to expired registration, faulty taillights or no safety whip. Do these citations issued constitute a person being "Lawless?" Minor infractions should not be counted towards the total leading to this perception.

Law Enforcement and Public Safety pg 4-55 section 4.4.2.8 DEIS

"Many of these visitors are often engaged in illegal activities and public disturbances "
I find this statement and philosophy as insulting and degrading. It is a discriminatory statement and implies that anyone within the ISDRA is considered to be lawless until proven otherwise. In my 17 years of experience the majority of ISDRA users are family oriented. Yes there are a few troublemakers as in any large group or gathering of people or city. The ISDRA users as a whole will police themselves and are responsible to both the environment and their fellow duners.

Public Safety page 3-45 table 3.3-4 DEIS

I fully support the installation of 911 call stations. The ISDRA user is now powerless when emergencies occur during off hours when there is neither law enforcement nor BLM personnel on site. I have in my 17 yrs been the first contact in many occasions when an ISDRA user has needed assistance. The implementation of these 911 call stations would increase public safety.

I respectfully submit my comments

Thank you

Kathleen A Godley

From: Corey Wallace
To: 'caisdrmp@ca.blm.gov'
Subject: FW: ISDRA RAMP COMMENTS
Date: 05/10/2010 02:05 PM

Draft Imperial Sand Dunes Recreation Area Management Plan

I have the following comments on the Draft RAMP/Draft EIS (dated March 2010):

The BLM's preferred alternative (i.e. Alternative No. 8) has the following positive aspects:

1. The total amount of dune closure area is greatly reduced.
2. The 'donut hole' closure is re-opened
3. Excluding energy and mineral resources development from OHV areas

However, Alternative No. 8 will have the following far-reaching negative impacts to the OHV community that must cause the BLM to reconsider Alternative 8 as its preferred alternative:

1. Total closure of Washes 26 through 69, and conditional closure of Dune Buggy Flats to camping will cause higher concentrations of campers/duners to inhabit remaining camping areas. This is unacceptable from a safety and aesthetic perspective without the BLM providing additional developed camping areas in the Gordon's Well and Glamis areas to keep such concentrations in check (e.g. additional developed camping areas west of Gecko Road, between the canal and Gecko Road; paving the new wash road; and developing areas within the washes).
2. The proposed PMV closure is not conducive to east-west travel along the western edge of the dunes, especially in the area of Gordon's Well. Alternative 8 proposes additional PMV closure areas where they do not exist today. This is unacceptable from a safety and aesthetic perspective. The BLM should reconsider opening the dunes between Hwy 78 and Hwy 8, pursuant to Alternative 1, with the provision of off-site mitigation for the PMV. This concept of acquiring off-site mitigation areas is common practice when dealing with the need to mitigate negative environmental effects of a specified activity. This concept of acquiring off-site mitigation areas for the PMV is a reasonable solution, and could potentially provide additional PMV areas over and above what is proposed as part of Alternative 8.

Again, the BLM must reconsider Alternative 8 of its Draft RAMP/EIS as its preferred alternative, since Alternative 8 will result in unacceptable safety and aesthetic conditions. My recommendation for a preferred alternative is Alternative 1, and I imagine most duners/campers would agree with me on this. But I am aware that life is full of compromises; so with this in mind, I think Alternative 7 provides an acceptable compromise to all stakeholders- the BLM, CDFG, FWS, duners, campers, etc. With Alternative 7, all existing camping areas remain open, and dune closures are drastically reduced. In addition, Alternative 7 includes a relatively large PMV closure that would not disrupt most OHV activities. A slight modification to Alternative 7 that allows several marked corridors of east-west travel through the closure area would be even better and would enhance OHV safety.

Thanks for your consideration of my comments. Please work with the OHV community to keep the Imperial Sand Dunes a world class OHV recreation area.

Corey Wallace
27925 Starfall Wy
Murrieta, CA 92563
951-834-2730

From: sdfd57@cox.net
To: caisdrmp@ca.blm.gov
Subject: Updates to the ISDRA Ramp.
Date: 05/07/2010 10:54 PM

After reviewing the proposed updates to the RAMP I am disgusted. Year after year were are forced to pay more to use these areas yet all it seems the money is used for is to find new mays to restrict the areas we enjoy the use of. In the past few years I have taken pride in the fact that the off road community has found ways to work with the current closures in place. The most recent favored proposal has severe flaws that individuals who don't use the areas would fail to see. In the preferred option number 8 the closure areas effectively close off prime areas that are used by off road enthusiasts. Also with these closures in place you have effectively created a fence of restricted space that runs right in front of the only other dunes in the area to ride on. I understand on paper it looks like the smallest acres closed but when those acres are the main reason for coming to these areas how effective use? If the intention is to drive away the only individuals that use these areas then this plan will do this.
I recommend that you complete a study before making such a rash decision as to close off more area. Not studying the problem is what got us in this mess in the first place. I also believe that if you spent any time out in the dunes you would realize quickly that the Milk Vetch is thriving in many areas, not just the areas that are closed. This observation would lead me to believe that usage has no place in this conversation and the other factors such as weather conditions a precipitation are the cause. All of this said I do not want you to take anyone's word for it I want you too do a study. You need to make sure you represent everyone and not just the people you are being sued by.

Todd Shaw
Concerned citizen

From:	J. C. Jay Chen
Reply To:	jcchen@crb.ca.gov
To:	caisdrmp@ca.blm.gov
Subject:	RE: Draft Imperial Sand Dunes Recreation Area Management Plan is Now Available
Date:	04/28/2010 03:48 PM

Dear Gentleperson:

Could you mail me a CD-ROM or a hard copy of the Draft Imperial Sand Dunes Recreation Area Management Plan?
Thanks!

Jay Chen
Supervising Hydraulic Engineer
Colorado River Board of California
770 Fairmont Avenue, Suite 100
Glendale, CA 91203-1068

TEL: (818) 500-1625, Ext. 310
FAX: (818) 543-4685

-----Original Message-----
From: Erin_Dreyfuss@ca.blm.gov [mailto:Erin_Dreyfuss@ca.blm.gov] On Behalf Of caisdrmp@ca.blm.gov
Sent: Friday, March 26, 2010 9:58 AM
To: Daniel_Steward@ca.blm.gov; Kynan_Barrios@ca.blm.gov; Linda_Hughes@blm.gov; Thomas_Zale@blm.gov
Subject: Draft Imperial Sand Dunes Recreation Area Management Plan is Now Available

(Embedded image moved to file: pic08480.jpg)

From: Wayne C Martella
To: caisdrmp@ca.blm.gov
Subject: Sand Dunes
Date: 04/27/2010 01:37 PM

W T F !!!

Do you have any idea as to the impact on people and families that have been duning for decades????

Please take a look at other alternatives and if closing a section of dunes is necessary then close a section that people don't use .

Wayne ...

Wayne C Martella
602-768-7600
480-969-2471- fax

From:	JerrySeaver@aol.com
To:	caisdrmp@ca.blm.gov
Subject:	Comment on DRAMP Appendix H - Phillips Report 2006
Date:	04/23/2010 03:54 PM
Attachments:	2006ASAfinalreport.pdf

Appendix H lists reports on PMV studies. It lists the Thomas Olsen and Associates Report, which was done by Dr. Phillips but doesn't include his report done in 2006. This report needs to be listed in the final RAMP. It is attached.

Thanks,
Jerry Seaver
2950 W. State Ave.
Phx. Az.85051

Seed Bank and Survival of Peirson's Milkvetch (*Astragalus magdalenae* var. *peirsonii*) in the Algodones Dunes, California

2005-06

SEED BANK AND SURVIVAL
of
PEIRSON'S MILKVETCH
(*Astragalus magdalenae* var. *peirsonii*)
in the
Algodones Dunes, California

2005-06

FINAL REPORT

Prepared for the
American Sand Association

Prepared by

Arthur M. Phillips, III, Ph.D.
Debra J. Kennedy

Botanical and Environmental Consulting
P.O. Box 73
Eckert, CO 81418

June 2006

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ACKNOWLEDGMENTS

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Darrick Sandwick
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Jerry Seaver
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Steven Ware
John Webber
Stan Weiler

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Dr. Barbara Phillips, Mar-Elise Hill, Dr. Frances Lazear, and Gregory Lazear assisted with the fieldwork. The Bureau of Land Management El Centro Resource Area, and U.S. Fish & Wildlife Service issued our research permits. This project was funded by the American Sand Association.

Photos by A. M. Phillips, III. Cover photo: Peirson's milkvetch plant with mature pods and dispersed seeds.

INTRODUCTION

In stark contrast to the exceptionally wet conditions of the 2004-05 growing season, the 2005-06 season was the driest of our six-year study. There were two minor storms, one in mid-October and another in March, which left a season total of 0.26 inches at Cahuilla and 0.17 inches at Buttercup. In contrast, nearly five inches was recorded at both stations during the 2004-05 season.

This report summarizes findings from a sixth year of studies on the ecology, phenology, and demography of *Astragalus magdalenae* var. *peirsonii* (Peirson's milkvetch). Our field work during the 2005-06 season had two objectives: first, to study the survival and reproduction of plants from previous seasons and any seedlings that grew during the current season, and second, to analyze the seed bank of the species and compare the results with the seed bank study we conducted in 2002.

Initially we had hoped to study seed bank depletion resulting from a germination event of Peirson's milkvetch. However no such event occurred in 2005-06. We proceeded with the study nonetheless, in order to provide comparative data with the first seed bank study utilizing a different method of sample site selection.

Peirson's milkvetch is a short-lived perennial in the Legume family (Fabaceae) that is widely distributed in clustered populations throughout the Algodones Dunes complex. It was listed as a Threatened species in 1998 (USFWS 1998, CNPS 2001, BLM 2000a) and has been the focal point of a number of legal and administrative actions since the fall of 2000. Despite the listing, little information was available on the plant's biology; thus, the American Sand Association has funded a multi-year research project in order to learn more about the ecology of this desert plant and its interactions with off-highway vehicles (OHVs**),** with which it shares the Algodones Dunes.

Off-highway vehicle (OHV) recreational use of the Algodones dunes complex has been occurring for several decades. Although there has been some speculation that increasing levels of OHV use within the dune system negatively affect the status of *A. m.* var. *peirsonii*, it is important to note that no scientific, empirical study supporting a negative impact of OHV use on Peirson's milkvetch (along with other plants and animals in the dune system) has yet been completed. There is, however, a growing body of scientific literature that indicates *there is virtually NO statistical correlation between OHV use and the germination or survival of Peirson's milkvetch in the Algodones dunes system* (BLM 2000a, 2005; Phillips et al. 2000; Phillips and Kennedy 2001, 2003, 2004, 2005).

Research Area

The Algodones Dunes are a complex of sand dunes located in southeastern Imperial County, California and extending a short distance into adjacent Baja California, Mexico. They support a specialized, limited biota that has adapted to the severe conditions posed by an ever-changing habitat with low, unpredictable rainfall, severe annual and diurnal temperature extremes and occasional severe abrading wind-carried sand. Many of the plant species found in the dunes are endemic to sand dunes in the

Lower Colorado Valley subdivision of the Sonoran Desert (Bowers 1986; Shreve 1964). Among these is Peirson's milkvetch.

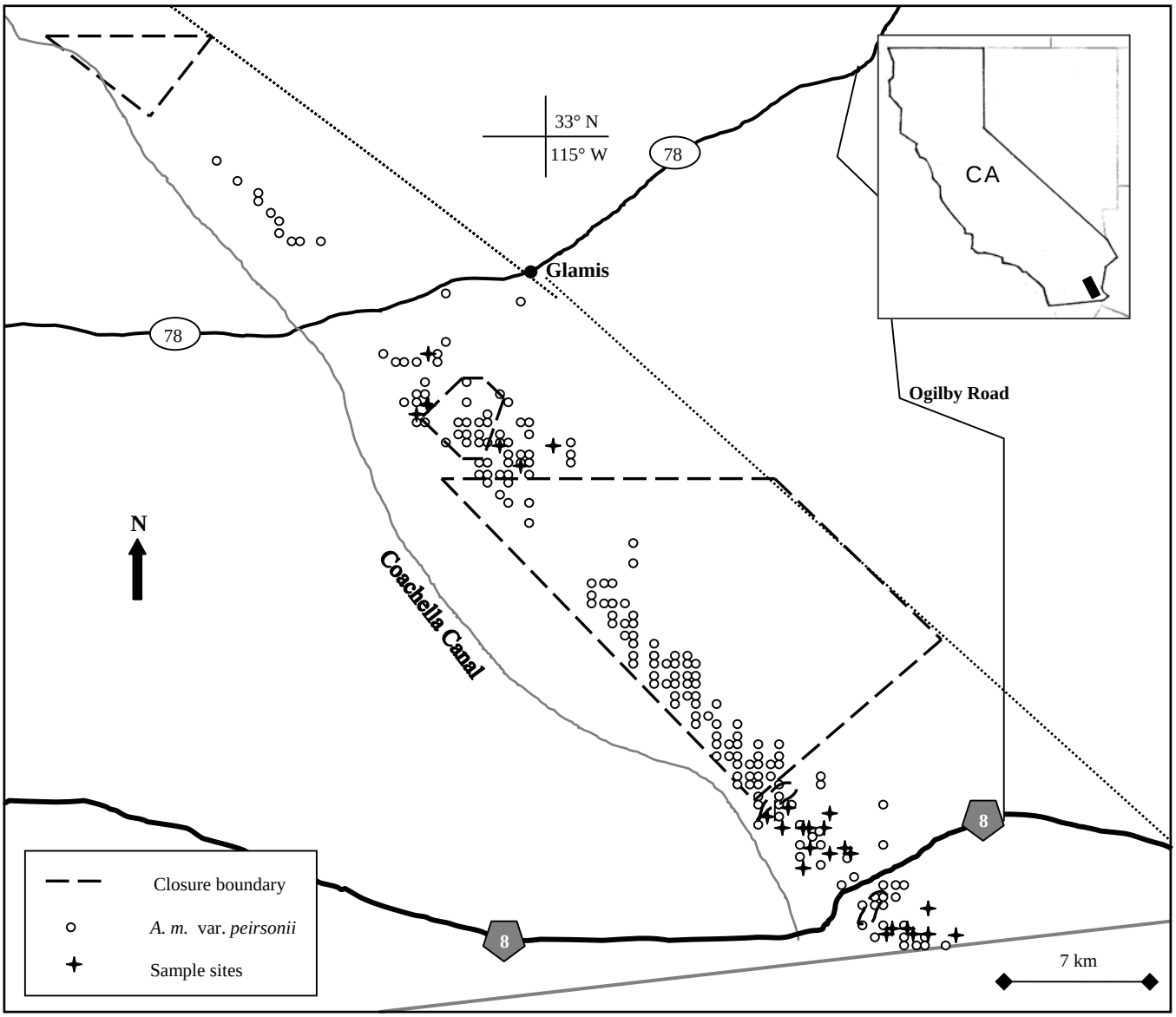


Figure 1. Distribution of *Astragalus magdalenae* var. *peirsonii* sites in the Algodones Dune system initially surveyed in spring 2001, sampled in winter 2001-02, and re-sampled in all subsequent studies[1]

An overview of the geologic history and setting of the Algodones Dunes is provided by Norris and Norris (1961). The system consists of a complex chain of overlapping barchan dunes, with the higher dunes rise 60-90 m (200-300 feet) above the desert floor. From west to east a series of sand ridges along the western edge gradually transition to the highest, most active dunes (generally the focal point of OHV recreation) in the eastern half of the system. Between the ridges and the high dunes are a series of

[1]Site locations are approximate; see Phillips et al. (2001) Appendix A for exact geo-coordinates. Locations within the closure areas were mapped by helicopter survey.

lower bowls and ridges, which support the highest levels of vegetation density, including Peirson's milkvetch.

The Algodones Dunes are about 65 km (40 miles) in length, trending from northwest to southeast, and from 5 to 10 km (3 to 6 miles) wide (see Figure 1 below). The total area of the dune system includes approximately 60,705 ha (150,000 acres), of which 10,730 ha (26,500 acres) were designated as a wilderness area in 1972 (BLM 2000b). Temporary administrative closures of an additional 20,000 ha (49,000 acres) were imposed in November 2000 as a lawsuit settlement over protection of Peirson's milkvetch.

METHODS

The 2005-06 growing season marked the sixth year of study of the *A. m.* var. *peirsonii* population, distribution and ecology in the Algodones Dune system. This report provides another year of cumulative scientific data, compiled through 13 individual studies conducted over a six-year period (2001-2006), on the ecology and life history of this important desert plant. Our initial study, conducted in 2001, included the mapping and documenting of known Peirson's milkvetch distribution and population throughout the entire dune system (see Phillips et al. 2001). Subsequent research, including that conducted in 2005-06, has focused on a 40% sample of sites identified in the initial 2001 survey as areas of known plant occurrence, randomly selected and stratified by location in the dunes complex (Phillips and Kennedy 2002).

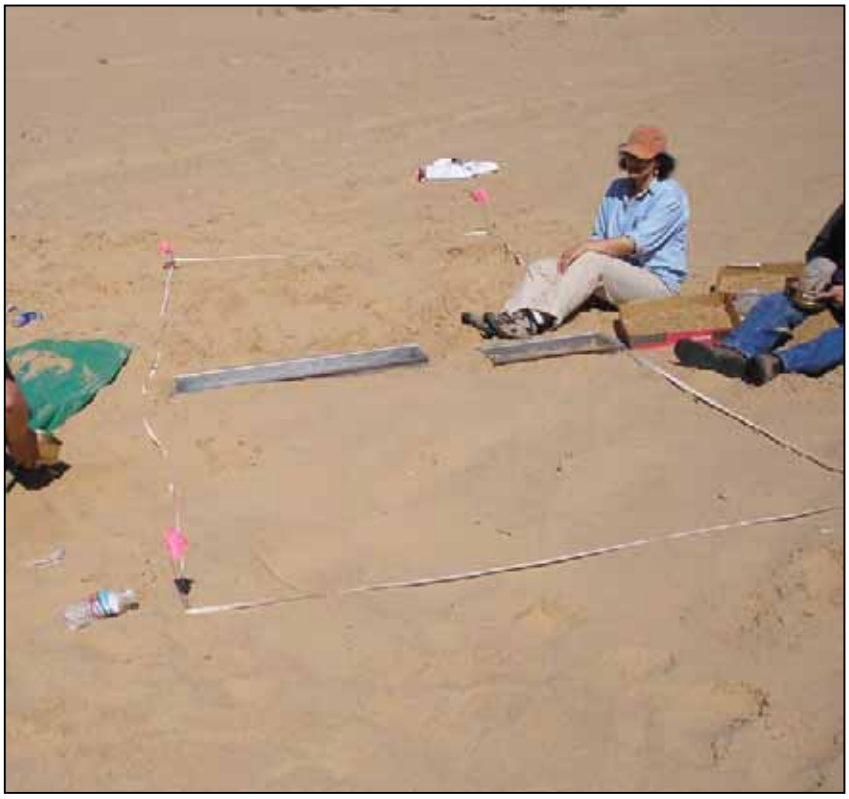
Over the course of this project, various methods have been adopted to address unresolved questions concerning the status of the *A. m.* var. *peirsonii* population. Study methods and protocols included in this research agenda evolved from prior findings; thus enabling us to establish a valid scientific framework from which we base our conclusions. A brief overview of methods utilized in the past five field seasons can be found in Phillips and Kennedy (2005: 7-9).

Year six of the study was conducted from November 2005 to April 2006 during which data on the *A. m.* var. *peirsonii* cohort survival rates and the seed bank were collected, documented and analyzed. The purpose of the soil seed bank study was to provide an estimate of the number of seeds in the seed bank in order to assess the potential status of the population, and to further test the validity of a prior seed bank study (see Phillips and Kennedy 2002) with current data. The purpose of the cohort survival census was to determine the viability and reproductive capability of Pierson's milkvetch from one growing season to another (given summer temperature extremes).

In a previous seed bank survey (Phillips and Kennedy 2002), we based our analysis of seed production on the purposive sampling of clusters of plants within previously identified sites of known plant occurrence. For the current study, however, we modified this approach to randomly select plots within sample sites for analysis, without regard to plant distribution within the site. Although purposive sampling (in 2001-02) allowed us to reach several valid conclusions regarding plant distribution and the perpetuation of plant clusters, along with gaining important data on the status of the

Peirson's milkvetch seed bank, random sampling allows us to extrapolate our findings to a larger portion of the plant's potential habitat – giving us a richer picture of the status of this important desert species.

The outline and size of each of 25 randomly selected sites was determined during the 2001 seed bank study. These parameters have been used in subsequent years, and were used as the basis of the 2005-06 study. On each sample site map, we interposed a virtual grid, with perpendicular N-S and E-W lines intersecting at the center of the site (thus creating *x* and *y* axes). Using a random number table, we selected four *xy* coordinates per site. These points were placed on the virtual site grid maps, and GPS coordinates were determined for each point. Using the GPS coordinates (and a WAAS-enabled GPS unit) the points were then located on the ground. Each point determined the northwest corner of a seed bank sample plot 5 x 2 meters in size. Three such plots were sampled at each site. Coordinates for a fourth plot were determined in case it was necessary to eliminate one of the plots due to location on a slipface, or in case plots overlapped.



Layout of seed bank sample plot used in 2005-06 survey

Metal plot frames 1 m x 0.25 m and 0.5 m x 0.25 m and 15 cm high were sunk in the sand at 10 systematic locations within the 5 x 2 m plot, for a total of 4.5 m^2 in each plot and 13.5 m^2 at each site. Large plot frames were placed with the long side of the frame perpendicular to the long side of the plot starting in the upper right corner, and

placed systematically along the plot, skipping every other 1 m x 0.25 m space. The frames were sunk 10 cm into the sand, and the enclosed sand was removed using a plastic scoop and sifted through a No. 10 soil sieve 8 inches in diameter. Any seeds on the surface were counted and removed prior to sieving; seeds captured in the sieve were counted for each plot. After all sand was removed to the 10 cm depth, the sand and seeds were replaced. Smaller frames were placed in a similar manner along the other long side of the plot.

The initial work was conducted at six stratified randomly selected sites, a 24% sample of the 25-site set, from December 17-20, 2005. Two sites were selected in the Buttercup area, three were analyzed at Patton Valley, and one at Glamis.

The same selection method was utilized for a second seed bank survey trip in March 2006. Spring rains, however, rendered the sand too wet to sift efficiently, resulting in a smaller sample. Thus, two additional sites each at Patton Valley and Glamis were surveyed. These data were then added to the December 2005 data, bringing the 2005-06 sample to ten sites, comprising 29 sample plots (3 plots at nine of the sites and 2 plots at one site). Finally, in addition to the seed bank survey, survivorship surveys were conducted at all 25 sample sites in December 2005 and April 2006, consistent with previous years' work (see Phillips and Kennedy 2002, 2003, 2004, 2005).

A. m. var. *peirsonii* seed population estimates are based on sample site values. Density values are calculated individually for each location and population estimates extrapolated only to those sites of known Peirson's milkvetch occurrence at each location. Thus, extrapolation of mean seed density (seeds per square meter) at the four Buttercup sites surveyed in 2005-06 is limited to the 17 Buttercup sites originally identified in 2001, the mean seed density at five sample sites at Patton Valley is extrapolated only to the 27 original Patton Valley sites, and so on. This method is consistent with natural resource sampling methodology, and was recently adopted for the 2004 BLM survey of special status plants in the Algodones Dunes complex (BLM 2005). Our population estimates, however, tend to be conservative, since we extrapolate seed density data only to *known and documented sites of plant distribution* – comprising an area of approximately 56 ha, or 0.9% of *A. m.* var. *peirsonii* potential habitat in the Algodones Dunes complex.

Upon completion of the 2005-06 fieldwork, data were analyzed using SPSS version 11.0 statistical software (SPSS 2001). Both seed bank and cohort survivor population estimates were made based on actual counts at each sample site per location, then extrapolated to all the sites of known plant occurrence (identified in 2001), stratified by location. Precipitation and survivorship graphs were produced with Microsoft Excel 2002; all other graphs and charts were created with SPSS.

RESULTS AND DISCUSSION

In contrast to the 2004-05 growing season, which saw the greatest amount of both rainfall and Peirson's milkvetch germination of the six years of our study, the 2005-06 season was the driest year, with essentially no germination. Only two rainfall events

occurred during the 2005-06 season: a very minor event on October 17th and 18th, and a light rainfall on March 11th. The six months between these rains was completely dry.

Our first survey of the season was November 19-20, during which we developed sampling methodology to be used for the seed bank study. This was followed by survival assessments and seed bank studies December 16-20, 2005, seed bank work at additional sites March 10-13, 2006, and plant counts from April 14-17 to be used as a baseline for survival studies the following year. A summary of plant population data collected in the 2005-06 studies is in Appendix A of this report.

Population, Distribution and Survival

Although no significant germination event occurred during the 2005-06 growing season, the results of population studies conducted during the sixth year of this project show an actual count of 1,233 live *A.m.* var. *peirsonii* 2004-05 and older survivors documented at our 25 sample sites in December 2005, and 914 plants in April 2006. These values were subsequently analyzed with an SPSS statistical program to determine average plant density per location (number of plants per square meter) and extrapolated to the original 60 sample sites identified in 2001. The results are presented in Table 1.

Spring 2005 PMV Population Estimates and Survivorship to December 2005 and April 2006

	Mar. 2005	Apr. 2005	December 2005					April 2006				
	Population Estimate*	**Population Estimate***	Population (actual count)	Density (μ PMV/m^2)	Range	Std. Dev.	**Population Estimate**	Population (actual count)	Density (μ PMV/m^2)	Range	Std. Dev.	**Population Estimate**
Buttercup	**94,166**	**75,184**	550	0.0091	0.023	0.0077	**1,095**	311	0.0051	0.013	0.0045	**616**
Patton Vly.	**76,483**	**80,270**	661	0.0032	0.012	0.0620	**1,317**	625	0.0031	0.009	0.0028	**1376**
Glamis	**10,748**	**9,594**	22	0.0027	0.015	0.0061	**76**	15	0.0015	0.008	0.0032	**43**
Totals	**181,397**	**165,048**	1,233				**2,488**	921				**2,035**

*2005 Population Estimates from Phillips and Kennedy 2005.
Population estimates based on extrapolation of mean plant density per location to all sample sites identified in 2001

Table 1. Population estimates of Spring 2005 cohorts surviving to December 2005 and April 2006

Based on the results of the 2005-06 population studies, the estimated population of *A.m.* var. *peirsonii* 2004-05 survivors present within 56 ha of the plant's potential habitat in the Algodones Dunes in December 2005 was approximately 2,488 plants, and 2,035 in April 2006. Clearly, this is a dramatic decline in plant population estimates from those of spring 2005. Nevertheless, further investigation and analysis shows that the 2005-06 decline in population is neither exceptional nor, as is later argued, threatening to the status of *A.m.* var. *peirsonii.*

The decline of 2004-05 cohorts to December 2005 is nearly 80 percent. Clearly first-year plants, with shallow, less-developed roots systems, were less capable of surviving through the period of drought that lasted from mid-March to mid-August; thus

they had a mortality rate of 98.8 percent by April 2006. As discussed further in this report, however, perennial survivors, with approximately 171 seedpods per plant, greatly contribute to the soil seed bank – thus are critical to the continuing integrity of this important desert species.

A graph showing survivorship curves for the 2000, 2003, 2004, and 2004-05 cohorts is shown in Figure 2. This log-base 10 chart shows the sharp reduction in plant numbers during the summer, notably for the 2000 cohort in which the reduction (79%) was tempered by summer rains, and for the 2003 cohort (reduced by 99.7%), which germinated in February and did not have any rainfall during the ensuing summer. The 2003-04 cohorts (November and February) also had rainfall in late summer 2004, but there were also losses in the November-germinating plants due to drought conditions in mid-winter. The difference in mortality rates between perennials and the 2004-05 cohort can be seen by the contrast in the steepness of the curves.

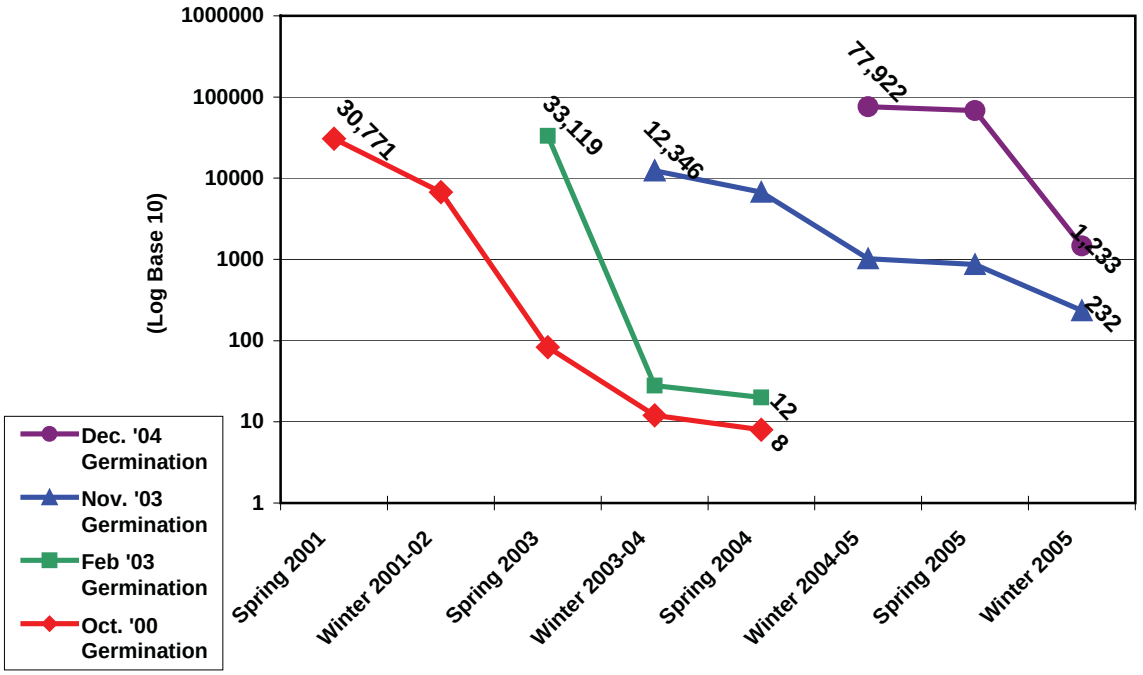


Figure 2. Survival of 2000, 2003 and 2004 germinants to spring 2006 at 25 sample sites

By the fall of 2005 we were unable to reliably distinguish plants that had germinated in 2003-04 from older plants, of which few if any presumably remained. Thus our counts in 2005-06 consisted of “2004-05 plants” and “perennials” (plants age 2 yrs. and older). Table 2 shows the number of perennials counted in December 2004 and 2005, and the number of first-year plants counted in March 2005, along with their survival rates through the spring of 2006.

	#Perennial Survivors Dec. 04	*#2004-05 Germinants Mar. 05*	*#Perennial Survivors Dec. 05*	*#2004-05 Survivors Dec. 05*	*#2004-05 Survivors Apr. 06*
Buttercup	188	41,626	12	550	311
Patton Valley	933	34,284	33	661	625
Glamis	47	2,012	1	22	15
Total	**1,168**	**77,922**	**46**	**1,233**	**921**
Percent			***19.9%***	***1.6%***	***1.2%***

Table 2. Survival of 2004-05 cohort plants and older perennials through Spring 2006.

2006 Seed Bank

The primary purpose of the 2005-06 seed bank study was to compile additional comparable data to 1) test the validity of our 2001-02 seed bank survey results and 2) test the consistency of the *A. m.* var. *peirsonii* soil seed bank in the Algodones Dunes. Thus, our research hypothesis for this portion of the study is H_o: $\mu_{2002} = \mu_{2005}$, in which μ = mean number of seeds per square meter at 25 sample sites, stratified by location. Table 3 shows a comparison of results of the 2001-02 and 2005-06 seed bank surveys, including the range of population estimates at each location in the two studies.

PMV Seed Population Estimates Per Location -- 2001-02 and 2005-06

	2001-02						**2005-06**					
	Seed Population (actual count)	Density (μ seeds/m^2)	Range	Std. Dev.	**Population Estimate$_1$**	**Population Estimate$_2$**	Seed Population (actual count)	Density (μ seeds/m^2)	Range	Std. Dev.	**Population Estimate$_1$**	**Population Estimate$_2$**
Buttercup	753	7.9700	22.15	7.900	**358,905**	**955,037**	235	7.3700	16.67	5.920	**331,886**	**883,604**
Patton	911	5.6210	12.14	3.840	**1,947,873**	**2,313,823**	243	3.5999	23.78	5.665	**1,557,328**	**1,849,906**
Glamis	47	0.5800	0.97	0.354	**11,131**	**16,527**	114	5.0666	21.11	9.1265	**153,445**	**227,932**
Totals	**1,711**				**2,317,909**	**3,285,387**	**592**				**2,042,659**	**2,961,442**

Population Estimate$_1$ based on extrapolation of mean seed density to 25 sample sites
Population Estimate$_2$ based on extrapolation of mean seed density to 60 sample sites

Table 3. Seed counts, density and population estimates per survey location, 2001-02 and 2005-06

As the above table illustrates, despite the use of diverse sampling methods, variation in germination and survival rates, and varying precipitation levels between 2001-2006, the seed population estimates from the two surveys are strikingly similar. Indeed, as the results of paired sample-*t* tests show (Table 4, below), the mean seed density, surveyed at two distinct periods of time, is statistically equal at all three locations. Thus, our research hypothesis ($\mu_{2002} = \mu_{2005}$) is accepted.

Location	*t*	*Sig.*
Buttercup	-.106	.920**
Patton Valley	-.800	.441*
Glamis	1.061	.349*

*$p > 0.1$; **$p > 0.9$

Table 4. Results of paired sample-*t* tests, comparing mean seed density at three locations surveyed in 2001-02 and 2005-06, with a 95% CI.

The significance of this finding cannot be overstated. The results of these tests are clearly indicative of the remarkable consistency of the *A. m.* var. *peirsonii* soil seed bank over a five-year period – and the continuing viability of the species. Although the number of seedlings in a given year has varied from essentially zero (2002 and 2006) to nearly 78,000 (2005) at our 25 sites, and the number of perennial plants has varied from five (2001) to 6,400 (2002), the seed bank was at statistically identical levels in both 2002 and 2006, with population estimates within 56 ha of Peirson's milkvetch potential habitat in the dunes system of between 2 and 3 million seeds.

The relative contribution to the seed bank by plants of various ages of plants has also been a topic of some debate and confusion. The answer is that it varies from year to year depending on the age structure of the reproductive population. Table 5 presents an estimate of relative seed bank contribution (in number of pods) over the six-year period of this study.

The total number of fertile plants (perennial and 2004-05 cohort) counted at 25 sites in April 2006 was 850. Using the previously established convention of an average of 171 pods per plant, pod production in 2006 at those 25 sites is estimated at 145,350.

	2001	*2002*	*2003*	*2004*	*2005*	*2006*
First-year plants	69,615	0	0	30	99,725	0
Perennial plants	0	1,096,452	14,193	3,420	199,728	145,350

Table 5. Seedpod production by first-year reproductive plants and perennials at 25 sample sites, 2001-2006.[2]

Similarly, seedpod production data from the 2005-06 study can be compared with that of 2001-02, a year that followed a large germination event with a high percentage of first-year plants producing seed. Table 5 shows that pod production in 2006 was only about 13% of the 2002 figure, likely due to disparate plant survival rates (21% of first-year plants in 2002 compared to 1.6% in 2006). As is argued further in this report, however, early July rains apparently account for the higher survival rates in 2002, while

[2] Assumes production of 5 pods per plant by first-year plants and 171 pods per plant by perennials, and that 100% of perennials are reproductive.

in 2005, summer rain did not occur until mid-August, after a five-month drought (see Table 6 below).

Considering, however, that each Peirson's milkvetch seedpod produces 11-16 seeds (Phillips et al. 2001; Phillips and Kennedy 2002; also Barneby 1964: 862), a conservative estimate of the number of seeds added to the existing seed bank by a population of "only" 850 surviving plants is 1,598,850 seeds.

These 2006 seed counts and estimates directly support our seed bank study results of 2001-02. Additionally, they lend support to our argument that it is *the status of the seed bank rather than counts of live plants that is most indicative of the health and continuing viability of this important desert plant.* Indeed, in spite of excessively dry conditions during the winter of 2005-06, and the resultant minimal germination and survival rate, there was a *substantial contribution of seeds to the soil seed bank* in 2005-06.

Seedpod production among perennial plants, documented in 2005-06

Climate and Survival

The link between climatic events and germination, reproduction, and survival of Peirson's milkvetch has been a primary area of investigation since the start of this project in the spring of 2001. The climatic link between the germination event in the fall of 2000 and rainfall was examined by Phillips et al. (2001). During the first year of our study, it was necessary to utilize remote weather records to correlate germination with precipitation. Installation of two Remote Automated Weather Stations (RAWS) in November 2001 at Buttercup and Cahuilla Ranger Station has allowed a much more

accurate estimate of rainfall within the dune system. Monthly rainfall records from August 2004 through May 2006 are shown in Table 6. Records from September 2002 through May 2005 may be found in Phillips and Kennedy (2005).

Date	*Precipitation (in.)*		*#Days*	*Max (in.)*	*Date*	*#Days*	*Max (in.)*	*Date*
	Buttercup	Cahuilla	Buttercup			Cahuilla		
								14th
								19th
								21st
								21st
								6th
								4th
								17th
								5th
Jun. 05	0	0	0			0		
Jul. 05	0	0.52	0			2	0.50	30th
Aug. 05	0.84	3.82	3	0.53	9th	3	3.58	9th
Sep. 05	0	0	0			0		
								17 &18
								11th
May 06	0	0	0			0		

Source: California Dept. of Water Resources, 2004-06.

Table 6. Precipitation records at two RAWS stations in the Algodones Dunes, August 2004-May 2006. Shaded areas indicate growing season.

The total precipitation at the Buttercup RAWS during the 2005-06 growing season was 0.17 inches, while the Cahuilla RAWS station recorded 0.26 inches. This contrasts with 2004-05 when Buttercup received 4.68 inches and Cahuilla recorded 4.86 inches. Thus, 2005-06 was the driest of the six years of the study, and there was a 2700% difference in precipitation between 2004-05 and 2005-06. Before 2005-06, the driest season in the study was 2001-02, when 0.66 inches were recorded at Buttercup and 0.26 inches fell at Cahuilla (Phillips and Kennedy 2002).

A major rainfall event occurred on August 9, 2005, dropping 3.58 inches of rainfall at Cahuilla. The downpour caused severe flooding and road damage along highway 78 and in the Gecko Road area. It apparently had little effect on Peirson's

milkvetch survival, however, as the survival rate in December 2005 was only 1.6% of 2004-05 plants and 19.9% of older plants (from December 2004-05 to December 2005-06). It appears that the hot, dry conditions from April through the end of July had caused heavy mortality prior to the late summer storm.

The same storm that hit Glamis also produced precipitation at Buttercup, although much less. A total of 0.68 inches was recorded over a two-day period, on August 8-9. As in the north dunes, the dry months of April through July apparently caused high plant mortality prior to the August rains.

Our first trip to the dunes in the fall of 2005 was in November, a month after a minimal rainfall event of 0.02 inches on October 17-18. Apparently the amount of rain falling during the October storm was not sufficient to cause germination, and the July storm was not during a season when germination occurs. Both of these corroborate assumptions that have been made previously regarding timing and amount of rainfall as causative factors for germination (Phillips and Kennedy 2002, 2005).

The link between rainfall and germination is shown in Figures 3 and 4 (below). The shaded precipitation fields are cumulative precipitation at the Buttercup and Cahuilla RAWS weather stations. For the purposes of this study, we have defined the growing season as October through April, and the dormant summer season as May through September.

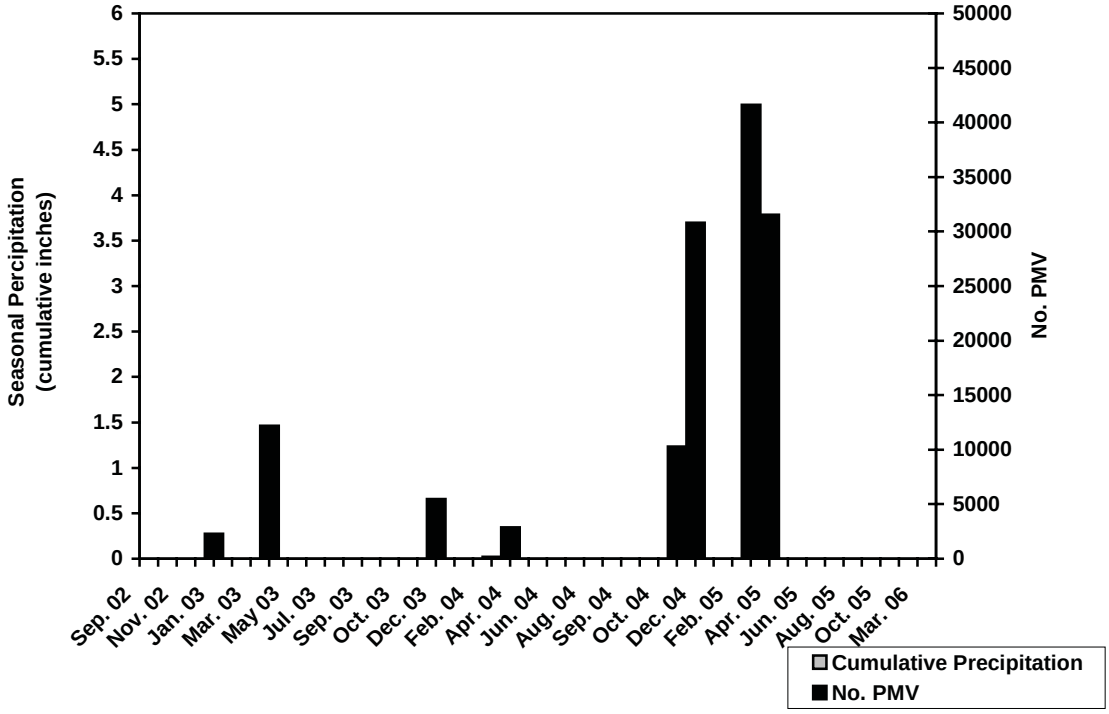


Figure 3. Seasonal precipitation v. seedling counts at 7 Buttercup sample sites 2002-06

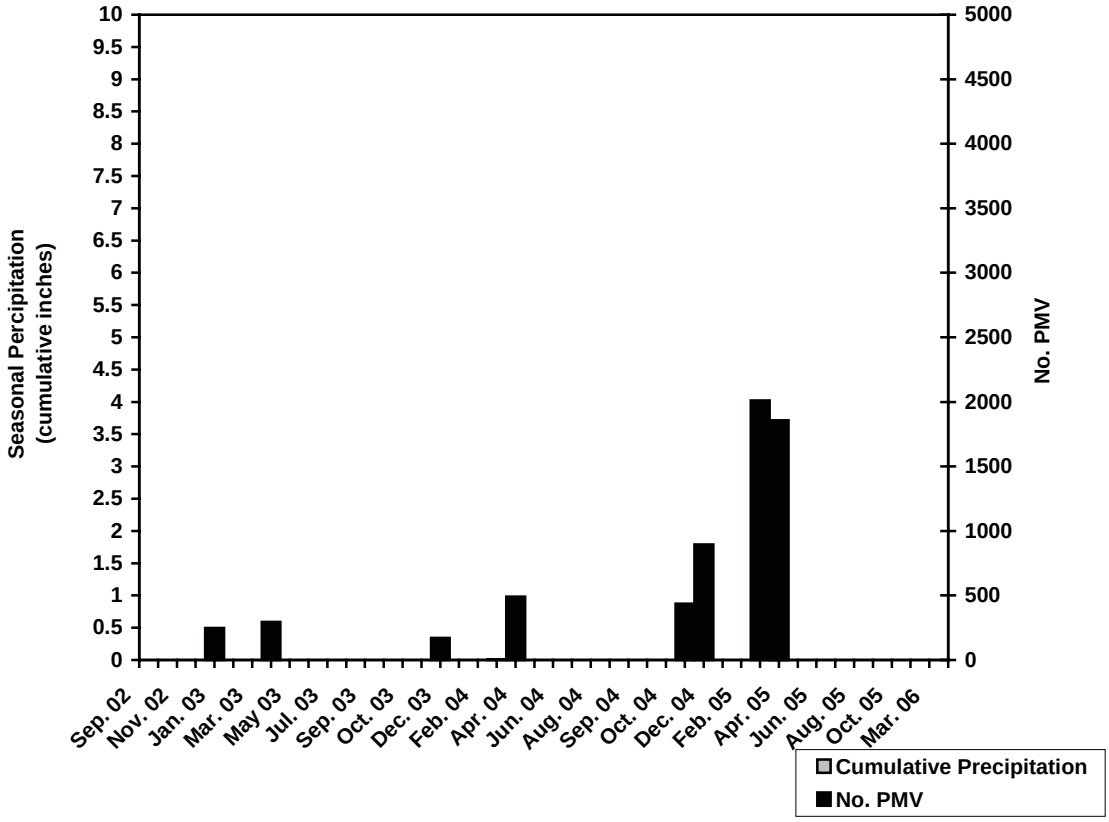


Figure 4. Seasonal precipitation v. seedling counts at 6 Glamis sample sites 2002-06

The cumulative precipitation totals are reset in our diagrams as of 1 October each year. (The actual cumulative figures from the RAWS stations are reset annually on November 16th.) The dark bars represent plant counts at each visit for seven study sites at Buttercup and six sites at Glamis (near the Cahuilla RAWS). Patton Valley site data is not included as there is no nearby weather station.

As the above figures clearly indicate, there is an obvious correlation between the amount and timing of seasonal precipitation in the dunes system and the germination and/or survival rates of Pierson's milkvetch.

We find that the limited (and perhaps too early) precipitation of 2005 resulted in minimal germination. The major rainfall event of August 8-9, 2005 is clearly shown on the graphs. These monsoon thunderstorms dropped large amounts of moisture in a short period of time, especially at Glamis, where flooding was reportedly widespread and runoff caused damage to roads. It was somewhat surprising to find that survival of plants that germinated in 2004-05 was only 1.6% over the summer of 2005. Apparently the rather early start to summer – the last rainfall of the season was on March 11th – resulted in heavy mortality of first-year plants during early summer, prior to the August storms. In December 2005 moist sand was noted 4-6 inches below the surface; this must have been residual moisture from August, and resulted in healthy-looking plants that had been able to withstand the drought conditions of early summer.

The first (and only) rains of fall occurred on October 17th and 18th, 2005, and left 0.02 inches at both Cahuilla and Buttercup. This did not result in any germination, as noted on the November and December 2005 visits. Although prior studies have shown that a moderate amount of rain at that time of year can result in germination, the small amount recorded in 2005 coupled with still-warm temperatures likely made the light fall rains ineffective.

The remainder of the 2005-06 winter was dry until March 11th, when rains totaling 0.15 inches at Buttercup and 0.24 inches at Cahuilla fell at the dunes. This made 2005-06 the driest winter season of the six years of this study. Minimal germination occurred after this storm, as a total of nine seedlings was counted in April.

Additionally, the first rain of the 2003-04 growing season may have occurred too late in the season (November 12th), when 0.26 in fell at Buttercup and 0.11 in was recorded at Cahuilla. The winter was quite dry until a storm in late February. Both of these storms resulted in some germination, however an early April rainfall comparable in magnitude to the February storm resulted in no additional germination. These combined observations provide important evidence that Peirson's milkvetch seeds do not germinate after late rains; most probably a temperature-driven response that prevents seeds from germinating so late in the season that they would have no chance to develop enough to survive the approaching summer.

In stark contrast to precipitation and subsequent lower germination rates in both the 2003-04 and 2005-06 growing seasons (shown in Figures 3 and 4), the magnitude of precipitation in 2004-05 and the explosive germination event it triggered is also clearly evident. Indeed, by mid-March nearly 78,000 first-year plants were counted, more than twice as many first-year plants as were counted in any previous census at the 25 sample sites, and at some sites many of the germinants were already in fruit. The smooth slope of the cumulative rainfall curve in the Figures shows that the season was not punctuated by dry spells (plateaus) as in the prior and latter seasons. The sand was continuously wet a couple of cm below the surface all winter, which apparently accounts for nearly continuous germination throughout the season. Significantly, the Figures also show that a six-week dry spell (with associated warm temperatures and high winds) resulted in a decrease in the number of first-year plants counted in April 2005. Indeed, these critical findings are further supported by additional independent precipitation trend studies:

> Pierson's milk-vetch abundance was closely tied to precipitation throughout the four years of monitoring. Species abundance was highest in 1998, second highest in 1977, third highest in 1999, and lowest in 2000. This mirrors the ranking of the four growing seasons in terms of average precipitation. … *Responses of this species were similar in both the closed and open recreation areas across all 4 years of monitoring*. [BLM 2003:120; emphasis added]

Nevertheless, despite the dry conditions throughout the 2005-06 growing season, surviving perennials and 2004-05 plants produced an abundance of seedpods (145,350 pods, resulting in over 1.5 million seeds among 25 sample sites) by the spring of 2006,

making a significant contribution to the existing seed bank. Apparently, the deep, well-developed root systems of older plants allow them to tap moisture stored far beneath the sand's surface, ensuring the reproductive capacity of these perennial plants through significant periods of drought.

Germination, Survival and Recreational Dunes Use

According to the BLM, visitation rates in the Algodones Dunes have climbed steadily over the years and are anticipated to continue to trend upward over the next ten years (BLM 2003, 2004). Indeed, "many families use outdoor recreation as a way to form bonds and transfer important family values to children. A number of Americans feel recreation strengthens the family as a unit and the children as individuals. …Participation in outdoor activities can greatly increase family interaction and foster cohesion" (BLM 2003: 150). Thus, investigation of the impact of increased visitation on the status of *A.M.* var. *peirsonii* in the dunes system is of grave concern.

Figure 5 shows BLM visitation data at the Algodones Dunes 2001 - 2004 and projected visitation estimates of the 2005-06 recreation season. According to the BLM " a 'visit' occurs when one person visits BLM lands to engage in any recreation activity, whether for a few minutes, full day, or more" (BLM 2003: 237). 2005-06 projected visitation estimates are derived from BLM analyses, based on an average 5 percent growth rate from a 2000 baseline season.

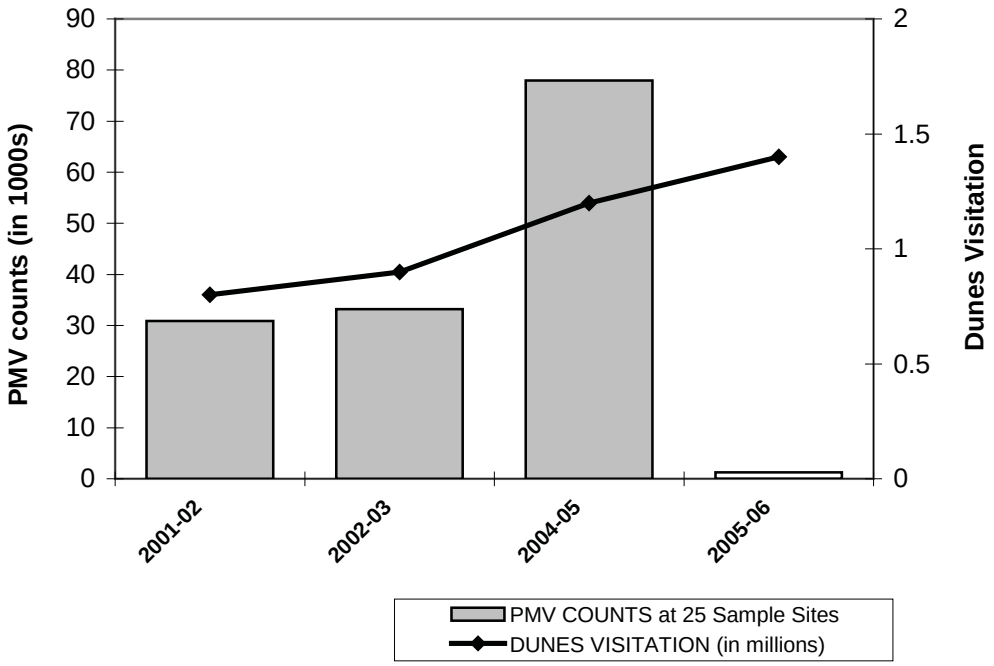


Figure 5. Seasonal Algodones Dunes visitation and Peirson's milkvetch population 2001-2006

As this Figure shows, there is little correlation between recreational use rates and the occurrence of Peirson's milkvetch in the Algodones Dunes. Indeed, if such a

correlation did exist, we would expect to see a plant population decline in correspondence with a visitation increase. Not only is this inverse relationship not readily apparent, these data clearly show the opposite effect -- an *increase* in plant population during a period of increased dunes visitation (2001-2005). In fact, the only population decrease that occurred over the entire period of study was during the 2005-06 season, which was (coincidentally) the driest of the growing seasons we have yet encountered. Furthermore, Figure 5 shows a dramatic increase in Peirson's milkvetch population in 2004-05, despite a rise in recreational dunes use. As Table 6 and Figures 3 and 4 (above) show however, 2004-05 was also the wettest growing season we have documented since 2000. Indeed, through direct comparison of Figures 3, 4 and 5, it is clear that the precipitation data essentially mirror fluctuations in plant populations, whereas recreational use data show no correlation with population variance whatever.

CONCLUSIONS

This report summarizes four significant findings from our 2005-06 study of the status of *A. m.* var. *peirsonii* in the Algodones Dunes system.

1) Despite dry conditions, minimal germination and low survival rates, a small number of mature *A. m.* var. *peirsonii* can substantially contribute to the soil seed bank, thus ensuring proliferation of the species.

2) Despite diverse weather conditions, and variations in germination and survival rates, the soil seed bank is remarkably stable over time.

3) Increases in recreational use have little or no impact on annual fluctuations in Peirson's milkvetch population in the Algodones Dunes.

4) The timing and duration of precipitation, along with other climatic factors, is the likely cause of annual variation in plant germination and survival rates.

The contrast between the 2004-05 and 2005-06 growing seasons for Peirson's milkvetch was the greatest of any two consecutive seasons in the course of this study: the former was the wettest documented, producing the highest number of plants, and the latter was the driest, with the fewest plants. Nonetheless, the surviving plants from 2004-05 and previous years did well, with a combination of favorable temperatures and residual soil moisture producing vigorous vegetative growth and abundant reproduction in the spring.

The 2005-06 seed bank study included analysis of the nature of the seed bank, and gathering data that could be used to corroborate conclusions we drew from our initial seed bank study in 2001-02. From the beginning of the study our assumption has been that the status of the population, and the health and well-being of the species, cannot be determined from analysis of the number of living plants alone. The seed bank must be considered as the primary source of information in assessing whether an ephemeral, short-lived species such as Peirson's milkvetch is healthy or imperiled, increasing or decreasing, and in need of intervention or protection to ensure its survival. The similarity

of the status of the seed bank in 2002 and 2006 (statistically identical at the 95% confidence level) shows unequivocally that this is the best method of determining whether the species is increasing, decreasing, or stable.

In contrast to the stability of the seed bank, the number of living plants, especially seedlings, is strongly tied to the amount and timing of rainfall. The winter seasons of 2004-05 and 2005-06 had the greatest extremes of rainfall amount of the six years of our studies, and the contrast in numbers of living plants, especially seedlings, followed this pattern precisely.

Comparison of dunes visitation data and the occurrence of Peirson's milkvetch, however, show no correlation between increased recreation and plant occurrences, adding further support to our contention that it is *natural, rather than human, factors that account for annual variance in plant populations.*

Finally, we conclude that the population of *A.* m var. *peirsonii* in the Algodones Dunes is vibrant, healthy, and responsive to climatic events that promote germination more than any other factor, natural or man-caused. It is able to remain dormant by means of a healthy seed bank when conditions are unfavorable, and to germinate explosively when rainfall conditions and temperature are favorable. It is well-adapted to survive and thrive extreme conditions of rainfall, drought, heat, cold, and abrading winds which move large amounts of substrate in a short time. The adaptability of the plants, and their distribution in the dunes with respect to patterns of OHV use, make natural factors under which it has evolved much more important than man-caused factors, including recreation, in determining its health, vigor, and status in the Algodones Dunes.

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Appendix A
Summary of actual plant counts at 25 sample sites, stratified by location, 2001 – 2006

ASA PMV Study Sites - November 2004 - December 2005
Algodones Dunes (ISDRA), California

Site No.	Loc.	# Plants Spring 01	# Nov.03-Mar.04 Sdl. Apr. 04	#03-04 Survivors Dec. 04	#New Seedl. Nov. 04	#New Seedl. Dec. 04	#2004-05 Plts. Mar. 05	#2004-05 Plts. Fertile Mar. 05	#2004-05 Plts. Apr. 05	#2004-05 Plts. Fertile Apr. 05	#2004-05 Plts. Dec. 05	#2004-05 Plts. Fertile Dec. 05
6	Butrcup	340	0	0	55	207	208	187	157	62	3	0
7	"	3,127	1,465	126	5,535	18,880	24,681	12,274	17,982	3,420	377	3
21	"	1,327	82	3	700	1,842	2,175	1,054	2,203	580	21	0
22	"	807	49	5	400	824	634	476	837	460	34	0
23	"	2,800	26	0	215	2,894	1,525	862	3,186	966	9	0
28	"	978	530	21	1,300	2,400	4,364	3,172	2,292	899	47	0
29	"	3,994	732	33	1,860	3,750	8,039	4,934	4,893	909	59	1
32	Pat. Vly.	657	747	51	245	1,604	2,769	1,931	4,052	1,662	34	2
34	"	1,534	85	20	1,500	2,845	2,748	2,419	3,221	1,023	55	4
41	"	120	546	132	525	1,795	2,286	1,453	2,960	1,026	9	0
44	"	798	105	8	0	175	797	572	818	434	57	5
46	"	1,531	1,646	176	1,750	3,050	6,662	3,985	4,326	1,073	68	3
47	"	2,530	585	73	1,100	3,831	3,424	2,129	3,001	1,314	51	3
48	"	1,037	289	25	225	2,165	2,531	1,211	2,248	943	36	3
51	"	1,898	778	128	418	2,074	3,255	2,947	2,859	860	39	0
52	"	3,010	214	36	500	3,009	3,465	2,470	3,398	1,300	65	7
53	"	1,090	140	54	314	545	932	840	1,046	370	5	0
54	"	577	501	163	1,600	2,115	1,632	1,420	2,406	491	45	1
57	"	1,967	842	67	200	918	3,783	3,226	3,188	1,053	197	29
13	Glamis	230	272	47	100	610	1,712	1,238	1,543	990	15	0
15	"	28	0	0	1	28	30	22	19	14	0	0
16	"	265	0	0	114	92	95	48	90	24	0	0
19	"	77	214	0	15	79	117	64	170	62	0	0
60	"	88	5	0	30	40	18	7	11	3	0	0
61	"	41	0	0	125	46	40	17	25	7	7	2
		30,851	9,848	1,168 (11.9%)	18,827	55,818	77,922	48,958 (62.8%)	66,931	19,945 (29.8%)	1,233	63 (5.1%)

Appendix B
In-field data form, December 2005

Algodones Dunes Rare Plant Surveys

December 2005

Peirson's Milkvetch

Astragalus magdalenae* var. *peirsonii

Site No. _____ Area 1 2 3 Date _____

Investigators _____

****

Seedlings present? YES NO

No. of seedlings: 1-10 10-100 100-1000 1000+

No. of 2004-05 survivors _____

No. of 2004-05 survivors reproductive _____

No. of perennial survivors _____

No. of perennial survivors reproductive _____

Notes:

Appendix C
Seed bank survey in-field data form, March 2006

Algodones Dunes Rare Plant Surveys

Peirson's Milkvetch

Astragalus magdalenae* var. *peirsonii

Seed Bank studies -- 2005-06

Site _____ Point No. _____ Area 1 2 3 Date _____

Investigators _____

No.	Frame Size L / S	Seeds No. on Surface	Seeds No. Buried	Seedlings No. Emergent	Seedlings No. Buried	No.	Frame Size L / S	Seeds No. on Surface	Seeds No. Buried	Seedlings No. Emergent	Seedlings No. Buried
1	L					1	S				
2	L					2	S				
3	L					3	S				
4	L					4	S				
5	L					5	S				
6	L					6	S				
7	L					7	S				
8	L					8	S				
9	L					9	S				
10	L					10	S				
11	L					11	S				
12	L					12	S				
13	L					13	S				
14	L					14	S				
15	L					15	S				
16	L					16	S				
17	L					17	S				
18	L					18	S				
19	L					19	S				
20	L					20	S				

Notes:

Appendix 1. Spring 2004 population and density estimates for ASMAP in the 7 management areas of the Algodones Dunes and the entire dunes
Values for the total number of plants are highlighted in yellow.

Second Run of Transects

Mammoth Wash

Class	Population Estimate	95% Confidence Limits Lower	Upper	Precision (+/- percent of mean)	Density Estimate (plants/ha)	95% Confidence Limits Lower	Upper
Nonflowering seedlings and juveniles	1,509	542	2,476	64.08%	1.129	0.406	1.852
Flowering and past flowering	144	41	247	71.53%	0.108	0.031	0.185
Total number of plants	1,653	636	2,670	61.52%	1.237	0.476	1.998
Plants > 1 year old	352	95	609	73.01%	0.263	0.070	0.456
Plants with OHV damage	4	1	11	175.00%	0.003	0.001	0.009
Plants with other damage	84	21	176	109.52%	0.063	0.016	0.132

Wilderness

Class	Population Estimate	95% Confidence Limits Lower	Upper	Precision (+/- percent of mean)	Density Estimate (plants/ha)	95% Confidence Limits Lower	Upper	2003 Pop Estimate	% diff 2003 to 2004
Nonflowering seedlings and juveniles	1,193	481	1,905	59.68%	0.478	0.192	0.764	58,943	-98%
Flowering and past flowering	831	273	1,389	67.15%	0.333	0.109	0.557	648	28%
Total number of plants	2,024	998	3,050	50.69%	0.812	0.400	1.224	59,591	-97%
Plants > 1 year old	540	132	948	75.56%	0.217	0.053	0.381	1,989	-73%
Plants with OHV damage	0	0	0		0.000	0.000	0.000		
Plants with other damage	23	5	44	91.30%	0.009	0.002	0.018		

Gecko

Class	Population Estimate	95% Confidence Limits Lower	Upper	Precision (+/- percent of mean)	Density Estimate (plants/ha)	95% Confidence Limits Lower	Upper	2003 Pop Estimate	% diff 2003 to 2004
Nonflowering seedlings and juveniles	36,738	22,821	50,655	37.88%	9.718	6.037	13.399	114,972	-68%
Flowering and past flowering	6,536	3,253	9,819	50.23%	1.729	0.860	2.598	296	2108%
Total number of plants	43,275	27,993	58,557	35.31%	11.447	7.405	15.489	115,267	-62%
Plants > 1 year old	3,441	1,660	5,222	51.76%	0.910	0.439	1.381	1,182	191%
Plants with OHV damage	218	31	405	85.78%	0.058	0.009	0.107		
Plants with other damage	218	17	445	104.13%	0.058	0.004	0.118		

Glamis

Class	Population Estimate	95% Confidence Limits Lower	Upper	Precision (+/- percent of mean)	Density Estimate (plants/ha)	95% Confidence Limits Lower	Upper
Nonflowering seedlings and juveniles	22,797	10,820	34,774	52.54%	6.274	2.977	9.571
Flowering and past flowering	5,829	1,850	9,808	68.26%	1.604	0.509	2.699
Total number of plants	28,627	14,878	42,376	48.03%	7.878	4.095	11.663
Plants > 1 year old	2,694	436	4,952	83.82%	0.742	0.120	1.364
Plants with OHV damage	376	29	780	107.45%	0.103	0.008	0.214
Plants with other damage	207	61	353	70.53%	0.057	0.017	0.097

Adaptive Management Area

Class	Population Estimate	95% Confidence Limits Lower	Upper	Precision (+/- percent of mean)	Density Estimate (plants/ha)	95% Confidence Limits Lower	Upper
Nonflowering seedlings and juveniles	50,191	2,585	110,736	120.63%	8.971	0.462	19.793
Flowering and past flowering	1,650	478	2,822	71.03%	0.295	0.085	0.505
Total number of plants	51,841	2,672	113,261	118.48%	9.266	0.478	20.244
Plants > 1 year old	1,741	90	4,588	163.53%	0.311	0.016	0.820
Plants with OHV damage	0	0	0		0.000	0.000	0.000
Plants with other damage	2,077	116	5,817	180.07%	0.371	0.021	1.039

Ogilby

Class	Population Estimate	95% Confidence Limits Lower	Upper	Precision (+/- percent of mean)	Density Estimate (plants/ha)	95% Confidence Limits Lower	Upper
Nonflowering seedlings and juveniles	153,097	15,667	292,821	91.27%	45.069	4.612	86.201
Flowering and past flowering	1,329	136	3,036	128.44%	0.391	0.040	0.893
Total number of plants	154,426	15,803	294,409	90.65%	45.460	4.652	86.668
Plants > 1 year old	1,007	103	2,706	168.72%	0.296	0.030	0.796
Plants with OHV damage	39	4	84	115.38%	0.012	0.001	0.025
Plants with other damage	68	7	154	126.47%	0.020	0.002	0.045

Buttercup

Class	Population Estimate	95% Confidence Limits Lower	Upper	Precision (+/- percent of mean)	Density Estimate (plants/ha)	95% Confidence Limits Lower	Upper
Nonflowering seedlings and juveniles	4,524	918	10,511	132.34%	4.650	0.944	10.804
Flowering and past flowering	5	1	14	180.00%	0.005	0.001	0.014
Total number of plants	4,529	919	10,516	132.19%	4.655	0.945	10.809
Plants > 1 year old	0	0	0		0.000	0.000	0.000
Plants with OHV damage	94	19	239	154.26%	0.096	0.020	0.245
Plants with other damage	0	0	0		0.000	0.000	0.000

Entire Dunes

Class	Population Estimate	95% Confidence Limits Lower	Upper	Precision (+/- percent of mean)	Density Estimate (plants/ha)	95% Confidence Limits Lower	Upper
Nonflowering seedlings and juveniles	270,050	126,391	413,709	53.20%	12.734	5.960	19.508
Flowering and past flowering	16,324	11,130	21,518	31.82%	0.770	0.525	1.015
Total number of plants	286,374	141,787	430,961	50.49%	13.503	6.685	20.321
Plants > 1 year old	9,775	5,664	13,886	42.06%	0.461	0.267	0.655
Plants with OHV damage	731	292	1,170	60.05%	0.021	0.013	0.055
Plants with other damage	2,678	182	6,172	130.47%	0.126	0.009	0.291

The Life History of Peirson's Milkvetch (*Astragalus magdalenae* var. *peirsonii*) in the Algodones Dunes, California 2004- 05

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FINAL REPORT
PREPARED FOR THE
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Photos by A. M. Phillips, III, D. Roth, and D. J. Kennedy. Cover photos: D. Roth

INTRODUCTION

Winter rains began early in the Algodones Dunes in the 2004-05 growing season, starting with a storm on October 22nd that left 1.3 inches of rain at Buttercup and 0.88 inches at Cahuilla. Rainfall continued at regular intervals through early March, providing growing conditions favorable for germination of seeds and robust growth of perennials.

This report summarizes findings from a fifth year of studies on the ecology, phenology, and demography of *Astragalus magdalenae* var. *peirsonii* (Peirson's milkvetch), a short-lived perennial in the Legume family (Fabaceae) that is widely distributed in clustered populations throughout the Algodones Dunes complex. It was listed as a Threatened species in 1998 (USFWS 1998, CNPS 2001, BLM 2000a) and has been the focal point of a number of legal and administrative actions, especially since the fall of 2000. Despite the listing, little information was available on the plant's biology; thus, the American Sand Association has funded a multi-year research project in order to learn more about the ecology of this desert plant and its interactions with off-highway vehicles (OHVs**),** with which it shares the Algodones Dunes.

The Algodones Dunes are a complex of sand dunes located in southeastern Imperial County, California and extending a short distance into adjacent Baja California, Mexico. They support a specialized, limited biota that has adapted to the severe conditions posed by an ever-changing habitat with low, unpredictable rainfall, severe annual and diurnal temperature extremes and occasional severe abrading wind-carried sand. Many of the plant species found in the dunes are endemic to sand dunes in the Lower Colorado Valley subdivision of the Sonoran Desert (Bowers 1986; Shreve 1964). Among these is Peirson's milkvetch.

Research Area

An overview of the geologic history and setting of the Algodones Dunes is provided by Norris and Norris (1961). The system consists of a complex chain of overlapping barchan dunes, with the higher dunes rise 60-90 m (200-300 feet) above the desert floor. From west to east a series of sand ridges along the western edge gradually transition to the highest, most active dunes (generally the focal point of OHV recreation) in the eastern half of the system. Between the ridges and the high dunes are a series of lower bowls and ridges, which support the highest levels of vegetation density, including Peirson's milkvetch.

The Algodones Dunes are about 65 km (40 miles) in length, trending from northwest to southeast, and from 5 to 10 km (3 to 6 miles) wide (see Figure 1 below). The total area of the dune system includes approximately 60,705 ha (150,000 acres), of which 10,730 ha (26,500 acres) were designated as a wilderness area in 1972 (BLM 2000b). Temporary administrative closures of an additional 20,000 ha (49,000 acres) were imposed in November 2000 as a lawsuit settlement over protection of Peirson's milkvetch.

Off-highway vehicle (OHV) recreational use of the Algodones dunes complex has been occurring for several decades. There has been a substantial increase in OHV popularity in the past 25 years, however, with mushrooming use levels in the past decade

due to the introduction of a wider variety of vehicles of increasing sophistication. Although there has been some speculation that increasing levels of OHV use within the dune system negatively affect the status of *A. m.* var. *peirsonii*, it is important to note that *no scientific, empirical study examining the actual impact of OHV use on Peirson's milkvetch (along with other plants and animals in the dune system) has yet been completed.* Thus, the primary purpose of this long-term research project is to address the critical gap in our collective knowledge of a crucial desert plant.

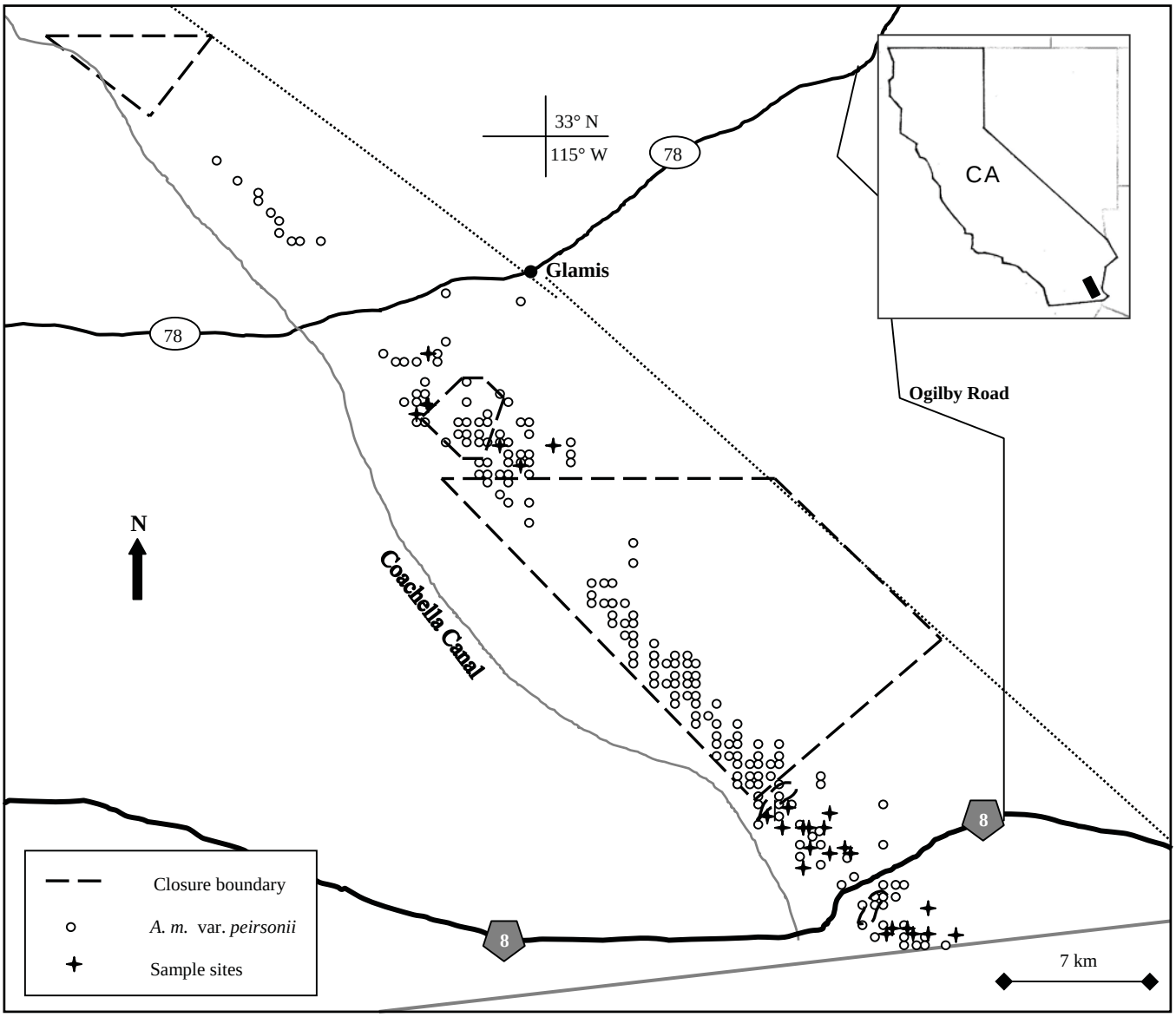


Figure 1. Distribution of *Astragalus magdalenae* var. *peirsonii* sites in the Algodones Dune system initially surveyed in spring 2001, sampled in winter 2001-02, and re-sampled in all subsequent studies[1]

[1]Site locations are approximate; see Phillips et al. (2001) Appendix A for exact geo-coordinates. Locations within the closure areas were mapped by helicopter survey.

METHODS

The 2004-05 growing season marked a fifth year of study of the *A. m.* var. *peirsonii* population, distribution and ecology in the Algodones Dune system. As previously noted, the 2004-05 season received abundant rainfall resulting in the largest germination event we have yet documented for this plant. This report provides another year of cumulative scientific data, compiled through ten individual studies conducted over a five-year period (2001-2005), on the ecology and life history of this important desert plant. Our initial study, conducted in 2001, included the mapping and documenting of known Peirson's milkvetch distribution and population throughout the entire dune system (see Phillips et al. 2001). Subsequent studies, including those conducted in 2004-05, have focused on a 40% sample of sites identified in the initial 2001 survey as areas of known plant occurrence, randomly selected and stratified by location in the dunes complex (Phillips and Kennedy 2002).

As previously noted, when this research project began in early 2001, there was little literature available on the ecology of *A. m.* var. *peirsonii*, as few scientific studies of the species had been conducted. The over-riding purpose of this multi-year project is to compile empirical data in order to address several basic research questions on the status of *A. m.* var. *peirsonii*. These include:

- What is the population status of *A. m.* var. *peirsonii* in the Algodones Dune complex?
- How are the plants distributed, both within the dune system and within individual sites of occurrence?
- Are Pierson's milkvetch clusters self-perpetuating?
- Under what conditions are plants most or least likely to germinate and thrive?
- How significant is time of germination to the ability of the plants to reproduce?
- Are first-year plants able to reproduce?
- What is the survivorship rate of plants over time?
- What is the impact of OHV use on the status of the species?
- What is the status of the seed bank?
    - What is its overall size?
    - How many seeds does an average plant produce in one year?
    - How long do the seeds remain viable?
    - How are seeds dispersed?
    - Are there predation impacts on the seed bank?
    - Where in the substrate does germination occur?
- Do viable populations of *A. m.* var. *peirsonii* exist outside the Algodones Dune complex?

Over the course of this project, various methods have been adopted to address these questions. Study methods and protocols included in this research agenda evolved

from prior findings; thus enabling us to establish a valid scientific framework from which we base our conclusions. The following is a brief overview of the methods and findings of our work.

Year One – Habitat, Distribution, Population and Reproduction

In order to evaluate the population, distribution, reproductive capabilities and habitat requirements of *A. m.* var. *peirsonii* during year one of our study, we employed a number of observational techniques. Statistical sampling methods were not included in this stage of the investigation, since the purpose of this initial survey was to locate as many occurrences of the subject plants as possible, and to completely census and document reproductive and habitat data from every area in the dune system in which they were found.

A preliminary reconnaissance of the dune complex was conducted in 2001 from the U.S.–Mexico border north to California Highway 78 (the southern boundary of the wilderness area) covering approximately 14,165 ha (35,000 acres), or 59% of the open area of the dune system. From data collected during this reconnaissance, we determined that *A. m.* var. *peirsonii* generally occurs in highly clustered, specialized habitats within the dunes, and that a large portion of the dune system (approximately 70-75%) does not contain habitat suitable for these plants. Using data gathered from the reconnaissance and informant interviews, along with our specific knowledge of habitat requirements, we selected several areas for concentrated surveys for the presence of the subject plant.

When *A. m.* var. *peirsonii* plants were present in an area, it was designated a "site," a number was assigned to that area and a complete census of plants was conducted. The location and circumference of each site was recorded using Global Positioning System (GPS) technology. Any area of occurrence that was too small to circumscribe, or that contained a single cluster of *A. m.* var. *peirsonii*, was designated a "point." The plants contained within a point were also censused and their location documented. Utilizing this methodology, we identified and mapped 60 sites and 66 points of Peirson's milkvetch occurrence, and documented an actual total of 71,926 plants. Of these, approximately 45% were determined to be reproductive. Both site and point data were mapped and entered into a master database (Phillips et al. 2001, Appendix A).

An aerial (helicopter) reconnaissance of the 30,567 ha (75,000 acres) within the three temporary closure areas and the wilderness area allowed us to map the distribution of Peirson's milkvetch utilizing GPS technology. No census of plants was possible from the air but 185 points of milkvetch occurrence were mapped (see Phillips et al. 2001, Appendix B).

Year Two – Seed Bank Viability and Plant Survival

The data gathered during the first year of study showed a high degree of non-random distribution of Peirson's milkvetch within the dune system; i.e., the plants were distributed in particular similar locations, and clustered within the habitats where they were found. Additionally, results of the 2001 survey showed significant diversity of plant population and density between three general areas of Pierson's milkvetch distribution within the dune complex -- possibly due to differences in habitat, rainfall,

temperature and/or OHV use. Thus, in order to account for this variance and adequately represent the target population, we stratified the 60 sites of known plant occurrence into three locations. Location 1 encompasses most of the open area of the dune system south of Interstate 8 and north of the international border, known as the Buttercup area. Location 2 includes the area north of Interstate 8 and south of the large central closure (Patton Valley). Location 3, in the northern region of the system, includes the open area from south of Highway 78 and east of Gecko Road to the northern boundary of the large central closure. From each location, we randomly selected 40% of the sites for sampling in year two; thus, seven sites were selected in location 1, twelve in location 2 and six in location 3, for a total of 25 sample sites. According to the literature, this sampling method is best suited for the study of clustered populations (see Phillips et al. 2001 for full discussion). Additionally, stratified random sampling is common practice in natural resource sampling. Utilizing this method, density and population estimates are calculated separately for each location (i.e. – "stratum"); thus, each sampling location is treated as if it were a simple random sample (see Schreuder et al. 2004, cited in BLM 2005:3).

Year two of the study was conducted from November 2001 to February 2002 and data on the *A. m.* var. *peirsonii* October 2000 cohort survival rates and seed bank viability were collected, documented and analyzed. The purpose of the soil seed bank study was to provide an estimate of the number of seeds in the seed bank in order to assess the potential status of the population, and to determine patterns of spatial and temporal seed distribution. The purpose of the 2000 cohort survival census was to determine the viability and reproductive capability of Pierson's milkvetch from one growing season to another (given summer temperature extremes).

Both seed and 2000 cohort survivor population estimates were made based on actual counts at each sample site per location, then extrapolated to all the sites of known plant occurrence (identified in 2001) at each location. Analysis of the second year of data shows a seed bank population of 2.5 million (using actual counts of reproductive plants only) to 5.6 million (using actual counts of the total number of plants) *A. m.* var. *peirsonii* seeds. The estimate of the 2000 cohort survivorship to winter 2001-02 was determined to be approximately 21% (see Phillips and Kennedy 2002 for full discussion of results).

Years Three and Four – Population, Reproduction, Germination and Survival

Year three studies were conducted from March to May 2003 and included a third-season census of the survival and reproductive rates of the 2000 cohort plants at the 25 sample sites, and a census of a new seedling cohort group that had germinated in late February 2003. Results of this study are presented in Phillips and Kennedy (2003).

The fourth year of this project included four separate studies of Peirson's milkvetch population and status, beginning in October 2003 to April 2004, during which we were able to document two germination events (November 2003 and February 2004), as well as gather data on perennial survivors at our 25 sample sites. Additionally, we were able to observe, document and compare the viability of two groups of germinant cohorts through a single growing season to determine how critical time of germination is to the ability of *A. m.* var. *peirsonii* to reproduce. A comprehensive analysis and discussion of the results of year four studies are found in Phillips and Kennedy (2004).

Year Five – Documenting a Major Germination Event

The fifth year of research on the status of *A. m.* var. *peirsonii* included four Algodones Dunes studies and a survey of Anza-Borrego State Park to determine if a viable plant population exists outside the dunes complex. During each of the dunes studies, a census of the plant population at each of the 25 sample sites was conducted in the same manner as in prior years. Population counts were delineated based on fertility, the age class of plants was determined whenever possible, and data were recorded in field using both field forms and GPS technology (see Appendices B and C for examples of in-field data forms used in the 2004-05 studies). Additionally, plant "clusters"[2] that had been documented and mapped at each of the sample sites in 2002 were revisited to determine whether Pierson's milkvetch clusters are self-perpetuating (see Appendix D).

A survey of dune areas in Anza Borrego Desert State Park was conducted by Vincent Brunasso in an attempt to locate an old, undocumented locality for *A. m.* var. *peirsonii.* We (Phillips, Kennedy, and Brunasso) visited one small population along the eastern edge of the park in December 2004, when about 30 seedlings were present. It was re-visited by Dr. J. Mark Porter of Rancho Santa Ana Botanic Garden in March 2005; he reported about 22 plants, with eight individuals in flower. He confirmed the identification as Peirson's milkvetch but did not consider it to be a viable population because of the small number of plants and possible lack of genetic diversity (personal communication, J. M. Porter to V. J. Brunasso, 17 March 2005). No additional occurrences of Peirson's milkvetch were found in Anza Borrego. We also carried out negative searches for *A. m.* var. *peirsonii* in the Mohawk Dunes, Yuma County, Arizona; a small area in the northwestern portion of the Gran Desierto dunes in northwestern Sonora, Mexico; and V. J. Brunasso searched the Kelso Dunes, California, and dunes east of Anza-Borrego.

A. m. var. *peirsonii* density and population estimates are based on sample site values. Density values are calculated individually for each location and population estimates extrapolated only to those sites of known Peirson's milkvetch occurrence at each location. Thus, the mean plant density (plants per square meter) of seven sites at Buttercup is extrapolated to the 17 Buttercup sites originally identified in 2001, the mean plant density of 12 sample sites at Patton Valley is extrapolated to the 27 original Patton Valley sites, and so on. This method is highly consistent with natural resource sampling methodology, and was recently adopted for the 2004 BLM survey of special status plants in the Algodones Dunes complex (BLM 2005). Our population estimates, however, are much more conservative than those reported elsewhere (see BLM 2005), since we extrapolate plant density data only to *known and documented sites of plant distribution* -- a total area of approximately 56 ha, or 0.9% of the potential habitat of *A. m.* var. *peirsonii.*

Upon completion of the 2004-05 fieldwork, data were analyzed using SPSS version 11.0 statistical software (SPSS 2001). Precipitation and survivorship graphs were produced with Microsoft Excel 2002; all other graphs and charts were constructed with SPSS.

[2] A "cluster" is defined as a minimum of 20 plants growing within a $70m^2$ area. During the 2002 seed bank study, all PMV clusters at each of the sample sites were mapped using GPS technology, and one cluster from each site was selected for study.

RESULTS AND DISCUSSION

Rainfall and germination were greater in the 2004-05 season than in any other of the five years of this study. The first year of the project, March 2001, was a season of abundant Peirson's milkvetch growth and reproduction; however, the 2004-05 rainfall resulted in approximately 2.5 times the number of plants that were recorded at the same sites in 2001.

The first rainfall of the season occurred October 21-22, 2004, resulting in 1.3 inches of precipitation recorded at the Buttercup RAWS weather station and 0.88 inches at the Cahuilla Ranger Station. Our first survey of the season was November 4-6, followed by December 17-20, 2004, March 12-15, 2005, and April 14-17, 2005 studies. This allowed us to observe and document a germination event that occurred from October through December 2004 and to assess the survival and reproductive success of the 2004 cohort germinants to March and April 2005.

In addition to 2004 germination data, data on the survival and the reproductive status of adult plants documented in previous years' studies were recorded in November, December, and March. These data enabled us to determine how many of the fertile plants observed in the 2004-05 season were first-year plants and how many were second-year and older. A summary of data collected in the 2004-05 studies is in Appendix A of this report.

Population and Distribution

The results of population studies conducted during the fifth year of this project show an actual count of 77,922 live *A.m.* var. *peirsonii* documented at our 25 sample sites in March 2005, and 66,931 plants in April. These values were subsequently analyzed with an SPSS statistical program to determine average plant density per location (number of plants per square meter). The results are presented in Figure 2.

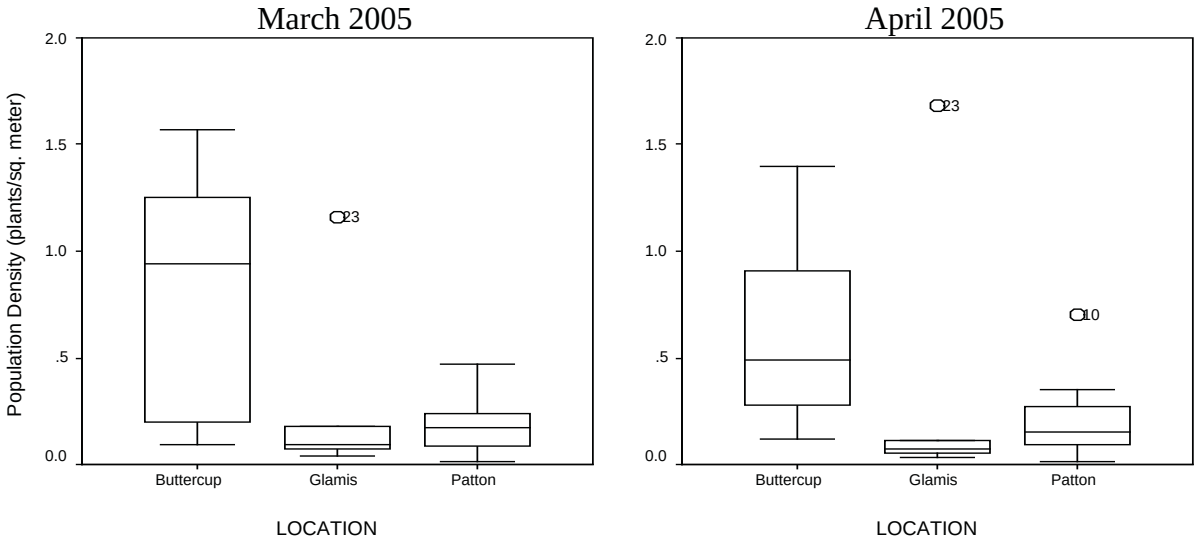


Figure 2. March and April 2005 plant density (plants/m^2)
25 sample sites at three locations

As evident in Figure 2, one sample site value (at Glamis) in March and two values (one each at Glamis and Patton Valley) in April are clearly outliers; thus they have the potential to skew our data. Therefore, population estimates are calculated two ways – one with all sample site values included, and a second with the outliers removed. In so doing, we feel that we are presenting the most conservative and valid population estimates possible. The results are presented in Table 1 and Figure 3.

PMV Population Estimates Per Location March 2005									
	Population (actual count)	Density$_1$ (μ PMV/m^2)	Range$_1$	Std. Dev.$_1$	**Population Estimate$_1$**	Density$_2$ (μ PMV/m^2)	Range$_2$	Std. Dev.$_2$	**Population Estimate$_2$**
Buttercup	41,626	0.7857	1.48	0.616	**94,166**	0.7857	1.48	0.616	**94,166**
Patton Valley	34,284	0.1858	0.19	0.438	**76,483**	0.1858	0.53	0.147	**76,483**
Glamis	2,012	0.3772	0.53	0.156	**10,748**	0.9400	1.12	0.48	**2679**
Totals	**77,922**				**181,397**				**173,328**

Population Estimate$_1$ based on extrapolation of mean plant density at all sample sites
Population Estimate$_2$ based on extrapolation of mean plant density with one outlier removed

PMV Population Estimates Per Location April 2005									
	Population (actual count)	Density$_1$ (μ PMV/m^2)	Range$_1$	Std. Dev.$_1$	**Population Estimate$_1$**	Density$_2$ (μ PMV/m^2)	Range$_2$	Std. Dev.$_2$	**Population Estimate$_2$**
Buttercup	31,550	0.6271	1.28	0.485	**75,184**	0.6271	1.28	0.485	**75,184**
Patton Valley	33,523	0.1950	0.34	0.109	**80,270**	0.1582	0.59	0.164	**65,121**
Glamis	1,858	0.3367	0.08	0.032	**9,594**	0.0680	1.65	0.659	**1,938**
Totals	**66,931**				**165,048**				**142,243**

Population Estimate$_1$ based on extrapolation of mean plant density at all sample sites
Population Estimate$_2$ based on extrapolation of mean plant density with two outliers removed

Table 1. March and April 2005 population estimates for 60 sites at three locations, based on mean plant densities per location (including and excluding outliers)

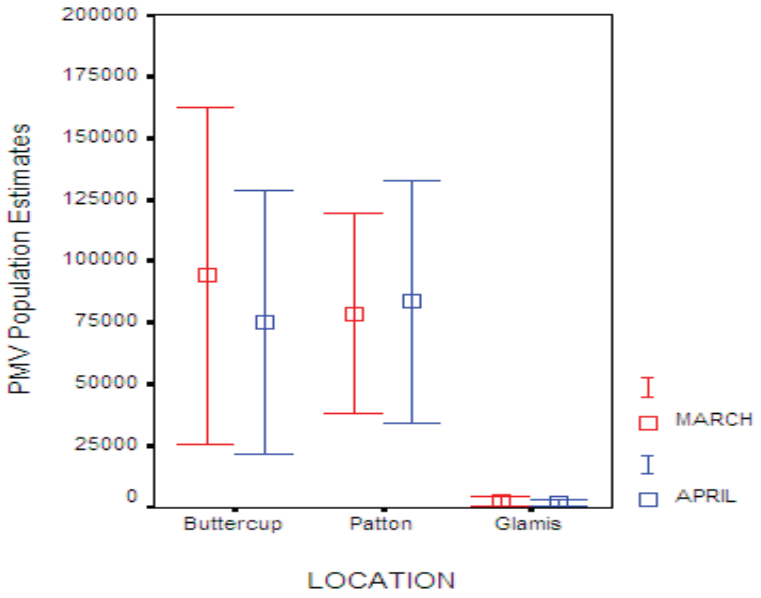


Figure 3. March and April 2005 population estimates (excluding outliers) per location. Bars represent 95% Confidence Intervals

Based on the results of the 2004-05 population studies, the approximate population of *A.m.* var. *peirsonii* present within 56 ha of the plant's potential habitat in the Algodones Dunes in March and April 2005 was (at a minimum) 173,328 and 142,243 plants respectively.

In addition to population studies, the fifth year of research on this project also included examination of plant distribution within specific sites in order to address the research question: Are plant "clusters" self-perpetuating? Although previous years' studies included observations of a number of the plant clusters documented at each sample site in 2001-02, a concerted effort was made in March 2005 to fully document (count the number of plants present) all plant clusters in the sample areas that had been mapped in the 2001-02 study. Thus, using GPS geo-coordinates and maps produced in 2002, each cluster was re-surveyed in 2005, and data were entered into a special field form (see Appendix D). The results are shown in Table 2.

Buttercup				**Patton Valley**				**Glamis**			
Site#	*#Clusters 2002*	*#Clusters 2005*	*Population Increase?*	*Site#*	*#Clusters 2002*	*#Clusters 2005*	*Population Increase?*	*Site#*	*#Clusters 2002*	*#Clusters 2005*	*Population Increase?*
6	1	2	Y	32	4	2	N	13	3	3	Y
7	4	5	Y	34	3	3	Y	15	1	1	Y
21	3	5	Y	41	3	3	N	16	1	0	N
22	5	4	N	44	2	3	Y	19	1	2	Y
23	5	5	Y	46	5	5	Y	60	1	0	N
28	3	4	Y	47	5	7	Y	61	1	1	N
29	4	4	N	48	3	3	Y				
				51	8	9	Y				
				52	5	5	N				
				53	4	4	Y				
				54	4	5	Y				
				57	4	4	Y				
Total	**25**	**29**	**Y**	**Total**	**50**	**53**	**Y**	**Total**	**8**	**7**	**Y**

Table 2. Results of plant cluster self-perpetuation survey, March 2005. Population increase refers to total number of plants in clusters, not to increase in number of clusters.

As these results indicate, clusters of *A.m.* var. *peirsonii* are clearly self-perpetuating, and, as in the case of two of the three locations surveyed, potentially re-generating after long periods of dormancy-- given proper conditions, such as adequate precipitation and temperature.

A second conclusion we were able to draw from this and prior years' research is that an individual plant cluster may completely die off during dry years, yet re-generate when conditions are appropriate. For example, fours years of cumulative data on a single plant cluster mapped and documented in February 2002 at Site 53 (Patton Valley) show an initial cluster of approximately 30 fertile plants in a $70m^2$ area. In November 2003, most of the adult plants were dead, but a small number of seedlings were observed. By December 2003, however, all the plants in the cluster were dead or missing, but 53 seeds were noted on the surface of the soil. In November 2004, the area included a large cluster

of seedlings; finally, in March 2005 that single plant cluster at Site 53 contained 35 fertile and 10 non-fertile first-year plants. The above example is one of several documented throughout the five-year course of this research project, which help to shed light on the status and viability of this important desert species.

2004-05 Germination

As noted above, a series of rainfall events beginning on October 21, 2004 resulted in the largest germination event recorded in the past five years for Peirson's milkvetch in the Algodones Dunes complex. Table 3 summarizes the actual counts of first-year plants documented at the sample sites (by location) during the four studies conducted in 2004-05.

	Nov. 04	*Dec. 04*	*Mar. 05*	*Apr. 05*
Buttercup	10,065	30,797	41,626	31,550
Patton Valley	8,377	24,126	34,282	33,523
Glamis	385	895	2,012	1,858
Total	**18,827**	**55,818**	**77,920**	**66,931**

Table 3. Numbers of seedlings/first-year plants at 25 sites in three areas of the Algodones Dunes at four sampling periods during the 2004-05 growing season

These values only refer to plants that germinated during the 2004-05 growing season; a discussion of second-year survivors and perennial plants is in the following section. As noted in Table 1, numbers of plants in each area increased substantially at each of the visits through March 2005. This is likely due to the fact that the amount and timing of rainfall from October through early March was such that the sand maintained continuous moisture within a centimeter or two of the surface, resulting in germination of Peirson's milkvetch seeds for an extended period during the growing season. Thus, in November, about two weeks after the initial rains, a total of 18,827 seedlings were counted. At the December visit, two months after the first rains and after three subsequent storms, 55,818 or nearly three times as many seedlings were counted. There was no means of aging plants, as there was a continuum of sizes. Apparently microsite differences play a greater role than age in determining size. The lack of any obvious size stratification, which would indicate bursts of germination after each storm, suggests that germination was essentially continuous.

Two storms in January and a major storm the third week in February kept the sand moist, and additional germination was noted at the March visit, resulting in a total of 77,920 plants counted and documented at our 25 sample sites. At that time some of the early first-year plants were already in fruit, having apparently flowered in January or early February, and it was not otherwise possible to distinguish early season germinants from later season seedlings. Still unresolved is the question as to whether germination occurs in the "dead of winter," from late December through early February; this question remains elusive as there was not an obvious two-tiered size class distribution of plants noted in 2004-05 that would have suggested separate germination times.

By the mid-April study, the numbers of plants started to decrease, and many were observed to be dead and dying from lack of water. Among these were some that had been in fruit in March, indicating that some first-year plants successfully reproduce even though they may not survive through spring of their first season. The last significant rainfall at both Buttercup and Cahuilla was on March 5th, and the depth to moist sand was much greater in April (20-30 cm vs. 2-5 cm in March), which, coupled with strong drying winds in April and higher temperatures, apparently caused the desiccation and death of up to 15% of the plants present at the time of the maximum plants counts in March 2005.

Survival

By the fall of 2004 there were only eight individuals surviving from the fall 2000 and late winter 2003 germination events, and it was no longer possible to determine the age of these plants. Most were large, diffuse, with thick roots (>1 cm in diameter), and flowering by December. The number of perennial survivors was so small by March 2005 that we discontinued counting them, and included them in a single count of "perennials" which included plants that germinated during the 2003-04 season. Table 4 summarizes counts of perennials and second-year plants in December, 2004. At that time, the number of surviving 2003-04 germinants present was 1,168; the count of these plants in March 2004 was 9,848, for a survival rate of 12% through the summer of 2004.

	#Perennial Survivors Dec. 04	*#2003-04 Survivors Dec. 04*
Buttercup	1	188
Patton Valley	3	933
Glamis	4	47
Total	**8**	**1,168**

Table 4. Number of perennial and second-year survivors at 25 sample sites in three locations of the Algodones Dunes, documented in December 2004.

A graph showing survivorship curves for the 2000, 2003, 2004, and 2004-05 cohorts is shown in Figure 4 below. This log-base 10 chart shows the sharp reduction in plant numbers during the summer, notably for the 2000 cohort in which the reduction (79%) was tempered by summer rains, and for the 2003 cohort (reduced by 99.7%), which germinated in February and did not have any rainfall during the ensuing summer. The 2003-04 cohorts (November and February) also had rainfall in late summer 2004, but there were also losses in the November-germinating plants due to drought conditions in mid-winter. Reductions in numbers of the fall 2004 cohort occurred between March and April, after the last rainfall event; numbers were actually higher in March (not shown on graph) than in December (the data point plotted on the chart).

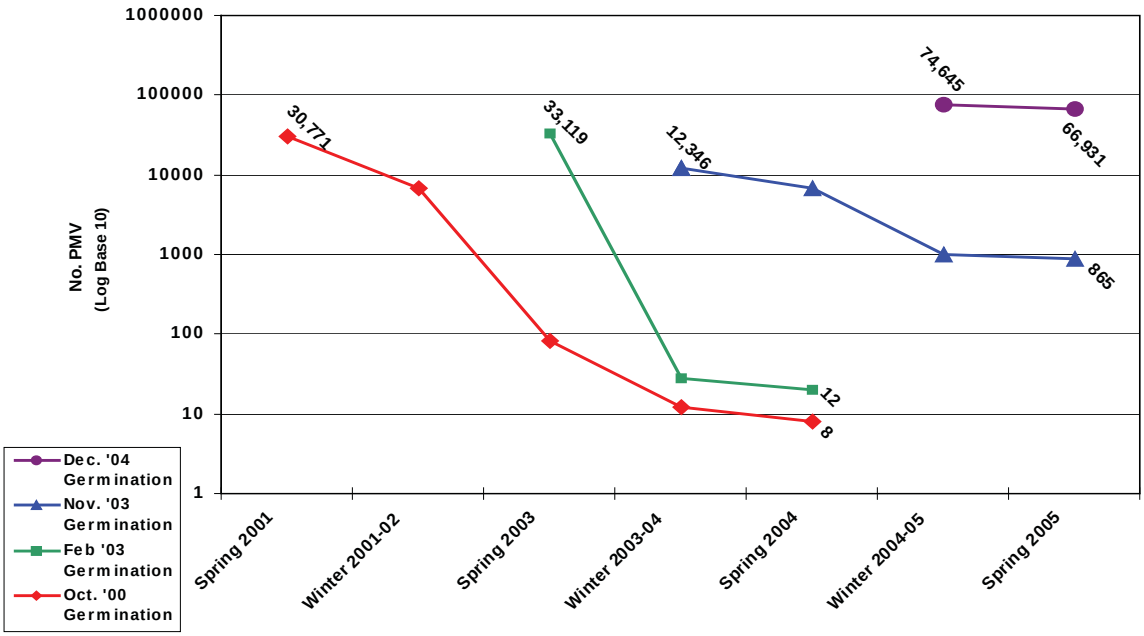


Figure 4. Survival of 2000, 2003 and 2004 germinants to spring 2005 at 25 sample sites

It has been argued elsewhere that we have incorrectly identified age classes in prior studies; i.e., that we have been unable to distinguish between first-year and second-year plants (see Porter 2003, USFWS 2003a, 2003b, 2004). We use here survival figures for December when two-month-old seedlings were clearly distinguishable from second-year (2003-04) and older survivors. The proportion of seedlings to survivors in December was 48:1; in March it was 67:1 (using the December figure of 1,168 for number of survivors). Clearly, in the spring of 2005 the number of first-year plants far exceeds the number of second-year and older plants. This issue will be considered further in the discussion of reproduction, in the following section.

2005 Fertility and Seed Production

Separate counts of fertile and non-fertile plants were made in March and April 2005 (Table 5). In March, plants that had fruits, flowers, or buds were considered to be "fertile." In April, however, we were concerned whether later germinants were likely to actually produce seeds; thus we counted only plants that had flowers or pods. Because of dry, hot conditions in the four weeks between trips, many plants that had immature fruits in March had already shed their pods in April and appeared to be "sterile." In addition, a number of plants had died from desiccation in April. Thus both the proportion of fertile plants and the total number of plants decreased in the April study. We do not know how many of the plants that were in bud in March went on to produce fruits in April, or how many of the early-fruiting plants appeared to be sterile in April. Therefore, the most conservative figure for first-year plants that reproduced successfully among our 25 sample sites in 2005 is 19,945. As stated above, the number of perennial survivors to spring 2005 was 1,168. Assuming that all of the survivors successfully reproduced, we conclude that there were at least 17 times as many first-year as second-year plants that reproduced in the spring of 2005.

	#2004-05 Plants. Mar. 05	*#2004-05 Plants Fertile Mar. 05*	*#2004-05 Plants Apr. 05*	*#2004-05 Plants Fertile Apr. 05*
Buttercup	41,626	22,959	31,550	7,296
Patton Valley	34,284	24,603	33,523	11,549
Glamis	2,012	1,396	1,858	1,100
Total	**77,922**	**48,958**	**66,931**	**19,945**
% Fertile		**62.80%**		**29.80%**

Table 5. Total number of Peirson's milkvetch plants counted in March and April 2005 at sample sites in three locations, and the percentage of fertile plants at each.

These data establish conclusively that first-year plants are able to reproduce during their initial growing season *if they germinate in the fall.* Our studies in 2002-03 and 2003-04 showed that late winter germination events of significant size can occur with rainfall between mid-February and mid-March, but these late season plants do not reproduce during their first year (Phillips and Kennedy 2003, 2004). The results of the 2004-05 study confirm that Peirson's milkvetch exhibits a dual reproductive strategy -- plants that germinate in late fall are capable of reproducing in the spring of their first year, while plants that germinate in late winter remain sterile during the ensuing spring, and the survivors flower during the second year.

Finally, using the most conservative count of fertile plants at our sample sites (April 2005), along with data gathered in prior years' studies, we were able to estimate the spring 2005 fertile plant population and its approximate contribution to the soil seed bank among our original 60 survey sites (totaling approximately 56 ha of the potential *A.m.* var. *peirsonii* habitat in the Algodones Dunes). The results are shown in Table 6.

Fertile Population Estimates and Seed Production Per Location April 2005							
	Population (actual count)	Density (μ PMV/m^2)	Range	Std. Dev.	**Population Estimate**	Seed Production* (μ seeds/plant)	**Seed Production Estimate**
Buttercup	7,296	0.1657	0.31	0.107	**19,866**	54.8852	**1,090,349**
Patton Valley	11,549	0.0675	0.23	0.062	**27,786**	79.8640	**2,219,101**
Glamis	1,100	0.1250	0.60	0.238	**3,562**	34.9750	**124,581**
Totals	**19,945**				**51,214**		**3,434,031**

*Seed Production based on results of 2001-02 seed bank survey

Table 6. Fertile Population and Seed Production Estimates at 60 survey sites, based on actual counts of fertile plants at sample sites in April 2005.

Variation in Seed Production

The relative contribution to the seed bank by plants of various ages has been a topic of some debate and confusion. The answer is that it varies from year to year depending on the age structure of the reproductive population. Table 7 presents an estimate of relative seed bank contribution (in number of pods) over the five-year period of this study.

	2001	2002	2003	2004	2005
First-year plants	69,615	0	0	30	99,725
Perennial plants	0	1,096,452	14,193	3420	199,728

Table 7. Seedpod production by first-year reproductive plants and perennials at 25 sample sites, 2001-2005.[3]

The assumed average production of 171 pods per perennial plant is based upon a small sample of plants at one site (Phillips and Kennedy 2003) and does take into account sterile plants or those that produce few pods. Pod production by second-year plants in 2002 (based on a 21% survival rate, or 6,412 plants) is 16 times the production by first-year plants in 2001, but by the third year the 2001 contribution by first-year plants is five times greater than the production of third-year perennials in 2003. In 2004 a few plants that germinated in November 2003 survived mid-winter drought to produce pods the following spring, and the perennial pod production is a combination of survivors from 2001 and second-year plants that germinated in February 2003. The 2005 pod production is based on the April count of 19,945 fertile first-year plants and a December count of 1,168 second-year and older perennials. Although the number of first-year plants is 17 times greater, total pod production is only half the number of pods produced by perennial plants. Over the five-year period, pod production by second-year and older plants totals about eight times the number of pods produced by first-year plants. From this summary it is apparent that the number of seeds produced varies widely from year to year, and the relative contribution of first-year reproductive plants and perennials depends on the year.

Climate, Germination and Survival

The link between climatic events and germination, reproduction, and survival of Peirson's milkvetch has been a primary area of investigation since the start of this project in the spring of 2001. The climatic link between the germination event in the fall of 2000 and rainfall was examined by Phillips et al. (2001). During the first year, it was necessary to utilize remote weather records to correlate germination with precipitation. Data from two Remote Automated Weather Stations (RAWS) installed in November 2001 at Buttercup and Cahuilla Ranger Station has allowed a much more accurate estimate of rainfall within the dune system. Rainfall records from September 2002 through May 2005 are shown in Table 8 below.

[3] Assumes production of 5 pods per plant by first-year plants and 171 pods per plant by perennials, and that 100% of perennials are reproductive.

Date	*Precipitation (in.)*		*#Days*	*Max (in.)*	*Date*	*#Days*	*Max (in.)*	*Date*
	Buttercup	Cahuilla	Buttercup			Cahuilla		
								10th
								26th
								27, 29, 30
								1st
								-
								12th
								16th
								-
								-
								30th
								24th
								12th
								25th
								20th
								22nd
								2nd
								2nd
								14th
								19th
								21st
								21st
								6th
								4th
								17th
								5th

Source: California Dept. of Water Resources, 2003-05.

Table 8. Precipitation records at two RAWS stations in the Algodones Dunes, September 2002-May 2005. Shaded areas indicate growing season.

The total precipitation at the Buttercup RAWS during the 2004-05 growing season was 4.68 inches, while the Cahuilla RAWS station recorded 4.86 inches. This contrasts with 2002-03 and 2003-04 when Buttercup received 0.90 and 2.46 inches, respectively, and Cahuilla recorded 1.41 and 2.20 inches. As shown in Table 8, most of

the precipitation in 2002-03 and 2003-04 occurred in the late winter and spring period between February and April. Seasonal variation in rainfall, and thus in germination and growth, varies widely, with more than a 500% difference between 2002-03 and 2004-05.

The link between rainfall and germination is shown in Figures 5 and 6. The blue precipitation fields are cumulative precipitation at the Buttercup and Cahuilla RAWS weather stations. For the purposes of this study, we have defined the growing season as October through April, and the dormant summer season as May through September.

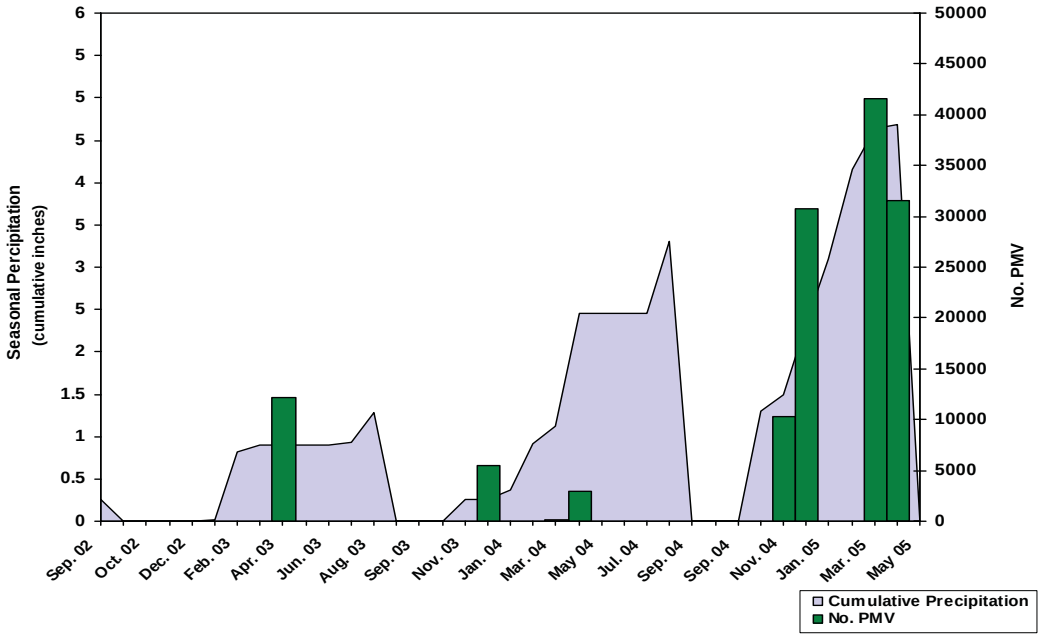


Figure 5. Seasonal precipitation v. seedling counts at 7 Buttercup sample sites 2002-05

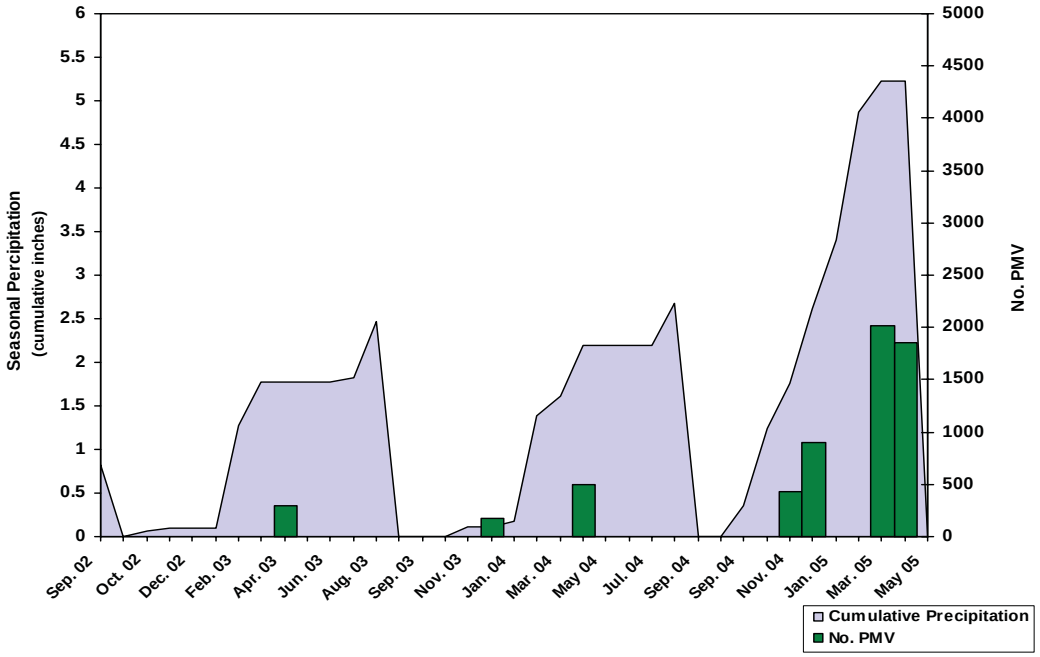


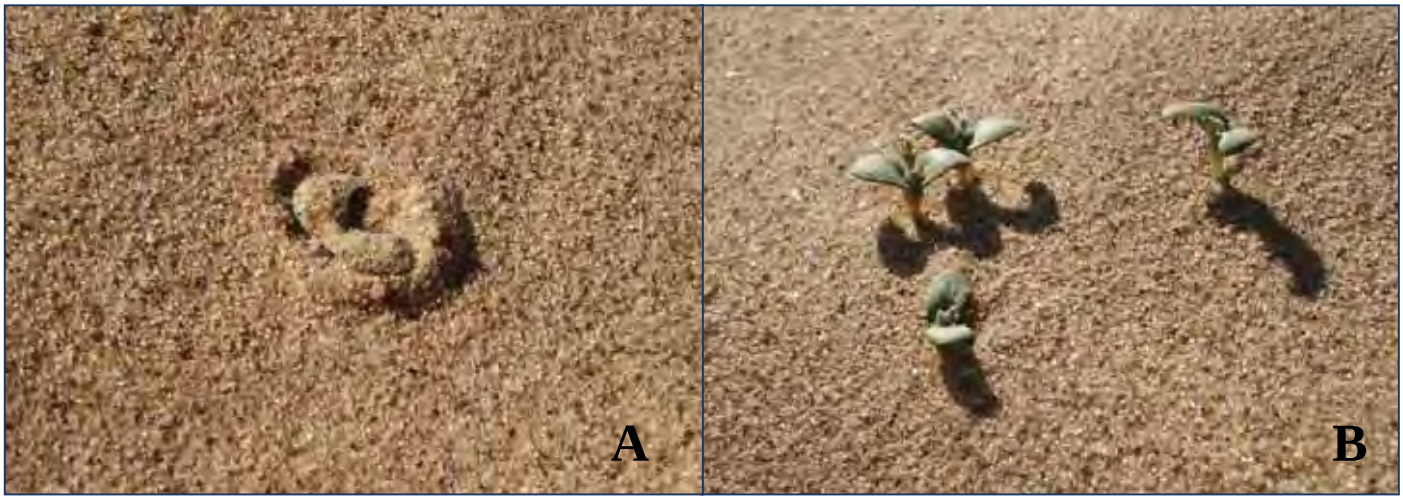
Figure 6. Seasonal precipitation v. seedling counts at 6 Glamis sample sites 2002-05

The cumulative precipitation totals are reset in our diagrams as of 1 October each year. (The actual cumulative figures from the RAWS stations are reset annually on November 16th.) The green bars represent plant counts at each visit for seven study sites at Buttercup and six sites at Glamis (near the Cahuilla RAWS). Patton Valley site data is not included as there is no nearby weather station.

The first significant precipitation in the 2002-03 growing season occurred February 12-14, when 0.81 inches was recorded at Buttercup and 1.26 inches fell at Cahuilla. This resulted in a germination event which, at the 25 sample sites, was 10% greater than at those sites in 2000-01. Summer rains on September 10th (0.25 in at Buttercup and 0.82 in at Cahuilla) were apparently too late to aid in survival; only 0.3% of the February cohort was still alive in December 2003. There was no new germination in response to the September rainfall.

The first rain of the 2003-04 growing season occurred on November 12th, when 0.26 in fell at Buttercup and 0.11 in was recorded at Cahuilla. The winter was quite dry until a storm in late February. Germination resulting from this event was less than in November and less than in February 2003, although the reason was not clear (Phillips and Kennedy 2004). An early April rainfall comparable in magnitude to the February storm resulted in no additional germination, leading to the conclusion that seeds do not germinate after late rains, probably a temperature-driven response that prevents seeds from germinating so late in the season that they would have no chance to develop enough to survive the approaching summer. Rains in mid-August of up to 0.85 in apparently replenished soil moisture enough to result in a survival rate of 12% to the fall of 2004, but resulted in no new germination.

The magnitude of the precipitation year in 2004-05 and the germination event it caused is shown clearly in Figures 5 and 6. By mid-March nearly 78,000 first-year plants were counted, more than twice as many first-year plants as were counted in any previous census at the 25 sites, and at some sites many of these were already in fruit. The smooth slope of the cumulative rainfall curve in Figures 5 and 6 shows that the season was not punctuated by dry spells (plateaus) as in the previous two seasons. The sand was continuously wet a couple of cm below the surface all winter, and this apparently accounts for nearly continuous germination throughout the season, or at least between November and December, and between December and March. Germination appears to occur over a period of time rather than as a single flush immediately following rains. It seems likely that seeds germinating some period of time after a rain probably are buried rather than lying on the surface. It is not known if seeds germinated during mid-winter, as no observations were made in January and February. A six-week dry spell with associated warm temperatures and high winds resulted in a decrease in the number of first-year plants counted in April. Most of the first-year plants that were in fruit in March had shed their pods in April; many of these as well as some of the pre-reproductive plants were dead in April.



Life history of *Astragalus magdalenae* var. *peirsonii* from initial emergence (Plate A), to seedlings (Plates B, C and D), and finally to fully reproductive first-year plants (Plate E)

Photos by A. M. Phillips, III, D..J. Kennedy, and D. Roth

CONCLUSIONS

The 2004-05 season provided conclusive evidence that the population of *Astragalus magdalenae* var. *peirsonii* in open areas of the Algodones Dunes is healthy and thriving. Overall, the population level in 2004-05 was over twice as high as in 2001, the first year of the study. Rainfall patterns during each of the five years of our study have been different, and our annual counts of plants compared with climate data show with certainty that population is more strongly tied to amount and timing of rainfall events than any other factor, natural or man-made.

Our assertion that first-year Peirson's milkvetch plants that germinate in the fall can and do reach reproductive maturity during their first growing season was validated in 2005 when some 20,000 first-year plants were documented as fertile. The seedlings had been followed since November, and an inventory of perennial plants made in December 2004 was used as a baseline of older plants. The claims that only second-year and older plants are reproductive, and that we misidentified age classes of plants in 2001, were shown to be without merit by our 2004-05 study.

Although we did not keep track of numbers of OHV-affected plants during the 2004-05 study, data made available by BLM was consistent with our figures in 2001 and 2003. BLM (2005) estimated 0.3% of all plants showed evidence of OHV damage dunes wide. The density of affected plants was highest at Glamis (0.103 plants/ha) and Buttercup (0.096 plants/ha) and lowest (0.000) in the wilderness area and Adaptive Management Area (approximately the large central closure). It should be noted that the BLM Buttercup transects missed the area of greatest milkvetch density, where five of our six study sites are located. These OHV impact figures compare with our estimates of 0.93% in 2001 and 1.3% in 2003.

An interesting observation in 2004-05 was that Peirson's milkvetch plants were more widely distributed in the dunes than in other years, with low-density occurrences often observed between sites where no plants had occurred before. This shows that a dormant seed bank is widely present in the dunes, probably deposited by windblown pods that were blown beyond optimal sites. The long period of wet sand in 2004-05 meant that there was less sand movement, and areas that usually experience heavy abrasion by blowing sand and high rates of sand deposition or erosion were more stable. This apparently allowed seedlings to become established outside their normal distribution. This was noted mainly between sites of known occurrence, not in the unvegetated "high dunes" where more sand movement and most OHV use are concentrated.

We conclude that the population of *A.* m var. *peirsonii* in the Algodones Dunes is vibrant, healthy, and responsive to climatic events that promote germination. It is able to remain dormant by means of a healthy seed bank when conditions are unfavorable, and it coexists successfully with current patterns and levels of use by OHVs and, we believe, with any projected future use levels without the need for Endangered Species Act protection. We are unaware of any scientific, documented evidence to the contrary.

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Appendix A
Summary of actual plant counts at 25 sample sites, stratified by location, 2001 – 2005

ASA PMV Study Sites - Nov. 2004-Apr. 2005
Algodones Dunes (ISDRA), California

Site No.	Loc.	# Plants Spring 01	# Nov.03-Mar.04 Sdl. Apr. 04	#03-04 Survivors Dec. 04	#New Seedl. Nov. 04	#New Seedl. Dec. 04	#2004-05 Plts. Mar. 05	#2004-05 Plts. Fertile Mar. 05	#2004-05 Plts. Apr. 05	#2004-05 Plts. Fertile Apr. 05
6	Butrcup	340	0	0	55	207	208	187	157	62
7	"	3,127	1,465	126	5,535	18,880	24,681	12,274	17,982	3,420
21	"	1,327	82	3	700	1,842	2,175	1,054	2,203	580
22	"	807	49	5	400	824	634	476	837	460
23	"	2,800	26	0	215	2,894	1,525	862	3,186	966
28	"	978	530	21	1,300	2,400	4,364	3,172	2,292	899
29	"	3,994	732	33	1,860	3,750	8,039	4,934	4,893	909
32	Pat. Vly.	657	747	51	245	1,604	2,769	1,931	4,052	1,662
34	"	1,534	85	20	1,500	2,845	2,748	2,419	3,221	1,023
41	"	120	546	132	525	1,795	2,286	1,453	2,960	1,026
44	"	798	105	8	0	175	797	572	818	434
46	"	1,531	1,646	176	1,750	3,050	6,662	3,985	4,326	1,073
47	"	2,530	585	73	1,100	3,831	3,424	2,129	3,001	1,314
48	"	1,037	289	25	225	2,165	2,531	1,211	2,248	943
51	"	1,898	778	128	418	2,074	3,255	2,947	2,859	860
52	"	3,010	214	36	500	3,009	3,465	2,470	3,398	1,300
53	"	1,090	140	54	314	545	932	840	1,046	370
54	"	577	501	163	1,600	2,115	1,632	1,420	2,406	491
57	"	1,967	842	67	200	918	3,783	3,226	3,188	1,053
13	Glamis	230	272	47	100	610	1,712	1,238	1,543	990
15	"	28	0	0	1	28	30	22	19	14
16	"	265	0	0	114	92	95	48	90	24
19	"	77	214	0	15	79	117	64	170	62
60	"	88	5	0	30	40	18	7	11	3
61	"	41	0	0	125	46	40	17	25	7
		30,851	9,848	1,168 (11.9%)	18,827	55,818	77,922	48,958 (62.8%)	66,931	19,945 (29.8%)

Appendix B
In-field data form, March 2005

Algodones Dunes Rare Plant Surveys

Peirson's Milkvetch

Astragalus magdalenae* var. *peirsonii

March 2005

Site No. _____ Area 1 2 3 Date _____

Investigators _____

****

Feb.- Mar. 2005 seedlings present? YES NO

No. of Feb.-Mar 05 seedlings _____

No. of fall 04 plants _____

No. of fall 04 plants reproductive _____

No. of clusters _____ List new GPS waypoints below

No. of perennial survivors _____

No. of perennial survivors reprod. _____

New cluster waypoints created:

Appendix C
In-field data form, April 2005

Algodones Dunes Rare Plant Surveys

Peirson's Milkvetch

Astragalus magdalenae* var. *peirsonii

April 2005

Site No. _____ Area 1 2 3 Date _____

Investigators _____

****

Mar.-Apr. 2005 seedlings present? YES NO

Total no. of plants _____

Total no. plants reproductive _____

No. of clusters _____ List new GPS waypoints below

Cluster plant counts: _____

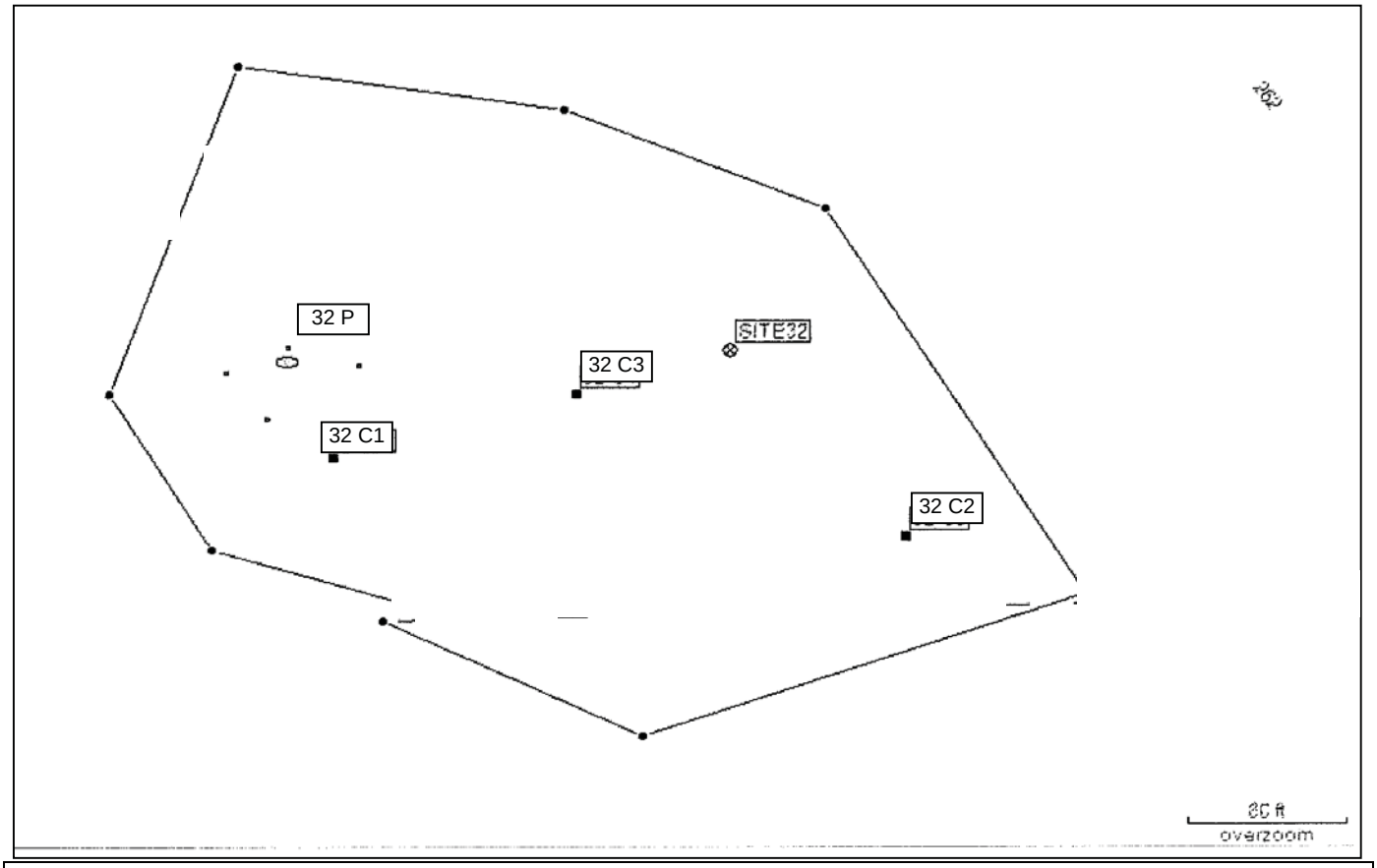
_____

_____

New cluster waypoints created:

Appendix D

In-field data form (used to survey plant clusters), April 2005



SITE 32 – GPS Waypoints			
	Date Created	***Name/Description***	***In/Near***
CLUSTERS	Feb 2002	32 P/ seed bank cluster	
	Feb 2002	32 C2/ PMV cluster	
	Feb 2002	32 C3/ PMV cluster	
	Feb 2002	32 C4/ PMV cluster	
OLD DATA	Dec. 2003	32 L 01/ 2001 survivor (missing in 3/05)	In 32 C2
	Dec. 2003	32 L2 01/two 2001 survivors (missing in 3/05)	In 32P
	Dec. 2003	32 L 001/2001 survivor (missing in 3/05)	In 32P
	Dec. 2003	32 L 0001/2001 survivor (missing in 3/05)	In 32 C2
	Dec. 2003	32 PODS 27/ pod cluster (27 pods)	In 32 C3
	Dec. 2003	32 SDS 50/ seed cluster (50 seeds)	In 32 C3
	Nov. 2004	SITE 32 CL1 NOV04/ PMV cluster	In 32 C2
NEARBY			
NEW			

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Ecology and Life History of Peirson's Milkvetch in the Algodones Dunes, California 2003- 04

FINAL REPORT
PREPARED FOR THE
AMERICAN SAND ASSOCIATION
AUGUST 2004

Arthur M. Phillips, III, Ph. D.
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Botanical and Environmental Consulting
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Photos by A. M. Phillips, III

INTRODUCTION

The Algodones Dunes are a complex of sand dunes located in Imperial County, California. They support a specialized, limited biota that has adapted to the severe conditions posed by an ever-changing habitat with low, unpredictable rainfall and severe annual and diurnal extremes in temperature. Many of the plant species found in the dunes are endemic to sand dunes in the Lower Colorado Valley subdivision of the Sonoran Desert (Bowers 1986; Shreve 1964). One of them, *Astragalus magdalenae* var. *peirsonii* (Peirson's milkvetch), listed as a Threatened species in 1998 (USFWS 1998, CNPS 2001, BLM 2000a).

Responding to wet conditions during the fall of 2000, Peirson's milkvetch underwent an explosive germination event in the spring of 2001, presenting a rare opportunity to examine the plant's life history and current and status.

We began a study of the ecology, demography, and life history of *A. m.* var. *peirsonii* from early March to mid-May 2001, surveying the Algodones Dunes system and collecting and analyzing population, reproduction, distribution and habitat data, including a census of plants and descriptive survey of the plant's ecology within the dune system. The results were presented in the "Olsen Report" prepared by Phillips et al. (2001). From November 2001 to February 2002, under a contract from the American Sand Association with A. M. Phillips, III, the second year of the study included analysis of the seed bank of Peirson's milkvetch, along with an assessment of the survival of the cohort of plants censused in the spring of 2001 at 25 randomly selected sites, a 40% sample of the 2001 sites. The results were presented in a comprehensive report summarizing the first two years of the study that estimated the total seed bank for 60 sites at between 2.5 and 5.8 million seeds and documented a 21% survival rate of the 2001 cohort (Phillips and Kennedy 2002).

Continuing the study to year three, we visited the 25 sites sampled in 2002 in March 2003 to ascertain survival of the 2000 cohort of plants to a third season. A series of storms in late February 2003 caused another germination event, with thousands of seedlings appearing in early March. The 2003 germination differed from the 2000 event in that it occurred late in the growing season, providing an opportunity to compare the success of germination events occurring at different times in the growing season. We returned in April and May 2003 to determine the magnitude of this event and its likely reproductive success. The results of the survival inventory and the germination survey were presented in Phillips and Kennedy (2003).

We began the fourth year of the study in October 2003, with an early-season visit to ascertain survival of the remaining 2000 plants and the February 2003 cohort through the summer. At that time the heat of summer was still in control, and no recent rains had occurred, so it was not possible to accurately assess survival. We returned in December when cool season conditions had returned, and in addition to survival we were able to document a mid-November germination event. In early March we again visited the 25 sites and found seedlings that were germinating in response to a late February rain. We returned again in April, after another storm, to summarize the success of the 2003-04

germination events and determine if rain as late as April can result in germination. The results of Year 4 of the study are presented here.

Species Description and Ecology

Astragalus magdalenae var. *peirsonii* is a member of the Legume Family (Fabaceae). The seeds are the largest of any North American species of *Astragalus* (Barneby 1964, Felger 2000), and the pods generally ripen in May and June.

Although *A. m.* var. *peirsonii* is considered to be a short-lived perennial (Barneby 1964) or "ephemeral" (Felger 2000), suggesting its facultative perennial nature, it is well adapted to flower and produce seeds during its first year (Phillips et al. 2001). The pods produced by Peirson's milkvetch are strongly inflated, and can blow across the surface of the dunes until they lodge against a shrub or in a swale with reduced wind velocity (Bowers 1986). However, the distal end of the pod splits open prior to falling from the parent plant, allowing the seeds to be released essentially in place, and causing many pods to fill with blowing sand and become anchored before they can be blown very far. Thus they can be transported from one favorable site to another, or remain near the parent plant, depending on winds. Many pods shed their seeds near the parent plant, replenishing the seed bank where the parent plant grew.

The most detailed discussion of Peirson's milkvetch ecology is found in Barneby (1964, as summarized in Phillips and Kennedy (2003).

In addition to the Algodones Dunes, Peirson's milkvetch also occurs in the Gran Desierto dunes of northwestern Sonora, Mexico (Felger 2000). *Astragalus magdalenae* var. *peirsonii* is not known to exist in Arizona, as reports that the species occurs in the Yuma Dunes of southwestern Arizona were based upon a misidentified specimen (Phillips and Kennedy 2002).

METHODS

During the 2003-04 winter season we conducted a fourth year of our study of Peirson's milkvetch in the Algodones Dunes. This provides a fourth consecutive year of data on the ecology and life history of the species. As previously stated, the purpose of our investigation was to collect and analyze population, reproduction, survival and seed bank data in order to assess the biology and status of *A. m.* var. *peirsonii* in the Algodones Dune system. Stage one of the study was conducted from early March to mid-May 2001 and included a descriptive survey of the plant's demography and ecology within the dune system. Stage two was conducted from November 2001 to February 2002 and included a sampling of the Peirson's milkvetch population surveyed in stage one in which survival and seed bank data were collected and analyzed. Stage three was conducted from March to May 2003 and included a survey of plant survival and reproduction of the population sampled in stage two of the study, and initial inventory of a new cohort that germinated in February 2003.

Stage four was conducted from October 2003 to April 2004 at the same sites studied in 2002 and 2003, and includes survival tracking of the 2000 and 2003 cohorts, and documentation of two additional new germination events.

Study Area

The Algodones Dunes, located in southeastern Imperial County, California and extending a short distance into adjacent Baja California, Mexico, are about 65 km (40 miles) in length, trending from northwest to southeast, and from 5 to 10 km (3 to 6 miles) wide (see Figure 1 below). The total area of the dune system includes approximately 60,705 ha (150,000 acres), of which 12,950 ha (32,000 acres) are designated as a wilderness area (BLM 2000b). Off-highway vehicle (OHV) recreational use of the dunes has occurred for many decades; it has seen a large increase in popularity in the past 25 years, and in the past ten years use levels have mushroomed along with the introduction of a wider variety of vehicles of increasing sophistication. Although some have

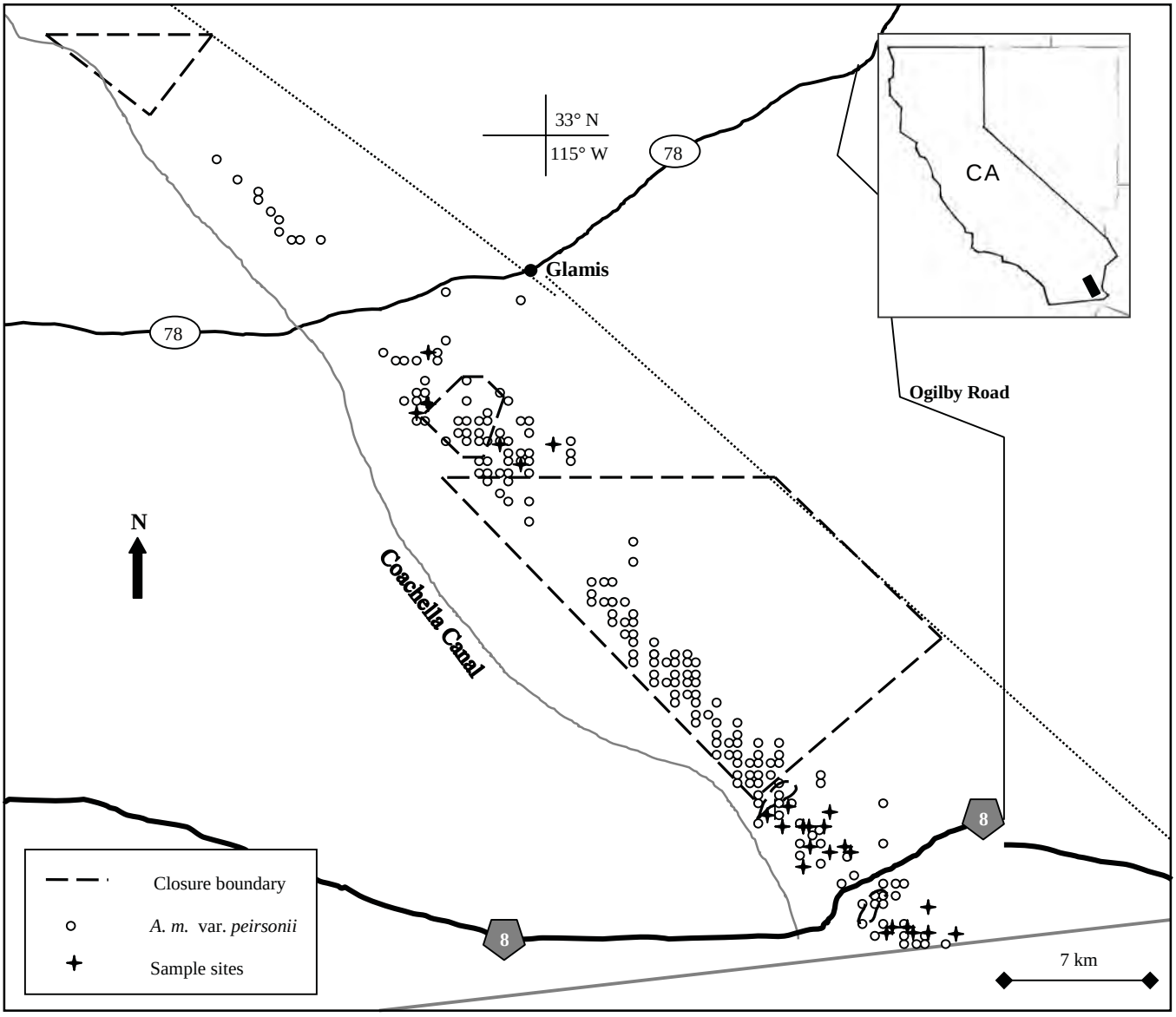

Figure 1. Location of *Astragalus magdalenae* var. *peirsonii* sites in the Algodones Dune system surveyed in spring 2001, sampled in winter 2001-02 and surveyed again in 2003-04[1]

[1]Site locations are approximate; see Phillips et al. (2001) Appendix A for exact geo-coordinates. Locations within closures were mapped by helicopter survey.

speculated that increasing levels of OHV use within the dune system negatively affects the status of *A. m.* var. *peirsonii*, no empirical study focusing on the effects of OHVs on Peirson's milkvetch and other plants and animals in the dune system has been completed.

An overview of the geologic history and setting of the Algodones Dunes is provided by Norris and Norris (1961). The system consists of a complex chain of overlapping barchan dunes, with the higher dunes rise 60-90 m (200-300 feet) above the desert floor. From west to east a series of sand ridges along the western edge gradually transitions to the highest, most active dunes, generally the main focal point of OHV recreation, in the eastern half of the system. Between the ridges and the high dunes are a series of lower bowls and ridges, which support the highest levels of vegetation density, including Peirson's milkvetch. Our initial survey, in 2001, covered the entire dune system. Our subsequent studies have been focused on areas where the occurrence and density of the plants is greatest.

Survey Methodology

To evaluate the distribution, reproductive capabilities and habitat requirements of *A. m.* var. *peirsonii* during stage one of our study, we employed a number of observational techniques. Statistical sampling methods were not included in this stage of the investigation, since the purpose of the descriptive survey was to locate as many occurrences of the subject plants as possible, and to completely census and collect reproductive and habitat data from every area in the dune system in which they were found.

A preliminary reconnaissance was conducted in 2001 from the U.S.–Mexico border north to California Highway 78 (the southern boundary of the wilderness area) covering approximately 14,165 ha (35,000 acres), or 59% of the open area of the dune system. From data collected during the preliminary reconnaissance, we determined that *A. m.* var. *peirsonii* generally occurs in highly clustered, specialized habitats within the dunes, and that a large portion of the dune system (approximately 70-75%) does not contain habitat suitable for these plants. Using data gathered from the reconnaissance and informant interviews, along with our specific knowledge of habitat requirements, we selected several survey areas that were intensively searched for the presence of the subject plant.

When *A. m.* var. *peirsonii* plants were present in a survey area, it was designated a "site," a number was assigned to that area and a complete census of plants was conducted. The location of each site was recorded with a Global Positioning System (GPS) unit, which was also used to circumscribe the boundary of the site.

Any area of occurrence that was too small to circumscribe, or that contained a single cluster of *A. m.* var. *peirsonii*, was designated a "point." The plants contained within a point were also counted and the location was recorded with the GPS unit. Utilizing this methodology, we identified 60 sites and 66 points of milkvetch occurrence, and surveyed a total of 71,926 plants during the first year of the study. Of these, approximately 45% were determined to be reproductive. Both site and point data were mapped and entered into a master database (Phillips et al. 2001, Appendix A).

An aerial (helicopter) reconnaissance of the 20,000 ha (49,000 acres) within the three temporary closure areas and the wilderness area allowed us to map the distribution of Peirson's milkvetch utilizing the GPS unit. No census of plants was possible from the air but 185 points of milkvetch occurrence were mapped (see Phillips et al. 2001, Appendix B).

Stage two of the study was conducted from November 2001 to February 2002 and included an analytical sampling of the *A. m.* var. *peirsonii* population in which survival and seed bank data were collected and analyzed. Utilizing plant distribution data gathered during stage one, we determined that a stratified random survey design best suited the population under study. Prior to conducting the fieldwork for this stage of the investigation, we stratified the dune system into three locations. Location 1 encompassed most of the open area of the dune system south of Interstate 8 and north of the international border, known as the Buttercup area. Location 2 included the area north of Interstate 8 and south of the large central closure (Patton Valley). Location 3, in the northern region of the system, included the open area from south of Highway 78 and east of Gecko Road to the northern boundary of the large central closure.

The data collected during stage one of the study showed a high degree of non-random distribution of Peirson's milkvetch within the dune system; i.e., the plants were distributed in particular similar locations, and clustered within the habitats where they were found. In order to account for distribution variance and adequately represent the target population, we randomly selected 40% of the areas designated as sites during the first stage of the study for sampling in stage two. Seven sites were selected in location 1, twelve in location 2 and six in location 3, for a total of 25 sample sites.

Analysis of the soil seed bank was the focus of stage two of the study. The purpose was to provide an estimate of the number of seeds in the seed bank in order to assess the potential status of the population, and to determine patterns of spatial and temporal seed distribution. We extrapolated the seed bank data to the number of milkvetch identified and surveyed at 60 sites in stage one of the study and determined that the soil seed bank consisted of approximately 2.5 million (extrapolated to number of reproductive plants only) to 5.6 million (extrapolated to total number of plants) *A. m.* var. *peirsonii* seeds.

In addition to seed bank data, at each selected site we repeated the census of the plants surveyed during stage one of our study, in order to determine how many had survived through the summer of 2001. We determined that survival rate of the 2000 cohort to winter 2001-02 was approximately 21% -- an extraordinarily high rate, since only five of the initial 71,000 milkvetch surveyed in stage one had survived from the previous year. The results were analyzed and presented in Phillips and Kennedy (2002).

Third-year surveys were conducted from March to May 2003 and included a third-season survey of survival and reproduction of the 2000 cohort of plants at the 25 sites, and inventory of the sites to census a new cohort of seedlings that germinated in late February 2003. The results of the third year of our Peirson's milkvetch study were presented in Phillips and Kennedy (2003).

Our fourth study season started in mid-October 2003, when we visited the sites to determine summer survival. We determined that this was too early; plants had not yet resumed growth following summer dormancy. We returned in December to assess survival and count seedlings from a November germination event at the 25 sites. In March 2004 we documented a February 2004 germination, and counted the November cohort survivors. Our last trip for the season was in April, when we noted the effects of an early April storm on germination and again censused the November and March germinants, as well as perennial survivors from prior years.

At each visit, the inventory was conducted in the same manner as in previous years: upon arrival at a site the boundaries were determined using the GPS unit and site diagrams that were prepared in 2003, participants were advised of the site boundaries, and the site was divided into sectors for counting plants. Because the seedlings were tiny and several people participated at all sites, counters made an arc in the sand with a pole to mark plants or clumps when they were counted. Notation was made of reproductive status of seedling and adult plants. Age class of first-year plants was tallied where possible (see Discussion, below). The counts were then reported to a team leader and recorded before advancing to the next site (see Appendix D for an example of the field data form).

RESULTS AND DISCUSSION

The 2003-04 surveys followed the survival and reproduction of the remaining plants of the 2000 cohort and the cohort that germinated in February 2003. Two additional germination events occurred and were documented during the season, one following a relatively minor rainfall event in November 2003 and another after a mid-February 2004 storm. The largest storm of the year, in early April, resulted in no germination of Peirson's milkvetch.

Survival

The question of the longevity of Peirson's milkvetch plants is important in several respects. First, it indicates whether living plants survive between germination events, or whether the species survives by relying on a seed bank of long-lived seeds that remain dormant in the soil between occurrences of favorable conditions for germination. Second, it is essential in determining whether the status can be determined by surveying for living plants, or whether the seed bank must also be included in an assessment. Finally, it is an essential element in developing a life history of the species.

	October 2000 Cohort					*Feb. 2003 Cohort*		
	# Plants	Survivors	Survivors	Survivors	Survivors	# Seedlings	Survivors	Survivors
Area	Spring 01	Spring 02	Spring 03	Dec. 03	Mar. 04	Spring 03	Dec. 03	Mar. 04
Buttercup (7 sites)	13,373	2,291	32	1	1	12,180	0	0
Patton Vly (12 sites)	16,749	3,873	37	8	6	20,643	10	8
Glamis (6 sites)	729	248	14	3	1	296	6	4
Totals	30,851	6,412	83	12	8	33,119	16	12
% Survival		21%	0.27%	0.04%	0.03%		0.05%	0.04%

Table 1. Initial census and subsequent survival of October 2000 and February 2003 cohorts of Peirson's milkvetch, through March 2004.

October 2000 Cohort

Table 1 summarizes the survival of the October 2000 cohort, which was first inventoried in March and April, 2001. The initial census at the 25-site subsample for this cohort was 30,851 plants, including some which germinated in March 2001. Survival through the first summer was 21%, then dropped dramatically to 0.27% by the second season. They were counted twice during the 2003-04 season, and only 8 of the original plants survived in March 2004. Four plants died between December 2003 and March 2004, during the growing season. The cause was not always evident; some toppled from loss of sand around the roots, others were dead but the cause was not evident, and some were missing. While some of the original plants were still alive after four seasons, the length of time in which they made a significant contribution to the seed bank was limited to their first two seasons.

February 2003 Cohort

The life history of the February cohort was quite different from that of the 2001 plants. Although more plants were initially counted in February 2003 at the 25 sites, their history differed in several important ways. First, they did not flower during their first season. Apparently plants that germinate in late winter do not have enough time to complete a reproductive cycle before entering summer dormancy, so their growth remains vegetative. Second, their survival rate to a second season was very low: only 12 individuals, or 0.04%, of which only four ultimately flowered.

The question of differentiating between first-year plants and perennials (i.e., those that have survived at least one summer, or dormant, season) has been raised on several occasions. Peirson's milkvetch is not unlike many other herbaceous plant species in the morphology of perennial plants. The leaves of the plant are deciduous, as are the green branches of a given year. These die during the summer, and often become broken off. Second-year branches originate at or near the base of the plant, and grow rapidly in large numbers in the fall on a healthy plant. The broken stems from the first year remain obvious around the base of the plant. Also, first-year plants consist of one or few upright stems, so the plant is taller than wide. Perennial plants, with numerous stems originating from the base, are generally round in outline. The diameter of the root, when exposed by pedestaling, is another indication of age; it is generally 2 cm or more in perennial plants, and less than 1 cm in first-year plants. Thus, with a little practice it is not difficult to distinguish first-year plants from second-year or older plants using many of the standard characters that botanists use for a wide range of forbs and grasses. The morphology of first-year plants that germinate in the fall is consistent with that of late-winter germinating plants, except that the fall germinants are capable of flowering during their first year.

Determining the age of perennial plants becomes somewhat more difficult. By the late spring of 2004 it was often difficult to distinguish perennials that originated in 2000 from those that germinated in February 2003. They both had a similar morphology and were similarly fecund. Site differences and individual variation in plants were greater than any consistent factors allowing us to age plants. We were certain that no plants at any of our sample sites were older than 2000 because no perennial plants were found there in 2001.

2003-04 Germination Events

Rainfall events in mid-November 2003 and late February 2004 produced both late fall and late winter Peirson's milkvetch germination events during the 2003-04 growing season (Table 2). This provided an opportunity to compare the phenology of plants germinating at different times during the same season.

The November germinants were observed during a trip to the dunes December 18-20, 2003, about five weeks after a rainfall event on November 12th. This was not a major storm; the Buttercup RAWS weather station recorded 0.26 inches, and the Cahuilla station recorded 0.11 inches. Seedlings were noted in all three areas, and damp sand was

present within 4-6 inches of the surface. Of course it is possible that heavier rainfall occurred at our sampling sites than was recorded at the weather stations.

We made several important observations during the December visit. First, seedling milkvetches retain their cotyledons for some time after germination. The large, thick, dark green seed leaves allow for the rapid elongation of the roots before much energy is invested in true leaves. The first leaves are similar to later ones: small, gray-green leaves with tiny leaflets on an elongated rachis. The ability to invest initial energy in root elongation is an adaptation minimizing the danger of early desiccation.

The answer to the question of whether seeds lying on the surface of the sand can germinate or whether they must be buried; and if subsurface seeds germinate, how deep they can be buried and still germinate, has been elusive. The answer appears to be both. Some seeds just germinating were found that had been lying on the surface. Others were found that appeared to have germinated from shallow depths. How deep they can be, the proportion that germinate at or below the surface, and the later success of seeds germinating on the surface compared with those that are buried remains unknown. Our seed bank study (Phillips and Kennedy 2002) found more seeds on the surface than buried, and observation of seeds on the surface in 15-20 mph winds suggested that sand grains tended to blow over the large, flat seeds leaving them on the surface. The optimal location for germination and behavior of seeds in blowing sand is a topic that requires more investigation before we can provide definitive answers.

	# Nov. 03 Seedlings	# Nov. 03 Plants	# Feb. 04 Seedlings	# Nov.03-Feb..04 Sdl.	#Nov. 03 Sdl. Reproductive.	# New Seedl.
Area	Dec. 03	Mar. 04	Mar. 04	Apr. 04	Apr. 04 R	Apr. 04
Buttercup (7 sites)	5468	2548	180	2884	1	0
Patton Vly (12 sites)	6708	3712	509	6478	0	0
Glamis (6 sites)	170	445	5	486	5	0
Total	12,346	6705	694	9848	6	0
		54.30%		75.50%	0.05%	

Table 2. Germination events occurring during the 2003-04 growing season.

The initial February germination event was much smaller than November, with only 6% as many seedlings, even though the rainfall amounts were greater (0.55 inches at Buttercup, 1.21 inches at Cahuilla). The field work was carried out March 5-8, about two weeks following the storm. The amount of rain recorded was comparable to the storm that occurred in mid-February 2003, yet the number of seedlings recorded, 694, was a tiny fraction of the 33,119 seedlings that germinated in 2003. Clearly there is not a simple correlation between rainfall amount and the magnitude of germination events.

Our counts during the April 15-17 visit provided another surprise. In all three areas the number of seedlings counted was greater than the sum of November 2003 and February 2004 seedlings counted in March. Apparently additional germination had occurred in the five weeks between these visits. Germination appears to occur over a period of time rather than as a single flush immediately following rains. It seems likely that seeds germinating some period of time after a rain probably are buried rather than on the surface; the surface of the dune dries out rather quickly after a rain, insulating the

subsurface area, which can retain moisture much longer, for weeks at a depth of a few inches.

Another unanticipated situation arose during the April trip. We were unable to distinguish between seedlings that had germinated in November and those that had germinated in March. At all sites there was a continuum of sizes of plants, with no clear differentiation into two size classes. Apparently microsite conditions such as moisture availability and sand deflation rapidly become more important than age in determining size of plants.

This also sheds some light on the situation we encountered during our initial survey in 2001. We stated that some of the plants we counted during our April and May visits had apparently germinated following early March storms rather than the previous October, but we did not see any clear differentiation. Now we know why: after a few weeks the age of plants of the season can not be accurately determined, as long as they are sterile. The February 2003 cohort (not complicated by plants germinating earlier that season) showed that late winter plants do not flower their first year. They can grow to robust plants up to 12 inches tall, and have the morphology of first-year plants that flower at smaller sizes, but produce no flowers. On the other hand, some November 2003 plants flowered in March and April 2004 but were otherwise indistinguishable from sterile plants of the same season. It should be emphasized that first-year flowering plants are easily distinguishable from second-season and older plants using the perennating characteristics described previously.

Plate 1. Seedling Peirson's milkvetch just starting to develop first leaves.

Plate 2. November 2003 milkvetch flowering in March 2004

Plate 3. Perennial plant, probably from 2000, in the Glamis area, March 2004.

Climate, Reproduction and Survival

The link between climatic events and germination, reproduction, and survival of Peirson's milkvetch has been a primary area of investigation since the start of this project in the spring of 2001. The climatic link between the explosive germination event of *A. m.* var. *peirsonii* in the fall of 2000 and rainfall was examined by Phillips et al. (2001). During the first year, it was necessary to utilize remote weather records to correlate germination with precipitation. However, the installation of two RAWS stations in the dunes in November 2001, at Buttercup and Cahuilla Ranger Station, has allowed a much more accurate estimate of rainfall within the dune system. Rainfall records from May 2002 through May 2004 are shown in Table 3.

Date	*Precipitation (in.)*		*#Days*	*Max*	*Date*	*#Days*	*Max*	*Date*
	Buttercup	Cahuilla	Buttercup			Cahuilla		
May 02	0	0	0		-	0		-
Jun. 02	0	0	0		-	0		-
Jul. 02	0	0	0		-	0		-
Aug. 02	0	0	0		-	0		-
Sep. 02	0.25	0.82	1	0.25	10th	3	0.76	10th
Oct. 02	0	0.06	0		-	1	0.06	26th
Nov. 02	0	0.03	0		-	3	0.01	27, 29, 30
Dec. 02	0	0.01	0		-	1	0.01	1st
Jan. 03	0.01	0	1	0.01	8th	0		-
Feb. 03	0.81	1.26	3	0.41	12th	4	0.57	12th
Mar. 03	0.08	0.50	2	0.05	15th	2	0.32	16th
Apr. 03	0	0	0			0		
May 03	0	0	0		-	0		-
Jun. 03	0	0	0			0		
Jul. 03	0.03	0.06	1	0.03	28th	1	0.06	30th
Aug. 03	0.36	0.63	2	0.31	24th	3	0.46	24th
Sep. 03	0	0	0			0		
Oct. 03	0	0	0			0		
Nov. 03	0.26	0.11	1	0.26	12th	1	0.11	12th
Dec. 03	0	0.01	0			1	0.01	25th
Jan. 04	0.11	0.05	2	0.09	22nd	1	0.05	20th
Feb. 04	0.55	1.21	1	0.55	23rd	4	1.15	22nd
Mar. 04	0.20	0.23	2	0.18	2nd	2	0.14	2nd
Apr. 04	1.34	0.59	1	1.34	2nd	2	0.58	2nd
May 04	0	0	0			0		

California Dept. of Water Resources (2003, 2004)

Table 3. Climate data for Buttercup (location 1) and Cahuilla (location 3), May 2002 – May 2004

The heaviest rainfall amounts of the 2003-04 season fell in early April at Buttercup, with 1.34 inches recorded on April 2nd. Cahuilla recorded 0.59 inches, about half as much as in the February event. From our experience earlier in the season, our visit from April 15-17 should have been at the right time to find any resulting seedlings. In

fact, we found not a single new germinant in mid-April. We conclude that April is late enough in the season that higher temperatures are occurring, and germination is inhibited. This would certainly be advantageous for the plant, because seedlings that germinate in April would not have time to develop a root system sufficient to allow them to survive the summer. Previous observations (Phillips et al. 2001, Phillips and Kennedy 2002) have indicated that germination does not occur after summer or September rains. The April data corroborates previous observations that Peirson's milkvetch is a cool-season species in terms of germination as well as growth and reproduction.

While there is clearly a relationship between precipitation and germination during the cool season, the 2003-04 field work showed that the correlation is not necessarily predictable in terms of the amplitude of the germination event and the amount of precipitation. As noted above, the November storm, leaving one-half to one tenth as much rain as the February storm, resulted in an 18-fold greater germination event. When delayed germination is factored into the February event, the difference is four-fold. On the other hand, the February 2003 event produced more seedlings (33,119) than all of the events combined in 2000-01 (30,851) at the 25-site subsample. Thus it can be concluded that there is a correlation between rainfall and germination, but the relationship between amount of precipitation and magnitude of germination is not directly proportional. Other factors, not measured during this study, are apparently at work, such as temperature, soil moisture, seed germination inhibitors, and perhaps even daylength.

Variation in Seed Production

The relative contribution to the seed bank by plants of various ages has been a topic of some debate and confusion. The answer is that it varies from year to year depending on the age structure of the reproductive population. Table 4 presents an estimate of relative seed bank contribution over the four-year period of this study.

	2001	2002	2003	2004
First-year plants	69,615	0	0	30
Perennial plants	0	1,096,452	14,193	3420

Table 4. Seedpod production by first-year reproductive plants and perennials at 25 sites. Assume production of 5 pods per plant by first-year plants and 171 pods per plant by perennials. Assume 100% of perennials are reproductive.

The assumed average production of 171 pods per perennial plant is based upon a small sample of plants at one site (Phillips and Kennedy 2003) and does take into account sterile plants or those that produce few pods. Pod production by second-year plants in 2002 is 16 times the production by first-year plants in 2001, but by the third year the 2001 contribution by first-year plants is five times greater than the production of third-year perennials in 2003, and by 2004 it is 20 times greater. There were five perennial plants found during the spring 2001 survey, but they were not in a site included in the 25-site subsample so they are not included in Table 4. From this summary it is apparent that the number of seeds produced varies widely from year to year, and the relative contribution of first-year reproductive plants and perennials depends on the year.

CONCLUSIONS

It has become apparent during the four years of our study that Peisron's milkvetch exhibits an unusual dual reproductive strategy. Plants that germinate in the fall, often in response to rare subtropical Pacific moisture climatic events, are capable of reproducing during their first season at levels of at least 45%. Survival of these plants through the ensuing summer season was documented at 21% for the single cohort that exhibited these characteristics, that of October 2000. The second strategy is late winter germination, in February and March, which may equal the fall germination in numbers of plants produced. However, late winter germinants are unable to reproduce during the short remainder of the growing season and put their energy into developing a root system sufficient for surviving the summer season, which apparently is achieved by very few of the seedlings. In December 2003 the survival rate of February 2003 seedlings was 0.05%, or 16 individuals out of 33,119 germinants, a high cost germination event in terms of survival.

This is a big loss of seeds from the seed bank, and changes our initial impression that Peirson's milkvetch is relatively conservative in producing only seedlings that were likely to succeed in producing progeny. However, if all of the 16 survivors of the February 2003 cohort reproduced with an average of 171 pods producing 14 seeds per pod they would produce over 38,000 seeds, more than replenishing the 33,000 seeds that germinated during its second season. The seed bank reserves are sufficient to allow for germination events to occur in "risky" situations, and the fecundity of the plants producing large numbers of seeds makes it possible for just a few survivors to replenish the seed bank.

We repeat our assertion that determination of the status of a desert ephemeral or short-lived perennial must include as assessment of the seed bank and its characteristics as well as the actively growing plants. It is not an easy task to assess the health of short-lived desert plants because their numbers are so variable from year to year, and so much of their potential is included in dormant seeds. All data collected over a four-year period indicate that Peirson's milkvetch is a healthy species surviving the effects of a highly variable climate and potential impacts from OHVs without the need for protection or intervention.

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Appendix A. Summary of 2003-04 field studies.

PMV Study Sites - 2003-04
Algodones Dunes (ISDRA), California
A. Phillips

(P = Present, R = Reproductive)

Site No.	Loc.*	Area m^2	# Plants Spring 01	# Seedlings Apr.-May '03	# Seedlings Dec. 03	# Per. Plts Mar. 04	# Feb. 03 Plts Mar. 04	# Nov. 03 Plts Mar. 04	# Seedlings Mar. 04	# Per. Plts Apr. 04 P	# Per. Plts Apr. 04 R	# Feb. 03 Plts Apr. 04 P/R	# Nov.03-Mar.04 Sdl. Apr. 04	#Nov. 03 Sdl. Apr. 04 R	# New Seedl. Apr. 04	Site No.
6	1	1,007	340	0	20	0	0	0	0	0	0	0	0	0	0	6
7	1	15,709	3,127	6,621	4,000	0	0	1655	100	0	0	0	1465	0	0	7
21	1	15,876	1,327	634	150	0	0	6	20	0	0	0	82	0	0	21
22	1	6,995	807	131	175	0	0	9	50	0	0	0	49	1	0	22
23	1	7,908	2,800	535	123	0	0	3	5	0	0	0	26	0	0	23
28	1	4,653	978	617	600	1	0	441	0	1	0	0	530	0	0	28
29	1	7,182	3,994	3,642	400	0	0	434	5	0	0	0	732	0	0	29
32	2	14,854	657	1,273	400	5	0	376	0	4	4	0	747	0	0	32
34	2	22,604	1,534	1,597	130	0	0	69	46	0	0	0	85	0	0	34
41	2	4,206	120	1,112	400	0	0	104	0	0	0	0	546	0	0	41
44	2	76,236	798	74	3	0	0	17	2	0	0	0	105	0	0	44
46	2	16,251	1,531	3,097	2,700	0	1	1338	91	0	0	1 / 1	1646	0	0	46
47	2	17,624	2,530	1,401	1,200	0	0	540	52	0	0	0	585	0	0	47
48	2	17,335	1,037	706	25	0	4	216	0	0	0	0	289	0	0	48
51	2	22,173	1,898	1,987	1,000	0	0	423	10	0	0	0	778	0	0	51
52	2	68,775	3,010	2,557	500	0	0	122	6	0	0	0	214	0	0	52
53	2	63,556	1,090	1,327	200	0	0	137	0	0	0	0	140	0	0	53
54	2	6,798	577	969	50	1	3	120	300	0	0	1 / 0	501	0	0	54
57	2	16,089	1,967	4,543	100	0	0	250	2	0	0	0	842	0	0	57
13	3	32,154	230	127	50	0	0	229	5	0	0	0	272	4	0	13
15	3	7,581	28	11	10	0	0	0	0	0	0	0	0	0	0	15
16**	3	26,719	265	1	6	0	0	0	0	0	0	0	0	0	0	16**
19	3	329	77	85	100	0	3	215	0	0	0	3 / 3	214	1	0	19
60	3	1,573	88	70	2	1	1	1	0	0	0	0	5	0	0	60
61	3	1,424	41	2	2	0	0	0	0	0	0	0	0	0	0	61
*Loc. 1 = Buttercup, Loc. 2 = Patton Valley, Loc. 3 = Gecko Rd. area																
** revised GPS location			30,851	33,119	12,346	8	12	6705	694	0	0	5 / 4	9848	6	0	
						0.03%	0.04%	54.31%					51.69% (of Nov. 03 + Mar.04 sdl.)	0.05%		

Site No.	Loc.*	# Seedlings Dec. 03	# Nov. 03 Plts Mar. 04	# Seedlings Mar. 04	# Nov.03-Mar.04 Sdl. Apr. 04	#Nov. 03 Sdl. Apr. 04 R	# New Seedl. Apr. 04
6	1	**20**	**0**	**0**	**0**	**0**	**0**
7	1	**4,000**	**1655**	**100**	**1465**	**0**	**0**
21	1	**150**	**6**	**20**	**82**	**0**	**0**
22	1	**175**	**9**	**50**	**49**	**1**	**0**
23	1	**123**	**3**	**5**	**26**	**0**	**0**
28	1	**600**	**441**	**0**	**530**	**0**	**0**
29	1	**400**	**434**	**5**	**732**	**0**	**0**
32	2	**400**	**376**	**0**	**747**	**0**	**0**
34	2	**130**	**69**	**46**	**85**	**0**	**0**
41	2	**400**	**104**	**0**	**546**	**0**	**0**
44	2	**3**	**17**	**2**	**105**	**0**	**0**
46	2	**2,700**	**1338**	**91**	**1646**	**0**	**0**
47	2	**1,200**	**540**	**52**	**585**	**0**	**0**
48	2	**25**	**216**	**0**	**289**	**0**	**0**
51	2	**1,000**	**423**	**10**	**778**	**0**	**0**
52	2	**500**	**122**	**6**	**214**	**0**	**0**
53	2	**200**	**137**	**0**	**140**	**0**	**0**
54	2	**50**	**120**	**300**	**501**	**0**	**0**
57	2	**100**	**250**	**2**	**842**	**0**	**0**
13	3	**50**	**229**	**5**	**272**	**4**	**0**
15	3	**10**	**0**	**0**	**0**	**0**	**0**
16**	3	**6**	**0**	**0**	**0**	**0**	**0**
19	3	**100**	**215**	**0**	**214**	**1**	**0**
60	3	**2**	**1**	**0**	**5**	**0**	**0**
61	3	**2**	**0**	**0**	**0**	**0**	**0**
		12,346	**6705**	**694**	**9848**	**6**	**0**
			54.31%		**51.69%**	**0.05%**	
					(of Nov. 03 + Mar.04 sdl.)		

Appendix B

Associated Species	*Common Name*
Asclepias subulata	Reed-stem milkweed
Astragalus lentiginosus var. *borreganus**	Borrego milkvetch
*Croton wigginsii**†	Wiggins' croton
Dicoria canescens†	Desert dicoria
Ephedra trifurca	Long-leaved joint-fir
Eriogonum deserticola†	Desert buckwheat
Helianthus niveus ssp. *tephrodes**†	Dune sunflower
Hilaria rigida	Big galleta
Palafoxia arida var. *gigantea**†	Giant Spanish needles
Panicum urvilleanum	D'Urville's panic grass
Petalonyx thurberi	Sandpaper plant
*Pholisma sonorae**	Sand food
Tiquilia plicata	Pleated crinklemat

*Special status plants; †Dominant species

Common associated species with *Astragalus magdalenae* var. *peirsonii* in the Algodones Dunes.

Appendix C. Field data sheet used in April 2004.

Algodones Dunes Rare Plant Surveys

Peirson's Milkvetch

Astragalus magdalenae* var. *peirsonii

Site No. _____ Area 1 2 3 Date _____ Apr. 2004

Investigators _____

****

No. of *Apr. 2004* seedlings _____

No. of *Feb. 2004* seedlings _____

No. of *Nov. 2003* plants / reprod. _____/_____

No. of *Feb. 2003* survivors / reprod. _____/_____

No. of *perennial (pre-2003)* survivors / reprod. _____/_____

No. of plants damaged by OHV activity:

Seedlings _____

Perennial _____

Appendix D. Field data sheet used in March 2004.

Algodones Dunes Rare Plant Surveys

Peirson's Milkvetch

Astragalus magdalenae **var.** *peirsonii*

Site No. _____ Area 1 2 3 Date _____

Investigators _____

****

No. of Feb. 2004 seedlings _____

No. of Nov. 2003 seedlings _____

Per cent of Nov. 2003 plants reproductive _____

No. of Feb. 2003 survivors _____

No. of Feb. 2003 plants reproductive _____

No. of perennial (pre-2003) survivors _____

No. of perennial survivors reproductive _____

No. of plants damaged by OHV activity:

Seedlings _____

Perennial _____

THE ECOLOGY OF

Astragalus magdalenae var. *peirsonii:*

Germination and Survival

FINAL REPORT

Prepared for the
American Sand Association

Arthur M. Phillips, III, Ph. D.
Debra J. Kennedy

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JULY 2003

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Photos by A. M. Phillips, III

ABSTRACT

The Algodones Dunes, located in extreme southeastern California, support a specialized flora with many sand dune endemic plants. Following the listing of one of these plants, *Astragalus magdalenae* var. *peirsonii* (Peirson's milkvetch), as a Threatened species in 1998, a court-ordered closure excluded off-highway vehicle (OHV) use in approximately 60% of the dune system. Our initial survey for Peirson's milkvetch, conducted in the spring of 2001, located more than 71,000 individual plants from an October 2000 germination event in areas of the dunes open to OHV use. Most of these plants flowered and set seed in 2001. In Stage two of the project, conducted in the winter of 2001-02, we sampled and analyzed the seed bank. The analysis determined that an estimated 2.5 million to 5.6 million milkvetch seeds constitute the *A. m.* var. *peirsonii* seed bank in the open areas of the dunes where plants had been observed in the spring of 2001. Counts of plants from the 2000 cohort surviving until the winter of 2001-02 showed a survival rate of 21%, an extraordinary figure made possible by unusual rains during the summer of 2001. In Stage three of the study, we censused surviving members of the 2000 cohort and found a third-season survival rate of 0.28%, following a year of severe drought. Heavy rains in late February 2003 triggered a new germination event, and a census of seedlings in April and May 2003 showed a 7% - 8% higher plant count than the initial survey of 2001. Unlike the fall-germinating 2000 cohort, the 2003 spring germinants did not flower during their first season and it is likely that only those that survive the summer of 2003 will reproduce during their second year. However, even if all the spring 2003 germinants fail to survive until they reproduce, the loss to the seed bank would be only some 3%. This could easily have been replaced by the few remaining survivors from the 2000-01 germination event.

INTRODUCTION

The Algodones Dunes are a complex of sand dunes located in Imperial County, California. They support a specialized, limited biota that has adapted to the severe conditions posed by an ever-changing habitat with low, unpredictable rainfall and severe annual and diurnal extremes in temperature. Many of the plant species found in the dunes are endemic to sand dunes in the Lower Colorado Valley subdivision of the Sonoran Desert (Bowers 1986; Shreve 1964). One of them, *Astragalus magdalenae* var. *peirsonii* (Peirson's milkvetch), listed as a Threatened species in 1998 (USFWS 1998, CNPS 2001), responded to wet conditions during the fall of 2000 with an explosive germination event. This event presented a rare opportunity to examine the plant's life history and current and potential status.

Pending consultation between the U.S. Fish and Wildlife Service (FWS) and the Bureau of Land Management (BLM) on the management of the plant, a U.S. District Court ordered the BLM, which manages the Algodones Dunes as the Imperial Sand Dunes Recreation area, to implement a temporary administrative closure to motorized vehicle use of 49,000 acres of the system in November, 2000 (BLM 2000a). Pursuant to the closure, the American Sand Association retained the services of Thomas Olsen Associates to conduct studies on the status and biology of the species.

Accordingly, in spring 2001 we began a three-stage study of *A. m.* var. *peirsonii*. During stage one, conducted from early March to mid-May 2001, we surveyed the Algodones Dunes system and collected and analyzed population, reproduction, distribution and habitat data, including a census of plants and descriptive survey of the plant's ecology within the dune system. The results were presented in the "Olsen Report" prepared by Phillips et al. (2001). Stage two was conducted from November 2001 to February 2002 under a contract from the American Sand Association with A. M. Phillips, III. This portion of the study included a sample of 40% of the *A. m.* var. *peirsonii* sites located in 2001 in which survival of the plants censused in the spring of 2001 was assessed and seed bank data were collected and analyzed in order to obtain further information on the demography and life history of the species. The results were presented in a comprehensive report summarizing the first two years of the study. The total seed bank for 60 sites was estimated at between 2.5 and 5.8 million seeds (Phillips and Kennedy 2002).

In March 2003, the 25 sites sampled in 2002 were visited to ascertain survival of the 2000 cohort of plants to a third season. A series of storms in late February 2003 caused another germination event to occur, with thousands of seedlings appearing in early March. The 2003 germination differed from the 2000 event in that it occurred late in the growing season, providing an opportunity to compare the success of germination events occurring at different times in the growing season. We returned in April and May 2003 to determine the magnitude of this event and its likely reproductive success. We present the results of the survival inventory and the germination survey in this paper.

Species Description and Ecology

Astragalus magdalenae var. *peirsonii* is a member of the Legume Family (Fabaceae). The stems and leaves are upright, gray-green in color, with clusters of dark purple flowers at the tips of most of the stems. The flowers can appear as early as November or December, but the main flowering season is February and March. The leaves are long and slender, with tiny paired leaflets along each edge. The pods are large, inflated, containing black, kidney-shaped, flat seeds. The seeds are the largest of any North American species of *Astragalus* (Barneby 1964, Felger 2000), and the pods generally ripen in May and June.

Although *A. m.* var. *peirsonii* is considered to be a short-lived perennial (Barneby 1964) or "ephemeral" (Felger 2000), suggesting its facultative perennial nature, it is well adapted to flower and produce seeds during its first year (Phillips et al. 2001). The pods produced by Peirson's milkvetch are strongly inflated, and can blow across the surface of the dunes until they lodge against a shrub or in a swale with reduced wind velocity (Bowers 1986). Thus they can be transported from one favorable site to another, or remain near the parent plant, depending on winds. Because the plants are usually located in open areas (not growing under shrubs) and clustered, it would appear that many pods shed their seeds near the parent plant, replenishing the seed bank where the parent plant grew. The distal end of the pod splits open prior to falling from the parent plant, allowing the seeds to be released essentially in place, and causing many pods to fill with blowing sand and become anchored before they can be blown very far. Pavlik and Barbour (1985), working with *Astragalus lentiginosus* var. *micans* in the Eureka Dunes, California, found

that pods that fell within a cluster of plants usually shed their seeds in place, while those that were in the open were more likely to be transported some distance by the wind.

Astragalus magdalenae var. *magdalenae* (the parent) is a maritime species, found on sand dunes along the Pacific coast of Baja California and along the shores of the Gulf of California. *A. m.* var. *peirsonii* is a close relative still occupying the old dune habitat, but now stranded inland, at the edge of a former lobe of the Gulf of California (Barneby 1964); it has evolved into a new entity during a long period of isolation from its ancestors.

The most detailed discussion of Peirson's milkvetch ecology is found in Barneby:

> On the Algodones Dunes, where it is found in company with a shrubby *Eriogonum,* … the Peirson's milkvetch is abundant in favorable seasons. After a drought of several years' duration, only a few tattered veterans, some of them half smothered and others with a trunklike taproot exposed for a foot or more by the shifting sands, bear witness to a formerly flourishing colony. The plants are potentially perennial but mature rapidly, beginning to bear fruit some two months after germination of the seeds, and thus insure continuation of their sort. The taproot is extraordinarily long, as might be expected under dune conditions, and penetrates deeply before lateral rootlets are produced. In one young plant a simple whiplash root, broken off and incomplete, measured nearly 1.8 m (6 feet) in length, five or six times that of the stem above ground (Barneby 1964: 862).

In addition to the Algodones Dunes, Peirson's milkvetch also occurs in the Gran Desierto dunes of northwestern Sonora, Mexico (Felger 2000). *Astragalus magdalenae* var. *peirsonii* is not known to exist in Arizona, as reports that the species occurs in the Yuma Dunes of southwestern Arizona were based upon a misidentified specimen (Phillips and Kennedy 2002).

METHODS

In the spring of 2003, we conducted a third stage of our study of Peirson's milkvetch in the Algodones Dunes. This provides a third consecutive year of data on the ecology and life history of the species. Redman (1974), and Schiffer and House (1977) argue that a multi-stage research design is most effective for resource management, and that "without multi-stage capability …studies cannot meet their research and management goals efficiently" (Schiffer and House 1977: 45). As previously stated, the purpose of our investigation was to collect and analyze population, reproduction, survival and seed bank data in order to assess the biology and current and potential status of *A. m.* var. *peirsonii* in the Algodones Dune system. Stage one of the study was conducted from early March to mid-May 2001 and included a descriptive survey of the plant's demography and ecology within the dune system. Stage two was conducted from November 2001 to February 2002 and included a sampling of the Peirson's milkvetch population surveyed in stage one in which survival and seed bank data were collected and analyzed. Stage three was conducted from March to May 2003 and included a survey of plant survival and reproduction of the population sampled in stage two of the study, and initial inventory of a new cohort that germinated in February 2003.

Study Area

The Algodones Dunes, located in southeastern Imperial County, California and extending a short distance into adjacent Baja California, Mexico, are about 65 km (40 miles) in length, trending from northwest to southeast, and from 5 to 10 km (3 to 6 miles) wide (see Figure 1 below). The total area of the dune system includes approximately 60,705 ha (150,000 acres), of which 12,950 ha (32,000 acres) are designated as a wilderness area (BLM 2000b). For many years, the system has been used recreationally for hiking, bird-watching, fishing on the Coachella and All American canals (which run along the western and southern ends of the dunes) and, since the 1950s, for off-highway vehicle (OHV) use. Although some have speculated that heavy OHV use within the dune system may negatively affect the status of *A. m.* var. *peirsonii*, no empirical study of the potential impact has been completed.

An overview of the geologic history and setting of the Algodones Dunes is provided by Norris and Norris (1961). The source of sand for the dune system was Lake Cahuilla, a body of fresh water that occupied the interior of southern California from approximately Indio southward into Mexico, including the present-day Salton Sea and the Imperial Valley. The lake was full intermittently from at least the late Pleistocene (25,000 to 10,000 years ago) to a few hundred years ago. The origin of the sand for the dune system was apparently the shoreline of the lake each time the lake level lowered, exposing beach sand that was transported by prevailing northwesterly winds. The dunes rise 60-90 m (200-300 feet) above the desert floor and consist of a series of sand ridges along the western edge and a complex chain of overlapping barchan dunes. From north to south, the dune system morphology gradually changes, with the highest slipfaces and best-developed dune-free depressions ("valleys") occurring in the southern portion of the system.

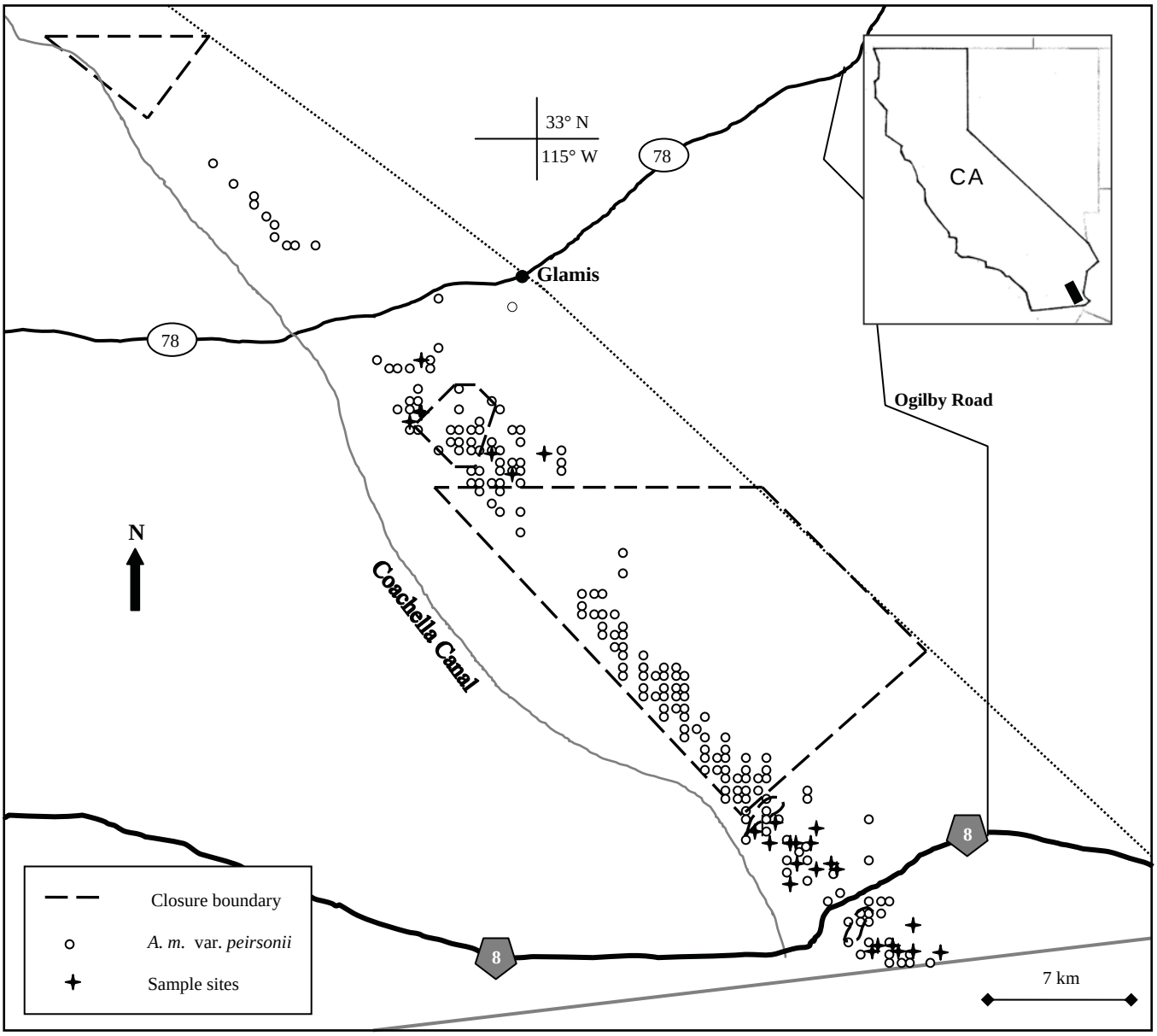

Figure 1. Location of *Astragalus magdalenae* var. *peirsonii* sites in the Algodones Dune system surveyed in spring 2001, sampled in winter 2001-02 and surveyed again in spring 2003[1]

Survey Methodology

Stage One

To evaluate the distribution, reproductive capabilities and habitat requirements of *A. m.* var. *peirsonii* during stage one of our study, we employed a number of observational techniques. Statistical sampling methods were not included in this stage of the investigation, since the purpose of the descriptive survey was to locate as many occurrences of the subject plants as possible, and to completely census and collect reproductive and habitat data from every area in the dune system in which they were found.

[1]Site locations are approximate; see Phillips et al. (2001) Appendix A for exact geo-coordinates

A preliminary land reconnaissance was conducted throughout much of the open areas of the system, from the U.S.–Mexico border north to California Highway 78 (the southern boundary of the wilderness area). The area covered during this initial survey totaled approximately 14,165 ha (35,000 acres), or 59% of the open area of the dune system. From data collected during the preliminary reconnaissance, we determined that *A. m.* var. *peirsonii* generally occurs in highly clustered, specialized habitats within the dunes, and that a large portion of the dune system (approximately 70-75%) does not contain habitat suitable for these plants. We then conducted interviews with informants familiar with the dune system to determine the location of any known occurrences of Peirson's milkvetch. Finally, using data gathered from the preliminary reconnaissance and informant interviews, along with our specific knowledge of habitat requirements, we selected several survey areas that were intensively searched for the presence of the subject plant.

When *A. m.* var. *peirsonii* plants were present in a survey area, it was designated a "site," a number was assigned to that area and a complete census of plants was conducted. A field data form was completed at each site (Appendix B), on which data concerning general habitat characteristics, number, age and condition of the plants present, percentage of plants that were reproductive at the time of the survey, and empirical evidence of OHV impact on the population were recorded (see Phillips and Kennedy 2002 [Appendix B]). Additionally, the presence of associated special status species[2] was noted, and a census of those plants was conducted. Each of the sites was photographed, and the location was recorded with a Global Positioning System (GPS) unit, which was also used to circumscribe the boundary of the site.

Any area of occurrence that was too small to circumscribe, or that contained a single cluster of *A. m.* var. *peirsonii*, was designated a "point." The plants contained within a point were also counted and the location was recorded with the GPS unit. Utilizing this methodology, we identified 60 sites and 66 points of milkvetch occurrence, and surveyed a total of 71,926 plants during stage one of the study. Of these, approximately 45% were determined to be reproductive. Both site and point data were later topographically mapped and entered into a master database (Phillips et al. 2001 [Appendix A]). Bigwood and Inouye (1998) argue that the use of GPS mapping has several advantages over traditional methods used to determine spatial pattern and distribution of a population, since "the resolution of pattern is greatly improved, and several problems that reduce the effectiveness of other methods are eliminated. This method can be used to advantage in any study in which spatial pattern analysis is performed, particularly if the objects can be mapped easily" (Bigwood and Inouye 1988: 497).

An additional observational technique was used to gather *A. m.* var. *peirsonii* distribution data within the temporary administrative closure areas of the dune system. Since our requests to conduct a vehicular reconnaissance of these areas were denied by

[2] The special status plants observed in stage one of this study included *Helianthus niveus* ssp. *tephrodes* (Dune sunflower), *Croton wigginsii* (Wiggins' croton), *Palafoxia arida* var. *gigantea* (Giant Spanish needles), *Pholisma sonorae* (Sand food), and *Astragalus lentiginosus* var. *borreganus* (Borrego milkvetch).

BLM, we conducted an aerial (helicopter) reconnaissance of the 20,000 ha (49,000 acres) within the three temporary closure areas and the wilderness area. Parallel transects or concentric circles of decreasing diameter were flown within each of the closure area boundaries south of Highway 78, and a portion of the wilderness area north of the highway. Presence or absence, along with the location of Peirson's milkvetch was recorded as "waypoints" with the GPS unit. No census of plants in positive areas of occurrence was possible from the air. Aerial reconnaissance of the closure areas revealed 185 points of milkvetch occurrence (see Phillips et al. 2001 [Appendix B]).

Along with the field data collected in stage one of this study, climatic data from weather stations located near the dune system were obtained from the Western Regional Climate Center (2001). These data were subsequently analyzed and the results presented in Phillips et al. (2001).

Stage Two

Stage two of the study was conducted from November 2001 to February 2002 and included an analytical sampling of the *A. m.* var. *peirsonii* population in which survival and seed bank data were collected and analyzed. Utilizing plant distribution data gathered during stage one, we determined that a stratified random survey design best suited the population under study. Prior to conducting the fieldwork for this stage of the investigation, we stratified the dune system into three locations based on variation in plant distribution (mean number of plants/m^2 in survey sites) by region. Location 1 encompassed most of the open area of the dune system south of Interstate 8 and north of the international border, known as the Buttercup area. Location 2 included the area north of Interstate 8 and south of the large central closure (Patton Valley). Location 3, in the northern region of the system, included the open area from south of Highway 78 and east of Gecko Road to the northern boundary of the large central closure.

Preliminary analysis of the data collected during stage one of the study showed a high degree of non-random distribution of Peirson's milkvetch within the dune system; i.e., the plants were distributed in particular similar locations, and clustered within the habitats where they were found. In order to account for distribution variance and adequately represent the target population, we randomly selected 40% of the areas designated as sites during the first stage of the study for sampling in stage two. Seven sites were selected in location 1, twelve in location 2 and six in location 3, for a total of 25 sample sites. During stage one we had topographically mapped the perimeter of each site and recorded the age, distribution and reproductive status of *A. m.* var. *peirsonii*, providing information for comparison with the data collected in winter 2001-02.

Analysis of the soil seed bank was the focus of stage two of the study. The purpose was to provide an estimate of the number of seeds in the seed bank in order to assess the potential status of the population, and to determine patterns of spatial and temporal seed distribution. The seed bank sampling strategy was designed to optimize the accuracy of seed number estimates by dividing large sample plots into smaller subplots and sampling within those subplots, and was developed from methods described in Bigwood and Inouye (1988). At each of the selected sample sites, a survey of the seed bank was conducted utilizing a systematic sampling of a selected cluster within the

sample site.[3] We extrapolated the seed bank data gathered during stage two to the number of milkvetch identified and surveyed at 60 sites in stage one of the study and determined that the soil seed bank consisted of approximately 2.5 million (extrapolated to number of reproductive plants only) to 5.6 million (extrapolated to total number of plants) *A. m.* var. *peirsonii* seeds.

In addition to seed bank data, at each selected site we repeated the census of the plants surveyed during stage one of our study, in order to determine how many had survived through the summer of 2001. We determined that survival rate of the 2000 cohort to winter 2001-02 was approximately 21% -- an extraordinarily high rate, since only five of the initial 71,000 milkvetch surveyed in stage one had survived from the previous year. During stage two of the study, we also collected and recorded additional data concerning the habitat, location and distribution of plants within each sample site. Finally, climatic data and OHV usage data were obtained from the Western Regional Climate Center and BLM respectively. The results were analyzed and presented in Phillips and Kennedy (2002).

Stage Three

Stage three of the study was conducted from March to May 2003 and included a third-season survey of survival and reproduction of the 2000 cohort of plants, and inventory of the sites to census a new cohort of seedlings that germinated in late February 2003 at the 40% sample of the original sites that were studied in 2002. At each of the 25 sites we completed a census of the remaining living plants from the 2000 germination and the number of new germinants present.

The inventory was conducted in the same manner as the original census in 2001: upon arrival at a site the boundaries were determined using the GPS unit and site diagrams that were prepared in 2001 and 2002, participants were advised of the site boundaries, and the site was divided into sectors for counting seedlings. Because the seedlings were tiny and several people participated at all sites, counters made an arc in the sand with a pole to mark plants or clumps when they were counted. This increased accuracy of the counts by preventing double-counting plants along sector boundaries, and assisted census-takers to ensure that they counted all plants within their areas. Notation was made of reproductive status of seedling and adult plants, and the number of plants showing evidence of OHV damage was recorded. The counts were then reported to a team leader and recorded before advancing to the next site (see Appendix D for an example of the field data form).

The initial stage three survey was carried out March 9-11, 2003, to assess survivorship. Presence of a newly germinated cohort of seedlings was noted on this trip. We returned to the dunes in April and May to census seedlings, visiting the 12 Location 2 (Patton Valley) sites on April 18-20 and the seven Location 1 (Buttercup) sites and six Location 3 (Gecko Road) sites on May 3-5. We wanted to conduct the surveys late enough in the season that no additional germination would occur subsequent to our visit, and to be able to determine if the new germinants would reproduce, while conducting our censuses early enough to avoid summer conditions causing the plants to enter dormancy or die due to heat and water stress. The results of stage three of our Peirson's milkvetch study are presented below.

[3] See Phillips and Kennedy (2002), pp. 10-13, for a full description of the seed bank sampling methodology

RESULTS AND DISCUSSION

Habitat

The shifting sands of dunes constitute a severe habitat for which plants must be adapted to cope with being both covered and exposed (Bowers, 1986). Our observations at the Algodones Dunes show that plant life within the dune system is consistently concentrated in areas where there is relative substrate stability, compared to areas where sand is more actively accumulating or being removed. Vegetation occurs in dunes of intermediate size in the western half of the area, and not in the "high dunes" in the eastern portion of the dune field. In terms of dune morphology, vegetated areas are generally located on the lee side of dunes, in areas where the surface gradually slopes upward from deep or shallow bowls at the base of steep slipfaces. Sand deflation and deposition are too extreme on the windward slopes and the slipfaces to support most vegetation, which is either buried more rapidly than it can grow, or dies when sand is removed at depth from the roots. The vegetated slopes are more stable by virtue of their position in the lee of the strong winds of the windward slope; plants are able to grow there because they are subject to neither extreme deposition nor deflation. The slopes are generally west to northwest-facing, and extend from the floor of the bowl at the base of the slipface upward to a broad ridgetop that rings the basin (Figure 2).

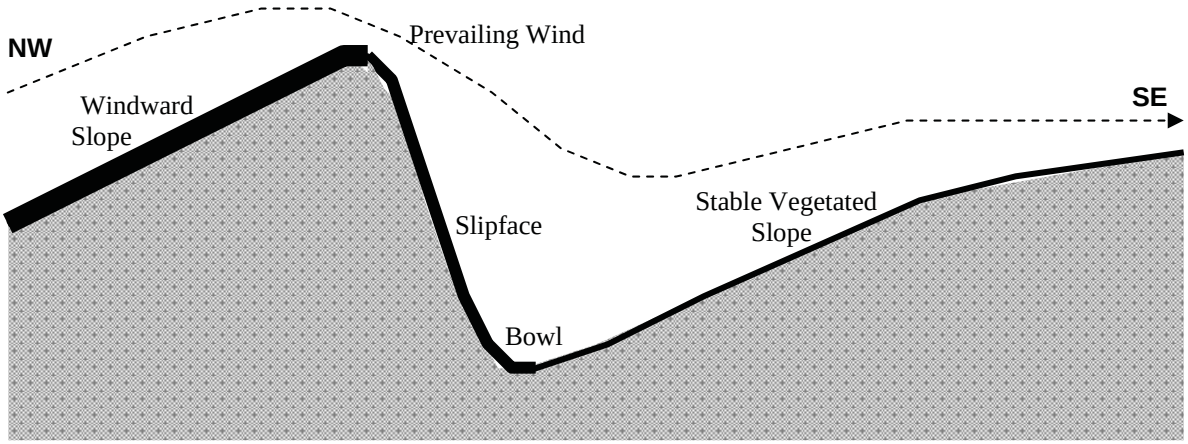

Figure 2. Dune morphology. Dashed line indicates direction of prevailing wind; solid line at dune surface indicates relative degree of sand movement (thick line = severe movement, thin line = moderate movement).

Vegetation gradually decreases toward the rim, and the ridgetops are essentially free of vegetation. The vegetated slopes appear to be under gradual deflation, as evidenced by the pedestaled habit of most plants. It is in such places that the common shrubs, *Eriogonum deserticola* (dune buckwheat) and *Croton wigginsii* (Wiggins' croton), occur. They are consistently pedestaled to a depth of a meter or more below the root crown, and eventually they topple over and die when the taproot is no longer able to support the weight of the stems (Phillips et al. 2001). A list of species commonly associated in these habitats is presented in Table 1 below.

Associated Species	*Common Name*
Asclepias subulata	Reed-stem milkweed
Astragalus lentiginosus var. *borreganus**	Borrego milkvetch
*Croton wigginsii**†	Wiggins' croton
Dicoria canescens†	Desert dicoria
Ephedra trifurca	Long-leaved joint-fir
Eriogonum deserticola†	Desert buckwheat
Helianthus niveus ssp. *tephrodes**†	Dune sunflower
Hilaria rigida	Big galleta
Palafoxia arida var. *gigantea**†	Giant Spanish needles
Panicum urvilleanum	D'Urville's panic grass
Petalonyx thurberi	Sandpaper plant
*Pholisma sonorae**	Sand food
Tiquilia plicata	Pleated crinklemat

*Special status plants; †Dominant species

Table 1. Common associated species with *Astragalus magdalenae* var. *peirsonii* in the Algodones Dunes.

It is in such places that *A. m.* var. *peirsonii* commonly occurs; plants are found from the floor of the basin to beyond the ridge, but the greatest concentrations are generally above the middle of the slope. The plants are frequently quite clustered, with one to several clusters occurring at a site and individuals often scattered between clumps. *A. m.* var. *peirsonii* plants are also frequently pedestaled, usually from 1-3 cm and sometimes as much as 8 cm, and always to the same height for all plants in a cluster. This can be considered evidence for their simultaneous germination (Phillips et al. 2001).

At a number of sites surveyed in April and May 2003 large numbers of seedlings had long, exposed thread-like roots that were unable to support the stems and leaves. Most of these plants appeared to be seriously desiccated and it is likely that they will not survive. Perhaps this situation may have originated from strong winds associated with a dry storm in March or early April that removed sand from vegetated areas before the roots of the seedlings were sufficiently well developed to support the plants.

Distribution

As noted above, Peirson's milkvetch plants are neither evenly distributed throughout the dunes, nor within the sites where they occur. They have a strong tendency to occur with other dune-adapted species in habitats that have enough substrate stability to allow plants to grow without being either buried in sand more quickly than they can grow to outpace the deposition, or subject to such extreme deflation that their roots become exposed, depriving them of both mechanical support and water uptake through the roots.

The spring 2001 surveys were wide-ranging throughout the dunes system south of highway 78. We visited as much of the area as possible, and by mapping the places where we found Peirson's milkvetch we were able to develop an accurate picture of its overall distribution. Systematic helicopter surveys were carried out in the wilderness area and the temporary closures; sites with the plants were recorded using a GPS. By mapping the sites, points, and aerial survey points, we determined that Peirson's milkvetch is not

evenly distributed in the dunes system. The sites were generally distributed in the western portion of the dunes, in an elongated, narrow band in moderate-sized, well-developed dunes sandwiched between the low sand hills and ridges of the western edge of the dunes and the "high dunes" in the central part of the dune field. Within their range, the plants occur in dispersed clusters in favorable habitat, bowls and elongated depressions where they receive some protection from the strongest winds and areas of greatest sand movement. Mappable concentrations of plants were noted in less than 15% of the large closure, and in less than 25% of the dunes proper (excluding the sandfields east of the dunes that are included within the closure) (Phillips et al. 2001).

Within sites, plants tend to be both clustered and scattered (Plate 1). The clusters may be self-perpetuating because of seed distribution (Pavlik and Barbour 1985), or due to microtopographical features that capture pods moving in the wind. Our observations in 2003 indicate that some new clusters of seedlings were within the area of old clusters, while others were in places where no clusters were present in 2001, and some of the old clusters had few or no seedlings in 2003. Thus, there appears to be no definite pattern. This finding concurs with our observations of 2002 that large concentrations of seeds on the sand surface in some areas were apparently unrelated to existing clusters of plants. Scattered plants presumably occur where pods have shed seeds as they blew by. The slopes where the plants occur are relatively uniform except for windbreaks created by plants, and subtle ridges and depressions caused by the vagaries of blowing sand.

Plate 1. Clustered distribution of *A. m.* var. *peirsonii* within a site. Three clusters are outlined; note relationship of clusters to steep slope of dune.

Survival

The question of the longevity of Peirson's milkvetch plants is important in several respects. First, it indicates whether living plants survive between germination events, or whether the species survives by relying on a seed bank of long-lived seeds that remain dormant in the soil between occurrences of favorable conditions for germination. Second,

it is essential in determining whether the status can be determined by surveying for living plants, or whether the seed bank must also be included in an assessment. Finally, it is an essential element in developing a life history of the species.

Our study began in the spring of 2001 with a survey of the areas of the dunes open to OHV use. During that survey we located 60 separate sites and 66 points of Peirson's milkvetch occurrence, totaling more than 71,000 individual plants. The size and shape of the plants, diameter of the root (exposed by sand deflation), and lack of old stems from previous years' growth made it quite easy to distinguish first-year plants from older ones. All but five individuals had germinated in October 2000 or March 2001. During the 2001-02 growing season (stage two) we surveyed a stratified random sample of 25 sites, a 40% sample, to determine one-year survivorship of the 2000 cohort of seedlings, and to study the seed bank. A total of 30,771 plants had been counted at these 25 sites in the spring of 2001. When they were surveyed in the 2001-02 growing season, they contained 6,412 plants, a survival rate of 21%. There was negligible new germination during the winter of 2001-02; the plants counted were all members of the 2000 cohort.

The same 25 sites were surveyed in March 2003, in the spring of the third year of the 2000 cohort. Only 83 individuals were still alive, 0.27% of the original germinants (see Appendix A). Of these, 56 (67.5%) were fertile, with the number of maturing pods ranging from 1 to 560. The sterile plants were mostly unhealthy and it is likely that most will not survive for another year. We have essentially documented the life history of the 2000 cohort. The five perennial individuals counted in stage one of this study, while not in any of the 25 sample sites, were checked and all were found to be dead in 2003. Obviously, a single point-in-time survey would produce very different results depending on when in the life cycle it was conducted.

First-year plants generally had several upright stems about 30 cm tall arising from the root crown which, by the time of flowering, is often 4-6 cm above the sand surface due to sand deflation. The root may grow to 1 cm in thickness during the first year. The plants largely die back to the root crown during the summer, and remain dormant. Those that have roots deep enough to survive the summer heat and drought begin to grow again in early fall, sprouting new branches from the root crown and lower parts of first-year branches. Second-year plants are more robust, with more branches that are more widely spreading than those of the first year. The root thickens to 2-3 cm in diameter. Third-year plants have crowns of similar dimensions and roots of comparable diameter, but their roots may be further exposed due to continuous deflation of sand. Some topple when the roots are no longer capable of supporting the crown (see Plate 2). This frequently results in the death of older plants (Plate 3).

Plate 2. Surviving third-year plant from 2000 germination;
note approximately 30 cm-long exposed root.

February 2003 Germination

During the March 2003 survivorship surveys it was apparent that a large number of new seedlings of Peirson's milkvetch had recently germinated. The tiny plants still had green cotyledons and 1-3 small leaves. On four days between February 12th and 25th, a total of 320 mm (1.26 inches) of precipitation was recorded at the Remote Automated Weather Station (RAWS) at Cahuilla BLM Ranger Station, and 208 mm (0.82 inches) was recorded at the Buttercup RAWS station. This was apparently sufficient to trigger a massive new germination event throughout the dunes.

Just as one generation of Peirson's milkvetch plants had run the course of its life cycle, another started the cycle anew (Plate 3). After consultation with ASA and BLM, it was determined that a census of seedlings at the 25 sample sites would yield valuable information continuing our three-season study of the plants at the Algodones Dunes. Because more accurate weather data was available for the 2003 germination event (the RAWS stations were not on line at the time of the 2000 germination), we would be better able to correlate precipitation and germination. The new seedlings also provided an opportunity to study the phenology of a late-winter event, as opposed to the fall precipitation that triggered the 2000 event.

We visited the dunes to inventory the 12 Patton Valley sites April 19-21, 2003, and the seven Buttercup sites and six Gecko Road sites May 3-5, 2003. All live seedlings were counted at each site. The extremes were both in the Buttercup area, with 6621 seedlings counted at Site 7 and 0 at Site 6. The total count was 33,119, about 7.4% more than the number of plants from the 2000 cohort counted at those sites in 2001. The minimum seed bank estimate for these 25 sites is 1,090,914 seeds; thus the February 2003 germination represents at about 3% of the seeds available in the seed bank (from Phillips and Kennedy 2002).

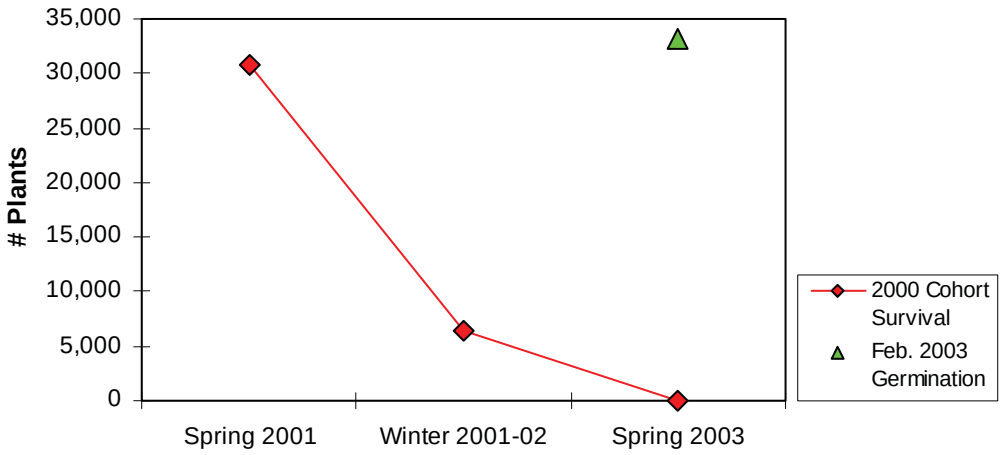

Figure 3. 2000 cohort survivorship and 2003 germination at 25 sample sites

Plate 3. 2000 cohort plants (dead) surrounded by February 2003 germinants, perpetuating a cluster; note presence of seed pods (arrows)

The 2003 inventories were scheduled late in the growing season in order to ascertain whether any of the new germinants would flower and set seed before summer dormancy commenced. The largest seedlings (15-20 cm tall) were similar in size to the first-year plants that flowered in the spring of 2001 (see Plates 4a and 4b below), but unlike the 2000 cohort not a single individual of the 2003 cohort flowered. Thus, there was a major contrast between the late-winter germinating 2003 cohort, 6-8 weeks old in late spring and totally sterile, and the 2000 early fall-germinating cohort, 5-6 months old and flowering profusely by late spring of their first year in 2001. First-year plants that germinate in the fall reproduce during their first growing season, with sites with up to

90% and a mean of 45% of first-year plants flowering in 2001. Seedlings that germinate in late winter apparently do not reproduce during their first year, and must survive an ensuing summer before reproducing during their second growing season.

The fate of many of the 2003 seedlings was becoming apparent at the time of the May census. Many plants were already dead, and many still alive had long, exposed thread-like roots unable to support their sparse herbage and un-elongated stems lying on the sand. It seems likely that large numbers of such seedlings will perish by early summer. In general, seedlings that appeared to be healthiest were those with the least degree of pedestaling, and those in the Gecko Road area.

Plates 4a and 4b. 2003 seedlings in March (left) and May; note PMV seed in Plate 4a. The March seedlings are 3-5 cm tall, and the May seedlings are 15-20 cm tall, including exposed roots.

We installed a rectangular plot 10 m by 30 m at Site 41 in Patton Valley (Location 2) on March 11th to test seedling survival during their early weeks. We counted 196 seedlings in the plot when it was installed. When the plot was surveyed again on April 18th, 159 seedlings survived, a loss of about 19% during the five-week period.

Remote weather station information from October 2000 suggested that the amount of precipitation falling in the southern portion of the dunes might have been significantly more than the amount received in the Gecko Road area. Numbers of plants recorded at sites south of the large closure and in the Buttercup area were an order of magnitude greater than the counts from the Gecko Road area (Phillips et al. 2001). Rates of survival through the next two growing seasons were similar in all three areas. In the winter of 2002-03 (particularly in late February), precipitation at Cahuilla Ranger Station on Gecko Road was approximately double that recorded at Buttercup, south of I-8. The number of seedlings, however, did not reflect the amount of rainfall. Relative counts of seedlings at Gecko Road sites compared with southern sites were proportional to the 2001 censuses in the two areas (Plate 5, below).

This is consistent with the results of the seed bank study of 2001-02 (Phillips and Kennedy 2002). For whatever reasons, the potential, as well as the expression, of population levels of Peirson's milkvetch in the Gecko Road-Glamis area is significantly lower than in the southern dunes. This finding has manifested three times in our studies: 2001 censuses, 2001-02 seed bank counts, and 2003 seedling inventories. It is notable that, at least subjectively, the vigor of seedlings at Gecko Road with its greater rainfall appears to be greater than those at Patton Valley and Buttercup. A survey of survivorship and reproduction of milkvetch in the 2003-04 growing season would provide important additional evidence of this hypothesis.

Climate, Reproduction and Survival

The climatic link between the explosive germination event of *A. m.* var. *peirsonii* in the fall of 2000 and rainfall was examined by Phillips et al. (2001). Examination of climatic data from stations near the dunes, obtained from the Western Regional Climate Center (2001, 2002), corroborates the climatic correlation with Peirson's milkvetch growth during the 2000-01 season. The Yuma Quartermaster (AZ) station, located about 24 km (15 miles) east of the dunes, received over 380 mm (1½ inches) of precipitation during a two-day precipitation event in late October 2000. This event was most likely responsible for the milkvetch germination event that was documented during stage one of our studies (Phillips et al. 2001).

Late winter storms can also be effective in triggering germination. A major germination event occurred as a result of a series of winter storms that left 320 mm (1.26 inches) of precipitation at Cahuilla, and 208 mm (0.82 inches) at Buttercup between February 12th and 25th 2003. Additionally, late February storms in 2001 apparently caused germination of plants that were counted with the fall 2000 cohort. Many of the sterile plants from the spring 2001 census may have been seedlings that germinated in late winter, while the reproductive first-year plants were probably those that had germinated in late fall.

Plate 5. Third-season plant at site in the Gecko Road area (Location 3) surrounded by 2003 germinants

Two Remote Automated Weather Stations (RAWS) were installed in the dunes in November 2000, at Buttercup and at the Cahuilla Ranger Station. Because the installation was after the storm responsible for the fall 2000 germination event, it was necessary to use data from the closest available stations to estimate the date and amount of rainfall that resulted in the October 2000 germination (Phillips et al. 2001).

With the availability of weather data from the dunes, however, it is possible to make a more accurate correlation between precipitation and plant response. As shown in Table 2 below, there was a single-day storm on July 6, 2001 that produced 183 mm (0.72 inches) of rainfall at Cahuilla. The precipitation records for June-August 2001 were missing from the data recorded at Buttercup, so a direct correlation between survival and summer precipitation is not possible for the southern part of the dunes. However, the Yuma Quartermaster (AZ) weather station, located about 24 km (15 miles) east of Buttercup, recorded 38 mm (0.15 inches) of precipitation on July 5-6 and 160 mm (0.63 inches) on August 11th. We believe it is reasonable to assume that summer storms in the dunes in July and August 2001 provided enough rainfall to sustain sufficient soil moisture levels through the summer months to allow a significant proportion of the 2000 cohort of *A. m.* var. *peirsonii* to survive. Mean summer precipitation for June, July, and August at Yuma totals 127 mm (0.50 inches) and the greatest amount ever recorded in a single summer storm was 254 mm (1.00 inch) (Sellers and Hill 1974), so the July 6, 2001 storm at Cahuilla was probably extraordinary. The combination of a major germination event followed by a major storm during the succeeding summer is likely to be rare, and we conclude that a survival rate of 21% to a second year is exceptional.

Date	*Precipitation (mm)*		*#Days*	*Max*	*Date*	*#Days*	*Max*	*Date*
	Buttercup	Cahuilla	Buttercup			Cahuilla		
Nov. 00	0	0	0			0		
Dec. 00	0	0	0			0		
Jan. 01	79	53	2	64	11th	5	25	11th
Feb. 01	252	145	4	140	27th	5	66	27th
Mar. 01	28	3	2	23	7th	1	3	7th
Apr. 01	0	8	0			1	8	21st
May 01	0	0	0			0		
Jun. 01	0*	0	0*			0		
Jul. 01	38*	183	2*	25*	4th*	1	183	6th
Aug. 01	160*	0	1*	160*	11th*	0		
Sep. 01	0	0	0			0		
Oct. 01	168	3	2	137	7th	1	3	7th
Nov. 01	0	43	0			2	41	24th
Dec. 01	0	20	0			1	20	11th
Jan. 02	0	0	0			0		
Feb. 02	0	0	0			0		
Mar. 02	0	0	0			0		
Apr. 02	0	0	0			0		
May 02	0	0	0			0		
Jun. 02	0	0	0			0		
Jul. 02	0	0	0			0		
Aug. 02	0	0	0			0		
Sep. 02	64	208	2	41	10th	3	193	10th
Oct. 02	0	15	0			1	15	26th
Nov. 02	0	8	0			3	3	27, 29, 30
Dec. 02	0	3	0			1	3	1st
Jan. 03	3	0	1	3	8th	0		
Feb. 03	208	320	3	102	12th	4	145	12th
Mar. 03	20	127	2	13	15th	2	89	16th
Apr. 03	0	0	0			0		
May 03	0	0	0			0		

*Data from Yuma Quartermaster (AZ) weather station

Data sources: Western Regional Climate Center (2001, 2002); California Dept. of Water Resources (2003)

Table 2. Climate data for Buttercup (location 1) and Cahuilla (location 3), November 2000 – May 2003

Peirson's milkvetch plants go dormant during the hot summer months, and no germination occurred as a result of the summer 2001 storms. The transition from summer storms that may enhance survival but do not trigger germination to fall storms that occur when it is cool enough to allow germination to occur can be estimated from September and October storms occurring between 2000 and 2002. The storm that triggered the major germination event in 2000 left 401 mm (1.58 inches) of rain at Yuma Quartermaster station over between October 21st and 23rd. Storms dropping 168 mm (0.66 inches) at Buttercup on October 7th, 2001, and 208 mm (0.82 inches) at Cahuilla on September 10th, 2002, did not trigger germination. The transition appears to occur sometime in mid-October.

September and October in the southwestern United States are climatically transitional between the summer "monsoon" season and the winter rainy season, characterized by frontal disturbances moving eastward from the Pacific Ocean. Occasionally a third source of moisture produces significant rainfall during the seasonal transition: subtropical Pacific hurricanes, or "chubascos," that originate off the southern

coast of Mexico. Most of these tropical storms move westward away from the coast, but occasionally they drift northwestward up the Gulf of California or in the Pacific parallel to Baja California and move inland across the peninsula and into southern California, where they can produce significant fall precipitation events (Sellers and Hill 1974). We believe that these late fall, early winter storms are an important source of moisture triggering germination events of milkvetch, providing ample moisture at a time of year when temperatures are moderate. Such precipitation events are infrequent and unpredictable, and may drop 250 mm (1 inch) or more of moisture only once in 5 to 10 years or longer. We suggest that this is the primary factor determining the spacing of germination events, and the length of time dormant seeds remain viable has probably evolved in response to the frequency of available fall moisture.

Late winter precipitation caused by Pacific frontal systems produced the germination event of February 2003 and a secondary germination in March 2001. Because seedlings germinating late in the winter season apparently do not reproduce until the following growing season, the effective reproductive rate of such events appears to be lower than for fall germinations. The effects of mid-winter storms (December-January) on germination are unknown.

CONCLUSIONS

The shifting sands of the dunes constitute a severe habitat for which plants must be adapted to cope with being both covered and exposed (Bowers, 1986). Our observations at the Algodones Dunes show that plant life within the dune system is consistently concentrated in areas where there is relative substrate stability, compared to areas where sand is more actively accumulating or being removed. In terms of dune morphology, these areas are generally located on the lee side of large dunes, in areas where the surface gradually slopes upward from deep or shallow basins at the base of steep slipfaces. The slopes are generally west facing, and extend from the floor of the slipface basin upward to a ridgetop that rings the basin. Vegetation gradually decreases toward the rim, and the ridgetops are essentially free of plant life. The vegetated slopes appear to be under gradual deflation, as evidenced by the pedestaled habit of most of the plants occurring there. It is in such places that the common shrubs, dune buckwheat and Wiggins' croton, occur. They are consistently pedestaled to a depth of a meter or more below the root crown, and eventually they topple over when the taproot is no longer able to support the weight of the stems. Peirson's milkvetch also commonly occurs on these slopes; plants are found from the floor of the basin to beyond the ridge, with the greatest concentrations generally being located above the middle of the slope. The milkvetch plants are also frequently pedestaled, usually from 1-3 cm and always to the same height for all plants in a cluster. This can be considered evidence for their germination at the same time.

Peirson's milkvetch underwent an explosive germination event during the winter of 2000-01 as the result of favorable conditions for germination occurring in October 2000. More than 71,000 plants were censused during field surveys for stage one of this study. Many of these plants flowered and set seed in spring 2001, replenishing the seed bank and demonstrating the potential abundance of the species. About 21% of these plants survived until the 2001-02 growing season, and 0.27% survived until the 2002-03 season. We have thus determined the effective life span of the plants that germinated in the fall of 2000.

Plants that survive to a second or third year can grow very large and produce a great abundance of pods (and therefore seeds). Ten second-year plants had between 63 and 418 pods in February 2002. Four third-year plants produced between 110 and 560 pods in May 2003. If it is assumed that a single pod can contain 14 viable seeds (Phillips and Kennedy 2002), a single large plant can produce nearly 8,000 seeds per year.

Another major germination event occurred in February 2003. Censuses of the 25 sample sites visited in 2002 resulted in a count of more than 33,000 seedlings, 8% more than were counted at these sites in the spring of 2001. These late-winter plants had not flowered as of early May, and many were already dying. It is likely that late season germinants do not flower until their second season, in contrast to fall germinants that flower and produce seed in large numbers during their first growing season.

From an evolutionary perspective, there are two keys to survival for short-lived plants growing in harsh physical and climatic environments such as the Algodones Dunes. They must have the capability to respond rapidly to weather events that provide favorable conditions for germination, and they must have seed bank reserves with

sufficient numbers and longevity of seeds to allow germination to occur in "risky" situations; that is, when the chance of seedling survival to reproductive age is relatively small. The reproductive success of the October 2000 germination event was 45% and resulted in a large infusion of seeds to the seed bank, a high-return event. The February 2003 event, which depleted the seed bank by a mere 3%, was a more high-risk event both in terms of the time of year it occurred (too late for reproduction to occur during the same growing season as germination) and subsequent weather (no further precipitation). It will not be possible to determine the reproductive success of the 2003 cohort until the 2003-04 growing season.

From another perspective, the 33,000 seeds that germinated in 2003 could have been replaced in the seed bank by the 56 reproductive surviving plants from 2001 if each of these plants had produced 42 pods. Pod number was not counted on all plants, but ranged from 1 to 560. Most plants had at least 100 pods. Thus the seed bank could have been 100% replenished by the few survivors from 2001 alone.

The concept that all seeds in a seed bank do not have the same ecological requirements for germination, and thus will never all germinate at once, is known as "bet-hedging" (Philippi 1993a, b; Venable and Pake 1999). This buffers the species against catastrophic depletion if unfavorable conditions follow a germination event, ensuring that some viable seeds always remain in the seed bank (Phillips and Kennedy 2002). The February 2003 germination illustrates the bet-heading concept very well: it was a risky germination because it was late in the season, but the ecological cost was very low. If 100 (0.3%) of the plants survive until the fall of 2003, and each survivor flowers and produces 24 pods in the spring of 2004, they will have replaced the 33,000 seeds that germinated in February 2003. A seed bank of 1,000,000 seeds is a hedge with many levels of redundancy built in.

OHV damage to seedlings was recorded during the 2003 surveys. Seedlings affected by OHVs totaled 1.3% of those counted. Most of these were not killed or visibly damaged; seedlings pop back up after being run over or stepped on. The survival of many times that many seedlings was jeopardized by natural conditions, predominantly desiccation from root exposure due to sand erosion. Of the 83 surviving perennial plants, five (approximately 6%) showed evidence of OHV damage, consisting primarily of broken branches that did not kill the plants or prevent them from flowering and producing seed. As in 2002, we noted many dead, upright plants that had died from desiccation and showed no effects whatever of any impact from OHV use. OHVs may damage or kill some plants, but by far most mortality is the result of natural causes, usually inability to survive the hot, dry summer season.

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Appendix A

Distribution, Reproduction and Survival of *A. m.* var. *peirsonii* in the Algodones Dunes: Results of a Three-Stage Study, March 2001 – May 2003						
Site #	Location	*Stage One: 2001*		*Stage Two: 2001-02*	*Stage Three: 2003*	
		# Plants	# Reproductive	# Survived (2001 cohort)	# Survived (2001 cohort)	# Seedlings (1st year plants)
6	1	340	170	26	0	0
7	1	3,127	938	905	8	6,621
21	1	1,327	332	290	7	634
22	1	807	202	188	1	131
23	1	2,800	280	250	0	535
28	1	978	196	247	12	617
29	1	3,994	799	385	4	3,642
Location 1 totals		***13,373***	***2.917***	***2,291***	***32***	***12,180***
32	2	657	197	177	11	1,273
34	2	1,534	767	376	8	1,597
41	2	120	60	96	0	1,112
44	2	798	718	91	0	74
46	2	1,531	612	655	0	3,097
47	2	2,530	1,771	450	1	1,401
48	2	1,037	518	281	1	709
51	2	1,898	1,518	534	0	1,987
52	2	3,010	2,408	549	0	2,557
53	2	1,090	708	155	0	1,327
54	2	577	433	241	15	969
57	2	1,967	984	268	1	4,543
Location 2 totals		***16,749***	***10,694***	***3,873***	***37***	***20,643***
13	3	230	115	161	2	127
15	3	28	6	11	0	11
16	3	265	132	22	1	1
19	3	77	38	46	7	85
60	3	8	1	4	3	70
61	3	41	20	4	1	2
Location 3 totals		***649***	***312***	***248***	***14***	***296***
STUDY TOTALS		***30,771***	***13,923***	***6,412***	***83***	***33,119***

Summary of distribution, reproduction and survival data gathered during a three-stage study of *Astragalus magdalenae* var. *peirsonii* conducted spring 2001 – spring 2003

Appendix B

Algodones Dunes Rare Plants Survey

Site Data Form

Site No. _____ Area _____ Date _____

GPS Location: N _____ W _____

Distance from fixed point _____ Topo Quad _____

Special Status Plants Present _____

ASMAPE: Total no. _____ No. Plants Damaged _____

Age Classes _____ Est. % Reproductive _____

Other SS Plants: Species _____ Total No. _____ No. Damaged _____

Age Classes _____ Est. % Reproductive _____

Other SS Plants: Species _____ Total No. _____ No. Damaged _____

Age Classes _____ Est. % Reproductive _____

Associated Species _____

Habitat Description _____

Plants Pedestled? _____

Area (acres or m2 or ft2) _____ Photo Nos. (See Photo Log) _____

Notes _____

_____ Investigators _____

On the back of this sheet, draw a sketch of the site, showing shape, dimensions, areas where Special Status plants are concentrated, OHV tracks crossing area, North arrow, and any other distinctive features

Field data form used in stage one of the study (March-May 2001)

Appendix C

Algodones Dunes PMV Seed Bank Studies

Site no. _____ Date _____ Area _____ Investigators _____

No. of PMV clusters _____ Total no. surviving PMV _____

PMV Sector	Frame #/LOCATION	No. Seeds		PMV Sector	Frame #/LOCATION	No. Seeds		PMV Sector	Frame #/LOCATION	No. Seeds
A				B				C		
A				B				C		
A				B				C		
A				B				C		
A				B				C		
A				B				C		
A										
A										
A										
A										
A										
A										

Field data form used in stage two of the study (November 2001-March 2002)

Appendix D

Algodones Dunes Rare Plant Surveys

Peirson's Milkvetch

Astragalus magdalenae* var. *peirsonii

Site No. _____ Location 1 2 3 Date _____

Investigators _____

****

No. of 1st-year plants _____

Percent of 1st year plants reproductive _____

No. of perennial survivors _____

No. of perennial survivors reproductive _____

No. of plants damaged by OHV activity:

First year _____

Perennial _____

Notes:

Field data form used in stage three of the study (March - May 2003)

From:	JerrySeaver@aol.com
To:	caisdrmp@ca.blm.gov
Subject:	Comments on DRAMP - Appendix H -Phillips Report 2003, 2004 & 2005
Date:	04/23/2010 03:52 PM
Attachments:	2003FinalReport_July.pdf 2004-11-30-milkvetchdata.xls Final Report 2004a.pdf PMV_Final_Report_2005.pdf

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Appendix H lists reports on PMV studies. It lists the Thomas Olsen and Associates Report, which was done by Dr. Phillips but doesn't include his reports done in 2003, 2004 and 2005. These reports need to be listed in the final RAMP. They are attached.

Thanks,
Jerry Seaver
2950 W. State Ave.
Phx. Az.85051

THE ECOLOGY OF

Astragalus magdalenae var. *peirsonii*:

Distribution, Reproduction and Seed Bank

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FINAL REPORT

Prepared for the
American Sand Association

August 2002

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Photos by A. M. Phillips, III

ABSTRACT

The Algodones Dunes, located in extreme southeastern California, support a specialized flora with many sand dune endemic plants. Following the listing of one of these plants, *Astragalus magdalenae* var. *peirsonii* (Peirson's milkvetch), as a Threatened species in 1998, a court-ordered closure excluded off-highway vehicle (OHV) use in approximately 60% of the dune system. A survey was conducted of Peirson's milkvetch in the spring of 2001, following an explosive germination event in October 2000, in which more than 71,000 individual plants were observed in areas of the dunes remaining open to OHV use. Most of these plants flowered and set seed in the spring of 2001, potentially adding large numbers of seeds to the soil. The seed bank was sampled and analyzed in the winter of 2001-02. The analysis determined that an estimated 2.5 million to 5.6 million milkvetch seeds constitute the *A. m.* var. *peirsonii* seed bank in the open areas of the dunes where plants had been observed in the spring of 2001. Counts of plants from the 2000 cohort surviving until the winter of 2001-02 showed a survival rate of 26%, an extraordinary figure made possible by unusual rains during the summer of 2001. The surviving plants were robust and vigorous and produced up to 400 pods per plant in 2001-02, potentially adding a second consecutive infusion of seeds to the seed bank of the Algodones Dunes system.

INTRODUCTION

The Algodones Dunes are a complex of sand dunes located in Imperial County, California. They support a specialized, limited flora that has adapted to the severe conditions posed by an ever-changing habitat with low, unpredictable rainfall and severe annual and diurnal extremes in temperature. Many of these species are endemic to sand dunes in the Lower Colorado Valley subdivision of the Sonoran Desert (Bowers 1986; Shreve 1964). One of them, *Astragalus magdalenae* var. *peirsonii* (Peirson's milkvetch), listed as a Threatened species in 1998 (USFWS 1998, CNPS 2001), responded to wet conditions during the winter of 2000-01 with an explosive germination event. This event presented a rare opportunity to examine the plant's current and potential status.

Pending consultation between the U.S. Fish and Wildlife Service (FWS) and the Bureau of Land Management (BLM) on the management of the plant, a U.S. District Court ordered the BLM, which manages the Algodones Dunes as the Imperial Sand Dunes Recreation area, to implement a temporary administrative closure to motorized vehicle use of 49,000 acres of the system in November, 2000 (BLM 2000b). Pursuant to the closure, the American Sand Association retained the services of Thomas Olsen Associates to conduct studies on the status and biology of the species.

Accordingly, in spring 2001 we began a two-stage study of *A. m.* var. *peirsonii.* During stage one, conducted from early March to mid-May 2001, we surveyed the Algodones Dunes system and collected and analyzed population, reproduction, distribution and habitat data, including a census of plants and descriptive survey of the plant's ecology within the dune system. The results were presented in the "Olsen Report"

prepared by Phillips et al. (2001). Stage two was conducted from November 2001 to February 2002 under a contract from the American Sand Association with A. M. Phillips, III. This portion of the study included a sampling of the *A. m.* var. *peirsonii* population in which survival of the plants censused in the spring of 2001 was assessed and seed bank data were collected and analyzed in order to obtain further information on the demography and life history of the species. In this paper we present the results of our study.

Species Description and Ecology

Astragalus magdalenae var. *peirsonii* is a member of the Legume Family (Fabaceae). The stems and leaves are upright, gray-green in color, growing to a height of 30-45 cm (12-18 inches)[1] the first year, and developing clusters of 8-14 dark purple flowers at the tips of most of the stems. The flowers can appear as early as November or December, but the main flowering season is in February and March. The leaves are long and slender, with tiny paired leaflets along each edge. The distinctive feature of the taxon is that the end leaflet is an extension of the leaf, without an obvious joint. The pods are large, inflated, and contain 11-16 black, kidney-shaped, flat seeds. The seeds are 4.5-5.5 mm in diameter, the largest of any North American species of *Astragalus* (Barneby 1964, Felger 2000). Bowers (1996) found the range in length for 60 seeds was 4-7 mm, and the average weight was 15 mg. The large size insures that the seeds, once shed from the pods, remain in place in the sand. The pods ripen in May and June and fall from the plant with the seeds in them.

First-year plants generally have several upright stems about 30 cm tall arising from the root crown which, by the time of flowering, is often 4-6 cm above the sand surface due to deflation. The root may grow to 1 cm in thickness during the first year. The plants largely die back to the root crown during the summer, and remain dormant. Those that have roots deep enough to survive the summer heat and drought begin to grow again in early fall, sprouting new branches from the root crown and lower parts of first-year branches. Second-year plants are more robust, with more branches that are more widely spreading than those of the first year. The root thickens to 2-3 cm in diameter.

Although *A. m.* var. *peirsonii* is considered to be a short-lived perennial (Barneby 1964) or "ephemeral" (Felger 2000), suggesting its facultative perennial nature, it is well adapted to flower and produce seeds during its first year (Phillips et al. 2001). Plants that reproduce during their initial season do not have to survive through the ensuing summer and into a second growing season to contribute their progeny to the gene pool; i.e., their seeds to the seed bank. The pods produced by Peirson's milkvetch are strongly inflated, and can blow across the surface of the dunes until they lodge against a shrub or in a swale with reduced wind velocity (Bowers 1986). Thus they can be transported from one favorable site to another, or remain near the parent plant, depending on winds. Because the plants are usually located in open areas (not growing under shrubs) and clustered, it would appear that many pods break open and shed their seeds near the parent plant,

[1] Metric measurements are used throughout this report; in cases where English units are in common usage, the English equivalents are given in parentheses.

replenishing the seed bank where the parent plant grew. Pavlik and Barbour (1985), working with *Astragalus lentiginosus* var. *micans* in the Eureka Dunes, California, found that pods that fell within a cluster of plants usually shed their seeds in place, while those that were in the open were more likely to be transported some distance.

Astragalus magdalenae var. *magdalenae* (the parent) is a maritime species, found on sand dunes along the Pacific coast of Baja California and along the shores of the Gulf of California. *A. m.* var. *peirsonii* is a close relative still occupying the old dune habitat, but now stranded far inland, at the edge of a former lobe of the Gulf of California (Barneby 1964); it has evolved into a new entity during a long period of isolation from its ancestors.

The most detailed discussion of Peirson's milkvetch ecology is found in Barneby.

> On the Algodones Dunes, where it is found in company with a shrubby *Eriogonum,* … the Peirson's milkvetch is abundant in favorable seasons. After a drought of several years' duration, only a few tattered veterans, some of them half smothered and others with a trunklike taproot exposed for a foot or more by the shifting sands, bear witness to a formerly flourishing colony. The plants are potentially perennial but mature rapidly, beginning to bear fruit some two months after germination of the seeds, and thus insure continuation of their sort. The taproot is extraordinarily long, as might be expected under dune conditions, and penetrates deeply before lateral rootlets are produced. In one young plant a simple whiplash root, broken off and incomplete, measured nearly 1.8 m (6 feet) in length, five or six times that of the stem above ground (Barneby 1964: 862).

In addition to the Algodones Dunes, Peirson's milkvetch has also been reported in the Yuma Dunes in Arizona and the Gran Desierto dunes of northwestern Sonora, Mexico (Felger 2000). Searches in the Yuma and Mohawk dunes in 2001 were unsuccessful in locating the plants (Phillips et al. 2001). An examination of the Yuma Dunes specimen housed at the University of Arizona herbarium revealed that the specimen appears to have been misidentified. It was annotated to *A. lentiginosus* var. *borreganus* by A. Phillips in April, 2002. The habitat at the Yuma Dunes is quite different from that of the Algodones Dunes where *A. magdalenae* var. *peirsonii* occurs. Thus, there is no verified record of the plant in Arizona. Although we have been unable to visit the Gran Desierto dunes in Sonora, a specimen collected there and housed at the University of Arizona herbarium was verified by A. Phillips as *A. m.* var. *peirsonii* in 2001.

Seed Bank Ecology

A seed bank is an aggregation of ungerminated, viable seeds found, for our purposes, in the soil (Baker 1989). The seed bank and the adult plants form an "integrated survival unit, buffered against the uncertainties of the desert environment" (Kemp 1989). The potential for a desert annual or short-lived perennial rests not in the plants that are actively growing at any particular point in time but in the seed bank, the dormant seeds resting in the soil awaiting the return of brief, favorable conditions for their germination

(Pavlik and Barbour 1988; Venable and Pake 1999). Dormant seeds in the soil allow plants to survive long periods of unfavorable growing conditions, both seasonal and annual.

Data on the longevity of dormant seeds in the seed bank are scarce. Shreve (1964) observed that an exceptional year brings forth large yields of plant species that had been dormant for the preceding 10-15 years. Pavlik and Barbour (1988) tested the seeds of *A. lentiginosus* var. *micans* from the Eureka Dunes and found a 76% germination rate for seeds 8 years old. There are some exceptional reports of seeds retaining viability for thousands of years, a few of which are verifiable and many of which are questionable. Studies of the germination of seeds removed from herbarium specimens provide accurate ages, but they have been stored under unnatural conditions (low humidity, constant temperature, no soil). Many of the seeds thus tested have shown viability ranging from 55 to 158 years; most of these were members of the Legume Family, which seems to consistently rank high in longevity (Baker 1989). As a member of Legume Family, *A. magdalenae* var. *peirsonii* possesses favorable heritage for potential long-term seed bank survival.

Another important aspect of seed bank ecology is the seed size. In general, long-lived seeds tend to be larger (Baker 1989), and those which are larger have the advantage of being able to elongate their roots rapidly after germination, before they invest their resources in leaf and stem growth. Under sand dune conditions, it is especially important that a plant grow roots faster than the upper layers of the sand dry out.

Environmentally, the requirements of seed banks can be very different. For annual or short-lived perennial plants, such as *A. m.* var. *peirsonii*, the seeds must retain viability for a period of time greater than the longest possible time between the occurrence of favorable conditions for germination and establishment of a new generation of plants; otherwise, they would go extinct. In recent years, much scientific research has been directed toward studying and modeling the role and nature of seed banks in desert annuals (see Kalisz 1991, Pake and Venable 1995, 1996, Venable and Pake 1999, Moriuchi et al. 2000, and references therein).

One of the more interesting aspects of seed banks is whether, under favorable temperature and moisture conditions, all of the seeds of a given species will germinate, or if some will remain dormant. The advantage of having all available seeds germinate simultaneously is that more plants will be available to produce more seeds; the disadvantage is a potential catastrophic loss of the entire population if an environmental disaster should occur, thus preventing the plants from completing their life cycle. However, there is an array of germination requirements among the seeds of a single species, so they never all germinate at once, even under the most favorable of conditions. Therefore, some viable seeds always remain in the seed bank. This phenomenon is referred to as "bet-hedging," and has been described by Philippi (1993a, b) and Venable and Pake (1999).

Predation is another consideration in seed bank ecology that can influence seed abundance, dispersal, longevity, and viability (Price and Joyner 1997). Insect larvae may consume immature seeds while they are still in the pods, but herbivory of mature seeds and plants by kangaroo rats and other vertebrate predators is limited, probably because of alkaloids present in the plant tissues and seeds (Pavlik and Barbour 1985).

METHODS

We conducted a two-stage study of *A. m.* var. *peirsonii* in the Algodones Dunes from spring 2001 to winter 2001-02. Redman (1974), and Schiffer and House (1977) argue that a multi-stage research design is most effective for resource management, and that "without multi-stage capability …studies cannot meet their research and management goals efficiently" (Schiffer and House 1977: 45). As previously stated**,** the purpose of our investigation was to collect and analyze population, reproduction and seed bank data in order to assess the biology and current and potential status of *A. m.* var. *peirsonii* in the Algodones Dune system. Stage one of the study was conducted from early March to mid-May 2001 and included a descriptive survey of the plant's demography and ecology within the dune system. Stage two was conducted from November 2001 to February 2002 and included an analytical survey of the *A. m.* var. *peirsonii* population in which survival and seed bank data were collected and analyzed. Eberhardt and Thomas (1991) provide an explanation of the distinction between these two survey models: "In a descriptive survey the objective is simply to obtain certain information about large groups. … In an analytical survey, comparisons are made among different subgroups of the population, in order to establish whether differences exist among them and to form or verify hypotheses about the reasons for these differences" (Eberhardt and Thomas 1991: 55).

Study Area

The Algodones Dunes, located in southeastern Imperial County, California and extending a short distance into adjacent Baja California, Mexico, are about 65 km (40 miles) in length, trending from northwest to southeast, and from 5 to 10 km (3 to 6 miles) wide (see Figure 1 below). The total area of the dune system includes approximately 60,705 ha (150,000 acres), of which 12,950 ha (32,000 acres) are designated as a wilderness area. For many years, the system has been used recreationally for hiking, bird-watching, fishing on the Coachella and All American canals (which run along the western and southern ends of the dunes) and, since the 1950s, for off-highway vehicle (OHV) use. Although some have speculated that heavy OHV use within the dune system may negatively impact the status of *A. m.* var. *peirsonii*, no empirical study of the potential impact has been completed.

An overview of the geologic history and setting of the Algodones Dunes is provided by Norris and Norris (1961). The source of sand for the dune system was Lake Cahuilla, a body of fresh water that occupied the interior of southern California from approximately Indio southward into Mexico, including the present-day Salton Sea and the Imperial Valley. The lake was full intermittently from at least the late Pleistocene (25,000 to 10,000 years ago) to a few hundred years ago. The origin of the sand for the dune system was apparently the shoreline of the lake each time the lake level lowered, exposing beach sand that was transported by prevailing northwesterly winds. The dunes rise 60-90 m (200-300 feet) above the desert floor and consist of a series of sand ridges along the western edge and a complex chain of overlapping barchan dunes. From north to south, the dune system morphology gradually changes, with the highest slipfaces and

best-developed dune-free depressions ("valleys") occurring in the southern portion of the system.

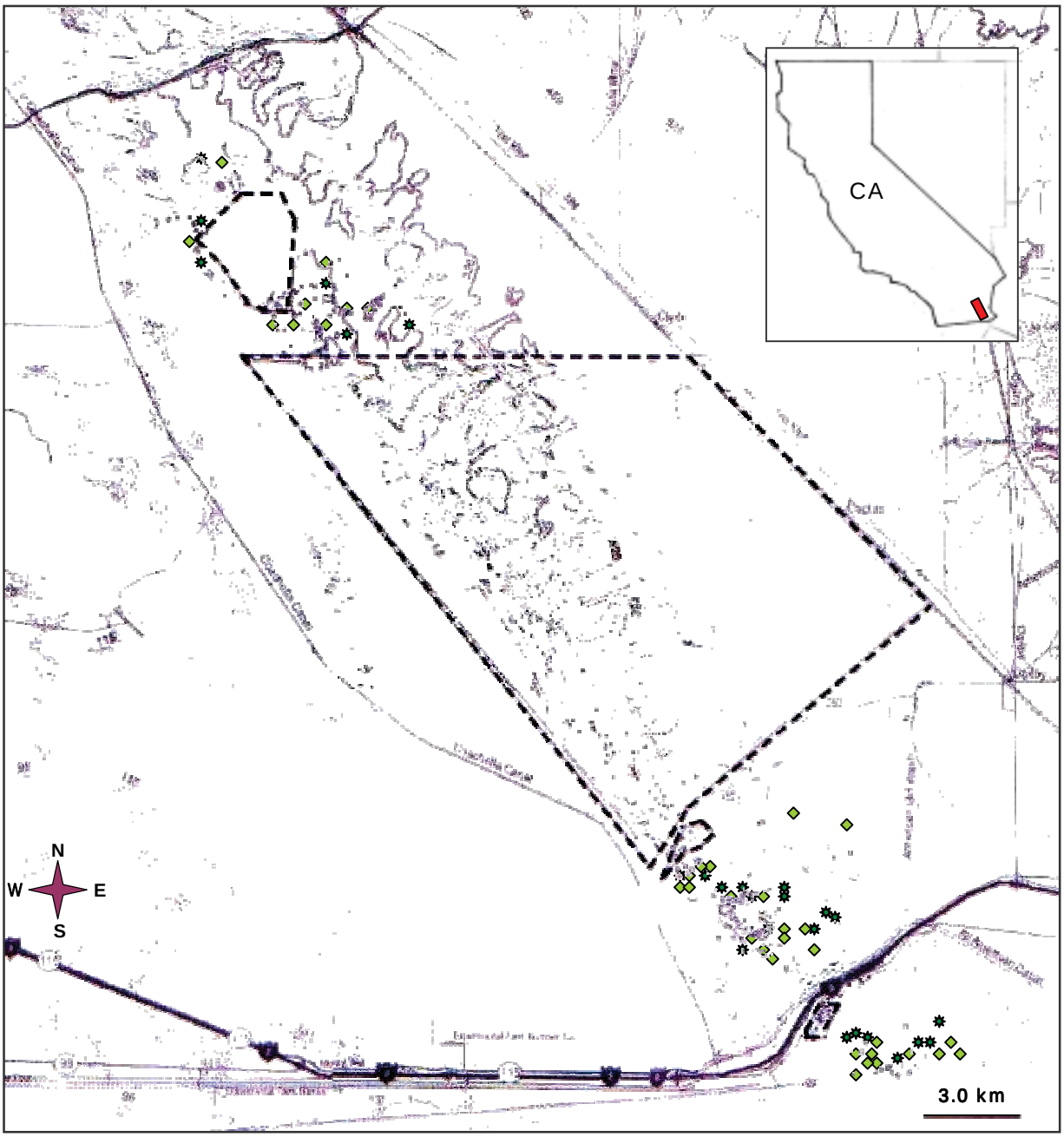

Figure 1. Location of *Astragalus magdalenae* var. *peirsonii* sites in the Algodones Dune system surveyed in spring 2001 and sampled in winter 2001-02[2]

[2] Site locations are approximate; see Phillips et al. 2001: 18-19 (Appendix A) for exact geo-coordinates

Survey Methodology

Stage One

To evaluate the distribution, reproductive capabilities and habitat requirements of *A. m.* var. *peirsonii* during stage one of our study, we employed a number of observational techniques. Statistical sampling methods were not included in this stage of the investigation, since the purpose of the descriptive survey was to locate as many occurrences of the subject plants as possible, and to completely census and collect reproductive and habitat data from every area in the dune system in which they were found.

A preliminary land reconnaissance was conducted throughout much of the open areas of the system, from the U.S. – Mexico border north to California Highway 78 (the southern boundary of the wilderness area). The area covered during this initial survey totaled approximately 14,165 ha (35,000 acres), or 59% of the open area of the dune system. From data collected during the preliminary reconnaissance, we determined that *A. m.* var. *peirsonii* generally occurs in highly clustered, specialized habitats within the dunes, and that a large portion of the dune system (approximately 70-75%) does not contain habitat suitable for these plants. We then conducted interviews with informants[3] familiar with the dune system to determine the location of any known occurrences of Peirson's milkvetch. Finally, using data gathered from the preliminary reconnaissance and informant interviews, along with our specific knowledge of habitat requirements, we selected several survey areas which were intensively searched for the presence of the subject plant.

When *A. m.* var. *peirsonii* plants were present in a survey area, it was designated a "site," a number was assigned to that area and a complete census of plants was conducted. A field data form was completed at each site, on which data concerning general habitat characteristics, number, age and condition of the plants present, percentage of plants that were reproductive at the time of the survey, and empirical evidence of OHV impact on the population were recorded (see Appendix B). Additionally, the presence of associated special status species[4] was noted, and a census of those plants was conducted. Each of the sites was photographed, and the location was recorded with a Geographic Positioning Satellite (GPS) systems unit, which was also used to circumscribe the boundary of the site. Any area of occurrence that was too small to circumscribe, or that contained a single cluster of *A. m.* var. *peirsonii*, was designated a "point." The plants contained within a point were also counted and recorded with the GPS unit. Both site and point data were later topographically mapped and entered into a master database (Phillips et al. 2001). Bigwood and Inouye (1998) argue that the use of GPS mapping has several advantages over traditional methods used to determine spatial

[3] The informants included a number of people who regularly use the dunes for recreational purposes (such as OHV users), BLM personnel and Border Patrol officers.

[4] The special status plants observed in stage one of this study included *Helianthus niveus* ssp. *tephrodes* (Dune sunflower), *Croton wigginsii* (Wiggins' croton), *Palafoxia arida* var. *gigantea* (Giant Spanish needles), *Pholisma sonorae* (Sand food), and *Astragalus lentiginosus* var. *borreganus* (Borrego milkvetch).

pattern and distribution of a population, since "the resolution of pattern is greatly improved, and several problems that reduce the effectiveness of other methods are eliminated. This method can be used to advantage in any study in which spatial pattern analysis is performed, particularly if the objects can be mapped easily" (Bigwood and Inouye 1988: 497).

An additional observational technique was used to gather *A. m.* var. *peirsonii* distribution data within the temporary administrative closure areas of the dune system. Since our requests to conduct a land reconnaissance of these areas were denied by BLM, we conducted an aerial (helicopter) reconnaissance of the 20,000 ha (49,000) acres within the three closure areas. During this stage of the descriptive survey, parallel transects or concentric circles of decreasing diameter were flown within each of the closure area boundaries south of Highway 78, along with a portion of the wilderness area north of the highway[5], and the presence or absence, along with the location of *A. m.* var. *peirsonii* were recorded with a GPS unit. No census of plants in positive areas of occurrence was possible from the air.

Along with the field data collected in stage one of this study, climatic data from weather stations located near the dune system were obtained from the Western Regional Climate Center (2001). These data were subsequently analyzed and the results presented in Phillips et al. (2001).

Stage Two

Stage two of the study was conducted from November 2001 to February 2002 and included an analytical sampling of the *A. m.* var. *peirsonii* population in which survival and seed bank data were collected and analyzed. Utilizing plant distribution data gathered during stage one, we determined that a stratified random survey design best suited the population under study. Prior to conducting the fieldwork for this stage of the investigation, we stratified the dune system into three locations based on variation in plant distribution (mean number of plants/m^2 in survey sites) by region. Location 1 encompassed most of the open area of the dune system south of Interstate 8 and north of the international border. Location 2 included the area north of Interstate 8 and south of the large central closure. Location 3, in the northern region of the system, included the open area from south of Highway 78 and east of Gecko Road to the northern boundary of the large central closure. The variation in plant distribution at the 60 sites surveyed in spring 2001 is summarized in Table 1 below.

[5] During the aerial reconnaissance, we maintained an altitude of approximately 12-15 m (40-50 feet) and an air speed of 18-37 km/hr (10-20 knots). This altitude and air speed were maintained in order to prevent disturbance of the dune surface through downwash from the helicopter blades, yet was low and slow enough to easily identify Peirson's milkvetch from the air. The helicopter did not land in any of the closure areas.

Plants/m²	*N*	*Minimum*	*Maximum*	*Mean*	*Std. Deviation*
Location 1	17	.080	1.030	.45588	.29671
Location 2	28	.010	.730	.17321	.15882
Location 3	15	.002	.503	.12640	.18467

Table 1. Summary of number of sites, the range and mean number of plants/m^2 of *A. m.* var. *peirsonii* at 60 sites, stratified by location.

Preliminary analysis of the data collected during stage one of the study showed a high degree of non-random distribution of *A. m.* var. *peirsonii* within the dune system; i.e., the plants were distributed in particular similar locations, and clustered within the habitats where they were found. Since "the distributions encountered in environmental studies are usually markedly skewed," measurement errors often result if a sample is not sufficiently representative of the population under investigation (Eberhardt and Thomas 1991: 60). In order to account for distribution variance and adequately represent the target population, we randomly selected 40% of the areas designated as sites during the first stage of the study for sampling in stage two. Seven sites were selected in location 1, twelve in location 2 and six in location 3, for a total of 25 sample sites. During stage one we topographically mapped the perimeter of each site and recorded the age, distribution and reproductive status of *A. m.* var. *peirsonii*, providing information for comparison with the data collected in winter 2001-02.

Analysis of the soil seed bank was the main focus of the 2002 study. The purpose of this survey was to provide an estimate of the number of seeds in the seed bank in order to assess the potential status of the population, and to determine patterns of spatial and temporal seed distribution. The seed bank sampling strategy utilized in stage two of the study was designed to optimize the accuracy of seed number estimates by dividing large sample plots into smaller subplots and sampling within those subplots, and was developed from methods described in Bigwood and Inouye (1988). Accordingly, "the precision of seed number estimates can be improved … by sub-sampling large whole units with very small subunits. The small number of large samples favored by many seed-bank researchers generally results in imprecise seed estimates. This result has implications for spatial studies of any clustered organism" (Bigwood and Inouye 1988: 497).

At each of the selected sample sites a survey of the seed bank was conducted utilizing a systematic sampling of a selected cluster within the sample site. Since "many natural populations … exhibit a clumped spatial distribution pattern …, the systematic sample will tend to furnish a better mean and smaller standard error than is the case with a random sample" (Elzinga et. al 1998: 122). Upon our arrival at each selected site, we conducted an initial reconnaissance of the distribution of plants. The number of clusters present and the characteristics of each cluster were noted, and a representative cluster that best fit the requirements of our sampling design (the sample "plot;" see below) was selected for sampling. This involved selecting a cluster that was relatively dense in a certain delimited area, with plants rather abruptly less abundant around a narrow peripheral zone, and absent beyond. It was possible to locate a cluster meeting these criteria at every site we sampled. In contrast to the high distribution variance we noted

among sites in the system, and the moderate distribution variance among the three locations under study, the clusters within a site were homogeneous with respect to plant size, age and number. Since our main purpose was to determine seed distribution within clusters and beyond their edges, and to determine the number of seeds present relative to the number of plants present, random selection of a cluster for sampling was unnecessary. It was more important to sample clusters of similar morphology at each site so that comparable data were utilized in developing extrapolations that were valid for the entire system. The selection of a representative cluster for sampling conforms to the "optimized sampling" method outlined by Bigwood and Inouye (1988), and utilized by Pake and Venable (1995).

In addition to the seed bank study, at each selected site we repeated the census of the plants surveyed during stage one of our study, in order to determine how many had survived through the summer. At each site we also collected and recorded additional data concerning the habitat, location and distribution of plants within the site.

Sample Plot Design

The selected plot was divided into three distinct, adjacent subplots of equal area (70 m^2). Subplot A, oval in shape and encompassing the highest concentration of plants in the cluster, was in the center. Subplot B, which contained a few scattered plants, was a band 2 m wide beyond and adjacent to A. Subplot C was essentially devoid of milkvetch, and was placed as an arc or crescent adjacent to and outside B. The size and shape of each subplot was determined by digitizing a scaled diagram of the layout of the sample plot, which allowed us to standardize the 70 m^2 area, and to calculate both the distance between subplot perimeters and the length of the metric tape bisecting each area. The placement of the subplots was designed to represent the clustered distribution pattern of *A. m.* var. *peirsonii* within the sites, and was also standardized and used throughout the study.

Figure 2 shows the layout of subplots and sample quadrats within each plot. Our sampling protocol included the use of six 1 m x 0.25 m quadrats, delimited by specially designed metal frames pushed into the sand to a depth of 10 cm, placed systematically along alternating sides of the subplot tapes (see the discussion of frame design for clustered populations in Elzinga et al. [1998]). During a field test of the frames, however, we determined that they were too large for use in subplot A, where the plant population was most concentrated. In order to minimize disturbance of living plants in the sample plot, we elected to use twelve 0.5 m x 0.25 m quadrats in subplot A (see Figure 2 and Plate 1 below).

Metric tapes were laid out in each of the subplots and quadrats were systematically selected along the length of each line. Two parallel 12 m lines, 2 m apart, were placed in the central part of subplot A, and six 0.5 m x 0.25 m quadrats, spaced 1 m apart, were placed on alternating sides of each of the lines. Subplot B was bisected by a 48 m line, and six 1 m x 0.25 m quadrats, spaced 8 m apart, were placed on alternating sides of that line. Finally, six 1 m x 0.25 m quadrats, spaced 5 m apart, were placed along alternating sides of a 30 m line in the center of subplot C. If living plants of any

species were present within a sample quadrat, the frame was moved the minimum distance necessary to ensure that they were not disturbed by the placement of the frame.

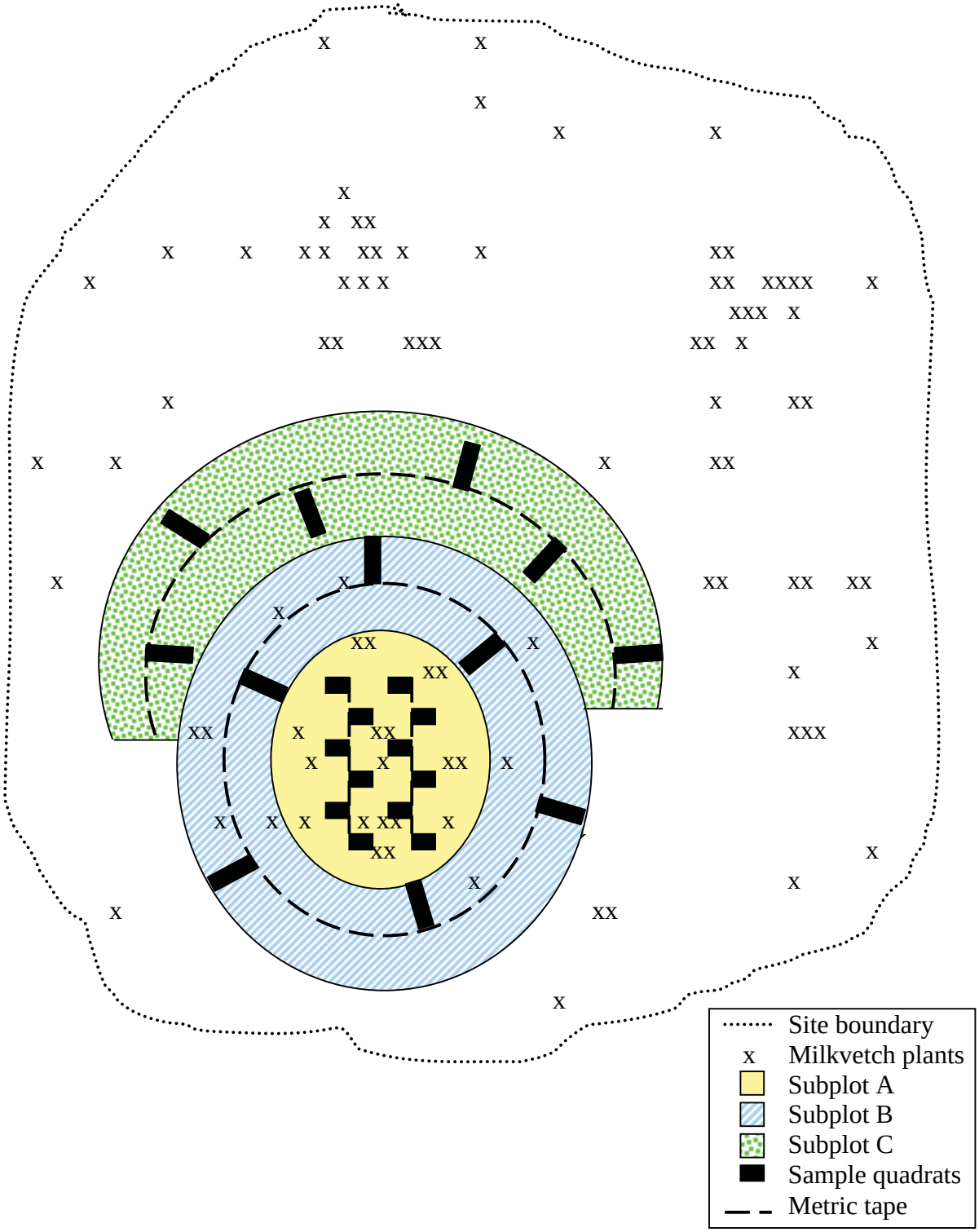

Figure 2. Layout of the plot, subplots and quadrats at a sample site selected for seed bank research in stage two of the study (not to scale).

Plate 1. Layout of sample plot (with subplot A outlined).

Each quadrat was sampled by scooping out the sand to a depth of 10 cm and screening it through standard soil sieves. The total volume of sand sampled in each subplot was 0.15 m^3. The milkvetch seeds captured were counted, recorded on a field data form (Appendix C) and immediately returned to their original position, along with the sand screened from the quadrat. Special care was taken to scatter the seeds and mix the sand within the quadrat in a manner consistent with their distribution prior to screening.

In addition to field data collected during stage two of this study, climatic data and OHV usage data were obtained from the Western Regional Climate Center and BLM respectively. These data are included in our analysis and the results are presented below.

Analysis

The distribution and reproduction data collected in stage one of this investigation involved absolute counts. Therefore, neither statistical analysis nor extrapolation of these data was warranted. We topographically mapped the data from stage one using a GPS system, and subsequently digitized the maps in order to determine spatial and temporal plant distribution, eliminating the need to perform statistical pattern analysis in order to determine appropriate sampling methodology for stage two of the study (see Bigwood and Inouye 1988 for further discussion). The digitized maps allowed us to accurately determine the total area included in our survey and the area encompassed within each site boundary. We were then able to stratify our sample based on the mean number of plants per square meter at each of the sites.

Plant distribution and percent reproductive data collected during stage one, and survival rate, seed bank, climatic and OHV use data collected during stage two of the study were analyzed using the statistical software program, SPSS 9.0. Graphs were created with Microsoft Excel. Simple extrapolation was used to determine seed number

estimates. In order to account for the high degree of variance among the three locations surveyed, each set of statistical tests was performed separately on data collected at each location. In all instances, three sets of means were utilized for comparison and analysis. By so doing, we feel that the most conservative, and therefore most robust, conclusions possible have been reached (a summary of the data collected during stages one and two of this study can be found in Appendix A of this report).

RESULTS AND DISCUSSION

Habitat

The shifting sands of dunes constitute a severe habitat for which plants must be adapted to cope with being both covered and exposed (Bowers, 1986). Our observations at the Algodones Dunes show that plant life within the dune system is consistently concentrated in areas where there is relative substrate stability, compared to areas where sand is more actively accumulating or being removed. Vegetation occurs in dunes of intermediate size in the western half of the area, and not in the "high dunes" in the eastern portion of the dune field. In terms of dune morphology, vegetated areas are generally located on the lee side of dunes, in areas where the surface gradually slopes upward from deep or shallow bowls at the base of steep slipfaces. Sand deflation and deposition are too extreme on the windward slopes and steep slipfaces to support most vegetation, which is either buried more rapidly than it can grow, or dies when sand is removed at depth from the roots. The vegetated slopes are more stable by virtue of their position in the lee of the strong winds of the windward slope; plants are able to grow there because they are subject neither to extreme deposition or deflation. The slopes are generally west to northwest-facing, and extend from the floor of the bowl at the base of the slipface upward to a broad ridgetop that rings the basin (Figure 3).

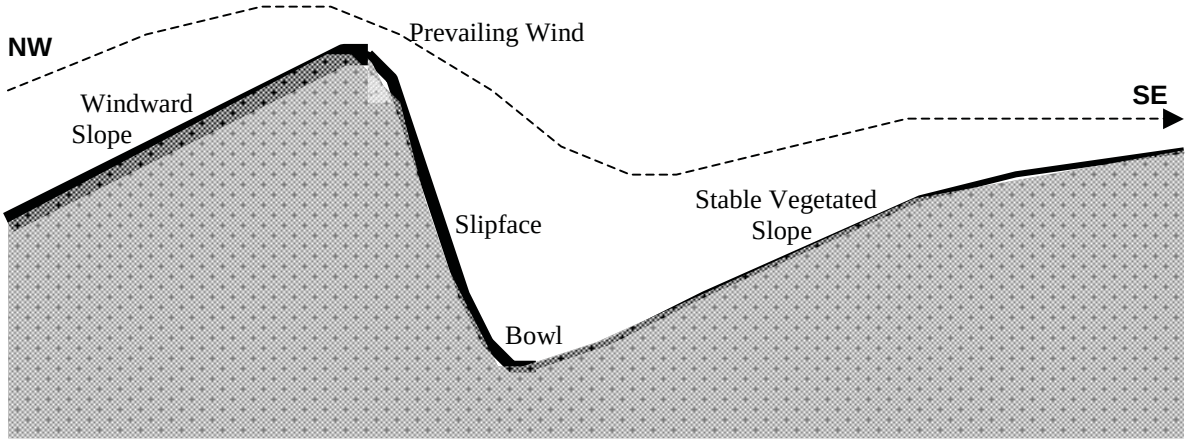

Figure 3. Dune morphology. Dashed line indicates direction of prevailing wind; solid line at dune surface indicates relative degree of sand movement (thick line = severe movement, thin line = moderate movement).

Vegetation gradually decreases toward the rim, and the ridgetops are essentially free of vegetation. The vegetated slopes appear to be under gradual deflation, as evidenced by the pedestaled habit of most plants. It is in such places that the common shrubs, *Eriogonum deserticola* (dune buckwheat) and *Croton wigginsii* (Wiggins' croton), occur. They are consistently pedestaled to a depth of a meter or more below the root crown, and eventually they topple over when the taproot is no longer able to support the weight of the stems (Phillips et al. 2001). A list of species commonly found in these habitats is presented in Table 2.

Associated Species	*Common Name*
Asclepias subulata	Reed-stem milkweed
Astragalus lentiginosus var. *borreganus**	Borrego milkvetch
*Croton wigginsii**†	Wiggins' croton
Dicoria canescens†	Desert dicoria
Ephedra trifurca	Long-leaved joint-fir
Eriogonum deserticola†	Desert buckwheat
Helianthus niveus ssp. *tephrodes**†	Dune sunflower
Hilaria rigida	Big galleta
Palafoxia arida var. *gigantea**†	Giant Spanish needles
Panicum urvilleanum	D'Urville's panic grass
Petalonyx thurberi	Sandpaper plant
*Pholisma sonorae**	Sand food
Tiquilia plicata	Pleated crinklemat

*Special status plants; †Dominant species

Table 2. Common associated species with *Astragalus magdalenae* var. *peirsonii* in the Algodones Dunes.

It is in such places that *A. m.* var. *peirsonii* commonly occurs; plants are found from the floor of the basin to beyond the ridge, but the greatest concentrations are generally above the middle of the slope. The plants are usually quite clustered, with one to several clusters occurring at a site and individuals often scattered between clumps. *A. m.* var. *peirsonii* plants are also frequently pedestaled, usually from 1-3 cm and sometimes as much as 8 cm, and always to the same height for all plants in a cluster. This can be considered evidence for their simultaneous germination (Phillips et al. 2001).

Distribution

As noted above, *A. m.* var. *peirsonii* plants are neither evenly distributed throughout the dunes, nor within the sites where they occur. They have a strong tendency to occur with other dune-adapted species in habitats that have enough substrate stability to allow plants to grow without being either buried in sand more quickly than they can grow to outpace the deposition, or subject to such extreme deflation that their roots become exposed, depriving them of both mechanical support and water uptake through the roots.

The sites surveyed in 2001 exhibited a definite pattern in their distribution: they were generally in the western portion of the dunes, in an area of moderate-sized, well-developed dunes sandwiched between the sand ridges of the western edge of the dunes and the "high dunes" in the central part of the dune field, and tended to be clustered in certain areas (see Figure 1). We were unable to obtain permission from BLM to enter the temporary closures in 2001 to carry out ground surveys, so no comparison of plant abundance and survival and seed bank characteristics is possible between closures and open areas, or between years in the closed areas. However, we did conduct an aerial reconnaissance of all of the closures by helicopter in April, 2001, which allowed us to accurately map the distribution of plants. From the air we recorded locations with *A. m.* var. *peirsonii* plants using a GPS, and included them on our overall distribution map

(Phillips et al. 2001: 29 [Appendix C]). From the map it was apparent that the distribution in the large closure extended northwestward as a continuation from the Patton Valley sites, with numerous occurrences with large concentrations of plants noted. It appeared that well over half of this population of plants was within the closure. The distribution of sites was similar to that of the open areas, occurring on lower dunes between the sand ridges to the west and the barren high dunes to the east. Mappable concentrations of plants were noted in less than 15% of the large closure, and in less than 25% of the dunes proper (excluding the sandfields east of the dunes that are included within the closure).

Within sites, plants tend to be both clustered and scattered (Plate 2). The clusters may be self-perpetuating because of seed distribution (Pavlik and Barbour 1985), or due to microtopographical features that capture pods moving in the wind. We know of no previous studies that would indicate whether clusters remain in the same location over several germination events. Scattered plants presumably occur where pods have shed seeds as they blew by. The slopes where the plants occur are relatively uniform except for windbreaks created by plants, and subtle ridges and depressions caused by the vagaries of blowing sand.

Plate 2. Clustered distribution of *A. m.* var. *peirsonii* within a site. Three clusters are outlined; note relationship of clusters to steep slope of dune.

Growth and Reproduction

The climatic link between the explosive germination event by *A. m.* var. *peirsonii* in the fall of 2000 and rainfall was examined by Phillips et al. (2001). Examination of climatic data from stations near the dunes, obtained from the Western Regional Climate Center (2001, 2002), corroborates the climatic correlation with Peirson's milkvetch growth during the 2000-01 season. Although data from the dunes are unavailable prior to

November 2000, when weather stations were installed at Buttercup and Cahuilla Ranger Station (BLM 2001), the effects can be deduced from nearby stations. The Yuma Quartermaster (AZ) station, located at Yuma Crossing State Historic Park on the Colorado River about 24 km (15 miles) east of the dunes, received over 380 mm (1½ inches) of precipitation during a two-day precipitation event in late October 2000. This was probably responsible for the milkvetch germination event on the dunes that was documented during stage one of our studies (Phillips et al. 2001). Maximum rainfall in the fall of 1999 was 96 mm (0.38 inches) at Brawley on September 23rd (Phillips et al. 2001), and in the fall of 2001 was 137 mm (0.54 inches) at Buttercup on October 7th (see below). Neither of these events was apparently sufficient to cause more than scattered germination.

September and October in the southwestern United States are climatically transitional between the summer "monsoon" season and the winter rainy season, characterized by frontal disturbances moving eastward from the Pacific Ocean. Occasionally a third source of moisture produces significant rainfall during the seasonal transition: subtropical Pacific hurricanes, or "chubascos," that originate off the southern coast of Mexico. Most of these tropical storms move westward away from the coast, but occasionally they drift northwestward parallel to Baja California and move inland across the peninsula and into southern California, where they can produce significant fall precipitation events (Sellers and Hill 1974). We believe that these late fall, early winter storms may be the main source of moisture triggering germination events of milkvetch, providing ample moisture at a time of year when temperatures are moderate. Such precipitation events are infrequent and unpredictable, and may drop 250 mm (1 inch) or more of moisture only once in 5 to 10 years or longer. We suggest that this is the primary factor determining the spacing of germination events, and the length of time dormant seeds remain viable has evolved in response to the frequency of available fall moisture.

The proportion of reproductive plants was quite variable from site to site in the spring of 2001, ranging from 0% at a few smaller sites to 90%. Many of the sterile plants appeared to have germinated during a second event, probably following heavy rains in early March (Phillips et al. 2001).

Survival

During the stage one survey for *A. m.* var. *peirsonii*, the apparent age of the plants encountered was noted (Phillips et al. 2001). The size and shape of the plants, diameter of the root (exposed by sand deflation), and lack of old stems from previous years' growth made it quite easy to distinguish first-year plants from older ones. Of the more than 71,000 plants counted in the spring of 2001, only five individuals were older than October 2000 (Phillips et al. 2001).

The previous germination event, when the five perennial survivors are likely to have germinated, was probably in the fall of 1997, resulting in an abundance of *A. m.* var. *peirsonii* in the spring of 1998. This prompted the BLM to initiate its current monitoring

program (BLM 2000b, 2001). No comparable census was taken in 1998, so we do not know how the two germination events compared.

One of our tasks during the 2001-02 field work was to count the number of plants present at each site, and to note their apparent age. This provided us with an estimate of survivorship of the October 2000 cohort (Phillips et al. 2001). We then calculated survivorship based on the percentage of all plants censused in 2001. The overall survival rate for the plants surveyed in spring 2001 to the winter of 2001-02 was 21%. Plates 3a and 3b are matching photographs of site #19 at location 3, which was surveyed in stage one of our study and sampled in stage two. Plate 3a was taken in late March 2001, and 3b was taken in mid-January 2002. It is evident from these two photographs that, although the abundance of the plants in the cluster in the foreground was higher in the spring of 2001, the size of the surviving plants to winter 2001-02 is larger, showing that some growth occurred during the late spring and fall of 2001.

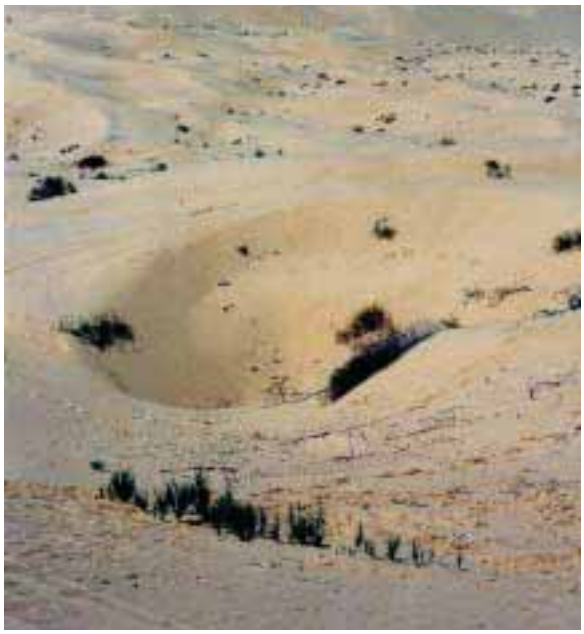

Plate 3a. Cluster of *A. m.* var. *peirsonii* at site #19 in late March, 2001

Plate 3b. Cluster being sampled at site #19 in mid-January, 2002

Plates 4a and 4b are photographs of site #32 (location 2), which was surveyed in mid-April 2001 and sampled in mid-December 2001. Again, it is clear from the photographs that the plants observed in the winter of 2001-02 are survivors of the plants censused in spring 2001. Of the 657 *A. m.* var. *peirsonii* plants counted here in spring 2001, 177 (27%) survived to winter 2001-02.

Plate 4a. Site #32 in location 2, surveyed in mid-April, 2001

Plate 4b. Site #32, sampled in mid-December 2001.

Since only five individuals of the more than 71,000 plants surveyed in the spring of 2001 had survived from the previous year's germination event, the 26% survival rate from spring 2001 to winter 2001-02 appeared to be unusually high. In order to account for this unexpectedly high survivorship, we investigated three possible contributing factors, including 1) the percentage of plants that were reproductive in spring 2001, 2) the level of OHV use during the 2000-01 growing season, and 3) precipitation amount during the months between the two stages of the study. The results of our analyses are presented below.

Figure 4 is a set of bar graphs depicting the percentage of *A. m.* var. *peirsonii* that survived to winter 2001-02 at the sample sites surveyed in stage two of our study, and the percentage of reproductive plants at those sites in spring 2001.

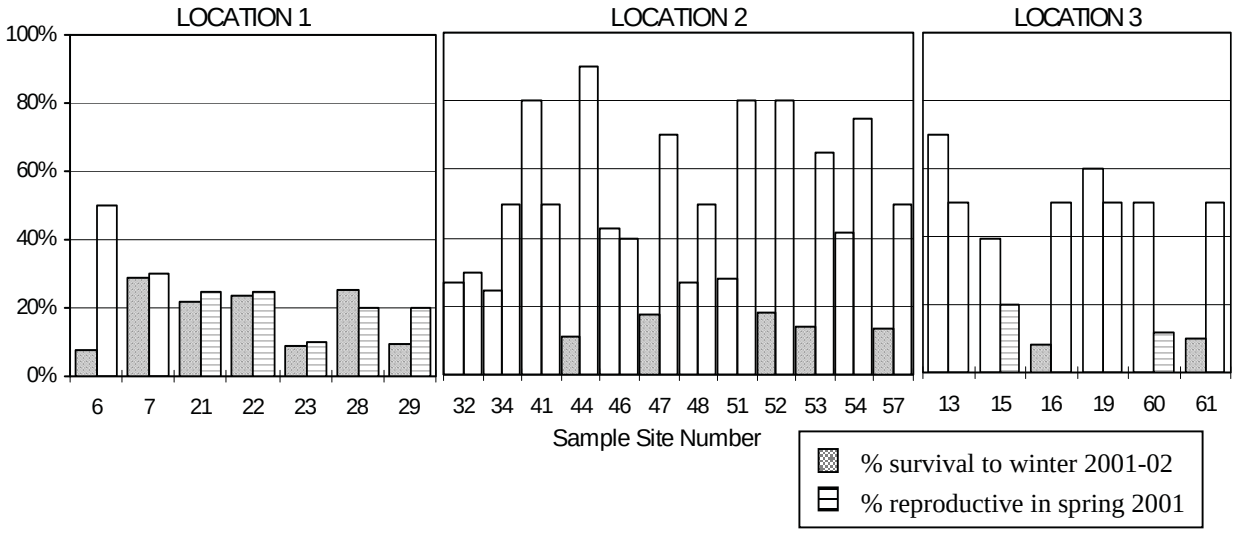

Figure 4. Survival rate of *A. m.* var. *peirsonii* to winter 2001-02 and reproductive rate in spring 2001 at the 25 sites sampled in stage two of the study, stratified by location.

The graphs above appear to show that the survival rate of plants to winter 2001-02 and their reproductive rate in spring 2001 may be related at a majority of the sites in location 1, and several sites in locations 2 and 3. The potential association between these two variables was tested with Pearson correlation analysis, in order to determine whether the survival rate of *A. m.* var. *peirsonii* is dependent upon its reproductive rate. The bivariate correlation analysis also tests the direction (positive or negative) of that relationship and the proportion of the total variability of the *y*-values (survival rate) that is accounted for by the independent variable *x* (reproductive rate). The results of the survival rate x reproductive rate relationship are summarized in Table 3.

	Reproductive rate, spring 2001
Survival rate to winter 2001-02 (Location 1)	r = -.085 r^2 = .0072 (.856)
Survival rate to winter 2001-02 (Location 2)	r = -.340 r^2 = .1156 (.279)
Survival rate to winter 2001-02 (Location 3)	r = -.358 r^2 = .1282 (.330)

Table 3. Results of Pearson correlation analysis on survival rate of *A. m.* var. *peirsonii* to winter 2001-02 and reproductive rate of plants in spring 2001 (r = correlation coefficient; r^2 = survival rate variability accounted for by reproductive rate).

As we can see from Table 3, the relationship between the survival rate of *A. m.* var. *peirsonii* to winter 2001-02 and the reproductive rate of plants in spring 2001 is slightly negative at all three locations under study. However, the total proportion of survival rate variability accounted for by the reproductive rate is quite small (0.72% at location 1, 11.56% at location 2 and 12.82% at location 3). We therefore conclude that no significant relationship exists between these two variables.

We next examined whether the survival rate of *A. m.* var. *peirsonii* to winter 2001-02 was impacted by the level of OHV use during the 2000-01 growing season. OHV use is based on axle count data, which we obtained from BLM. Although the data are collected from 8-10 different locations located throughout the dune system, for analysis BLM combines the locations into two areas. Because data for the individual collection locations were unavailable, we were only able to determine usage at locations 1 and 3. Since we had just two data points for OHV use, our degrees of freedom = 1 (and the variable "OHV use" is a constant), so we were unable to analyze these data with bivariate correlation. We elected to examine the relationship between the two variables with a Wilcoxon rank test. The results of the test are summarized in Table 4.

Variable	*Location*	*N*	*Mean Rank*	*Sum of Ranks*
Survival rate to winter 2001-02	Location 1	7	6.57	46.00
	Location 3	6	7.50	45.00
OHV use, Oct 2000-Sept 2001	Location 1	1	1.00	1.00
	Location 3	1	2.00	2.00

Table 4. Results of Wilcoxon rank test showing the mean rank and sum of ranks of the rate of *A. m.* var. *peirsonii* survival to winter 2001-02 and the level of OHV use during the 2000-01 growing season at locations 1 and 3.

The results of the rank test show that OHV use and the percentage of plants that survived to winter 2001-02 are both highest at location 3. Therefore we conclude that there is no negative relationship between OHV use and the survival rate of *A. m.* var. *peirsonii* at these two locations.

Since there appeared to be no significant relationship between either the reproductive rate of plants in spring 2001 or OHV use during the growing season 2000-01 to the survival rate of plants, we determined that the most likely cause of the high rate of survival of *A. m.* var. *peirsonii* to winter 2001-02 was the retention of soil moisture through the summer of 2001 at a level in the sand that did not descend below the root system. We obtained daily precipitation records through the summer of 2001 to assess, indirectly, the likelihood that the high survival rate was related to a summertime precipitation event.

Two Remote Automated Weather Stations (RAWS) were installed in the dunes in November 2000, at Buttercup and at the Cahuilla Ranger Station. Because the installation was after the storm responsible for the fall 2000 germination event, it had been necessary to use data from the closest available stations to estimate the date and amount of rainfall that resulted in the October 2000 germination (Phillips et al. 2001). With the availability of weather data from the dunes, however, it is possible to make a more accurate correlation between precipitation and plant response. As shown in Table 5 below, there was a single-day storm on July 6, 2001 that produced 183 mm (0.72 inches) of rainfall at Cahuilla. This is the greatest amount of precipitation recorded in a single day since the station was installed. The precipitation records for June-August 2001 were missing from the data recorded at Buttercup, so a direct correlation between survival and summer precipitation is not possible for the southern part of the dunes. However, the Yuma Quartermaster (AZ) weather station, located about 24 km (15 miles) east of Buttercup, recorded 38 mm (0.15 inches) of precipitation on July 5-6 and 160 mm (0.63 inches) on August 11th. We believe it is reasonable to assume that summer storms in the dunes in July and August 2001 provided enough rainfall to sustain soil moisture levels through the summer months high enough to allow a significant proportion of the 2000 cohort of *A. m.* var. *peirsonii* to survive. Mean summer precipitation for June, July, and August at Yuma totals 127 mm (0.50 inches) and the greatest amount ever recorded in a single summer storm was 254 mm (1.00 inch) (Sellers and Hill 1974), so the July 6, 2001 storm at Cahuilla was probably extraordinary. The combination of a major germination event followed by a major storm during the succeeding summer is likely to be rare, and we conclude that a survival rate of 26% to a second year is exceptional.

Date	*Precipitation (mm)*		*#Days*	*Max*	*Date*	*#Days*	*Max*	*Date*
	Buttercup	Cahuilla		Buttercup			Cahuilla	
Nov. 00	0	0	0			0		
Dec. 00	0	0	0			0		
Jan. 01	79	53	2	64	11th	5	25	11th
Feb. 01	252	145	4	140	27th	5	66	27th
Mar. 01	28	3	2	23	7th	1	3	7th
Apr. 01	0	8	0			1	8	21st
May 01	0	0	0			0		
Jun. 01	0*	0	0*			0		
Jul. 01	38*	183	2*	25*	4th*	1	183	6th
Aug. 01	160*	0	1*	160*	11th*	0		
Sep. 01	0	0	0			0		
Oct. 01	168	3	2	137	7th	1	3	7th
Nov. 01	0	43	0			2	41	24th
Dec. 01	0	20	0			1	20	11th
Jan. 02	0	0	0			0		
Feb. 02	0	0	0			0		
Mar. 02	0	0	0			0		

*Data from Yuma Quartermaster (AZ) weather station

Table 5. Climate data for Buttercup (location 1) and Cahuilla (location 3), November 2000 – March 2002

Seed Bank Analysis

In contrast to the 2000-01 growing season, conditions for germination of *A. m.* var. *peirsonii* seeds were not met in the fall of 2001. There was no major early fall storm sufficient to trigger germination at any place in the dunes. This means that the majority of living plants surveyed in stage two of our study were most likely survivors from the previous year, and that the seeds present in the sand had been produced and dispersed at some time prior to the fall of 2001. Since similar concentrations of seeds were not noted during the 2001 survey prior to seed dispersal, it is probable that most of the seeds present in 2001-02 were produced in the spring of 2001 from first-year plants of the 2000 cohort.

The papery, inflated pods of *A. m.* var. *peirsonii* are shed from the plants as spring gives way to summer, in May and June. Some of the pods inevitably blow away from the site, dispersing the seeds widely over the dunes, where the seeds may be deposited in unfavorable environments, become buried deeply in sand, or on occasion reach another site with habitat favorable for growth of the plants. The pods dehisce distally, providing an opening for the seeds to disperse. The openings also allow sand grains to enter the pod, resulting in its partial burial and thus ending its journey away from the parent plant (Plate 5a). It appears that the pods split at or about the time they separate from the parent plant, because many seeds are found within the cluster and the presence of pods was a relatively uncommon event. Although occasional buried pods were found while sieving, most of the seeds were on the surface without the presence of an associated pod. The large, dark-colored, flat seeds of *A. m.* var. *peirsonii* contrast strongly with the fine, light-

colored sand in the Algodones Dunes (Plate 5b). In the plants' preferred habitat, where mild sand deflation is generally prevalent, the seeds generally remain on the surface and neither move nor become buried as sand grains blow by.

Plate 5a. Seed pods lying on the surface of the dune at a sample site

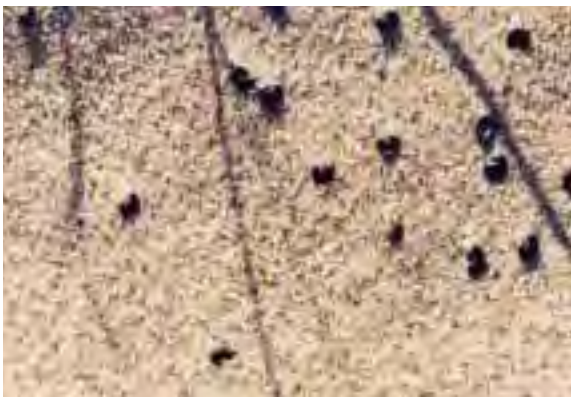

Plate 5b. *A. m.* var. *peirsonii* seeds on sand surface (seed size shown is approximately 100%)

Predation

The large seeds of *A. m.* var. *peirsonii*, strongly contrasting in color with the substrate and tending to remain on the sand surface in the open, would seem to be prime candidates for herbivory, especially by kangaroo rats, which are known to inhabit the dunes. We noted kangaroo rat dens and tracks at two of our sites, one in location 1 and another in location 2. Seed bank counts were lower at these sites than at most others, but we did not attempt to discern whether the rodents were caching the seeds. Clusters of *A. m.* var. *peirsonii* that germinated in 2000 were not obviously associated with the dens, so it appeared that herbivores do not cache all of the seeds the plants produce. The two sites with kangaroo rats were both near edges of the dune system, and close to valleys with non-dune plants and soils, and the herbivores may be more abundant there than in central areas of the dunes. We did not attempt to carry out empirical studies of either the degree to which predation affects the seed bank, or on the palatability of *A. m.* var. *peirsonii* seeds beyond our casual observations. These aspects of milkvetch ecology could be topics for future investigation.

Seed Distribution and Dispersal

In order to add to our knowledge of *A. m.* var. *peirsonii* plant and seed distribution patterns within a clustered population, we investigated how the seeds were dispersed in relation to the plants in our sample plots. In each of the plots, the majority of plants (95%-99%) were contained within subplot A, yet we found that subplot B contained concentrations of seeds similar to those of subplot A to at two of the locations in our study. Figure 5 (below) is a set of bar graphs showing the mean number of seeds/m^2 found in subplots A, B and C at the 25 sample sites surveyed in stage two of our study.

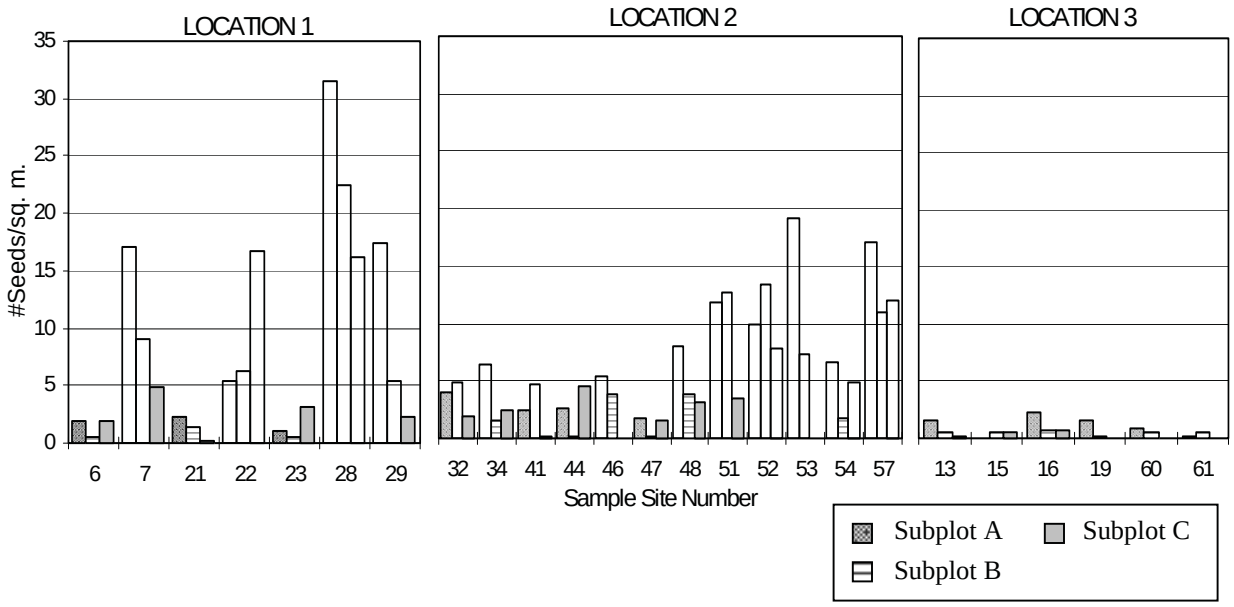

Figure 5. Number of seeds/m^2 in subplots A, B and C at 25 sample sites surveyed winter 2001-02, stratified by location.

We tested the relationship of seeds/m^2 among the three subplots of our sample plots by location with a Freidman test of related samples. Although the subplots sampled during the seed bank study were physically distinct, they are statistically related since the number of seeds found in any sample unit affects the probability of finding seeds in an adjacent unit (pseudo-replication). "This means that nearby units tend to be similar to (correlated with) each other" (Elzinga et. al 1998: 122). The results of the rank test used to test this relationship are summarized in Table 6.

Location 1	*Mean*	*Rank*	*Location 2*	*Mean*	*Rank*	*Location 3*	*Mean*	*Rank*
A	10.95	2.50	A	7.94	2.50	A	1.08	2.50
B	6.47	1.71	B	5.43	1.92	B	.44	2.17
C	6.48	1.79	C	3.48	1.58	C	.22	1.33
*Asymp. Sig**		.254	*Asymp. Sig**		.076	*Asymp. Sig**		.094

*Friedman test

Table 6. Results of Freidman test of the relationship of seeds/m^2 among subplots A, B and C in the 25 sample plots surveyed winter 2001-02, stratified by location.

According to the results of our test, the mean number of seeds/m^2 is highest in subplot A, lower in B and lowest in subplot C, except at location 1 where the mean number of seeds/m^2 are virtually identical in subplots B and C. In general the mean difference in seeds/m^2 between subplots A and B is less than the mean difference between subplots B and C, except for the sites at location 1.

At some sites there were large assemblages of seeds lying on the dune surface (Plate 6), usually with pods also clustered nearby. The pods produced by *A. m.* var. *peirsonii* are strongly inflated, and can blow across the surface of the dunes until they

lodge against a shrub or in a swale with reduced wind velocity (Bowers 1986). Thus they can be transported from one favorable site to another, or remain near the parent plant, depending on winds. Because the plants are usually located in open areas (not growing under shrubs) and clustered, it would appear that many pods break open and shed their seeds near the parent plant, replenishing the seed bank where the parent plant grew. Pavlik and Barbour (1985), working with *A. lentigenosus* var. *micans*, found that pods that fell within a cluster of plants usually shed their seeds in place, while those that were in the open were more likely to be transported some distance. Thus clusters may be self-perpetuating and scattered plants may germinate where blowing pods release seeds downwind.

Plate 6. Seeds and pod (marked by arrow) lying on the dune surface at a sample site. Note proximity to cluster of *A. m.* var. *peirsonii* that had survived from 2000 germination event

Occasionally, however, assemblages of seeds and pods were discovered a short distance away from the existing clusters of plants. At one site, we counted 1,000 seeds in an area of 35 m^2, and 27 pods located nearby. The pods were partially buried, and when the sand was removed from them they blew away in the 20 mph wind. Numerous dead *A. m.* var. *peirsonii* were present within the area, but there were no surviving plants from 2001. Although there was a subtle depression in the sand at the microsite, there was no apparent reason for this dense assemblage of seeds and pods. We also found two other similar concentrations of 185 and 225 seeds at other sample sites in stage two of our study.

Flowering began early in the dry, mild winter of 2001-02. The first flowers were noted in mid-November on plants that had germinated the previous year. By mid-February some plants had produced large numbers of pods, while others were still in full flower (Plates 7a and 7b). During stage two of our study, we conducted a systematic sample to determine the mean number of pods per plant at one of the sample sites (site #51) in location 2. Beginning with the first plant containing pods upslope of our sample plot, we counted the number of seed pods on 10 consecutive plants. The number of pods per plant ranged from 63 to 418, with a mean of 171.5 and a median of 113. The pods were full-sized but still green, and none had been dispersed. If we assume that each pod contains 14 viable seeds[6] (the assumption made in Phillips et al. [2001]), these 10 plants could potentially produce 24,010 seeds. The total number of plants with pods at that site was 131 (out of the 534 survivors censused), or 25% of the plants counted at that site during stage two of the study. We conservatively assumed production of 5 pods per plant in spring 2001; the greatly increased size and fecundity of the plants in their second year accounted for the tremendous increase in number of pods in winter 2001-02. We counted the number of plants that contained pods at several other sample sites at location 2, as well. At sites 44, 46, 47, 48 and 52, we counted a total of 2026 plants that had survived from spring 2001, of which 453 (or 22%) contained pods. Of the plants that did not yet have pods at those sites, nearly all were in flower.

Plates 7a and 7b. Reproductive second-year plants observed during stage two of our study. There are approximately 200 seed pods visible on these three plants.

Seed Production

We extrapolated the seed bank data collected during the 2001-02 field work in two ways. In the first, more conservative method we calculated the mean number of seeds per plant in the sample plot. Since all of the plants were survivors from 2001, this number should represent last year's seed production (plus any ungerminated seeds from prior years). We then took the number of plants counted at the sites in 2001, multiplied the total number of plants counted at each location in stage one by the percentage of plants that were reproductive at the time of the 2001 survey, and calculated an estimate of total seed production per location in 2001. Using this method of calculation, the total

[6] From the taxon description in Barneby (1964: 862): "… ovules 11-16 …"

number of seeds produced in 2001 was estimated to be 2,549,970. In the second method of extrapolation we multiplied the mean number of seeds per plants counted in winter 2001-02 by the total number of plants censused at each location in spring 2001. These calculations gave a total seed count estimate of 5,615,170. The results of our two methods of calculations are shown in Table 7 below.

Area in dune system	*Total number of plants per location*	*Percentage of plants reproductive in spring 2001*	*Mean number of seeds per plant, winter 2001-02*	*Seed total based on reproductive plant counts*	*Seed total based on total plant counts*
Location 1	31,604	26%	88	723,677	2,781,152
Location 2	38,100	61%	61	1,809,620	2,791,800
Location 3	2,222	39%	19	16,673	42,218
Seed Totals				**2,549,970**	**5,615,170**

Table 7. Results of simple extrapolation of number of seeds counted per location to number of reproductive plants and total number of plants surveyed in spring 2001

Since stage one of our survey in 2001 began in mid-March and continued until late May, it is quite possible that some of the plants considered to be sterile earlier in the study became reproductive after the plants at that site were censused. Thus the estimated percentage of plants that were determined to be reproductive in spring 2001 may have been low, as additional plants flowered and set seed after our study was completed. We therefore calculated a low and high range of seed count estimates in order to account for that possibility.

CONCLUSIONS

The shifting sands of the dunes constitute a severe habitat for which plants must be adapted to cope with being both covered and exposed (Bowers, 1986). Our observations at the Algodones Dunes show that plant life within the dune system is consistently concentrated in areas where there is relative substrate stability, compared to areas where sand is more actively accumulating or being removed. In terms of dune morphology, these areas are generally located on the lee side of large dunes, in areas where the surface gradually slopes upward from deep or shallow basins at the base of steep slipfaces. The slopes are generally west facing, and extend from the floor of the slipface basin upward to a ridgetop that rings the basin. Vegetation gradually decreases toward the rim, and the ridgetops are essentially free of plant life. The vegetated slopes appear to be under gradual deflation, as evidenced by the pedestaled habit of most of the plants occurring there. It is in such places that the common shrubs, dune buckwheat and Wiggins' croton, occur. They are consistently pedestaled to a depth of a meter or more below the root crown, and eventually they topple over when the taproot is no longer able to support the weight of the stems. *A. m.* var. *peirsonii* also commonly occurs on these slopes; plants are found from the floor of the basin to beyond the ridge, with the greatest concentrations generally being located above the middle of the slope. The milkvetch plants are also frequently pedestaled, usually from 1-3 cm and always to the same height for all plants in a cluster. This can be considered evidence for their germination at the same time.

1. *A. m.* var. *peirsonii* underwent an explosive germination event during the winter of 2000-01, with favorable conditions for germination occurring in October 2000. More than 71,000 plants were censused during field surveys for stage one of this study. Many of these plants flowered and set seed in spring 2001, replenishing the seed bank and demonstrating the potential abundance of the species.

2. Such favorable conditions normally occur infrequently, and the time between germination events may be greater than the life span of the plants. Therefore their seeds must be adapted to survive for long periods of dormancy without losing viability. The status, and potential status, of such species may be assessed at any point in time by censusing the living plants plus the dormant seed bank. During a growing season such as 2000-01, the species potential is predominantly expressed as living plants; during a winter such as 2001-02, the potential is the summation of the living survivors from the last germination event (and prior events) plus the dormant seeds in the soil -- the seed bank. The status of the plant at any point in time must be determined by considering both of these factors.

3. *A. m.* var. *peirsonii* flowers during the winter, produces seeds in late spring, and becomes mostly dormant during the summer. Because the plants reproduce during their first year, it is not necessary that they survive to a following season to perpetuate the species, adding their progeny to the gene pool. In the spring of 2001 we counted five individuals out of 71,000 that were older than the current season; these were presumably survivors from a germination event that occurred

in the fall of 1997. The overall survival rate of the 2000-01 cohort through the summer of 2001 was 26% -- an extraordinary figure. We tested several factors that may potentially influence the survival rate of a desert ephemeral, including 1) the reproductive rate of the plants during the preceding year, 2) OHV use in the plant habitat during the growing season, and 3) precipitation for soil moisture during the summer months. We concluded that the extraordinarily high survivorship of *A. m.* var. *peirsonii* most probably resulted from a rare combination of a major germination event, good rainfall during the ensuing spring, and precipitation during the summer sufficient to maintain soil moisture in the root zone of the plants, since no significant relationship between either reproductive rates in spring 2001 or OHV use during the growing season and the plant's survival rate to winter 2001-02 could be determined.

4. We estimated the potential number of seeds in the seed bank by sieving sand and counting captured seeds at 25, or 40%, of the sites surveyed in spring 2001. The large, representative sample size allowed us to extrapolate to an estimated number of seeds present in the seed bank based on the number of plants censused during stage one of our study. We derived an estimate of the number of seeds per plant in the sample plot and multiplied it by the number of plants present in the spring of 2001, when the seeds were produced. A conservative estimate of the number of seeds in the seed bank, based only on the number of plants noted as reproductive at the time of the spring 2001 survey, totaled 2.5 million seeds produced at our 60 sites during the 2000-01 growing season. A second estimate calculated on the basis of all plants observed in spring 2001 totaled approximately 5.6 million seeds. The second estimate assumes that all plants counted in 2001 eventually flowered and set seed. In either case, we conclude that there was a substantial infusion of seeds into the sand as a result of the 2000 germination event and the favorable weather conditions in the dune system during the spring and summer of 2001, replenishing the *A. m.* var. *peirsonii* seeds that germinated in the fall of 2000 between 35- and 80-fold.

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Appendix A

Distribution, Reproduction and Seed Bank Ecology of *A. m.* var. *peirsonii* in the Algodones Dunes: Results of a Two-Stage Study, March 2001 - March 2002

															#Seeds/ Location (based on total plant counts)
6	1	20	340	50%	170	8%	26	311	12	2	26				
7	1	140	3,127	30%	938	29%	905	2,178	20	9	109				
21	1	17	1,327	25%	332	22%	290	264	18	3	15				
22	1	127	807	25%	202	23%	188	1,976	22	5	90				
23	1	21	2,800	10%	280	9%	250	327	15	6	22				
28	1	316	978	20%	196	25%	247	4,916	24	3	205				
29	1	112	3,994	20%	799	10%	385	1,742	22	7	79				
Location 1 Totals		**753**	**13,373**		**2917**		**2,291**	**11,713**		**35**		**8,217**	**31,604**	**723,677**	**2,783,370**
Location 1 Means		**122**	**1,910**	**26%**	**417**	**18%**	**327**	**1,673**	**19**	**5**	**88**				
32	2	49	657	30%	197	27%	177	762	16	4	48				
34	2	47	1,534	50%	767	25%	376	731	15	4	49				
41	2	33	120	50%	60	80%	96	513	17	3	30				
44	2	33	798	90%	718	11%	91	513	14	2	37				
46	2	41	1,531	40%	612	43%	655	638	9	5	71				
47	2	16	2,530	70%	1771	18%	450	249	16	6	16				
48	2	67	1,037	50%	518	27%	281	1,042	19	3	55				
51	2	126	1,898	80%	1518	28%	534	1,960	17	8	115				
52	2	140	3,010	80%	2408	18%	549	2,178	16	6	136				
53	2	119	1,090	65%	708	14%	155	1,851	14	4	132				
54	2	60	577	75%	433	42%	241	933	15	5	62				
57	2	180	1,967	50%	984	14%	268	2,800	13	5	215				
Location 2 Totals		**911**	**16,749**		**10,694**		**3,873**	**14,171**		**55**		**23,241**	**38,100**	**1,809,620**	**2,966,590**
Location 2 Means		**76**	**1,396**	**61%**	**891**	**29%**	**323**	**1,181**	**15**	**5**	**78**				
13	3	10	230	50%	115	70%	161	156	10	3	16				
15	3	4	28	20%	6	39%	11	62	4	1	16				
16	3	16	265	50%	132	8%	22	249	14	1	18				
19	3	8	77	50%	38	60%	46	124	8	1	16				
60	3	6	8	12%	1	50%	4	93	3	1	31				
61	3	3	41	50%	20	10%	4	47	4	1	12				
Location 3 Totals		**47**	**649**		**312**		**248**	**731**		**8**		**867**	**2,222**	**10,673**	**37,780**
Location 3 Means		**8**	**108**	**39%**	**52**	**40%**	**41**	**122**	**7**	**1**	**17**				
					(Total)	(Mean)							(Total)	(Total)	(Total)
															5,787,739

Summary of distribution, reproduction and seed bank data gathered during a two-stage study of *Astragalus magdalenae* var. *peirsonii* conducted spring 2001 – winter 2001-02

Appendix B

Algodones Dunes Rare Plants Survey

Site Data Form

Site No. _____ Area _____ Date _____

GPS Location: N _____ W _____

Distance from fixed point _____ Topo Quad _____

Special Status Plants Present _____

ASMAPE: Total no. _____ No. Plants Damaged _____

Age Classes _____ Est. % Reproductive _____

Other SS Plants: Species _____ Total No. _____ No. Damaged _____

Age Classes _____ Est. % Reproductive _____

Other SS Plants: Species _____ Total No. _____ No. Damaged _____

Age Classes _____ Est. % Reproductive _____

Associated Species _____

Habitat Description _____

Plants Pedestled? _____

Area (acres or m2 or ft2) _____ Photo Nos. (See Photo Log) _____

Notes _____

_____ Investigators _____

On the back of this sheet, draw a sketch of the site, showing shape, dimensions, areas where Special Status plants are concentrated, OHV tracks crossing area, North arrow, and any other distinctive features

Field data form used in stage one of the study (March-May 2001)

Appendix C

Algodones Dunes PMV Seed Bank Studies

Site no. _____ Date _____ Area _____ Investigators _____

No. of PMV clusters _____ Total no. surviving PMV _____

PMV Sector	Frame #/LOCATION	No. Seeds		PMV Sector	Frame #/LOCATION	No. Seeds		PMV Sector	Frame #/LOCATION	No. Seeds
A				B				C		
A				B				C		
A				B				C		
A				B				C		
A				B				C		
A				B				C		
A										
A										
A										
A										
A										
A										

Field data form used in stage two of the study (November 2001-March 2002)

From:	JerrySeaver@aol.com
To:	caisdrmp@ca.blm.gov
Subject:	Appendix H
Date:	04/23/2010 03:47 PM
Attachments:	2002DrPhillipsSeedBankReport.pdf

Appendix H lists reports on PMV studies. It lists the Thomas Olsen and Associates Report, which was done by Dr. Phillips but doesn't include his report done in 2002. This report needs to be listed in the final RAMP. It is attached.

Thanks,
Jerry Seaver
2950 W. State Ave.
Phx. Az.85051

From:	R.J. HUBBLE
To:	caisdrmp@ca.blm.gov
Subject:	
Date:	04/22/2010 04:37 PM

hello my name is r.j. hubble and i have read that there is a possibility that you will be closing a percentage of the imperial sand dunes. i thought i would let you know that you will be destroying a lot of family fun activities that a lot of family's thrive for. there are thousands of people that work day in and day out too save up money too enjoy themselves at gordons well. i my self have been going for several years not including several others in my camp that have been going since they were in diapers. you will be making a horrible choice by closing sections of gordons well. please re think this . you have already taken a fairly good chunk of the dand dunes from us please dont take any more. thanks

dunner for life,
R.J. Hubble

From: Glenn_Armentrout@beaerospace.com
To: caisdrmp@ca.blm.gov
Subject: Imperial Sand Dunes
Date: 04/22/2010 01:41 PM

Who has been financing the Imperial Sand Dunes and State of California? It has not been the environmentalists. When will the majority rule and not the small (minorities). I am personally disgusted with the management (BLM). I have been going to the Imperial Sand Dunes since the early 70s. I have watched the public access become smaller and smaller with usage fees grow larger and larger. California is in a revenue crisis and it will continue to grow unless the policies and representation change to support the majority concerns. How much revenue will the state of California lose if the Imperial Sand Dunes were to close to off road usage. I would support a 1 year boycott to make our point. The numbers tell the story. Each year less and less off road enthusiast will be using the Imperial Sand Dunes due to closer and fee's.

Glenn Armentrout
Procurement Quality Engineer
B/E Aerospace, Inc.
Tucson, AZ 85710
Tel: 520.239-4817

From: christine_mitchell
To: caisdrmp@ca.blm.gov
Subject: Draft for Imperial Sand Dunes
Date: 05/24/2010 01:53 PM

Please send me both the Draft Recreation Area Management Plan and the Draft Environmental Impact Statement. Thank you.

Mack Mitchell
1333 Garden St.
Redlands, CA 92373

RAMP Team Leader
Bureau of Land Management
1661 S Fourth Street
El Centro, CA 92243

Subject:

Comments on the March 2010 Draft Recreation Management Plan (DRAMP) and Draft Environmental Impact Statement (DEIS) for the Imperial Sand Dunes Recreation Area (ISDRA)

Dear RAMP Team Leader,

My name is Tony Fowler, and I write these comments on the proposed BLM (DRAMP) for the (ISDRA) in an effort to influence the people of a Federal Agency to provide for balanced usage based on accurate science, the true environmental needs of the area and the input from actual visitors. I hold onto the possibility that the current state of the economy has naturally weeded out the lawless weekend warriors that ruin the experience and those who are left are the same core people who see the area as a beautiful, natural wonder, and have always respected and taken good care of her. United education and enforcement can guide future users to also be respectful of this precious area.

I spoke with a BLM Ranger nearly 20 yrs ago about the (1990?) DRAMP and have seen very few of it's goals actually accomplished. There was a terrific camping layout with many Cul-de-Sac type roads between Gecko Rd and the canal, complete with pit toilets. This design would help spread out the present high density camping along Gecko road and the washes. Over-crowding contributes to many of the existing problems. There were other goals listed that would also provide marked improvements to camping, access, and safety. I had high hopes and willingly paid the increased OHV fees, expecting to see those goals achieved. It was a grand plan and the BLM seemed to be acting on behalf of the public, then special interest groups took control and stopped progress.

There is no Environmental Species Act (ESA) requirement to close areas that the FWS has designated as Critical Habitat for the PMV. Science supports the fact that PMV thrives in open OHV use areas. Open the closed areas.

Please take into account that throughout the DRAMP almost all credible studies consistently show that less than one percent of monitored plants are damaged by OHV operation. This statistic is consistent for monitoring of PMV (Page H-2, H-3 and H-6) and Algodones Dunes Sunflower (Page H-4, Section A.2).

ALL closures should be opened, as there is no data to support the opinion that the closures actually help the PMV recovery efforts.

Data from other referenced studies show that many plants consistently show increased levels in areas open to OHV recreation. This has been shown in the BLM PMV monitoring and the Luckenbach and Bury report on page H-8. Quoting this report *"...what data were collected showed that PMV density and cover were actually higher in the OHV area than in the closed area..."*

It seems that neither the BLM nor FWS can explain why these plants seem to do as well in areas open to OHV than in areas closed to OHV recreation.

Data such as this questions the advisability and need to restrict camping or OHV use. Open the existing closed areas and do not close more!

Scientific data supports that the only REAL influence on the PMV is the amount of rainfall. This would explain why there is a higher concentration of PMV along OHV use areas. It's as simple as OHV users pouring water on the PMV from heated or sandy water bottles.

Perhaps an irrigation system should be installed from the canal to any PMV recovery areas, if those areas are actually there to provide for recovery of an endangered species, and not just to limit OHV use.

Dune Buggy Flats closure is without scientific basis.
The rainfall-triggered camping closure of Dune Buggy Flats lacks sufficient rational to support this major action. This proposal presumes that BLM is incapable of enforcing the PMV CH closures. This proposal ignores historical closure compliance and assumes that BLM cannot provide the required enforcement resources. Besides, the science shows that rainfall has the largest effect on PMV counts, not OHV use.

There is no scientific data to support the seasonal camping closure of DBF based on an arbitrary rainfall level of 1.82". Closures are counter-productive to PMV recovery efforts and therefore should not exist.

The Microphyll Woodland Closure is also without scientific basis.
The proposed camping closure in the eastern part of the dunes is unreasonable. Under Alternative 8, this closure would be implemented to protect microphyll woodland and would extend from Wash 25 to Wash 69. There is no scientific evidence that any of the microphyll woodland in this eastern portion of the ISDRA has been damaged from camping or any other recreational activity.

Appendix "O" regarding bird populations provides no conclusive evidence in support of a camping closure. Even if it did, balanced use is not achieved by closing 100% of microphyll woodlands.

If the true intentions of the BLM or FWS are to provide for the recovery of an endangered species, then all closed areas should be opened so the OHV use can assist in the recovery efforts.

If, after actually considering all input, the BLM still supports closures, again not scientifically supported as productive, then any closures which form effective barriers between OHV travel areas (sand highway) and OHV use areas must include travel corridors at least every 1 mile to provide for safety access and vehicle travel. Signage and markers must be increased dramatically from previous BLM levels, marking all boundaries and corridors. This will greatly reduce the number of accidental incursions into the closed areas.

Last season (2009/2010) saw increased rainfall levels and the dunes came to life with colors I've never seen before. There were more birds, lizards and plants (PMV). I even saw 2 deer, twice on an early morning ride. With these blooms OHV use patterns avoided high-density plant areas without any BLM intervention. PMV and OHV's already co-exist just fine in open areas and need no help or hindrance from any governmental agencies.

In summary, I offer the following suggestions:

Open the existing closed areas to OHV use, travel, and camping.

Don't close more areas, especially when there is no science supporting that.

Develop more camping areas, such as those identified by previous DRAMP's. Over-crowding contributes to the problems at the sand dunes.

Enforce existing laws, and target the lawless behavior of the 5% that has given off-roaders a black eye and turned a unique natural environment into a cesspool of political, environmental and legal agendas.

Continue to educate and make information available to the public. Do so in a helpful, unbiased manner, which serves all users in a positive way.

The fact that we are able to make these comments to you, the decision makers, goes a long way towards the cooperative effort needed to provide a lifetime of enjoyment for generations to come. Please continue to represent the entire public and stand firm against the special interests that may not even visit this area.

Thank you,

Tony Fowler
Respectful dune user since 1973

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

JUN 22 2010

Erin Dreyfuss
Environmental Protection Specialist
Bureau of Land Management
El Centro Field Office
1661 South 4th Street
El Centro, CA 92243

Subject: Imperial Sand Dunes Draft Recreation Area Management Plan and Draft Environmental Impact Statement, Imperial County, California (CEQ #20100096)

Dear Ms. Dreyfuss:

The U.S. Environmental Protection Agency (EPA) has reviewed the Imperial Sand Dunes Draft Recreation Area Management Plan and Draft Environmental Impact Statement (DRAMP/DEIS) pursuant to the National Environmental Policy Act (NEPA), the Council on Environmental Quality (CEQ) Regulations (40 CFR Parts 1500-1508), and Section 309 of the Clean Air Act.

We commend the BLM for developing a broad range of alternatives for sustainably managing the Planning Area, and are pleased to see that so many protective measures have been incorporated into the preferred alternative, Alternative 8. These measures, including closing Peirson's milk-vetch (PMV) critical habitat to motorized use and solar and wind energy development, closing Close Dunebuggy Flats campground to camping (if the rainfall threshold for PMV is met), and classifying microphyll woodlands as avoidance areas, should serve as crucial safeguards for sensitive Planning Area resources.

EPA recognizes the inherent challenges of managing an area, as described in the DEIS, for the "recovery and delisting of the PMV and Mojave desert tortoise…while providing a world-class recreation experience to visitors," and believes that BLM, by implementing the preferred alternative, will have largely succeeded in this charge. However, based on our review of the document, we have rated the DRAMP/DEIS as Environmental Concerns - Insufficient Information (EC-2) (see enclosed "*Summary of Rating Definitions*"). We are concerned about the number of acres open to off-highway-vehicles (OHV) in the preferred alternative and the potential impacts to air quality and sensitive resources if this proposal were to be implemented. We also ask that BLM provide additional information regarding how climate change may affect the Planning

SD-0078

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					F	CIC	UT	TS

Area. Our enclosed detailed comments provide additional information regarding these concerns.

We appreciate the opportunity to review this DRAMP/DEIS, and are available to discuss our comments. When the final RAMP/EIS is released for public review, please send one hard copy and one CD-ROM to the address above (Mail Code: CED-2). If you have any questions, please contact me at (415) 972-3521, or contact Jason Gerdes, the lead reviewer for this project. Jason can be reached at (415) 947-4221 or gerdes.jason@epa.gov.

Sincerely,

Kathleen M. Goforth, Manager
Environmental Review Office

Enclosures: Summary of Rating Definitions
EPA Detailed Comments

EPA DETAILED COMMENTS ON THE IMPERIAL SAND DUNES DRAFT RECREATION AREA MANAGEMENT PLAN AND DRAFT ENVIRONMENTAL IMPACT STATEMENT, IMPERIAL COUNTY, CALIFORNIA, JUNE 22, 2010

AL 22610 252

Impacts on Air Quality

EPA is cognizant of the tension that BLM faces in managing the Imperial Sand Dunes Recreation Area, which the draft EIS (DEIS) describes as the "most intensively used OHV recreation area within the BLM California Desert District, with over 1.4 million OHV visitors per year." In attempting to strike a balance between protection and recreation, BLM risks upsetting both conservationists and off-road enthusiasts. We are concerned, however, about the impacts to air quality and sensitive species if the BLM implements the preferred alternative, a proposal that would designate 127,416 acres as open OHV management, more than any of the other alternatives. Additionally, implementing Alternative 8, according to the "Alternative Comparison Tables" in Appendix F, would result in just 4% of the Riding Area being closed to OHVs, the lowest percentage of any of the proposed alternatives.

AL 22610 150

OHV activity is described in the DEIS as the Planning Area's "predominant source of air pollutants." According to Table 4-3 of the DEIS ("Estimated Annual Air Quality Emissions due to OHV Activity (Tons/Year)"), adopting the preferred alternative would result in the second highest level of air quality emissions. EPA is concerned about these potential air quality impacts, and whether, if implemented, Alternative 8 will conform to the Imperial County Air Pollution Control District (ICAPCD)'s State Implementation Plan (SIP) for ozone and PM_{10} (which is of particular concern, as Imperial County was reclassified as serious PM_{10} nonattainment in 2004).

TR 10400 170

Page 4-4 of the DEIS states that ICAPCD Rule 800 exempts recreational use of BLM land that is covered by a BLM dust control plan. On June 15, 2010, however, EPA's Region 9 Administrator signed an action that provided simultaneous limited approval and limited disapproval of ICAPCD's Regulation VIII, in part because it had not demonstrated that this exemption fulfilled Clean Air Act requirements regarding enforceability and best available control measures. EPA asks that BLM discuss this action in the FEIS.

AIR 31100 003

Recommendations:

Given that OHV activity is recognized as the "predominant source of air pollutants," EPA recommends that the BLM explain in the FEIS why the alternative that designates the greatest amount of land in the Planning Area as open OHV management was selected as the preferred alternative. We also ask for more information on the preferred alternative's potential air quality impacts, and whether it will conform to the ICAPCD's SIP for ozone and PM_{10}.

Impacts on Species

EPA is also concerned about the effects of OHV activity on sensitive species in the Planning Area. According to a U.S. Fish and Wildlife Service (FWS) report cited in the DEIS, "OHV recreation and associated recreational development have been described as the primary threats to PMV through destruction of individual plants and habitat." Similarly, habitat for the other federally listed species identified by the FWS as occurring within the Planning Area, the Mojave Desert tortoise, has also been "degraded and fragmented by OHV and camping recreation." These listed species, however, are not the only ones affected by OHV activity—the DEIS states that plant life is impacted through compaction and proliferation of dust particles, and "significantly more migratory and breeding birds were found in areas closed to OHV recreation."

Recommendation:
Considering the impacts to sensitive species, including PMV, the Mojave Desert Tortoise, and migratory birds, EPA recommends that the BLM explain in the FEIS why the alternative that designates the greatest amount of land in the Planning Area as open OHV management was selected as the preferred alternative.

Climate Change

The DEIS provides only limited information about the greenhouse gas (GHG) emissions that would be generated in the Planning Area once the Recreation Area Management Plan (RAMP) is implemented. Table 4-4 provides a partial list of anticipated GHG emissions, representing an estimate of the incremental change in CO_2 emissions due to OHV activity; this list, however, shows that implementing the preferred alternative would result in the second-highest change at 31,597 tons per year. The adoption of such an alternative is a concern because both Executive Order 13514 and Secretarial Order No. 3289, among other directives, have charged BLM with accounting for, and reducing, emissions resulting from Federal land management practices, and considering and analyzing potential climate change impacts when developing multi-year management plans. Considering that the RAMP, once implemented, will guide resource management decisions in the Planning Area for years to come, BLM should choose an alternative that minimizes and mitigates GHG emissions to the greatest reasonable extent.

The DEIS also provides little detail about how climate change may affect the Planning Area. BLM states that the Planning Area resources that are "anticipated to be affected by climate change" are water, vegetation, and wildlife; with water impacts expected to include "extended drought cycles" that "could potentially decrease the availability of surface and groundwater" for plants and wildlife. There are no detailed descriptions, however, of how potential climate change effects, including the expected decreases in surface and groundwater, and warming of the Planning Area, may affect sensitive landscapes such as the microphyll woodlands and species, especially the PMV and desert tortoise.

Recommendations:

EPA recommends that BLM provide additional information about anticipated GHG emissions for each of the proposed alternatives (not just those related to OHV activity), and select an alternative that fulfills BLM and Administration directives by reducing GHG emissions in the Planning Area. Also, EPA asks that BLM describe how climate change may affect specific Planning Area sensitive species, particularly the PMV and the desert tortoise.

SUMMARY OF EPA RATING DEFINITIONS*

This rating system was developed as a means to summarize the U.S. Environmental Protection Agency's (EPA) level of concern with a proposed action. The ratings are a combination of alphabetical categories for evaluation of the environmental impacts of the proposal and numerical categories for evaluation of the adequacy of the Environmental Impact Statement (EIS).

ENVIRONMENTAL IMPACT OF THE ACTION

"LO" (Lack of Objections)

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

"EC" (Environmental Concerns)

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

"EO" (Environmental Objections)

The EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

"EU" (Environmentally Unsatisfactory)

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potentially unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

ADEQUACY OF THE IMPACT STATEMENT

"Category 1" (Adequate)

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

"Category 2" (Insufficient Information)

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analysed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

"Category 3" (Inadequate)

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analysed in the draft EIS, which should be analysed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From EPA Manual 1640, Policy and Procedures for the Review of Federal Actions Impacting the Environment.

DEPARTMENT OF PUBLIC WORKS
FLOOD CONTROL • LAND DEVELOPMENT & CONSTRUCTION
SOLID WASTE MANAGEMENT • SURVEYOR • TRANSPORTATION

COUNTY OF SAN BERNARDINO

825 East Third Street • San Bernardino, CA 92415-0835 • (909) 387-8104
Fax (909) 387-8130

GRANVILLE M. "BOW" BOWMAN, P.E., P.L.S.
Director of Public Works

June 24, 2010

File: 10(ENV)-1.01

Carrie Simmons
Department of the Interior
Bureau of Land Management
1661 S. 4th Street
El Centro, CA 92243

RE: AVAILABILITY OF DRAFT IMPERIAL SAND DUNES RECREATIONAL AREA MANAGEMENT PLAN AND ENVIRONMENTAL IMPACT STATEMENT

Dear Ms. Simmons:

Thank you for giving the San Bernardino County Department of Public Works and Flood Control District the opportunity to comment on the above-referenced project. We have reviewed the documents and have no comments.

If you have any questions or require additional information, please contact Mary Patterson by phone at (909) 386-9063, or by e-mail at Mary.Patterson@dpw.sbcounty.gov.
Sincerely,

for NARESH P. VARMA, P.E., Chief
Environmental Management Division

NPV:MP:mb/CEQA Commons - BLM Imperial Sand Dunes.doc

cc: Linda Mawby
Nancy Sansonetti
GMB/ARI Reading File

SD 7.26.10

SD-0077

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Linda S. Adams
Secretary for
Environmental Protection

Department of Toxic Substances Control

Maziar Movassaghi
Acting Director
5796 Corporate Avenue
Cypress, California 90630

Arnold Schwarzenegger
Governor

SD-0076

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					F	CIC	UT	TS

June 14, 2010

Ms. Erin Dreyfu
Bureau of Land
1661 S. 4th Stre
El Centro, Calif

RECEIVED
BUREAU OF LAND MANAGEMENT
2010 JUN 16 PM 4:06
EL CENTRO FIELD OFFICE
EL CENTRO, CA

NOTICE OF COMPLETION & ENVIRONMENTAL DOCUMENT TRANSMITAL (EIS) FOR IMPERIAL SAND DUNES RECREATION AREA MANAGEMENT PLAN (SCH# 1986102919)

Dear Ms. Dreyfuss:

The Department of Toxic Substances Control (DTSC) has received your submitted Notice of Availability of the Environmental Impact Report for the above-mentioned project. The following project description is stated in your document: "The Draft Imperial Sand Dunes Recreation Area Management Plan/EIS will guide BLM's management of approximately 130,000 acres in Imperial County. Activities include recreation, wildlife habitat enhancement, renewable energy, weed control. Resources impacted include rare species, wildlife, soils, air quality, and cultural resources".

Based on the review of the submitted document DTSC has the following comments:

1) The EIS should evaluate whether conditions within the project area may pose a threat to human health or the environment. Following are the databases of some of the regulatory agencies:

- National Priorities List (NPL): A list maintained by the United States Environmental Protection Agency (U.S.EPA).
- Envirostor (formerly CalSites): A Database primarily used by the California Department of Toxic Substances Control, accessible through DTSC's website (see below).
- Resource Conservation and Recovery Information System (RCRIS): A database of RCRA facilities that is maintained by U.S. EPA.

- Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS): A database of CERCLA sites that is maintained by U.S.EPA.
- Solid Waste Information System (SWIS): A database provided by the California Integrated Waste Management Board which consists of both open as well as closed and inactive solid waste disposal facilities and transfer stations.
- GeoTracker: A List that is maintained by Regional Water Quality Control Boards.
- Local Counties and Cities maintain lists for hazardous substances cleanup sites and leaking underground storage tanks.
- The United States Army Corps of Engineers, 911 Wilshire Boulevard, Los Angeles, California, 90017, (213) 452-3908, maintains a list of Formerly Used Defense Sites (FUDS).

2) The EIS should identify the mechanism to initiate any required investigation and/or remediation for any site that may be contaminated, and the government agency to provide appropriate regulatory oversight. If necessary, DTSC would require an oversight agreement in order to review such documents.

3) Any environmental investigations, sampling and/or remediation for a site should be conducted under a Workplan approved and overseen by a regulatory agency that has jurisdiction to oversee hazardous substance cleanup. The findings of any investigations, including any Phase I or II Environmental Site Assessment Investigations should be summarized in the document. All sampling results in which hazardous substances were found above regulatory standards should be clearly summarized in a table. All closure, certification or remediation approval reports by regulatory agencies should be included in the EIS.

4) If buildings, other structures, asphalt or concrete-paved surface areas are being planned to be demolished, an investigation should also be conducted for the presence of other hazardous chemicals, mercury, and asbestos containing materials (ACMs). If other hazardous chemicals, lead-based paints (LPB) or products, mercury or ACMs are identified, proper precautions should be taken during demolition activities. Additionally, the contaminants should be remediated in compliance with California environmental regulations and policies.

5) Future project construction may require soil excavation or filling in certain areas. Sampling may be required. If soil is contaminated, it must be properly disposed and not simply placed in another location onsite. Land Disposal Restrictions (LDRs) may be applicable to such soils. Also, if the project proposes to import soil to backfill the areas excavated, sampling should be conducted to ensure that the imported soil is free of contamination.

6) Human health and the environment of sensitive receptors should be protected during any construction or demolition activities. If necessary, a health risk assessment overseen and approved by the appropriate government agency should be conducted by a qualified health risk assessor to determine if there are, have been, or will be, any releases of hazardous materials that may pose a risk to human health or the environment.

7) If it is determined that hazardous wastes are, or will be, generated by the proposed operations, the wastes must be managed in accordance with the California Hazardous Waste Control Law (California Health and Safety Code, Division 20, Chapter 6.5) and the Hazardous Waste Control Regulations (California Code of Regulations, Title 22, Division 4.5). If it is determined that hazardous wastes will be generated, the facility should also obtain a United States Environmental Protection Agency Identification Number by contacting (800) 618-6942. Certain hazardous waste treatment processes or hazardous materials, handling, storage or uses may require authorization from the local Certified Unified Program Agency (CUPA). Information about the requirement for authorization can be obtained by contacting your local CUPA.

8) DTSC can provide cleanup oversight through an Environmental Oversight Agreement (EOA) for government agencies that are not responsible parties, or a Voluntary Cleanup Agreement (VCA) for private parties. For additional information on the EOA or VCA, please see www.dtsc.ca.gov/SiteCleanup/Brownfields, or contact Ms. Maryam Tasnif-Abbasi, DTSC's Voluntary Cleanup Coordinator, at (714) 484-5489.

If you have any questions regarding this letter, please contact me at ashami@dtsc.ca.gov, or by phone at (714) 484-5472.

Sincerely,

Al Shami
Project Manager
Brownfields and Environmental Restoration Program

cc: See next page

cc: Governor's Office of Planning and Research
State Clearinghouse
P.O. Box 3044
Sacramento, California 95812-3044
state.clearinghouse@opr.ca.gov.

CEQA Tracking Center
Department of Toxic Substances Control
Office of Environmental Planning and Analysis
P.O. Box 806
Sacramento, California 95812
ADelacr1@dtsc.ca.gov

CEQA#2873

COLORADO RIVER BOARD OF CALIFORNIA
770 FAIRMONT AVENUE, SUITE 100
GLENDALE, CA 91203-1068
(818) 500-1625
(818) 543-4685 FAX

April 22, 2010

clear 6-23-10 e

RECEIVED
APR 26 2010
STATE CLEARING HOUSE

State Clearinghouse
1400 Tenth Street
P.O. Box 3044
Sacramento, CA 95812-3044

Regarding: SCH# 1986 102 919: Notice of Completion & Environmental Document Transmittal of a Draft Imperial Sand Dunes Special Recreation Area Management Plan and Draft Environmental Impact Statement (EIS), U.S. Bureau of Land Management, El Centro Field Office, Imperial County, California

To Whom It May Concern:

The Colorado River Board of California (CRB) has received and reviewed a copy of Notice of Completion & Environmental Document Transmittal of a Draft Imperial Sand Dunes Special Recreation Area Management Plan and Draft Environmental Impact Statement (EIS), U.S. Bureau of Land Management, El Centro Field Office, Imperial County, California.

At this juncture, the CRB has determined that it has no comments regarding the Notice. If you have any questions, please feel free to contact me at (818) 500-1625.

Sincerely,

for Gerald R. Zimmerman
Executive Director

4.26.10

SD-0075

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STATE OF CALIFORNIA

GOVERNOR'S OFFICE of PLANNING AND RESEARCH

STATE CLEARINGHOUSE AND PLANNING UNIT

ARNOLD SCHWARZENEGGER
GOVERNOR

CYNTHIA BRYANT
DIRECTOR

BUREAU OF LAND MANAGEMENT

2010 JUN 28 AM 11:30

CENTRO FIELD OFFICE
EL CENTRO, CA.

June 25, 2010

Erin Dreyfuss
US Bureau of Land Management
1661 S. 4th Street
El Centro, CA 95630

Subject: Draft Imperial Sand Dunes Recreation Area Management Plan
SCH#: 1986102919

Dear Erin Dreyfuss:

The State Clearinghouse submitted the above named Draft EIS to selected state agencies for review. On the enclosed Document Details Report please note that the Clearinghouse has listed the state agencies that reviewed your document. The review period closed on June 23, 2010, and the comments from the responding agency (ies) is (are) enclosed. If this comment package is not in order, please notify the State Clearinghouse immediately. Please refer to the project's ten-digit State Clearinghouse number in future correspondence so that we may respond promptly.

Please note that Section 21104(c) of the California Public Resources Code states that:

> "A responsible or other public agency shall only make substantive comments regarding those activities involved in a project which are within an area of expertise of the agency or which are required to be carried out or approved by the agency. Those comments shall be supported by specific documentation."

These comments are forwarded for use in preparing your final environmental document. Should you need more information or clarification of the enclosed comments, we recommend that you contact the commenting agency directly.

This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act. Please contact the State Clearieghouse at (916) 445-0613 if you have any questions regarding the environmental review process.

Sincerely,

Scott Morgan
Acting Director, State Clearinghouse

Enclosures
cc: Resources Agency

SD-0074

	S	I	I	A	IA	RI	CE	LG
MID	OT	S	RT	DT	F	CIC	UT	TS

Details Report
State Clearinghouse Data Base

SCH# 1988102919
Project Title Draft Imperial Sand Dunes Recreation Area Management Plan
Lead Agency Bureau of Land Management

Type EIS Draft EIS
Description NOTE: Review Per Lead

The Draft Imperial Sand Dunes Recreation Area Management Plan/EIS will guide BLM's management of ~130,000 acres in Imperial County. Activities include recreation, wildlife habitat enhancement, renewable energy, weed control, etc. Resources impacted include rare species, wildlife, soils, air quality, cultural resources, etc.

Lead Agency Contact

Name Erin Dreyfuss
Agency US Bureau of Land Management
Phone 916-978-4642 **Fax**
email
Address 1661 S. 4th Street
City El Centro **State** CA **Zip** 95830

Project Location

County Imperial
City
Region
Lat / Long
Cross Streets
Parcel No.
Township **Range** **Section** **Base**

Proximity to:

Highways
Airports
Railways
Waterways
Schools
Land Use Various

Project Issues Aesthetic/Visual; Air Quality; Archaeologic-Historic; Biological Resources; Cumulative Effects; Economics/Jobs; Flood Plain/Flooding; Forest Land/Fire Hazard; Geologic/Seismic; Landuse; Minerals; Noise; Public Services; Recreation/Parks; Toxic/Hazardous; Vegetation; Water Quality; Water Supply; Wetland/Riparian; Wildlife

Reviewing Agencies Resources Agency; Colorado River Board; Department of Conservation; Department of Fish and Game, Region 6; Office of Historic Preservation; Department of Parks and Recreation; Department of Water Resources; California Highway Patrol; Caltrans, District 11; State Water Resources Control Board, Divison of Financial Assistance; Regional Water Quality Control Board, Region 7; Department of Toxic Substances Control; Native American Heritage Commission; California Energy Commission; State Lands Commission

Date Received 04/06/2010 **Start of Review** 04/06/2010 **End of Review** 06/23/2010

Note: Blanks in data fields result from insufficient information provided by lead agency.

Steve Shaffstall <sjshaffstall@gmail.com>
To caisdrmp@ca.blm.gov
06/24/2010 11:03 PM
cc

Subject
Regarding BLM's Draft OHV Management Plan for Imperial Sand Dunes Recreation Area

Dear Erin,

I am writing this letter to you regarding the Bureau of Land Management's Proposed OHV Management Plan for the Imperial Sand Dunes Recreation Area. I come from a family of avid off-road enthusiasts. My father has been riding in Glamis since the early 1960's, and built his own dune buggy before the age of 10. My first experience on a OHV was riding at the base of Competition Hill when I was eight years old. My little sister has her own quad, as does my mother. Riding in the Imperial Sand Dunes is a regular activity that has brought my family closer together over the years and one I hope will continue to do so for many years in the future.

The new proposals regarding the BLM's Management Plan call for more of the dunes to be closed. With my whole heart I think this entirely the wrong course of action. While I consider myself extremely environmentally conscious, and concerned over the future of our nation's wilderness areas, I cannot help but argue that closing more of the areas where hundreds of thousands of Americans love to ride is a mistake; a very big mistake.

The Imperial Sand Dune OHV area has been a staple of the off-roading community for generations. Yet every few years, more and more of our beloved dunes are closed - a few hundred acres here; a few thousand there.
I do not believe it necessary to expand this closure further. I think those Americans that actually enjoy the sand Dunes by visiting and funding them with weekly and annual fees, volunteer efforts and family and friend excursions would wholeheartedly agree.

I ask you to please pass Alternative 1 of the ISD RAMP, in order to allow as much of the Imperial Sand Dune Recreation Area to remain open as possible- for the sake of all Americans to enjoy in the various ways our freedom allows.

Thank you for your time and consideration.

Sincerely,

Scott Shaffstall
Glamis Rider since 1994.

May 28, 2010

Mr. Jim Komatinsky

Bureau of Land Management

El Centro Field Office

1661 S. 4th St.

Dear Mr. Komatinsky,

My comments are in reference to the March 2002 DEIS and the proposed DRAMP for the Imperial Sand Dunes OHV Recreation area.

First of all I truly appreciate the difficulty of your decision weighing recreation needs against environmental considerations, as I was an Orange County Planning Commissioner for 15 years and faced very similar decisions related to land use.

I was strongly encouraged to write a response after reviewing the documents because three generations of our family (14 year old grandson, son 35, my wife and I 65 and 67) have been enjoying the dune experience on our bikes and hope to continue that enjoyment in as safe and open context as possible.

1. We are particularly concerned that major areas of those dunes may be closed for use as part of an "Interim Closure" plan. Our family and I am sure others, used to recreate at a variety of other sand recreation areas all of which have been closed for use. If substantial areas within the Imperial Dunes are closed for use then there will be greater concentration of activity resulting in a less safe and a less enjoyable experience for all.

2. Actually there is a need to expand camping and staging areas. Why not open up the area between Highway 8 and 78 especially along the canal?

3. In weighing your decision regarding the possible closure of substantial areas to protect the Milk Vetch please consider the following:

   A. How reliable is the data that was provided in the DEIS? Was the recommended closure based on sound data or was it arbitrary?

   B. Has the status of the endangered specie really changed in the proposed closure area since the last RAMP was performed?

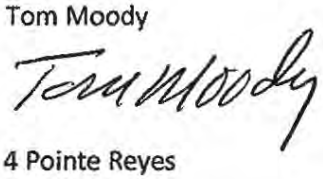
   C. Are there existing studies by BLM that really do indicate that OHV use has a significant impact on the Milk Vetch?

D. Isn't the Milk Vetch in fact protected by the surrounding reality south, east and west with very little or no human traffic?

It is our hope that the result of this decisionmaking process will be a more open and safe experience for all recreation enthusiasts and a decision that is based on reliable data.

Thank you for your conscientious consideration.

Tom Moody



4 Pointe Reyes

Laguna Niguel, CA 92677

From: Mike Forguson
To: caisdrmp@ca.blm.gov; caisdrmp@ca.blm.gov
Subject: Comments on proposed ISDRA plans
Date: 06/14/2010 06:07 PM

As an offroad enthusiast I am obviously somewhat biased towards a plan that allows for the most open riding available to riders, and thus favor plans 1,4,5,7,and 8. However, also being an enviromentally minded person I understand that there is a need to both protect and provide an area for all species of plants/animals that reside in the same area. Being caught teetering on both sides of the fence I find that I am not much diiferent than most off road enthusiasts. Most off road enthusiast are not the destroyers of habitat as some people have portrayed them as, but instead tend to care for their riding areas and attempt to "tread lightly" as they know that the beauty and diveristy of these areas are part of the enjoyment of riding in them. Also, there is thought the thought of providing enviromentally friendly energy. Given the winds and abundance of sunshine at the ISDRA, the ISDRA would be a perfect sight to pursue both of these avenues. Though it is not the plan for the most open riding area, I would tend to favor Plan 8, as it provides sights for renewable eneragy, opens up more area to riding, provides ample closed area for the protection of species of plants/animals, and opens up a thoroughfare that links the north and south sides of the ISDRA which most riders have sought since the closure. I for one am extremely excited of the possibility to ride between the two sights, as there are many sights and points of interest that myself and my family have not had the opprotunity to enjoy.

Thank You,
Mike forguson

From: Tom Emerson
To: caisdrmp@ca.blm.gov
Subject: ISDRAMP
Date: 06/11/2010 11:44 AM

Dear Sir/Ms.,
I am writing to support Alternative #1, no more closures. I believe the existing closures are unnecessary as evidenced by the PMV growth in OHV areas, but am willing to accept the existing closures. My main concern is with the safety of the OHV riders/drivers. Any loss of OHV usage area will increase the rider density in the dunes and increase the risk of collisions. I know that this is a primary concern for you too. I believe it is possible to maintain a safe open area and allow the PMV to co-exist.
Thank you for your consideration of my comments.
Tom J. Emerson

From:	Patricia Villanueva
To:	caisdrmp@ca.blm.gov
Subject:	
Date:	06/09/2010 02:51 PM

Hello
My name is Patricia, and I have been taking my family to Glamis for 20 years now. I now take my grandkids.
I really think this great, place my family has always looked forward to going, has kept my boys out of trouble and in good activities.
While their friends were running around on the weekends, while in high school. All my family could do is look forward to our weekends at Glamis. It really has kept our family very close. My grandkids all have quads now, and enjoy it as much as my kids did. I'm 51 years old and I still ride my Funco.
We have family members come to meet us there from Los Angeles, if it wasn't for this activity we really would not seem them as much. I really think it's a horrible thing to close any part of Glamis, and would love to have the closed part back.
We take great care of it, because we LOVE IT!!
It has become part of our lives, do your kids hang out with your every weekend? this is a great place for family fun

Patty Villanueva
United Realty and Loans Inc
3020 Protea Vista Terrace
Vista, Ca 92084
License #01100323
760-639-1245 ext 105
760-639-1295 Fax
patty@urm1.com

"Life isn't about waiting for the storm to pass. It's about learning to dance in the rain." !

From: Nick Cope
To: caisdrmp@ca.blm.gov
Subject: 2010 Imperial Sand Dunes Recreation Area Management Plan
Date: 06/09/2010 09:13 AM

I am in favor of Alternative 1 and 8.

Nick Cope

License #01363017

United Realty & Loans, Inc.

3020 Protea Vista Ter.

Vista, CA 92084

PH: 760-639-1245

Fax: 760-639-1295

Email: nick@urm1.com

From:	Hilary Paige
To:	caisdrmp@ca.blm.gov
Subject:	OHV Closures
Date:	06/08/2010 01:31 PM

To Whom It May Concern,

Please do not approve the planned OHV Closure of the lands in both the Glamis and Gordons Well areas. Limiting the amount of space will increase the amounts of injury and deaths that will occur.

I have a right to enjoy BLM just as much as any other American. Please let my voice be heard and keep these lands open and free.

--
Hilary Paige
Creative Director/Graphic Designer
http://www.SoupGraphix.com
"When your image matters most - Think Soup."
p: 619-749-7687 x100
f: 619-449-2679
e: hill@soupgraphix.com

From:	Joe Desrosiers
To:	caisdrmp@ca.blm.gov
Cc:	reed92021@yahoo.com
Subject:	FW: Dune closure proposal RAMP responses due by June 23
Date:	06/08/2010 12:45 PM

To all concerned

Please do not make the OHV areas any smaller
As the population increases more space is needed for recreational opportunities not less
Plants and animals can live with noise and dust, people can not live in cities alone
The great wide open spaces are getting sliced into smaller and smaller parcels
This is not good for my business or my family or future families of my children and their children

Sincerely

Joe Desrosiers

From: reed haberer [mailto:reed92021@yahoo.com]
Sent: Tue 6/8/2010 12:19 PM
To: reed
Subject: Dune closure proposal RAMP responses due by June 23

Even if you do not ride dunes these proposals should be fought. They are using vegetation studies to close OHV areas. If you click the attached there is a link to the proposals of which there are 8, another link to the ASA's comments, and lastly a link to tips for reviewing and commenting. The last pages of that document 5-7 show 2 examples and the response address and e-mail.

It is extremely complicated and I believe simple responses such as " I don't like it" with no scientific reference or reference to the RAMP options proposed will not be considered. Frankly I do not know what to write even after reading the documents. I can say several options add more danger to life and limb with proposed corridors in several of the options.

If you have the capacity to comprehend and reply to this please do by 6/23/10. You can e-mail to: caisdrmp@ca.blm.gov

Reed

link to proposal, ASA comments, and tips:

http://www.glamisrampinfo.com/

From:	Steve Hart
To:	caisdrmp@ca.blm.gov
Subject:	RAMP comments
Date:	06/01/2010 02:39 PM

Dear Carrie,

I'm not good at digesting long documents read on this computer. So, I had a friend order hard copies of the new RAMP and EIS just after they became available. They haven't arrived yet. Therefore, the comments in this are based upon things read in the old RAMP proposal, in current ASA newsletters, and on 38 years of me being an ISDRA user.

First, I would choose the Alternative with the least amount of closures. I have many reasons for objecting to the closures. The main one is safety. I got out my calculator awhile back and estimated the following: On a major holiday weekend, if all off-road vehicles were ever out in the dunes at the same time using currently open areas, there would be about 1.5 vehicles per acre. This would be okay in some recreation areas, but not at the ISDRA where speed is often a dune maneuvering factor. In other words, the recent closures only make duning a more dangerous experience.

Second, if the central Adaptive Management Area doesn't go away, I would like to see the southern boundary moved about a half mile north. This is currently too close to Patton Valley and that half mile wide area contains some of the best ever dunes.

Third, I would like to have you somehow make the new RAMP more flexible. I've heard that most of the new RAMP will be cast in concrete for up to 15 years. I think doing this would cause unimaginable problems. So, I would allow changes every two or three years, depending upon the strength of public out-cry.

Fourth, I would like for you to do your best to keep politics out of RAMP and ISDRA decisions. The ISDRA is just that – a recreation area – and one where the majority plays in or on off-road machines. So, please listen hardest to comments from this majority.

Finally and back to the safety issue, I think a list of ISDRA rules and/or laws should be printed on the back of camping permits or on a flyer gotten with each permit. By doing this you would remind us old-timers and help educate newcomers about what's new and/or expected.

Respectfully,

Steve Hart
Tucson, AZ
paynin thears@mac.com

From: robert
To: caisdrmp@ca.blm.gov
Subject: IRSDA
Date: 05/31/2010 11:40 PM

This letter is to inform the BLM of my opinion on the upcoming RAMP.

Alternative #1 is what I think would be the best for the people and the BLM .

More dunes to use and ride = more people in the dunes

More people in the dunes = more revenue for the BLM.

In this economic time the BLM. Has to come up with ways to get more people to the dunes. so the dunes will support the BLM.

I am sending this email from Iraq where I am in support of the us army .

Thank you for the opportunity to comment on this issue .

Robert Harrison

From: Dan H
To: caisdrmp@ca.blm.gov
Subject: Imperial Sand Dunes
Date: 05/29/2010 10:36 AM

Is there anything I can do to, to help get area's opened back up that were closed by the milk weed study?
And , with getting more areas provided to camp?
Sent from my iPhone

From: waterboyzxi@cox.net
To: caisdrmp@ca.blm.gov
Subject: Closeure
Date: 05/28/2010 08:02 AM

Draft Imperial Sand Dunes Recreation Area Management Plan

I have the following comments on the Draft RAMP/Draft EIS (dated March 2010):

The BLM's preferred alternative (i.e. Alternative No. 8) has the following positive aspects:

1. The total amount of dune closure area is greatly reduced.
2. The 'donut hole' closure is re-opened
3. Excluding energy and mineral resources development from OHV areas

However, Alternative No. 8 will have the following far-reaching negative impacts to the OHV community that must cause the BLM to reconsider Alternative 8 as its preferred alternative:

1. Total closure of Washes 26 through 69, and conditional closure of Dune Buggy Flats to camping will cause higher concentrations of campers/duners to inhabit remaining camping areas. This is unacceptable from a safety and aesthetic perspective without the BLM providing additional developed camping areas in the Gordon's Well and Glamis areas to keep such concentrations in check (e.g. additional developed camping areas west of Gecko Road, between the canal and Gecko Road; paving the new wash road; and developing areas within the washes).
2. The proposed PMV closure is not conducive to east-west travel along the western edge of the dunes, especially in the area of Gordon's Well. Alternative 8 proposes additional PMV closure areas where they do not exist today. This is unacceptable from a safety and aesthetic perspective. The BLM should reconsider opening the dunes between Hwy 78 and Hwy 8, pursuant to Alternative 1, with the provision of off-site mitigation for the PMV. This concept of acquiring off-site mitigation areas is common practice when dealing with the need to mitigate negative environmental effects of a specified activity. This concept of acquiring off-site mitigation areas for the PMV is a reasonable solution, and could potentially provide additional PMV areas over and above what is proposed as part of Alternative 8.

Again, the BLM must reconsider Alternative 8 of its Draft RAMP/EIS as its preferred alternative, since Alternative 8 will result in unacceptable safety and aesthetic conditions. My recommendation for a preferred alternative is Alternative 1, and I imagine most duners/campers would agree with me on this. But I am aware that life is full of compromises; so with this in mind, I think Alternative 7 provides an acceptable compromise to all stakeholders- the BLM, CDFG, FWS, duners, campers, etc. With Alternative 7, all existing camping areas remain open, and dune closures are drastically reduced. In addition, Alternative 7 includes a relatively large PMV closure that would not disrupt most OHV activities. A slight modification to Alternative 7 that allows several marked corridors of east-west travel through the closure area would be even better and would enhance OHV safety.

Thanks for your consideration of my comments. Please work with the OHV community to keep the Imperial Sand Dunes a world class OHV recreation area.

Tom Wallace
1501 York Pl.
Escondido, CA 92027
760-746-7561

STEVE HEWITT: Steve Hewitt, S-T-E-V-E, H-E-W-I-T-T. I am with the California Off Road Vehicle Association. And, forgive me, I haven't had a chance to go through the entire plan yet. Obviously 800 pages. On all the alternatives that actually allow OHV use, you're going to also allow leasing for renewable energy. Is mitigation involved in that? Are you guys going to mitigate -- if you take the land from the OHV use are you going to allow us more land somewhere else, which we don't want to see somewhere else.

TRACY CUMMINS: What would determine what changes the alternative plan if it's going to be changed? What are the critical issues?

TRACY CUMMINS: Tracy Cummins, like the diesel. I represent my friends, family. First question I got is looking at the map I don't see anything in the closures that addresses the Pierson's Milkvetch in the Dunebuggy Flats area, but it's one of the areas that you want to close right off on this plan because of the rainfall, why is that?

And, number two, I know trash service we haven't spoke about much, but trash is very important because people clean up after themselves and maybe we could address the fact that on non-busy weekends you have of a lot dumpsters that nobody uses that I know you're paying to dump. Maybe we could manage that a bit to reduce the cost. Thanks for listening to us.

OSMAN CASTILLO: My name is Osman Castillo, San Juan Capistrano, California.

OSMAN CASTILLO: O-S-M-A-N, C-A-S-T-I-L-L-O. I want to thank the board for this opportunity to express our opinions and I would like to echo some of the comments that were done here, especially on the access restrictions that we're seeming to lose.

One of the issues that I have is it seems that the only alternative that we see here presented in such beautiful fashion is Alternative 8, which seems to be the alternative you guys want to push upon us. I don't see any of the alternatives, you know, laid out in such a way, so it's very hard to comment on those or look across those. I wonder why that is that only one alternative is presented in that way. And I think you should have all alternatives posted there so everyone can look at them, get a better idea of what other people have planned. I can only assume there is pretty much a disposition that this is the alternative they're going to go with.

How are you going to mitigate the loss of the camping that is going to be -- going to happen with Alternative 8. Are you going to somehow designate that there will be some expansion on the existing campsites? Will there be an

expansion or a creation of more pads along Gecko Road? It's a costly item. I know it's somewhere like a million dollars per mile for roads. So there's huge impact costs there.

These need to looked at. If you're going to take away all the camping area you have to finds some other place to give the people the opportunity to put that place somewhere.

One of the other issues I would like to cover is has there been any thought on some way to get access back to Boardmanville. I'm sure that Boardmanville has lost considerable money over the last year since they cut off the access underneath the Washton (phonetic) Road. And the Highway Patrol, I understand, has hesitated on giving dual usage on Highway 78 where it cross the railroad tracks because of the truck traffic.

So in lieu of that how are we going to go Ted Kipf Road designated as dual use so that people can legally get to Boardmanville, which is an iconic place for many, many years and it's part of the landscape that Glamis can be for the Imperial Sand Dunes, whether that is an underpass under the railroad track or an overpass, as they have one over by the Buttercup area. You know, one of those things needs to be looked at and some kind of funding needs to be established for that.

I would also encourage you to keep the trash collection there. I know there's many proposals to take and pack the trash out and those are good intentions, but I'm afraid that by not having adequate trash containers there, it will just lead to a degradation of the areas beauty that has really enhanced over the last ten years.

I've been going to the Imperial Sand Dunes for 20 plus years and I would have to say it's probably one of the cleanest places I have seen in those 20 years. We have really done a great job as a community to clean the place up and keep it maintained. And I believe the off-road community has really turned into the environmentalists and the stewards of the land that we should have always been.

I hope that you will give that some considering and thank you for your time.

TERRY WEINER: Hello, my name is Terry Weiner, W-E-I-N-E-R. I work for the Desert Protective Counsel of San Diego, California. And I am really just familiarizing myself with the documents so I'm not ready to make any comments, but do I have some questions. Can you hear me okay?

On the air quality issues, I have been following the Imperial County Air Pollution Control District, couple of years of doing their state implementation plan. Imperial County there is the ozone and imparticulates and -- large and small. And recently the EPA decided that they didn't approve of all the sections of their SIP. And one of the areas that they addressed was the Rule 800, which I understood before allows BLM to not to have to take into consideration their particulate pollution from OHV activities, but from what I understand now the EPA is directing Imperial County to work on particulates from open areas during times of year when it's very dry. So I don't see in this document where you're taking into account that that recent decision by EPA. Do you have to consider that or does -- is that all in the hands of the county?

TERRY WEINER: SO would that be in here, dust control?

TERRY WEINER: So that might change depending on what the EPA decides?

TERRY WEINER: Are you going to be putting up air quality monitors to monitor particulates in the dunes?

TERRY WEINER: Who can I ask?

TERRY WEINER: I have a question. I don't understand the word de minimus. Can somebody tell me what that means, threshold level de minimus in requiring full conformity." You mentioned that within regard to the minimal rainfall camping areas.

TERRY WEINER: I thought we were on luxury time.

TERRY WEINER: I'm sorry.

TERRY WEINER: I thought we were okay.

TERRY WEINER: You are a gentleman.

TERRY WEINER: I just have that -- I do have one other comment. I'm going to be looking in the documents to see about the Algodones Dunes a landmark at the ranger station that refers to the dunes as a national and natural landmark. And is that still there? Does that still hold, that designation? That ties into my interest in having the recreational needs of other communities besides OHV. And I respect the need of the OHV community and the use that's been traditional there but I

want to make sure that us hikers, you know, us idiots that want to walk across the dunes sometimes have like -- we don't have bathrooms in the wilderness areas. We don't have places to park. There's no toilets and no trash cans or anything, there are people out there who think the dunes are beautiful and want to explore them by foot and I know the wilderness is available to do that but there's no facilities there. So, by the way, when we go hiking we have to pay $25 a day, too.

WILLIAM REEF: William Reeff and that's spelled, R-E-E-F-F. I'm a member of the ASA and a family organization that comes out and we generally ride the south section of the dunes. I noticed on the view plan over there, I don't think all the areas are getting mentioned for closures. On Olgleby Road just disappeared through wind development, according to your page. Your dispersing a lot more people than I think are going to know. I think it's mainly concerned with the north dunes. There's a lot of people in the southeast dunes that are going to be looking for a new home.

Also the other question I have is what grandfather type clause guarantee are we going to have for 90 years or 99 years that this is how it's going to be, no one is going to come back in 10 years and "let's change it again." That's all I got. Thank you.

WILLIAM REEFF: William Reeff, again. On the southeast corner of the dunes you were saying that it will be actually opened more to camping. However, you have a huge area that's designated for geothermal and wind power. So how is that going to give us camping if we have facilities in place.

WILLIAM REEFF: So from Olgleby to the

west, that whole area would be -- up toward Olgleby camp, that would be opened up for more camping?

MITCH TEBLIN: Hello, my name is Mitch Teblin, T-E-B-L-I-N. I want to thank you folks for all the efforts you put in. Also want to thank you folks for the work you put together and pulling that road together on the wash road, that's made a big difference, but, again, even that took away camping. I want to thank you, again, for keeping trash cans open, too. That's another big thing to us. And I wouldn't mind paying if I had to to dispose of my trash. So I'm sure plenty of other people here wouldn't mind dropping a dollar or two into a bucket to help pay for that if that's what it comes down to.

But I want to go ahead and ask you folks, you're doing this here, you're doing this in Arizona and you're missing out on big group of people in Riverside County, San Bernardino County, LA County. My friend and I drove up from Orange County. He took off work early so he could be here. How is this getting public comment. I'm just a little concerned that the word hasn't gotten out to everybody. And I don't see anybody else, show of hands, how many people are here from outside San Diego County.

So my concern is about the camping. And in area in society when you group people together, be it in a park, be it in a prison, be it

anywhere, you have problems. And what you're doing right now is you are creating a problem for us campers. Like all the rest of these fine people here, we don't keep our music up loud, we don't go and race past people's camps, but there's a lot of people that do and they do it because they're all crowded in, making all kinds of noise where otherwise you wouldn't even be hearing them.

So in order to keep the family values that we all like that we want our kids to be able to enjoy, we want our grandkids to be able to enjoy. You got to open up more camping. That's the problem with the recommended planning.

GENE TELWELL: Hi, my name is Gene Telwell, T-E-L-W-E-L-L, G-E-N-E. I, too, am a 40 year off-roader representing myself, my children and my grandchildren. This has been a family function for us for quite some time and some of our concerns have already been brought up by the rest of the group. My concern is that -- and I'm really applauding on how the plan is coming together, but I think working together between all of our concerns. We're all environmentalists and we want clear air and water. We want protection. This is our land, but we're just great stewards of the land just as well as anyone else, probably better. And, you know, some of the wash areas and the wood microphylled areas absolutely are protected. It's not like we can camp right on top of some of those tress and some of the other bushes that are out there. So I think we can still mitigate some of the camping by utilizing some of the wash area.

My other concern is the mitigation through -- if you are going to close off the PMV area, that you have some designated routes through those places so the traffic can get in between and we don't want to hurt it anymore then we have to. Thank you for your time.

GENE TELWELL: Gene Telwell, again. My question is after reviewing the public comment will

you be taking a look at perhaps some of the public input around maybe altering this Alternative 8 opportunity kind of take advantage of everything that you've seen? Is that what I'm hearing?

STEVE CODY: Good evening, my name is Steve Cody, C-O-D-Y, member of CORVA, California Off-Road Vehicle Association. Member of the American SAM Association. Member of San Diego Off-Road Coalition. Member of the National Hotrod Association. I'm 60 year's old. I've been going to the desert since I was about ten years old. I remember when BLM came in and closed off Highway 78 and said, "Well, we're going to do this. We're going to have the rest of the desert. We're going to protect" whatever they're protecting at the time. I think at that time it was the desert tortoise or lizard or something, but we were told that we were going to have the sand dunes south of the 78 in perpetuity.

Obviously the trend now is we off-roaders keep giving and we keep sacrificing our areas and we're made into criminals because we're denied access to the dunes that we pay for with our green sticker fees and our vehicle registration. We have always gotten the short end of the stick on this deal because we never hear from you folks, "We're going give something new to you. We're going to open something up." It's all taking away and taking away. There are Milkvetch and tortoise and other areas that the military uses. And now you're talking about geothermal wind, whatever.

It's always taking away from us. And I sure would like to see you defend us because without us you don't have a job.

STEVE CODY: Steve Cody, C-O-D-Y. I have a question I guess for you Neil. This proposal is -- basically all of them have some degree of closure. What is the term of this closure, in other words, when it's done, is it done for perpetuity or is there any kind of grandfather clause that they would come back at another time, because we're talking about a weed that probably going to grow and that is going to die over the course of this and the physicality of it is going to change. And if we close massive quantities of dunes and then this weed takes over and spread from Glamis to Brawley then we lost our dunes when we probably didn't need to.

Do you address what the length of these closures plan to be?

STEVE CODY: You didn't answer it. What is the length of this document if it's adopted? Is it never ever, my grandkids are never going to see the dunes that I used to grow up in or is there going to be a grandfather clause where it will be reassessed at a later date?

STEVE CODY: Can you say yes or no?

STEVE CODY: So whatever you decide to

do, my kids are going to have to live with it until they are in their mid-30's before it's re-looked at again?

STEVE CODY: Trust me, you don't want to. So what I'm saying -- you know, what I see here is a lot of bureaucracy that is very tunnel vision about how to do things. You know, you have the power to close so that's what you think of is close, close, close. I haven't heard -- the one gentleman said, "we have an idea. We'll go out and plant a Milkvetch farm and we will have this stuff up to our butt forever and you will have it from Glamis to Brawley." Have you guys ever thought of that? No. Why is always we have to close everything. That's the only answer you have come up with is to close stuff. When are you going to start thinking outside of the box, because when these things happen, it happens for a long, long time. And I remember back when I was a kid and they closed north of 78 and they said, "that's it, we're done. You guys can have that whole south area." And we have gotten nickled and dimed, a thousand areas here and five hundred acres there. And now it just keeps going on and on.

When is it going to stop? And have you ever thought about having a grandfather clause that says that we really need to look at this instead of

making up a bad idea and adopting it and setting it in stone.

STEVE CODY: That's not the answer I was looking for. It's your job, in my opinion, to come up with other alternatives. Think outside the box. I'm not a professional. I'm a professional off-roader, but I'm not a professional in off-road management, that's your job. You guys remind me of like a cop. He has a gun so his first thing he reacts to everything is "I got a gun, I better shoot somebody."

It's the same thing, you guys have the opportunity and the power to close things and that's the first gun you draw is to close stuff instead of thinking maybe we should start a Milkvetch farm or maybe we should put a windmill somewhere outside the sand dunes, which is probably an unlikely place to have any benefits.

I just see this bureaucracy with always the same answer, "we got to close the desert. We got to kick these people out. We're not going to give them anything else. We're going to keep closing and closing and closing." I'm done. Thank you for your time.

WILLIAM WHITE: My name is Bill White. I've been an off-roader for over 40 years, B-I-L-L, W-H-I-T-E. I'm here representing my family and friends. We've been going to the dunes since I was a little kid with my grandparents, dad and kids now. And I have some concerns that you haven't looked and explored all the opportunities and all the alternatives.

One of the items is the closed area, the Pierson's Milkvetch, is being identified in every one of the alternatives. And you really do need to listen to what one of the gentleman said and identify corridors in there so we can get into the areas in the sand dunes. And then, if necessary, take that habitat and mitigate it in another area either around the perimeter in another location where it's not going to be impacted. Businesses here in Southern California and other parts of California that is a requirement in time we go and impact sensitive habitat we have to mitigate elsewhere. I'm sure that can be done here in this case. And I would be willing to personally volunteer to replant Milkvetch if necessary.

I'm also concerned about the minerals in the geothermal. Right now Johnson Valley and Stoddard Valley in the Barstow area is under attack and is potentially going to be closed as well.

It's one of the only areas that is open.

Right now the military is wanting to use as well as a windmill farm. So it's another situation where you've got entities that are either in there to make a buck or look out for their own interests. And they're coming into areas that are right now are exclusive to off-road where they have other areas that they can use and they're going to be being booting us out and I don't think that's something that's reasonable.

Once again, it's been re-iterated. We need land. The population of off-roaders over the last ten years increased five times. And the area, at least in Glamis, has been reduced by 100 percent. It's much too dangerous now. I grew up riding motorcycles, have been doing it for years and right now I feel much more comfortable with my son in a off-road cage and I feel bad about that because he can't share the same things that I do.

There is a couple of other items that we need to be careful and provide more explanation on. One of them is on the wood collection. I think that's something nobody has touched on yet. There are going to be restriction on wood collection. Also on the VRM, if you go and look at the Visual Resource Management, there's a number of items identified in there that are somewhat

subjective and I'd like to make sure that subjectivity doesn't come back and bite us later on where somebody could look at that and say it's not meeting the goals that have been established for the Visual Resource Management area and somebody decides to come in and close it later on. Thank you.

WILLIAM WHITE: Can I just say one thing?

WILLIAM WHITE: How many people out here --

WILLIAM WHITE: How many people here currently camp out at Mammoth Wash? This is just something I don't know if you've looked at it, and honestly in the time I have been out there I haven't made up to Mammoth Wash yet. It's something I'm going to do. But this is just something I wanted to throw out there is that Mammoth Wash, although there are some people that use Mammoth Wash, is not utilized as much as the other remaining portions of the dunes. Although the Pierson's Milkvetch has been identified as the portion of the dunes that is used most, it hasn't even been studied to look at completely opening up the dunes south of Highway 78 and then taking some of that area that's being proposed up on the north at Mammoth Wash and establishing that habitat for

the Pierson's Milkvetch up there and then leave everything on that end open and give us everything from 78 to the border.

Mitigation banks, if you want to call it that, is not new. This is something that has been around for a long time. A lot of people and organizations and corporations and things like that have done it either by out of pocket to pay for developing or as by groups such as the Sierra Club and stuff like that that takes time to go out and fix different areas. I ask that you please look into that.

The last comment I have is regarding the gentleman's comment about public notification. I went on the website today and looked up the calendar of events and there's nothing on there regarding this event. I did ultimately find it going kind of roundabout, if you go on the BLM's website, go to California, and then calendar of events, it's not on there and neither is the El Centro meeting. That's something you might my want to look at because I know there are a lot of people that were not aware of the meeting. Thank you.

CAROL BOHL: Hi, my name is Carol Bohl, B-O-H-L. And I have been going out to Gordon's Well to Dunebuggy Flats for over 20 years now and it's been a great family event. We get all the kids together and really have been enjoying it we have a spot where we always go to and everyone knows where it's at. One of my concerns is when we do this rainfall and having you close down areas you're going to dislocate everybody and have them move to a new location, having to let people know where you're going and everything else. It's been a family event going on for quite a while now. Is Buttercup really going to be able to suffice and be able to handle all of the people that are going that way. Now -- and over on that area you got the border that you can't go into and you're now going to be forcing more people into a very, very small area to be riding in. And following up with the other guy's concern that when you're going up and over the dunes and you got another buggy or bikes or whatever, you're actually make everyone at risk for what's going on.

So I'm a little concerned with the rainfall, or the amount of rainfall, will close this area at certain times. We're just a little concerned about closing down the area due to the rainfall.

And one other questions is, you are going to be raising the price on the areas out there to $25 a night; is that correct, versus having it be 90 dollars a fee for the year? That's going to be -- that's going to be a huge increase for what it's going to cost a family going out there.

And the third point I would like to bring up, if by changing the dynamics of the dune area it will also effect businesses. There is a large business industry that is supported by the area. Thank you.

CHUCK HATTAWAY: Hi, Chuck Hattaway, H-A-T-T-A-W-A-Y with the ASA. I'm wondering, why not use BLM staff to enforce the PMV protection suggested in the plan during the infrequent rainfall period?

And has the BLM evaluated the economic impact of a camping closure on businesses, vendors and the local community?

Is the BLM actually required by law to close the PMV designated critical habitat?

And the U.S. Fish and Wildlife Services reports indicates that OHV impacts less than one percent of the PMV in the open area so why close any of it anyway?

ROGER HAYES: Roger Hayes, H-A-Y-E-S. I guess it was addressed as far as you're going to displace us in these camping areas, which you are going to do. Gecko Road I know for a long time there's always been plans to open that up to more camping. You did a wonderful job of the road going down to the wash, that has really helped a lot, but now it sounds like a lot of that is going to be taken away and there was a lot of money spent on that road. Gecko Road, there is a lot more area for -- open for pads and stuff. I know it was proposed at one time to take that down a lot further than Roadrunner. Has that been studied to give us more access there?

And, also, I'm not aware of how much more area is going to be opened up to us riders as far as the dunes go. My concern has been for the last, since all this has closed, is the safety of riding out there. I know I lead my group all the time, and I don't know how many times it used to be I could ride, I could ride comfortably and go up over, have a good time. Now I'm on edge all the time worried about -- because you've compacted us in such a small area now and the number of people have probably tripled out there to where now when we ride it's not safe because you've taken away a lot our riding area. And I think you need to look

at the area and try to give us even more back because it's only getting worse. It's only getting to be more people. And it's going to continue to be unsafe out there until we get that area opened up more.

As far as the camping, also you really -- it's getting to be compacted to campers. There's a lot more rowdiness. A lot more fireworks out there and it's dangerous and people are launching these fireworks and gasoline is sitting all over the place. A lot of high volatile fuel and the more you compact us to smaller areas the worst it's going to get. I know I called a few times about the fireworks and we get no response at night. It's like the Sheriff, the BLM, everybody goes home and there is nothing to protect us legitimate campers with families that want to get a good night sleep. And if I you continue to put smaller areas, both camping and riding, it's only going to get worse. Thank you.

BRIEN PARISEAU: Brien Pariseau, P, as in Paul, A-R-I-S-E-A-U. Brien, B-R-I-E-N. I just represent myself. I have one thing I would like to mention is that your preferred plan, Alternative 8, what's to keep the other side from suing BLM again like they did the last time? What can we do as a group to try and prevent that? That's it.

HOWARD BUSWELL: My name is Howard Buswell, B-U-S-W-E-L-L. Next year will be my 40th year of going to Glamis Sand Dunes. My whole family is into off-roading. All of my friends are into off-roading. A lot of them are here tonight. Excuse me, since you guys are more interested in fact and science than opinion I'll change my format a little bit. But in trying to learn more about the Pierson's Milkvetch was the big reason that all this closer has to deal with, I did some research and Don Fife, who is a geologist with eight years of service advisor to four secretaries of state states that the Pierson's Milkvetch is the same obnoxious weed that farmers have been trying to eradicate for the last Century. He goes on to state in his report that the Pierson's Milkvetch can not only cause blindness, illusions, birth defects, and death, not only in humans, but in animals.

Has any research been done what this will do if the tortoise eats it? We have tortoise habitat on both sides of Glamis. We have it in all three bombing ranges that are listed on the map. What is that going to do to the endangered species tortoise? That's all I have to say. Thank you.

JOHN STEWART: Good evening, John Stewart, S-T-E-W-A-R-T. I'm a resource consultant for the California Association of Four-Wheel Drive Clubs. I have concerns when you start talking about the solar energy and wind energy resources out there and what the potential impacts are. It just begs the question, have you received any proposals for wind and/or solar projects in that specific area or near the area? I think this is something that should be made available to the public as soon as possible just so we can help -- help us determine what kind of future comments would be structured around that.

Also, looking at the camping closures in the Dunebuggy Flats and in the microphyll woodlands area, it is one thing if you're going to close an area to protect a resource such as the Pierson's Milkvetch, but when you start closing areas which are currently used as camping you're going to be displacing people to somewhere else. Please provide an alternative for them to go to, whether that means extending your opening area on to the east side of the railroad tracks and providing access, legal access, either over or under the railroad tracks, but accommodate the camping areas that you are projecting to close. That's why people go out there, for the camping

opportunity. Thank you.

MITCHELL WEISS: My name is Mitchell Weiss. I'm here as a family man with a young son and also I have a small business that caters to off-roaders across the country. I have two comments. One, if we're making a world-class off-road facility why do we have to have solar and alternative energy things around it? Why can't it be in the other hundreds of thousands of miles of desert that we have here in California instead of in that area?

Secondly, I applaud you for opening up more land as compared to what we have in the current large closure in the donut. We're looking at a nine mile wide area that's going to be closed. Why don't you put a couple outlets through it so that people can get from one side to the other without trampling on all the PMV that's out there. I think that would be beneficial to everyone. I think it would enhance the closed areas if people can get from one side to the other without doing it illegal. And that's all I have to say. Thank you very much.

JOHN BOX: My name is John Box. I'm a native Californian. You may find it interesting that I too am a federal employee. I am proud to say that I was appointed by the President of the United States to serve this great country. Although I have great honor working for the President, today I am speaking as an individual.

First of all, I would like to applaud this committee for the tremendous amount of work accomplished.

I'm here before you today to beg for your understanding and response with regard to the Imperial Sand Dunes. I have been enjoying and respecting the Imperial Sand Dunes with friends and family for over 25 years. The majority of the people you are trying to restrict are just like you and I. They are good people with pride and joy that are trying to raise quality families in a chaotic world. The family values that this country once took for granted are also endangered and should also be protected.

First of all, I'm not an expert regarding issues that are before the committee. With that said I have a few questions and concerns. It seems that the current should be considered: Pierson's Milkvetch Preservation, PMV. I'll be brief. If the PMV plant is the vital reason for

changing the use of Imperial Sand Dunes, I would like to recommend that this commission accept research that may allow the PMV be transplanted and flourish in the areas that are not populated.

With that said, as I understand even with the OHV use in the past 25 years, the PMV's population still not been affected. Have members of this commission actually been to the Imperial Sand Dunes to see the large number of plants growing in open and closer areas? Reference information can be found in study conducted by the U.S. Fish and Wildlife Service that less than one percent of the PMV open area are affected by OHV's.

Another paragraph. Economic Impact. Also, please don't underestimate the economic impact of changes proposed. If I am correct in the amount of money spent by this group, it is approximately ten billion dollars annually. And the money is spent nationwide across various industries from raw materials to finished goods and services. And, as I understand, President Obama and his administration is trying hard to get this economy moving. It would be counterproductive to choose an independent path.

I have a couple more questions. Does the Endangered Species Act provide for the proposed extraordinary protection with the Act? Is there

specific support for the proposed closures for any reason? Finally, will additional camping areas be provided to offset any proposed closures.

Since I am out of time, I'm going to stop.

JOHN BOX: John Box. Thank you for letting me speak to the first public hearing in my life that I ever got to continue. Usually it's "get out of here," so thank you for that.

Basically just two short paragraphs.

Based on facts that you have --

JOHN BOX: Sorry, John Box, B as in boy, O-X.

Based on facts that you have before you it is clear the OHV are not impacting the survival of PMV and that OHV are increasing in numbers nationwide. Therefore, I would ask that this committee further explore a plan to allow more people, not less, to access the Imperial Sand Dunes for cultural and economic reasons.

In closing, I challenge this committee to pursue a democratic decision process by responding to the majority that is before you today. Thank you.

JOHN BOX: First of all, thank you for being so gracious with the ability to ask questions, and, you know, learn from our point of

view.

My question is, in regards to the plan, and your guys' meetings when you sit down as a group and invite federal agencies and state agencies to participate in this process, and now you've invited the public to participate in this process.

From a legal point of view, what weight is given to each of those agencies and the public? If there's all of sitting in the room and come up with an idea, whose idea surfaces from the top from a legal point of view and why?

LISA MARKLEY: Lisa Markley, L-I-S-A, M-A-R-K-L-E-Y, from Ranch Santa Margarita, California. I just have two comments. The first one, whatever plan is determined I would like to know what kind of guarantees we're going to have as users that they're not going to come back and change it, especially within regards to the renewable energy and designated areas that are considered, you know, like Pierson's Milkvetch, those things tend to grow over time. So as a user I think we would like some kind of guarantee or something that has us in the cards.

And also I'm -- just as a comment, you know closers are expensive. They don't seem to be maintained very well. And I think over the last ten years all work that we have been doing I just don't think they are really necessary and I hope whatever happens it works and everyone is happy. So thank you for giving me the time.

PETE BUELL: My name is Pete Buell. You spell that B-U-E-L-L. I'm concerned about the closer of Dunebuggy Flats during the wet season. Obviously we go there during the wet season because we don't go out there between July and August because it's way too hot. And it's kind of unfair that you are going to close it during the prime season where people go because it's too hot there and no one is going to go during the hot season. You know, lots of duners go out there where people get dehydrated and such. I don't think that's fair to people who go to Dunebuggy Flats. Lots of people go there and to limit the access to Dunebuggy Flats -- because you always shut off the camping on the other side of the bridge, which you said before we couldn't camp there before because of the lizard and the next thing you know there's a canal. I don't see the impact of a canal but I'm just concerned that it's been unfair because we have been respectful of closed areas and I think that we should get some benefit of the fact that we -- we respected the closed areas and now it seems like we're getting -- we're not be respected because we respected the area and now we're just getting the shorthand of the stick because it rains or something. We don't know care if it rains. We still ride. Thank you.

PETER BUELL: I did speak before.

PETER BUELL: Thank you. My name is Pete Buell, B-U-E-L-L. I wanted to comment on some comments I heard earlier about dust and particulate matters, because it doesn't take a rocket scientist to figure out why the sand dunes because the wind one way, the wind blows another way. I've been out there hundreds of time where I have had more dust on my face, not from off-roading, but from the winds. That's why the sand dunes are there. So it's a natural phenomenon that there's more dust from nature than us digging it up or driving through it, from riding through it. So I don't think that's a fair statement to say that we're riding through it and causing dust, because it's more dust caused by just Mother Nature itself. And for people who want to hike through the area there's a wilderness area where there's nobody riding and to be out of harms way of being run over or having someplace to hide or camp and have a good time. Why can't you use the wilderness area because that's -- you know, you go hiking in the Sierra Nevada's you going hiking in the wilderness areas.

There is nobody going through the Sierra Nevada's to hike or to ride that will run you over. I mean there's -- places in the

mountains which are wilderness areas that people could go and do their thing. We're just asking to do our thing in an OHV area and to have two of them in the same place just doesn't make any sense, where there is an area where somebody can do their own hiking. The dust system is just Mother Nature. Thank you.

KENNETH HASKINS: Kenneth, K-E-N-N-E-T-H, Haskins, H-A-S-K-I-N-S. I just represent family and friends. My question -- I have a couple of questions actually. With the dune closers from 25 to -- what was it, the camping closer, 25 to whatever it is, where are the people that were utilizing those spaces? Have you made allocation for them when they move to a different area in the dune, for one, and a comment that I have is the potential of a -- I mean the potential of a cash cow you guys have out there for the State of California is huge. Why don't you guys develop Gecko Road a little bit better, utilize some better spots for the pads and charge what you charge in the state parks, 25 bucks a night. People are going to go out there. Even a camping fee like that. Then you would have the money to manage the dunes correctly and maybe control some of the litter issues and the rowdiness that takes place. I think you put a lot of thought into this. I don't think that is really going to affect the duners really that much, but take it to the next step, to the next level, you're talking billions of dollars. It's not just San Diego, it's Phoenix, it's Las Vegas, it's Los Angeles. There's lots of people all over from other states even that will be affected economically-wise by the decision that you

guys make. So, thank you very much.

ANDREW PETERSON: Andrew Peterson, P-E-T-E-R-S-O-N. Thank you for taking the time to hear me today.

First of all, the air quality comments from earlier, I ride in Buttercup that's south of the eight, and when I -- I'm kind of frustrated that we get blamed for air quality. OHV's don't produce that much in comparison to Mexico. In Mexico I see fields being burned every time I ride down there and it's very unfair that we're being blamed for particulates in the area when there's fields being burned. There are cars without emission standards. So I think that that's very unfair.

And, second of all, how much does it cost to rent this facility out today? I believe there's better ways to spend money. Do it in a public place. You don't need to spend the money to rent out this hotel. Spend the money on something we can all benefit from. Thank you.

MR. WARE: Steve Ware. S-T-E-V-E, and the last name is W-A-R-E. Thank you, guys. I know trying to put this all together is a lot of work. I know you get pressure from both sides. I wanted to point out, I think everybody has pointed it out that the area from Patton Valley down to what we call the freeway hill, that area of closure is what is a very, very high traffic area.

I look at it and I see better on this thing and I can see better on my computer when I can blow it up. It looks likes it extends into what we call the big dunes. That's the high section of dunes. People ride in this now. I am a little ignorant about it. It didn't seem to me like PMV grows up in the high dunes. It is down in the valleys. That's where they had me count when I was out there counting.

It seems like that area -- and I know that is a Fish and Wildlife Department decision on where that is -- that seems to be pretty far up into the dunes where I wouldn't think that would be a problem. It seems like that purple ought to be for this whole section just from what we call Sand Highway over to where the big dunes start. It seems like that area looks a lot wider to me than what I think it needs to be to protect that point.

The other thing is since you guys did say, I saw it in answer to one of the questions, that it is not required that you close that entire area. I am wondering

and reiterating from Jerry on. I am wondering why we can't leave this area from Patton Valley down open, which is a significant offload of pressure from getting people out and back into Dune Buggy Flats and up into the dunes where most of them run. The area from Patton on out could be the main significant PMV area that you are protecting. I want to reiterate for me that I do think you need some amount of corridors in there to get broken-down pieces in and out. I would hate to pull my two-wheeler from here all the way down. That would be a nightmare. It is not safe.

For safety reasons this is opening up a lot more area for us to ride. It will help them out the amount of traffic in the dunes. If you start forcing a ton of stuff through small areas and the safety aspect kind of goes back away, it would be nice to have a lot more area. You have to give us access to it without putting all the kids in danger.

If there is a way to seriously think about opening Patton Valley down at the end. I take it that is the Valley behind freeway hill, there's probably not a lot of riding that goes on in that area. Maybe if you have some of the valleys that have, that you can close the valleys off and put a northwest passage through the bottom of the Valley where they keep people on the trails.

Some of the other constructive issues that you guys have say stay on the trails in these areas. Stay on the trails if you are going on the really bad ones. Please, seriously think of opening that area up. Thank you very much. I know you put a lot of hard work in on this.

MR. WARE: Steve Ware again. I want to ask it a little different. I think everybody has gone through and talked about this area. I think that we are all in agreement that this is the problem area we see with this.

I guess I want to ask you guys, what would be the most effective way for us to try to get that changed in

this graph that is out now. What can we do to most effectively get our feelings made known to you guys and the people who work and whoever make these decisions? It sounds from what I read on the Internet about this that you guys are asking for comments.

We will take our comments and try to do what we might. I am asking you how can we best support you guys to try to get that to happen? Can you guys answer that?

MR. WARE: We can put together a fairly massive e-mail and comment suggestion and overwhelm you guys. We don't want to do that. Are there select people that we could get information to that would help to try to support our cause? We could do that through one of our organizations that we all belong to.

MR. WARE: The other thing was you have had meetings the last two nights, one in San Diego and one in El Centro. How important was it to those groups? Was it brought up as much by those guys as it was by this group here?

MR. GORMAN: My name is Greg Gorman, G-R-E-G G-O-R-M-A-N. I am a past officer of the American Sand Association. I am representing myself and my family. Just a couple of comments.

First, I wanted to go on record and thank the dune community as well. My son finished the project on the Buttercup station and did the landscaping there. I want to express my apreciation to Erin and the people there. They gave a lot of input on the plans to make sure we did the right thing for the community for funding it. I spent quite a bit of money on it and got quite a bit of donations to help on that. I want to reiterate a couple of comments and then I will be quiet.

The first one is, I think, we have to have a weather station in the critical habitat area. Even just the past Christmas, we only go to the south dunes. This past year we had massive storms running through there. We were thinking we will get soaked and we stood there at Ogilby, I think, and didn't get a drop. Then I drove down to Buttercup to get water and the place was flooded. Even in the space of a mile or so we had a difference of half an inch of rain.

I think it is important for us to get good, valid measurements there. Both ways. There may be times where a storm goes right through the middle that might trigger this 1.8 inches and you get zero at the other end. I think for all of us, we'd feel better if there were one or two rainfall gauges in that space.

I also want to add my comments as well with the corridors. I think there are several that are traditional going into some of the valleys there. Also, there for many, many years and could be argued that they are traditional public access routes that we need to discuss with Fish and Wildlife. People have used them for access for a long time.

I would hate to be a guy broken down halfway in the middle and had to drag all the way out to Ogilby Road and get somebody to bring a trailer all the way around to the other side. That will be really tough. If we are not careful, we will have a lot of people violating that. I think a better approach would be to designate one or two small, narrow routes through there like we have today. We will go a long way to prevent any other expanded damage that we might expect.

Again, also, I think if this goes through with that Wash 25 camping closure, I think we have to have some mitigation immediately on that. I appreciate you guys going out and putting some of that top gravel on the access on the Ogilby. That made a huge difference this year. At Thanksgiving we couldn't get in there. Once that was done, now we can get people in there with rigs and RVs.

The better access we get on that left side, I think will relieve a lot of pressure, when and if you have to close the Dune Buggy Flats. We have to have alternatives on that west side either at Dune Vista or Ogilby. Right now it is too difficult to get in there.

MR. SCHAFFER: My name is Jerry Schaffer. J-E-R-R-Y S-C-H-A-F-F-E-R. A few things. Can we pull up the map of the new closed area. That area we have open now in the Gordon's Well area that goes to Patton Valley, you are going to close that whole area down so we can't get into the dunes. What are the chances of opening that area the way it is open now to the Patton Valley?

I think if you did something like that, most of the people in this room would be very happy. That way the main area that we get into the dunes in the Gordon's Well area, we can access as we are accessing today. I think that would help make everybody happy because it is a give-and-take.

If you close down the whole area going all the way around, what is going to happen is the bad guys, no matter what kind of group you have, you have good guys and bad guys. Most of the guys in this room are good guys. We obey the law. The bad guys are going to cross that and it is going to reflect on us and you will say, well, we gave you a little bit and you ruined it and now we are going to take it all. That's not fair.

The good guys are doing it right. Picking up the trash and doing just what we are supposed to do. If that area would be open in Patton Valley, that way you are not cutting off our necks, we have a little bit to go with.

The camping areas that you are closing down, it is not fair. Where are we supposed to go? You don't have any other roads for us to go to. The other area I was thinking of where they have all the construction on the new canal that they are putting in, if you could go west of that area before you cross the canal where the bridge is and open that up to camping, is that going to be an endangered area as well?

When you are going down Highway 8 before you go over the canal bridge before you get to the Gray's Well turn where all the construction is now, could that area be open to camping?

MR. SCHAFFER: North side of Interstate 8.

MR. SCHAFFER: It is a flat, real small dune area.

MR. SCHAFFER: Coming down Highway 8 on the east side right before you cross over the canal, the bridge on Highway 8.

MR. SCHAFFER: It is all real flat dunes and that will lead into Gordon's Well. Can I come up and show you?

MR. SCHAFFER: This would be across the street from about where Buttercup Valley is. Many years ago, what I was told, they were going to have a little wooden bridge, like what the military used to make for buggies and quads to cross, so they could have access to Buttercup and to Gordon's Well. That turned into the other bridge down here where you have to go where the right way is to cross.

If they would have this underneath the first bridge and just designated for buggies and quads, no motorhomes, no four-wheel drive trucks, nothing. That way

we have access to all this area here and we could do the same type of parking areas as you did with Buttercup over here. All us guys from Arizona, that's where we would go. All the California guys go up there.

MR. SCHAFFER: Thank you.

MR. THRASHER: Bryden, B-R-Y-D-E-N, Thrasher, T-H-R-A-S-H-E-R. I would suggest having some corridors going through there because if somebody breaksdown and you have to go all the way around, that's going to make it tough to get somebody in and out, not only for emergency purposes. Also, at Gordon's Well where at the bottom along the canal, is that going to be all closed off for camping completely?

MR. THRASHER: Yes. Where you come in and go over the canal. On one of the maps it looked like an area would be closed.

MR. THRASHER: One concern, from what I am picking up, you are still lacking some data on some things. When you go down coming from Blythe going to Highway 78, on the right side there's a huge fenced area that had signs on the fence talking about the desert tortoise area.

I find it ironic now that there's a huge mine going in there, or whatever it is, and now you want to close areas off for the Milk-vetch, I just don't understand how you can go and close off the area for a tortoise and close off another area for a plant and then turn around and build a mine here and you won't keep it open over here.

MR. THRASHER: That's it.

MR. THRASHER: Brighton Thrasher. T-H-R-A-S-H-E-R. Looking at the long term, 10, 20, 30 years from now, if you go and close off Dune Buggy Flats and the DMV goes crazy down there, if you open up Ogilby and it starts going off that way, where are you going to draw the line on how much is going to get grown and you get to the point where you close off the whole area? How much do you need before that's it?

MR. THRASHER: The area from Wash 25 dune, is that being closed off just because of birds?

MR. SEAVER: My name is Jerry Seaver. J-E-R-R-Y S-E-A-V-E-R. I would like to start off right where you guys left off on the bird surveys in the mircofill woodlands. On that same page in your reports it states that there is not enough data to tell what the impacts of the OHV are in those areas because most of them have been in the temporary closed areas.

I would like to make the comment that you need more data and to consider before you start closing off the microfill woodlands all the way to Wash 25 and that you would be more flexible with those types of closures in your preferred alternative until you have that data. That's a comment. Not a question.

The other comment I have is on the camping. I know we covered this, but I want to cover this for everybody else's benefit. Where you are closing camping at Dune Buggy Flats and in the microfill woodlands, there is no definition for camping. I would like for you at this time to define what that definition would be. Also, I think it needs to be in what the final definition of camping is.

MR. SEAVER: You don't want to give us the definition today?

MR. SEAVER: We will get to that before the final date, as far as the definition of camping? Would that be possible?

MR. SEAVER: What percentage of the critical habitat is in the wilderness area for the Pierson's Milk-vetch?

MR. SEAVER: The other thing I wanted to hit on is rationale. You have threshold rationale for rainfall or these closures at Dune Buggy Flats. In reading that in what you used to do your averages for the rainfall of 1.82 inches, is goes from 1964 all the way to almost current.

I know we have only had these rain stations at Buttercup and Gecko for less than 10 years. I also know that the way the rainfall happens out at the dunes is very scattered showers. If you are using averages from weather stations, even that weren't at the dunes way back in the 1960s, I don't think you are using a correct number.

Is it your intention to use just the weather stations at Gecko and Buttercup at this point to get your average?

MR. SEAVER: I would hope that we are just use that kind of data. Also, discussion-wise, you have scattered showers. I have monitored the rainfall between Buttercup and Gecko quite often and it varies a lot. You can have rainfall at both those locations and no rainfall in Gecko Flats the way the storms go through there. I would recommend strongly, if you are going to use that criteria that you have a weather station right in the area that are going to use for that trigger to close camping.

Mitigation, real quick. I have 30 seconds. The mitigations you talked about, Neil, on page 9 for that closure says that you will do all those things that you mentioned if funds are available. If you are going to use it for mitigation, shouldn't you have them in place at the same time you propose closing Dune Buggy Flats. I make that a recommendation that that should be in place, if that is the situation.

MR. SEAVER: Jerry Seaver, S-E-A-V-E-R. We have been through all this delisting and you know as well as I do what you just said is not true. They don't care how many plants are out there. They don't care how many plants are there under recovery plants at this point.

One of the sticking points is we can't prove this plant grows any place other than Imperial Sand Recreation Area. When we have an extraordinary rain year, we have found plants all over the place. I have to correct you. I don't want people to leave here with that impression because that's not true.

MR. SEAVER: I hope that you guys will take into consideration and let this be data-driven in a sense. Common sense is telling us all that you are here as far as the southern closure of the critical habitat. Common sense tells us the data doesn't support that. This is a problem. I understand what the BLM is trying to do as far as protect themselves as far as litigation-wise.

The U.S. Fish and Wildlife Service is going to go along with as much area closed off as possible. That's the safest position to take. The data doesn't support that. When these areas have been open all this time -- and I think Tim Wight went through this, too -- when they have been open all this time and PMV is doing very, very well, I hope that you let this be data-driven and not driven by the fire of litigation.

It will go to litigation anyway, most likely. If it gets in litigation, that is data-driven, it should prove for itself. Let's use some common sense and let it be data-driven as far as some of the decisions you are doing on the critical habitat being closed and even with this rainfall extraordinary means that you are looking at for protection of DMV.

MR. SEAVER: Jerry Seaver. In the draft RAMP you list a bunch of the reports that you are drawing data from.

BLM reports, West Tech and Ecos. Bolsa Associates, which was one of the reports that ASA put out. There's no references to any of the reports that Philips has done on the PMV. I would hope that you would include that data because it supports some of your own data and, again, like I said, I hope most of these decisions are data-driven and not trying to stay out of litigation.

Because in the long-haul, big picture, that's what we need it to be. Being accepted as data-driven, even if we don't like it, to do things because for litigation purposes is also very hard to accept. I would hope that you can include those Philips reports that help support the BLM reports.

MR. SEAVER: Jerry Seaver again. On that same note, there is some precedent on doing what he is talking about. When you put this new canal in the south dunes for mitigation, they have some areas that they are growing PMV for the mitigation where that new canal came through. There is already precedent as far as doing that. I am sure Fish and Wildlife Service have had to go through that approval.

MR. MASON: Thank you. My name is Bob Mason. B-O-B M-A-S-O-N. I am the president of the American Sand Association. I have given Neil and some of the others a list of questions. I am going to work off of some of those in that list. The first series of questions deals with Dune Buggy Flats and your extraordinary protection. I would like to go through these three or four questions and then let you respond to them.

First of all, does the Endangered Species Act specifically provide for extraordinary protection concept used to limit camping in the Dune Buggy Flats area under high rainfall?

Second question: Has BLM evaluated an alternative of increased law enforcement, resource protections in lieu of camping closure?

A third question: Will additional camping pads be constructed to mitigate the loss of this camping should you adopt that piece of it? And yet a fourth one, is it required under the ESA that you close all critical habitat?

MR. MASON: My question is: Is it allowed? Is it specifically provided for under the Endangered Species Act? You don't have to answer that today. I would pose that here.

MR. MASON: Thanks. We don't want to debate it here.

MR. MASON: Do I have some more time? Your proposed PMV critical habitat closures in some of the cases, in fact, in most cases, sever the open dune area from the traditional routes. For example, the Sand Highway to the west that goes to Roadrunner to Dune Buggy Flats. For the sake of safety, will BLM provide some narrow, well-marked corridors from the open areas that you have shown in, for example, alternate eight to the traditional routes?

MR. MASON: No. My question deals with access from the dunes east to west.

MR. MASON: Correct. From the dunes that are open to the traditional route from Roadrunner south on the Sand Highway for safety, if nothing else. So people can get out of that large open area across the critical habitat.

MR. MASON: That means that your emergency vehicles will have to do the same thing to get to somebody out there.

MR. MASON: If I am bringing out an injured person as a private party, do I have to go the full route? I can't come across the critical habitat as a private party bringing out a critically injured person?

MR. MASON: I have three or four more questions. I've seen a phrase numerous times throughout the document. That phrase is "aiding in the recovery of the species." My question is: Will BLM develop a specific recovery plan for the PMV and at what level of plant growth will recovery of a PMV be attained?

MR. MASON: And you will pass this question onto them?

MR. MASON: Thank you. In the studies of the

number of plants that are impacted by OHV, BLM studies, BLM has noted that the OHV impact is less than 1 percent. BLM studies document that the range and the viability of PMV growth is greater in areas where there is open use of OHVs. How has this been factored into your preferred alternative?

MR. MASON: Erin, I don't think you answered one question. That is Jerry repeated me here. The critical habitat, are you required by the ESA to close all that critical habitat that was identified by U. S. Fish and Wildlife.

MR. MASON: Appendix O deals with OHV impact on bird populations, particularly in the microfill woodlands on the east border of the Santos. The questions are: I note on page 22 that there is an issue between you and the consultant that you hired in terms of, and I don't understand this, species code errors. The question is: Have you resolved that?

The second question is: Is the proposed camping closure south of Wash 25 the result of appendix code evaluation.

MR. MASON: Bob Mason. Just a couple comments. One is when will we see the transcript of this and the other three meetings? A date? Today's meeting and the other two, can we see those before we make final comments?

Second question. When can I have the list of the people that were here at this public meeting?

MR. MASON: One more comment to my friends. Thank you for coming. ASA will have by the 15th of May our cosultant's inputs, attorney, any biologist, recreation management and possibly a person from the bird population issue. Get ready. We are going to get you some

information and you need to send written comments. Don't let this be the end of the line here today. Thank you.

MR. GILMORE: Yes. My name is Mike Gilmore. It's M-i-k-e. G-i-l-m-o-r-e.

I guess I'd just like to say that I am for Plan Number 1, the proposed -- or the Number 1 versus Number 8 just for the simple reason that this takes us back to where it used to be.

It seems like the direction we're going is we're closing more and more and more when we talk about closing some camping areas now because the micro-fill woodlands. I'm not for a slash-and-burn type deal here, but, I mean, we do have the North Algodones Wilderness that -- and that's what this is for. This has been set aside 100 percent as a wilderness.

If we keep going at the rate we're going -- I've been a duner for 26 years. I practically -- I live in the desert. I live in Glamis for seven months out of the year. I'm a vendor out there, and I've seen it change drastically. Some for the good. Some for the worst.

But it seems like every time something comes up where we need to close a few more acres for this or a few more acres for that, and -- I guess I just -- I don't understand because we have the wilderness area that should do this.

And even though in Proposal Number 8 we're actually opening up more land, it still seems that we're -- that we have more land closed than is scientifically proven to need to be closed, if that makes sense.

You know, by just reading through the Draft RAMP fairly quickly, you know, I noticed the Fish and Wildlife service, something about one percent impact. How much land would have to actually be closed in order to comply with the Fish and Wildlife Service? Does anyone know that? Has that ever been figured out?

I mean, the Fish and Wildlife is saying this is how much off-road vehicles are impacting it. How much land would we actually have to close in order to comply with Fish and Wildlife?

MR. GILMORE: Right.

MR. GILMORE: Okay. It -- and like I say, to me, that's best-case scenario as we go with Scenario 1, but it looks like eight is the preferred.

Some simple changes, I think, needs to be made to Number 8 is that there needs to be a few corridors through that. If there was a medical emergency or something and -- because that corridor looks to be 12, 13 miles long, is that -- that's probably pretty close to right.

If you were in the middle on the other side, I mean, you could be 35 miles of dunes to the nearest medical help, you know.

A few corridors, like the one that's down by Patton Valley now, you know, should really help things out in case of a medical emergency.

But I just don't believe in the closing of the washes above 25 for injuries. And, I mean, I would sure

like to see the science on how long it takes an area to recover. What's actually been done in Wash 26? What's actually been done with the micro-fill? And how long does it take to recover?

I mean, we just keep closing little portions and little portions every year. And that's about it on that. I just don't think that it needs to be closed.

Has anyone considered the impact of closing that area on the big weekends? The only time it's going to make a difference is on the large holiday weekends when there's quite a few people above Wash 25.

You know, what's going to be the impact on the other areas? Would that be an area we'll be addressing? Once that's closed, will we be here five years from now saying, "Well, now we need to close it from Wash 10 because now we're getting too many people," which can trigger a whole new other set of problems.

I mean, you know, it's been talked about in the past with limiting people in there, and I just see it going that direction. I think that just really needs to be looked at.

And I think that we all need to remember that we have approximately a third of the dunes closed off as a national wilderness that doesn't get messed with, and that's what it's there for.

I agree with a couple of the speakers on the dust issue. From being out in the dunes seven days a week, it is all coming off the flats and stuff. And I believe we already have the tools there to take care of

that. It is law enforcement.

If the wind doesn't blow at all and we have a big turnout on the weekend and it breaks that crust down on the flats, when the wind starts blowing, you have about a 20-minute window that it does get real dusty, but then it quits after that until you get some guy running down through there at 60 miles an hour.

The other thing I'd like to know, if it's been considered, is, how much is the dust that is produced at Glamis? Where is that impact?

I mean, I know the prevailing winds at Glamis is generally from the west to the east. So any dust for probably a big, big percentage of the dust that's created out there is Arizona's problem in about 30 minutes, because that's -- we're close enough.

I can see that area such as Superstition, Plaster City would have a much, much greater impact on the population center of Imperial County than the dunes would.

And I know, unfortunately, the Government probably doesn't look at it that way, but I think that's something that we should consider. Where does the dust from Glamis go when we do have these storms -- these wind storms that come through and blow?

You know, most of it doesn't go into a populated area, but there are tools there to keep it down. I think that's what maybe they need to address with the law enforcement. Other than that, that's about

it.

I just really -- I just really don't see us closing above Wash 25 being good on the big weekends. It's probably not going to make any difference any other time except the big weekends.

You do have certain groups that have been camped at Wash 30 for 20 years, and it's going to upset them. But, still, unless you're talking about a real big weekend, it's -- it's -- you don't have a lot of campers up there, anyway. I'm just afraid that it'll impact the other areas worse, which will lead to more problems.

And that's it. Thank you.

MR. MASSIE: Good evening. My name is Rusty Massie. R-u-s-t-y. M-a-s-s-i-e. I am a ASA board -- or was an ASA board member and San Diego off-road board member.

I would like to start with a question. Is there a provision in the new RAMP to open critical habitat area if the Peirson's milk-vetch delisted?

MR. MASSIE: Shouldn't that be part of the RAMP?

MR MASSIE: But it could still happen? I mean, if it happened -- if the delisting happened, this RAMP would not prohibit that from --

MR. MASSIE: Okay. Thank you.

I'm having a hard time visualizing the size of the proposed -- in Alternate 8, the amount of closure remaining versus the amount of closure now. I mean, I've read the books, but, obviously, I didn't read every word of every page.

MR. MASSIE: I'm talking about in the wilder- -- in our riding area, there's 49- now?

MR. MASSIE: Okay. That's right.

MR. MASSIE: Okay. But the purple area inside the green area right now, the closed area is about 49,000 and that purple with the rough area around it, is about 12-.

MR. MASSIE: The third comment here is in reference, actually, to the people that have preceded me.

I would think that it would be an excellent

idea to pave the access road that has just been graded in, which would reduce some of the dust that these people are complaining about and that we all complain about.

And then, although it would probably be a -- Chief Kinden's nightmare, would be to establish, in effect, a no-wake zone as in boating in the micro-fill area there in the flatlands where people couldn't do spin-outs, the kids on quads. That it would be a 5- or a 10-mile-an-hour speed limit to access the dunes.

I think -- or at least my understanding is that the dunes are relatively dust-free themselves, but the dust comes from the dirt down in the flats. And if we could adapt that, those two ideas, we'd probably go a long way to helping them retain their air quality standards that they desire.

Thank you.

MR. MASSIE: Just final. Rusty Massie.

I would just like to make a comment that it would seem to me that developing additional camping areas that will be used in place of the ones that we're closing would tend to cause more damage than keeping the present ones open, and I'm not sure that it would protect the Peirson's milk-vetch.

I would encourage BLM to make sure that there's a good outcome by doing that.

Thank you.

MS. MASSEY: My name is Susan Massey. It's S-u-s-a-n. M-a-s-s-e-y.

And I was speaking just as an individual, but I have been attending meetings of the Clean Air Initiative and Environmental Justice Task Force. And because of those things, I've become aware of the problem of asthma in our area.

And I was concerned when I saw that, according to your preferred option, it would vastly increase the number of acres that would be open for off-road use. And I'm not sure to what extent that's going to increase the number of people who use it.

And certainly the issues that Luis just brought up about particulate matter and the areas of concern to me as a mother and a grandmother.

The other thing that I'm concerned about that no one's commented on this evening at this meeting, the opening areas up to -- for windmills and solar installations. I'm trying to picture it. And the maps go by pretty quickly, but it seems a matter of putting these around has to affect the visual impact of the dunes. I -- to me, our dunes are like the most spectacular thing we have in our particular part of the Valley.

I love them. I don't use them the way some other people do, and I respect the fact that we can enjoy them in different ways. But the sensation of, you know, approaching them and seeing them from a distance and driving through and seeing, leaving them, and how --

It seems very strange that people would even think about surrounding them with windmills or surrounding them with -- I don't know whether -- probably the kind of mirror-type installations for solar and what seems to be coming into the Valley right now or attempting to come in.

I was -- when I went to Death Valley a couple of years ago and -- which is a national park, naturally famous. And I looked at their dunes and I said, "Hey, they've got nothing up on us."

And White Sands National Monument, which is, also -- it's very, very beautiful. But, again, I said, "They've got nothing on us. Our dunes are really spectacular." And I think that we need to preserve that visual impact.

Thank you.

MR. OLMEDO: Well, my name is Luis Olmedo and I'm with Community Desert. L-u-i-s. O-l-m-e-d-o. Do you need an address?

MR. OLMEDO: It's already registered, yeah. Okay.

I just want to ask -- well, I have a couple of questions. And one of the questions is, is there a formula that is used to factor in safety in this area or in this plan?

MR. OLMEDO: But it's consider as part of the plan?

MR. OLMEDO: Okay. So health is also part of the plan, is what you're saying. Okay. Yeah.

You know, one of the concerns I have is there's new evidence, new documentation and new rulings from EPA. The County is pretty much, you know, in the hole for it but particulate matter where a non-attainment area for PM10, and so it's a big concern. They need the help. And I think we all need to contribute. And this plan needs to consider that and give the County the help that they need.

You know, back in November, EPA came up with a document where they did not accept their exceptional events. And you're probably all familiar with that. And for that matter, now they've come up with quite a few suggestions. Some of those suggestions, you know, may be good or could be modified or maybe better ones can be proposed, but something needs to happen. You can't ignore it.

And one of those is, you know, they've suggested such things as maybe closing certain areas certain times of the year. Maybe the dry seasons when there's a lot of activity, depending on how dry the season is and so on. But, again, there's suggestions. I think they -- they can be made better ones proposed.

Also, the County was recently disapproved from the 800 rules. They were -- so I'm partially echoing some of that. And so that also needs to be considered as part of this plan.

Now, again, the County needs a lot of help and they need the BLM to help out and include this as part of the plan.

Back in November, again, there was a study that was done on asthma that shows that we have three times more asthma hospitalizations than the rest of the state and higher than -- in comparison groups with the rest of the nation. Pretty alarming data that was done by the California Department of Health and, again, released in 2008 -- 2009 -- I'm sorry -- just a few months ago. So I'd really like to recommend that that's also considered.

There's another study that also was to be released on air quality. It has to do more with some of the emissions from ag burning and so on. But, again, these are all contributors. And I think it's important that the BLM does consider this and works together with our air pollution control department.

Just yesterday the County Supervisors agreed.

They all approved a letter to be sent to California Resources Board where they commit to doing more. And they also put some recommendations. And part of that is working on some of the OHV areas, area roads that are used by border patrol, and looking at some other open unpaved roads and so on.

So they put in a few specifics in there and they were sent to California Resources Board addressed to Mary Nicholas and staff. So that was sent out. And so if you don't have a copy of that letter, so they did it.

But it's, again, echoing some of the suggestions and concerns that community groups have put up there, that EPA has put forth as well. So they are working, trying to address some of those concerns. And they pretty much have the data. They probably have identified that they could do some more on that plan.

And so those are my comments. And unless -- I don't know if you have any feedback on that. I know I've heard that, you know, you are considering a lot of that already, so great work. So, hopefully, I can see some of that also working.

I know one that -- one of our air pollution gentlemen's here. So, again, I think in the past we haven't really seen that collaboration. And, I mean, it's really hard -- last minute -- about a minute, right?

But, you know, in the past we haven't really

worked together. I mean, you know, I grew up in the Valley myself. You know, when I was young, I'd go out in the desert and, I mean, I enjoyed it. It's great to go out there.

But I also know times are changing and the evidence has shown that there is concern for public health, and there's also concern for a way of life and entertainment as well.

So -- but I think it's a time that we all need to put a little bit of grain of the sand so that we can, you know, create just a better environment for all of us so that we can all continue to enjoy, but at the same time continue to protect the public's health.

Thank you.

MR. OLMEDO: Thank you. Luis Olmedo.

Do you want me to repeat my name?

MR. OLMEDO: Or spell it?

MR. OLMEDO: So I have some questions. I think I've heard mention that there's already some steps taken to work with Imperial County's air pollution. And what type of steps would be taken?

MR. OLMEDO: Have there been any time lines set -- that are set?

MR. OLMEDO: Okay. Yeah, that works for now, I guess.

Thank you.

MR. BONNET: It's Frank Bonnet. It's spelled F-r-a-n-k. And it's B-o-n-n-e-t.

I'm not with the ASA officially, but I'm a dues-paying member for many, many years. I'm from Blythe, California. Had a nice trip down. Came through Glamis on the way.

The things that I have to say, basically, have been said or the questions have been asked. And one of the main ones that I -- that bothers me is that the American Sand Association and its members hired a biologist, botanist, a very well-respected gentleman, to do a study on the Peirson's milk-vetch.

I have friends from Blythe who drove down, went on the sand dunes, sat down on the ground, counted seeds, counted plants, spent their time, their money to get their dune buggies down there.

A report was done, which I think is a reputable report. And carte blanche, the Fish and Game refused to accept it. And for a long time I didn't understand why Fish and Game is not accepting it. Affected what the BLM did. And now I guess I'm led to believe that they write the rules and you enforce them, more or less, at least when it comes to habitat and wildlife.

So we have a scientific report that says that the sand duners are not destroying the Peirson's milk-vetch. We have -- I do not, I believe -- as one of the previous gentleman said, I do not believe that we have any scientific evidence that closing Dunebuggy Flats will get us more Peirson's milk-vetch.

If it does provide more Peirson's milk-vetch during the year of great rains, the next year when you open the Dunebuggy Flats back up -- and I guess maybe I should be careful about what I say here, but when you open it back up, what's going to happen to the Peirson's milk-vetch that grew during that one year?

I also have read the reports and realized that the seeds from the Peirson's milk-vetch can lie down in the sand for years and years and years, and when it rains, then you have that particular -- I call it a plant -- most of my friends call it a weed.

I think that we do not have scientific evidence to show that closing Dunebuggy Flats would be any good. I camp at Buttercup, and I can just imagine, as crowded as we have now, what it will be like if we get 1.8 inches of rain and you close down Dunebuggy Flats.

It's also been mentioned that economics is an important thing. You have businesses over in that area that would be affected, I believe.

I think that's basically it, except that I do agree with the day use things. I have friends who are not dune buggers, are not sand people at all, but they live in Yuma and they love to come out in the evening and sit around the campfire with us. They don't do it anymore. We miss them and they miss us because they can't come in without paying $40 to come in and spend a night around the campfire. So I agree that we need to address the fee schedule thing.

That's it. Thank you.

MR. BONNET: Please. Frank Bonnet. You want me to spell it again?

MR. BONNET: Okay. I'd like to piggyback on two comments made.

Over by Palm Springs, as you travel on Interstate 10 -- and by the way, I think the desert -- I love the desert. I'd rather -- I think the desert is prettier than the mountains. I -- it's a beautiful place.

When you leave the Palm Springs area or on Interstate 10 and you head into the mountains, the San Gorgonio is on one side and the -- I forget the name of the ones on the other side up where Idyllwild is. You go past field after field after field of windmills. They have spoiled the natural beauty of the desert in that area.

I drove down here from Blythe and I came past Mesquite Mine. They have totally disfigured the desert. If anybody goes up by the Mesquite Mine, there are piles and piles that cover acres after acre of slag that they've dug out of the ground. It has totally disfigured the beauty of the desert.

And I would like to agree very much with the young lady that came up before me that said "I can't imagine putting windmills or solar panels or geothermal machines," whatever it would take, along the edge of our sand dunes.

They are something to behold. People that

drive through that have come from places where they have sand dunes are amazed. They stop. They take pictures. It's -- it's something to behold. And allowing energy producing things is, I think, out of the question.

The second thing I would like to talk about is what Rusty had to say and the other gentleman sitting back behind me has to do with the dust situation.

There's no dust out in the dunes. The only time that you see anything that's not just kicked up by a wheel out in the dunes is when the wind blows off the top of the dunes and moves them southward.

I camp at Buttercup to the west of Midway out in the flats and we have dust. And so does Dunebuggy Flats. It settles in. If there's no breeze, it settles in.

There is a speed limit in camping areas of 15 miles an hour within, what -- you can tell me -- a hundred feet or 50 feet or whatever of a campsite.

I camp on the very east end of that area right where the power line makes the turn. We have people go by us doing 60, 70 miles an hour within 20 feet of my trailer. And if you go down into the camping areas, either there or at Gordon's Well, Dunebuggy Flats, you see this going on.

And then somebody mentioned -- as Rusty mentioned, kids spinning donuts, whatever. That's where the dust comes from. And I -- to my knowledge -- and I know I'm wrong, but to my knowledge, I've never heard

that anybody's ever been written a ticket in those campground areas for being too fast.

I know that you have only a certain number of rangers, but I drive down to the store where you can -- you know, the vendor area and there's four or five rangers sitting around talking.

Maybe they need to spend more time -- if we're worried about dust, if we're worried with dust, maybe some rangers need to be directed to spend more time in the camping areas where the dust comes from and start writing tickets, because if you write my kid a ticket for going too fast and I have to go to court, I'm going to tell everybody I know, "Hey, you better get your kids to slow down or you better slow down." So maybe a little bit of that would help.

We used to have a lot of trash in our camping areas. That's really been curtailed because there have been tickets written for leaving trash or whatever.

You know, if you know there's a highway patrolman in the area, you slow down. So I would suggest that maybe you can try to figure out a way to make a little more presence, get a few tickets written.

I know nobody likes tickets and I don't like Big Brother to control my life, but if I'm worried about being closed because of dust, I would rather have some tickets written.

That's it. Thank you.

MR. POWELL: Hello. Robert, R-o-b-e-r-t. Powell, P-o-w-e-l-l. Lifelong residence of Yuma and Imperial Valley.

First of all, I want to thank you guys for the opportunity to talk to you about this document. I realize you have a really tough job. I do appreciate the need for process, and I appreciate you considering our comments. I'm not sure I can improve on what Kevan said, but a lot of my comments will mirror what he said.

Being a residence of Yuma, it is real common for us to go to the dunes twice a year. We would go over Thanksgiving. We would go over New Year's. We like to sit there for about three or four hours and watch people go up and down Comp Hill.

But now with the fee structure the way it is, nobody I know uses the dunes anymore. The problem is, is it's just too much to pay $80 to go enjoy the dunes for a couple of hours. You know, that's 40 bucks a shot.

And I've made this comment to you verbally before, and the answer I get back, "Well, that's an enforcement problem." You know, "We came up with this fee structure and didn't consider a day's fee because it's too tough for enforcement."

Well, that's a problem we need to address. And I think it's indicative of your lack of consideration for the local folks that you don't even schedule this meeting for Yuma. That indicates to me that, you know, what's going on with the local folks isn't being

considered enough.

And not only that. What are your provisions for people that are driving down the freeway and decide that they want to go and enjoy the dunes? Do you charge them $40? That's more than it costs them to get into Grand Canyon National Park.

What's a family do to if we want to stop, spur of the moment. You know, they're traveling across the country and enjoy Buttercup for three hours.

The answer I've gotten is, "Well, that's the discretion of the rangers." But, gee whiz, you guys really need to come up with a day's fee.

Nobody I know -- I've got sand people all along my street here in Imperial and none of us goes to the dunes anymore. Nobody. And so I just hope you'll consider that.

And I appreciate the opportunity to talk to you folks. Thank you.

MR. POWELL: Robert Powell. I just wanted to build a little bit on my earlier comments.

First of all, you guys got the toughest job in the world. I can certainly appreciate the difficulty of what you're trying to do here.

And I just wanted to reiterate that I don't think anybody locally is opposed to fees. I think you guys have done an outstanding job, by the way, with the fees that you've collected. And you've served the off-road community, served the resource. You've done an

outstanding job.

But I want to clarify, I don't think anybody is opposed to fees, but there shouldn't be any reason why it's harder to write somebody a citation for lack of a day's permit than it is to write somebody for lacking a week-long permit or a season-long permit. It's just as easy to write a citation for any of those violations, I would think.

So, once again, I hope you guys will consider a day's permit for the local users. And I hope you will consider, also, having one of these meetings in Yuma.

Thank you very much.

MR. HUTCHINSON: It's Kevan, K-e-v-a-n. H-u-t-c-h-i-n-s-o-n.

I've lived in Brawley since 1971. Been a dune user since 1971. My comments and/or questions basically are surrounded around the fee structure. And I took some time to look through the document and look through some chapters and looking for fee -- some fee information, and I think I located some stuff on Page 3-106, and 3-107, and it's a couple of short paragraphs about permits and the fees.

And I don't think it's very specific. It's very general and very broad. I think the document should address current -- past and current situations out in the fee area and maybe, possibly a history of the fee and how it came about. And I think it gives a general idea of what it covers, but that's my basic comment about -- in the document itself.

And also mention that I, as a dune user since 1971, but -- and live in Brawley. I'm very close to the dunes, but myself or my family have -- we've basically quit using the dunes over the last 20 years.

And there's -- one of the main reasons we don't go to the dunes anymore is because we feel that there should be a day's permit offered to local duners or anybody, for that matter.

We have friends that come from San Diego. Say, "Hey, can you meet us out at the dunes for an evening?" And I can't afford to go out to the dunes for three or four hours for 40 bucks. It's just not -- you know,

it's just not feasible to me. So I believe that part of the plan -- part of this document should include some sort of a study or, you know, address day's permit.

I think you're really missing an opportunity to -- you shut out a lot of local people by not having such permit. I might want to go out there on a Sunday afternoon for two or three hours, four hours. I don't want to pay $40 to do that.

I know there's different fee structures if you're buying it in town, but what if I get out there and forget to buy it. It's $40 for me. And it's just not feasible.

I know a lot of locals buy the permit, the -- what's the --

MR. HUTCHINSON: Season. And I can see that, you know, if you're -- I mean, if you're out there all the time, you're out there twice a month or something like that, that's fine. But there's lot of folks and I believe around the Valley that just -- you know, they don't go out there because I -- I think you're missing -- we're missing an opportunity to get more locals involved.

It seems like a lot of the things that happen in the dunes is geared towards out-of-towners. Let's get, you know, the L.A. people and the Phoenix people over here. But I think the county -- local county people have kind of been left out of the process, so --

And I'm also in favor of Alternative 1, but

like the gentleman before me, I don't think that's going to happen anytime soon.

So that's about all I have to say.

MR. ST. PIERRE: Steve, S-t-e-v-e. St. Pierre, S-t, P-i-e-r-r-e. I'm just representing myself here, so --

First and foremost, I'd like to thank the BLM for being here and giving us this presentation. It's very important that the duning community stay up to breast as to what our future is going to be like. I'm a resident of Yuma, Arizona. I've been recreating at the Imperial Sand Dunes since 1980, every season.

I currently ride out there now with my father, who's in his '60s. I have a two-year-old son and, hopefully, that will be in his future, too.

First and foremost, I would like to state that I support Alternative 1. However, it seems to be that there's going to be concessions on both sides of the aisle and implementation of Alternative 1 is probably not likely. So I would like to support Alternative 8 with some hopeful changes to it.

And those are -- and this is going to be both questions and comments kind of all together.

As far as closing of Dunebuggy Flats to rainfall targets, is there any science that supports that? Is it critical habitat for the Peirson's milk-vetch? It's not listed on the lists of -- or it's not listed on the alternative there where it shows the outline, so what would the reasoning behind that be?

MR. ST. PIERRE: Number 2 would be the micro-fill woodland areas being affected by the closure of the Wash Road south of Wash 25. Is there any science

that supports that camping harms micro-fill woodlands? And, I mean, given that matter, too, I mean at Dunebuggy Flats, I mean, if you're leaving it open to limited use to ATVs, motorcycles, dune buggies, whatnot, I would like to know why camping -- or what science behind camping is damaging those areas.

MR. ST. PIERRE: Has there been any previous examples that where harm has been caused to the micro-fill woodlands due to the fireworks or fires or any of that scenarios that you just listed?

MR. ST. PIERRE: Can I come back?

MR. ST. PIERRE: It's Steve, S-t-e-v-e. St. Pierre, S-t, P-i-e-r-r-e.

I just wanted to go back real quick and I'll try to summarize here.

I'm for Alt. 8 with considerations given to the closing of the camping to Dunebuggy Flats and to the micro-fill woodland areas. And if you do close that, then I think that you guys should provide an adequate amount of space for more camping.

Obviously, you've addressed the fact that you will have to upgrade some of the campgrounds, but the bottom line is -- the bottom line is, is you're going to be displacing a lot of people, a lot of people that use those areas to camp. And then you're going to put the burden back on, you know, the keyhole at Buttercup and Midway and Ogilby Tower. I mean, I don't think those areas can facilitate the extra amount of people that

would normally camp at Dunebuggy Flats or south of Wash 25.

So I hope you take that into consideration, if you do pass Alternative 8, that you will definitely need to open up more campgrounds.

As far as the Peirson's milk-vetch, I just wanted to ask a couple of questions. Is there any legal requirement that the critical habitat for the Peirson's milk-vetch be closed to OHV activity through the courts?

MR. ST. PIERRE: Okay.

MR. ST. PIERRE: Okay. That takes me into -- to make it through the courts, what is the time frame we're looking at here without getting sued by either side and being wrapped up in court for the next -- well, let's see. The temporary closures have been in effect for now, what, ten years? Administrative temporary closures has been closed for ten years. Doesn't sound temporary to me.

MR. ST. PIERRE: Okay. In closing --

MR. ST. PIERRE: Well, I mean, what do you think the -- once you make a record of a decision, what do you think the time frame is going to be before it actually gets implemented, barring the fact that there, hopefully, won't be any lawsuits on either side of the aisle. I mean, are we looking at three years for implementation? Could we see it next season, barring lawsuits?

MR. ST. PIERRE: Okay.

MR. ST. PIERRE: Thank you.

Okay. Just one more quick question on the Peirson's -- two more quick questions on the Peirson's milk-vetch.

Is it true less than one percent of it is damage by off-roaders in the open areas where it's still open right now and the Peirson's milk-vetch thrives, but only less than one percent of the actual PMV plants have been damaged by OHV activity?

MR. ST. PIERRE: And that's in the open areas -- current open areas right now where it's still thriving?

MR. ST. PIERRE: For the record, I support Alternative 8, if you provide camping in the limited camping areas -- not close Dunebuggy Flats and not close the micro-fill woodlands areas, to allow camping up to Wash 41, and opening the critical habitat to OHV use since it's proven that off-roaders do not damage it, in my opinion.

I would -- I guess that's about it, then.

MS. GILLES: Gilles.

MS. GILLES: You should know that by now.

MS. GILLES: Okay. Nicole, N-i-c-o-l-e. Nicholas, N-i-c-h-o-l-a-s. Gilles, G-i-l-l-e-s.

I am the Executive Director of the American Sand Association. And I have some comments, but I also have some questions.

So one of the questions, I think, will have a -- quite a point of information. People that are here today making comments, do you also want them to submit their comments in writing?

MS. GILLES: But are you also -- I think I was under the impression that you prefer people to submit their comments in writing.

MS. GILLES: Okay. All right.

The American Sand Association has some consultants, and they are looking over the rather large document, and we will be submitting our comments in writing. But I did have some questions for you.

First of all, I don't believe that the Draft RAMP actually handles, like, dust abatement and then PM10 issue that the Imperial County is facing, so I wanted to see how you intend to handle that.

Do you want me to just keep talking or are you going to answer while I go?

MS. GILLES: Okay.

MS. GILLES: Okay. Also, in reference to the rainfall amount that you guys are considering for the

Dunebuggy Flats area, how do you substantiate the amount of rainfall that is received? I mean, how are you going to measure that?

MS. GILLES: All right. So if the rainfall -- significant amount of rainfall ends up closing that area specifically for camping, are you proposing other areas for people to camp, because we all know that it's pretty impacted as it is. Are you going -- and, I mean, I -- this can go also for the closure of the Wash Road areas past Wash 25. I mean, that is going to displace quite a few people.

MS. GILLES: I read some of it, but, yeah --

MS. GILLES: So is that only during the time that it's closed or that's going to be, like, permanent?

MS. GILLES: Okay. Also, with your Draft Recreation Area Management Plan, have you considered the economic impact to business? With the United Desert Gateway several years, we worked an on economic impact analysis and it was 177 to 318 million just for local businesses, and that's not including anything outside of this area.

MS. GILLES: It doesn't say.

MS. GILLES: Okay.

MS. GILLES: Since this meeting's supposed to go until 9:00, can I come back up, if there's time?

MS. GILLES: Okay.

MS. GILLES: Okay. Nicole Nicholas Gilles. G-i-l-l-e-s. American Sand Association.

I didn't want to rain on Steve's parade, but I wanted to ask the follow-up question to what he was saying is he was asking if there is any scientific -- the data to support the micro-fill woodland closure area as far as -- or the Peirson's milk-vetch area for -- to camping.

I mean, to me -- I mean, I'm not a biologist, but to close it for camping and, yet, allow people to ride, that just don't seem --

MS. GILLES: Is that something we can see?

MS. GILLES: Okay.

MS. GILLES: Okay. Do you plan on designating travel routes through the proposed closures on the west side of the dunes?

MS. GILLES: Uh-huh.

MS. GILLES: So it's going to be completely closed?

MS. GILLES: Okay.

MS. GILLES: Okay.

MS. GILLES: All right. That's all I have at this time.

JONATHAN REID: Hi, my name is Jonathan Reid, J-O-N-A-T-H-A-N, R-E-I-D.

And, first of all, I want to thank you all for hearing our concerns and questions tonight. And my question is, is in the preferred alternative that we have here what is the impact to Patton Valley?

JONATHAN REID: And what area on the map right there is the seasonal rainfall closure for Dunebuggy Flats? Is that the yellow spot right there?

JONATHAN REID: Now the closures of the critical habitat that you have in purple, how would that he be marked and enforced?

JONATHAN REID: Similar to what's out there now. And if there were -- if there were -- right now in the closures there are accidental and intentional incursions into the closures. Is there anything that if there's a large number of incursions into those closures that it would be made wider or larger buffer zones? Has anything been placed in the RAMP for that?

JONATHAN REID: And we would hate to see that, of course.

JONATHAN REID: Thank you.

COREY WALLACE: My name is Corey Wallace. C-O-R-E-Y, W-A-L-L-A-C-E. I just have one comment and a question as well. I did enjoy the wash road this last season. That was a tremendous benefit. I would like to see that a little further down.

And I don't think Alternative 8 is all that bad, but I guess I have a question about what's being proposed in the actual defined wilderness areas or the endangered species area.

How could you, from an administrative standpoint, mark the irregular shape, you know, that closely because right now it's pretty easy to follow a straight line. And is that going to change overtime as well? You know, that area could change. A new plant could show up. And does that mean that under Alternative 8, would that also change that boundary? Would it grow?

COREY WALLACE: Would it be changed or fixed?

COREY WALLACE: Thank you.

MIKE REVER: My name is Mike Rever, R-E-V-E-R. Neil, could you talk a little bit about the geothermal access with the different alternatives. My understanding is that Alternatives 1 through 7 have a lot of the area open to geothermal access and that would tell a different story than what the OHV maps are showing.

MARK HARMS: My name is Mark Harms, H-A-R-M-S. I'm here representing Sand Tires Unlimited. Whatever you do, Neil, please don't that gentleman that just spoke change his tires.

Neil, I have been involved with this process since early 2000. I have mellowed out since Long Beach. So for those of you who weren't there, you missed a show. Not one that I'm proud of. Over those years I've noticed there seems to be somewhat of a disconnect with BLM and Fish and Wildlife. One item that comes to mind was on that first RAMP you seemed to have a difference of opinion of when that RAMP was going be sent out and there was a lawsuit brought against that and there was a lot of time that was spent to get you two organizations to come together as to what that period of time should have been, so that's where my question is going. With respect to Alternative 8 or any other alternative, have you run this by Fish and Wildlife and have you gotten their approval on this as well, because I can guarantee there will be a challenge on this RAMP and any RAMP in the future. And if you are front of the judge with the Fish and Wildlife not supporting your position, we'll be back here again and spending a lot of money to do this.

So I would encourage the BLM to do

whatever it has to do to get a consensus from Fish and Wildlife before you spend anymore money or you spend anymore of our time, to make sure that before you go before that judge and there is going to be that challenge, I'm sure of it, that, in fact, they will be behind you supporting whatever that decision is so we can get through and move on.

The other thing I would like to comment on is we spoke a little bit about the north closure. When I started duning there was no north closure. Pismo was completely open. My business has been impacted by closures, such as Pismo. I don't do any business up there that we used to. The imports coming in from China, Taiwan, things like that, have affected my business. And I'm looking at what's going to be an incremental complete closures a some point. I don't think I will be alive when that happens, but when you're looking at critical habitat for a given area, is it possible to overlap critical habitat in an area that is currently closed right now?

We were promised when that northern area was closed, and there was PMV out there long before it was listed, that the southern portion of the dunes was going to belong to us to use. Now that PMV didn't just show up the day before of the listing. It's been out there long before we got

out there. And it seems to me that it's still thriving with as many people as there are now. Why is it that we have to pick land that's currently open and not designate critical habitat for those areas that are currently closed.

MARK HARMS: The reason I ask the question about the northern dunes and the overlap, per se, of critical habitat, because this is what I'm afraid of. And I believe this is going to happen because you know there's going to be another species of some kind, and that species is going to be looked at. And obviously we will do everything we can to prevent it from being listed.

But the concern I have is that those closed -- that closed area that we have now, and the proposed areas that you're going to close, the next species that comes up for consideration and the habitat for that and what might represent that area as far as being closed, and so on, and so on, and so on, long after you're retired, my concern is that wouldn't it be more efficient to overlap these critical habitat, in other words, that northern part of the dunes, I assume there's Milkvetch growing in that part of the dunes, if that's the case are you looking at -- at any of that? In other words, if there weren't any dunes north of 78, period, that was just farmland, would that

change anything that you're doing right now with respect to any closures?

JEFF PATTEN: Jeff Patten, P-A-T-T-E-N. A couple of things that come to mind is I kind of listened to what you guys were talking about here and we lose a bunch of camping spaces and the next thing that's going to happen is we're going to lose a lot of revenue. So that's immediately going to come up. So I would like to know how you are going to address that? I have a few comments on how I think you could address it, but I think you are going to lose a good percentage of people between the economy going on and everything else, I think you're going to lose a lot of people.

So the immediate things that are going to come up from BLM, you guys all represent BLM, is we need more money. Just like to fall back and remember ten years ago it doesn't cost us nothing to go out there and now we're at a 90 buck fee, whatever it is. So I'm sure we're planned to go to 150 vehicles or whatever. And we did have a comment in here about marking spaces. I just want to go on record thinking that's a terrible idea because if we do that we lose a ton of campgrounds because you won't be able to paint a space in the sand there would be a very, very limited number of people that can go there.

Anyway, I would like to point out to law enforcement here, which I see at least probably

six to ten sitting in here, that -- and I come from the government, 30 years on, law enforcement background, that I think you guys need to implement a customer satisfaction survey that we can pick up and fill out when we go into the dunes and when we leave the dunes. The agency I work for every contact we made, we mailed it to the people we dealt with and we had a 97 percent customer satisfaction survey that we were positive. And that meant that we acted and tried to do the right thing.

And some examples, I've been stopped twice between me and my wife. One time my bottle of water was checked to see if there was booze. Another time my wife got stopped. She's -- I'm not going to tell but she's a year older than me. We're 50-plus years old getting pulled over out there and she of course got stopped because she didn't enough orange on her flag. It didn't mean that it wasn't large enough, it was way large enough, several feet.

So common sense needs to come from the officers on the beat out there. You're policing the wrong people. Most of the people in here don't need to be policed. We have this heavy enforcement out there because a bunch of punks showed up, lit the dunes on fire, stole cars, lit them on fire and

raped and pillaged out there and that's what caused us to lose an area that we enjoyed, Competition Hill. That still has never been opened.

I think the crime has died down quite a bit and I think it's time to instead of looking at raising revenue and raising revenue -- and I've heard the comparison from yourselves that -- on some of the reading material that it's like Disneyland. You get so much money a day. Well, we're bringing the rides ourselves, Disneyland provides them. We bring our own rides. There should be no comparison to that.

And I'll tell you, if the fees go up I'm done. I'm done. Because there are plenty of other places that you guys control that don't have fees. I'll just go there, I'll change the tires and go there. Get out from under all the problems that we got.

So I think you need to start looking at your law enforcement amount out there and seriously reduce it by half because I think the problems have gone away a lot. And this penny picking -- very picky, nailing everybody for fireworks or nailing everybody for whatever. Fireworks laws were enacted for roofs, wood roofs catching on fire. I haven't seen too many wood roofs on RV's out there. We're not going to burn down the desert with

fireworks. It's just not going to happen. I know there's a million reasons that you can invent for it but the reality is we're spending a lot money in law enforcement to run around and just pester people. I could go on but you guys need to take this opportunity to go and bring the community together make things better. You guys can take this opportunity and lead by example and become a great organization or continue to be the nitpickers that you're perceived as by a bunch of people and it's just going to get more adversarial. I just would employ you to take that opportunity to try to take a look at that opportunity and open the communication and get some written forms that people can put in. Thanks for your time.

GEORGE PARKINSON: George Parkinson, G-E-O-R-G-E, P-A-R-K-I-N-S-O-N. I'm just wondering as far as Alternative 8 goes, is there any possibility -- I know -- first of all I give you guys kudos for building a beautiful wash road all the way down to 25. That was awesome. I don't think any of us thought that was going to happen as quick as it did. Is it possible to revise that and bring that road down further into that area, say wash 32, 33, because on like major weekends like Thanksgiving and President's Day, New Year's, all that kind of stuff, in the past there's been people camped all the way out to pretty much wash 40. So now we're jamming everybody riding together. Is that even a possibility to extent the road further? Is that an option? Thank you.

GEORGE PARKINSON: Is the BLM open to continuing the road on to the washes in the 30's, mid 30's.

GEORGE PARKINSON: If you can look at that we would greatly appreciate that.

CHRIS AUER: My name is Chris Auer, A-U-E-R. I just want to go on record saying that I vote for option number one.

VERONICA KARNA: Veronica Karna. My last name is spelled K-A-R-N-A. I have several questions and maybe a couple of concerns. You mentioned the appeal process, what is it going to take to appeal this if the eight does pass? I mean, do we need to go around -- is there a petition that we need to sign? What is it going to take to get the appeal process going?

VERONICA KARNA: Please do. The next thing is you mentioned all these companies and separate interests representing and drafting these but who's actually representing us in these meetings, "us," the duners, that this is ultimately affecting. This is a generational thing where families have been coming for generations. Grandparents, parents, children, their children and so on. Who's representing us when these are being drafted, other than people that have maybe monetary interest in seeing the dunes closed?

VERONICA KARNA: And then there's been a lot of studies of Milkvetch but to me what makes sense is not closing more but maybe doing another study of opening it completely open and seeing what effect -- I have discussed with a gentleman here in the group today, and several times with it be opened after making a study with it being closed, and then why not do another study of it being

completely open and then you would have more factual representation of what the off-roaders are really doing to these plants. I mean, has that been discussed?

VERONICA KARNA: So will there be a study done of those areas that you have opened to see if you're really harming it or actually doing it good or is it going to dropped at that point?

VERONICA KARNA: Thank you.

JOHN POTOCKI: Potocki, like okie dokie Potocki. It's John, J-O-H-N, Potocki, P-O-T-O-C-K-I.

One comment just in defense of the lady that hikes. I've been out the dunes along the sand highway, encountered a group of hikers, and in talking with them, and fortunately -- I don't want to say friends, but we had dogs in our car and so they liked that, cute and all that. And the reason they were hiking across the open area, it could have been in the closed area, south of the closed area of Roadrunner is because they had no access. They had to be dropped off. There is no access on the north side which is designated north wilderness.

So in order to keep that wilderness area for hikers, let's just say to separate the two, I think that dunes are the same in all locations for a person that's hiking, for me it would be about 30 feet so or 50 feet or so because it's a heck of a march. They need parking on both sides, both at the canal and the east side by the tracks. And right now, currently, it's closed.

And one other comment in terms of the Milkvetch. I think most of the people here in the room at the dunes is very respectful of shrubs, bushes, branches, and to a certain extent my

experience is that most of the plant and vegetation accumulate at the bottom of the bowls of small dunes where the seed pods sort of circulate and they're not necessarily up on the upper reaches of the dunes where we normally -- where I normally ride and where most everybody here rides. We sort of surf through the dunes. And where these areas are where the Milkvetch and the accumulation of brush, we also don't want to ride our vehicles through -- well, not -- we're -- we all want to take care of the environment. The dunes are precious, but we're also looking out for punctures of tires, sticks breaking something in our car, hitting us, I mean it can pop off the front wheel. So we try to avoid those areas.

And I think if you open, you say alternate eight, even if you opened up more areas, took out that center donut area, which is a crucial pathway from Gecko Road to the dunes to the southeast where most of the riding and also to the Osborne dunes is where most of the rides are, that donut hole -- and I think the duners or off-road users would avoid that going through the Milkvetch or going through plant material and still respect the area. Thank you.

RICHARD PRUETT: My name is Richard Pruett, R-I-C-H-A-R-D, P-R-U-E-T-T. I went out with Dr. Art Phillips who was the, I believe, the biologist out of Flagstaff who was doing the investigative work, I believe, on the behalf of the ASA, correct? And I went out twice. And through the satellite system they mapped out an area, volunteered to do this all day. We didn't have to actually do the sifting for the Milkvetch, but whoever went out helped him anyway. And his comment was that this is ridiculous because the Milkvetch, based on his research over, I believe, it was two years, that it was everywhere.

I also understand, and it maybe it is cliche-ish that the more that we run over the plants the more the seeds scatter, so, therefore, the more that grows. I see no issue with the Milkvetch. Maybe it's an area for the lobbyist to beat us up on.

And the young lady that just spoke earnestly said that you take under consideration the input you take at these meetings, a couple of question: Number one, we had no input on number eight that I know of, so how did number eight get to the position it is with the slopes, et cetera, et cetera, because now we're at this meeting now were it appears -- and I'm ignorant how the whole

process would go, but it appears that this is probably the one that's going to happen. How did it get to this point without the off-road vehicle community knowing the position?

BARRETT FAIT: Barrett Fait, F-A-I-T. I was curious what the procedure is, it goes from here -- just give me 30 seconds on how this works. You're going to end up at some point with a decision. I'm curious what the procedure is to get there and who actually makes the decision?

BARRETT FAIT: BLM is a federal agency.

BARRETT FAIT: And you are also state, correct?

BARRETT FAIT: How do you become a participating agency?

BARRETT FAIT: What would it take for ASA to be one of those agencies?

STEVE McCUBBIN: Steve McCubbin, M-C-C-U-B-B-I-N.

My question to the board and to the BLM is when are we going to start using actual fact instead of tailored science and litigation to decide the fact -- decide the fate of the Imperial Sand Dunes and any off-road area that we have and public land use.

MR. BANNING: Lee Banning. L-E-E B-A-N-N-I-N-G. I represent myself and family and friends. The question I had about the plan is adherence to the air quality regulatory programs there in California. You talked about it in your plan some and you talk about treating the roads for us and installing air meters and qualifiers and all this. You are going to allow those levels of personnel going to dictate that you stay in compliance with the county air quality?

What is your plan there? It's a huge problem in Maricopa County here in Arizona. I know it is a problem in Imperial Valley because I farm over there as well. I am kind of concerned.

MR. BANNING: That's all I have.

MR. HEITELMAN: My name is Gary Heitelmann, G-A-R-Y H-E-I-T-E-L-M-A-N. First of all, ladies and gentlemen and fellow duners, I'd like to thank you guys for giving Arizona a voice in a California issue. We appreciate it. I want to touch quickly on what Bryden and Bob talked about. That is access through those areas.

Alternative seven and eight are most beneficial for us. That area, obviously, shutting down the Patton Valley, which is a major point for everybody, a very high recreation area, makes it kind of tough. Some sort of give-and-take to keep that area open. They are also talking about areas of egress to get into that area for emergency reasons.

That's important, but why in that area that scales off to be 12 miles from bottom to top, why couldn't there be areas that bisect that are wide enough for people to get out there, not just emergency vehicles, but for actual access. You can put an area as wide as the Sand Highway for people to safely pass in both directions on several areas so they can get into the better part of the dunes and have some fun. That Gordon's Well area is going to start disbursing into all the other areas.

Now, you are taking a lot of people and putting them in fewer places, which are going to create, I think, a dangerous situation all together.

The little area you have in the bottom, that's fine. You have to go down the bottom or travel 12 miles north to get into the dunes. There's going to be a lot of traffic going in and out of the dunes. That creates major hazards. People are going to get hurt. People are going fast. Big rails, big buggies and people on little bikes. Kids on bikes, whatever, are not going to pay attention. You are putting a lot of traffic in a small area.

There will be some give-and-take to have a couple of swatches that cut through that area. Keep the little valleys closed where all this PMV is concentrated. Consider giving us that Valley as access to the dunes.

Also, about the solar wind areas around the perimeter of the dunes. What is east and west of those areas. Why is everybody centered around the perimeter of the dunes. There is a heck of a lot of land east and west of there. Let's make sure we focus on the dune area and make it even more difficult.

I am curious to why they are looking at that area only and why all that land out there is not being used. It is public land. There's plenty of sunlight out there, too. I have checked. Is there any way to plant. We clear out forests for lumber and replant to try to vitalize that area. Are we just going to stand there and let nature take its course as far as refurbishing it while the human element is trying to recreate? Can't there be any human involvement to stimulate the growth that isn't affected by human interaction.

Is it only cut-and-dry. We are the most intelligent, supposedly, beings on the face of the earth. You think we would come up with a way to help things flourish in that area that are indigenous to that area. We should focus a little bit on helping it as opposed to just cutting humans off so they can do it naturally.

My other questions and comments were taken care

of before. Thank you for coming out to Arizona.

MR. HEITELMAN: Gary Heitelman again. Just two quick things. Just as a layman, this area up here down to about here was closed down before. Now you are opening an area that was closed so the area was protected. Logic. But you are closing an area that was open, which that flies in the face of general logic. Closed area not growing so good, let's open it. Open area, growing great, let's close it. It doesn't make sense.

Also, is there a finite populative number that either Game and Fish, Sierra Club, needs to have if they are looking for it and say let's go ahead and open all the dunes or we are unhappy, let's close all the dunes. Without some kind of finite number there will never be a point where any real decision is made.

Is that data or expectation anywhere in that document or is that arbitrary that it will be left up to some Ninth Circuit Judge somewhere that won't make anybody happy except for the Sierra club or whoever. There has to be some finite number for all of us to look at and actual third-party study done to say where we are going. Are these closures helping or hurting, or she would do something else.

This isn't making sense. If you are going close anything, this was closed. Why can't this whole thing be shifted up. In my opinion, your closures and openings aren't doing what you are saying to us they are supposed to do.

From: Carl JMS
To: caisdrmp@ca.blm.gov
Subject: Imperial County Sand Dunes, Glamis Sand Dunes
Date: 07/14/2010 09:16 PM

To whom it may concern, or Erin Dreyfuss

I go to the deserts with my family to enjoy the great outdoors that is America. Every year the government and environmentalists are closing more and more areas restricting public use. You are confining vacationers to smaller and smaller areas which in turn cause more deaths and injuries. Please stop confining all the citizens into smaller and smaller areas. My children and many American citizens lives depend on it. Stop closing us out. A very concerned American citizen.

Carl Sbarounis
804 Faysmith Ave.
Torrance, Ca. 90503

310 947 7212

From: Kathy Williams
To: caisdrmp@ca.blm.gov
Subject: Glamis and off roading
Date: 07/08/2010 11:14 AM

This fight for the right to use our land has really been a long battle, that actually should not have taken place. For what ever reason the judge that signed the proposal and approved the restriction of some of the sand dunes, must not have taken into consideration that a lot of people do use the dunes in many different ways for enjoyment.

I have been dunning since the early 1970 and consider myself as a person who truly cares for being at the dunes. All of the new rules and regulations are to far out there for a lot of people to understand why anyone can do this to the land that supposedly belongs to the people of this country. Of all the years that I have been on those dunes, I have never seen any damage to any weed, and how in the world can you kill a weed? I think that is virtually impossible, even if you don't water a weed, it will grow back when it does get water from rain or whatever.

So, keeping our sand dunes open as thousands upon thousands of people would like, I hope that what ever decisions are made it is for the best interest of the people and not best for the interest of the government. People need their out door life and to take part of that away, is just not what should happen.

Thank you,

Kathy Williams

From:	Jerry Carnahan
To:	caisdrmp@ca.blm.gov
Subject:	Dunes Imperial sand Dunes Recreation Management Plan
Date:	07/08/2010 08:02 AM

Thank you for the chance to comment on the plan. Although I understand the need to serve all parties and in the preserve the dunes for future generations we also need to be careful not to destroy value and California culture. Use of the dunes by families and people from all over the world is important.

The dunes have provided fun and a great way for people to become better at protecting the environment through awareness. As they experience the camping and rides people become aware of what a treasure the dunes are. This protects the dunes better than any fence.

Locking people out or restricting use will create more problems than it corrects. If you force people out they will put undue pressure on other OHV areas. They will also create unwanted trails and do damage in non OHV areas as people are forced out of or restricted from current areas.

I favor an education strategy to help people further protect the dunes. Lets team up with organizations such as the aSa to clean up and protect a great California tradition and way of life.

Thanks again for the chance to comment and I am glad to help or discuss further as required.

Jerry J Carnahan
805-520-1233

Sent from my iPad

From:	Laurence Lusson
To:	caisdrmp@ca.blm.gov
Subject:	DRAFT IMPERIAL SAND DUNE RECREATION MANAGEMENT PLAN
Date:	07/08/2010 07:39 AM

Dear Erin Dreyfuss

I understand that there is a new draft of the Imperial Sand Dune Recreation Management Plan. I with my family have been going to ythe dune for over 40 year. Frist with my kids and now with my grandkids. My family keeps growing the same as the number of duners keeps growing. Yet the recreational area and camping area keeps getting smaller. As with any active sport there is some risk. That risk increases the more congested the area gets. I hope the new managment plan will increase the area to ride and area to camp.

Thank you
Larry Lusson

From:	Steve Shaffstall
To:	caisdrmp@ca.blm.gov
Subject:	Regarding BLM's Draft OHV Management Plan for Imperial Sand Dunes Recreation Area
Date:	06/24/2010 11:03 PM

Dear Erin,

I am writing this letter to you regarding the Bureau of Land Management's Proposed OHV Management Plan for the Imperial Sand Dunes Recreation Area. I come from a family of avid off-road enthusiasts. My father has been riding in Glamis since the early 1960's, and built his own dune buggy before the age of 10. My first experience on a OHV was riding at the base of Competition Hill when I was eight years old. My little sister has her own quad, as does my mother. Riding in the Imperial Sand Dunes is a regular activity that has brought my family closer together over the years and one I hope will continue to do so for many years in the future.

The new proposals regarding the BLM's Management Plan call for more of the dunes to be closed. With my whole heart I think this entirely the wrong course of action. While I consider myself extremely environmentally conscious, and concerned over the future of our nation's wilderness areas, I cannot help but argue that closing more of the areas where hundreds of thousands of Americans love to ride is a mistake; a very big mistake.

The Imperial Sand Dune OHV area has been a staple of the off-roading community for generations. Yet every few years, more and more of our beloved dunes are closed - a few hundred acres here; a few thousand there. I do not believe it necessary to expand this closure further. I think those Americans that actually enjoy the sand Dunes by visiting and funding them with weekly and annual fees, volunteer efforts and family and friend excursions would wholeheartedly agree.

I ask you to please pass Alternative 1 of the ISD RAMP, in order to allow as much of the Imperial Sand Dune Recreation Area to remain open as possible- for the sake of all Americans to enjoy in the various ways our freedom allows.

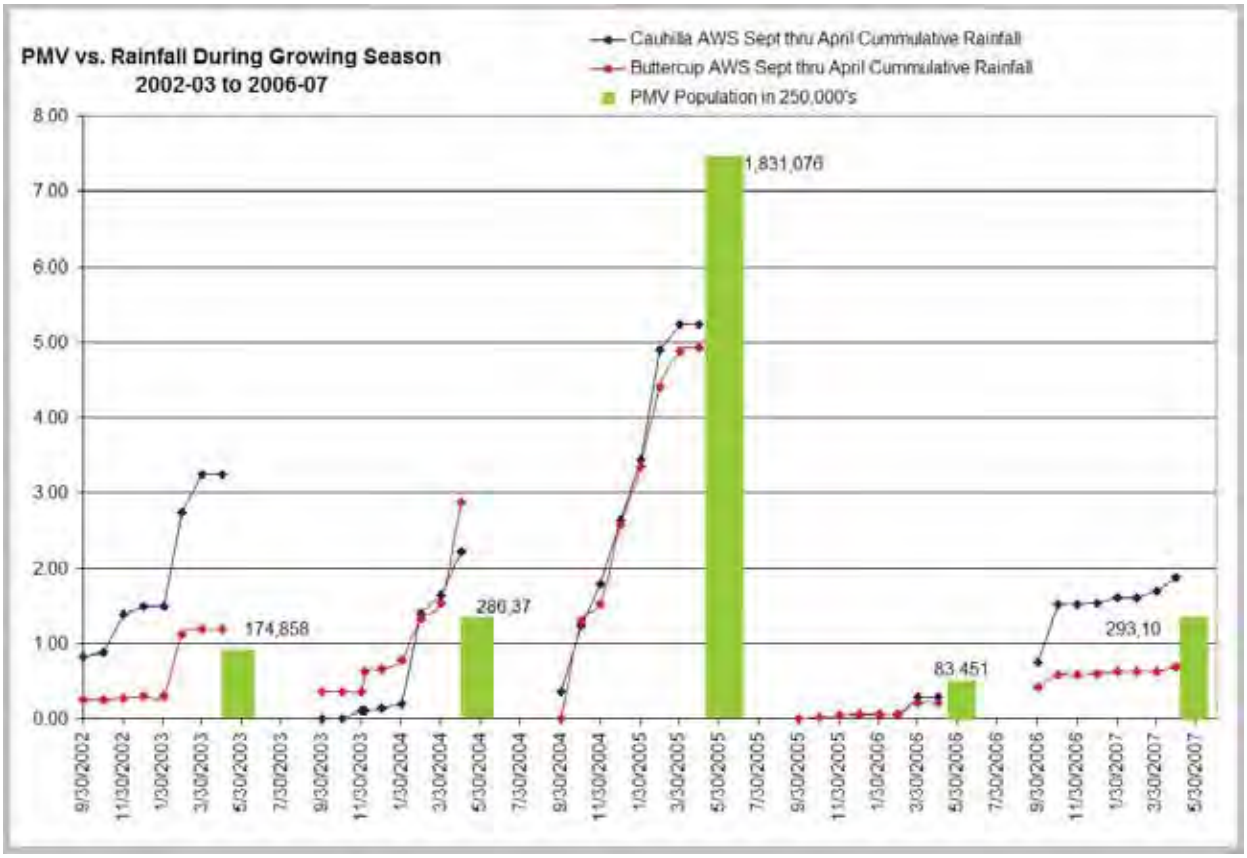
Thank you for your time and consideration.

Sincerely,

Scott Shaffstall
Glamis Rider since 1994.

From: Bryan Henry
To: caisdrmp@ca.blm.gov
Subject: ISDRA DRAMP Comment
Date: 07/15/2010 08:51 AM

My comment is in reference to the Critical Habitat portion of the DRAMP. Scientifically, anecdotally and historically, there is little to no justification for the proposed CH closures, nor is there justification for any future closures vis-a-vis PMV. In the attached graph, which references the studies conducted by Dr. Art Philips, and the AWS rainfall data freely available to the public, the correlation between rainfall and PMV plant count is telling enough to warrant further study. In addition, the exclusion of Dr. Philips' studies ignores a major component of our understanding of PMV. As these studies have been peer reviewed and generally accepted by the scientific community, their exclusion from consideration in the Management Plan provides for potential grounds for a lawsuit.



Bryan Henry
1225 W. Main St, #101-444
Mesa, AZ 85201

UNITED STATES MARINE CORPS
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BOX 555246
CAMP PENDLETON, CA 92055-5246

5090
WREC/pc
July 15, 2010

Ms. Erin Dreyfuss
Imperial Sand Dunes RAMP Project Manager
El Centro Field Office
Bureau of Land Management
1661 S. 4th Street
El Centro, California 92243

Dear Ms. Dreyfuss:

SUBJECT: RESPONSE TO NOTICE OF AVAILABILITY ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT (EIS) FOR THE IMPERIAL SAND DUNES RECREATION AREA MANAGEMENT PLAN (RAMP)

As Marine Corps Installations-West (MCIWEST), Western Regional Environmental Coordinator (WREC) for Region 9, we are submitting formal written comments to your office as the lead Federal Agency for the Imperial Sand Dunes Recreation Area (ISDRA) Management Plan (ISDRAMP) project and the EIS process.

MCIWEST recognizes the purpose and need to replace the previous 1987 and 2003 RAMP documents for the ISDRA in Imperial County, California. The Marine Corps supports the Bureau of Land Management's (BLM) efforts to update the RAMP to reflect changing conditions and management requirements for the ISDRA.

We are submitting specific comments with this letter to address our concerns over potential inadvertent off-highway vehicle access to the Marine Corps Chocolate Mountain Aerial Gunnery Range (CMAGR) immediately adjacent to the ISDRA, and the potential renewable energy and transmission development on the ISDRA that could impact Marine Corps missions on the CMAGR.

All OHV management alternatives indicate that an area bordering the southwest CMAGR along the Niland-Glamis (A.K.A. Ted-Kipf) Road would limit OHV use to designated routes of travel only. The Marine Corps has a heightened level of concern that potential OHVs may inadvertently stray into the CMAGR, exposing themselves to unsafe conditions which could result in fatalities, personal injury, or damaged equipment from military

operations. We recommend that BLM post all roads, which lead to the CMAGR, as "closed to public access."

Wind energy development and utility corridor designation, in the same location mentioned in the above paragraph, have been identified in the RAMP alternatives and have the potential to impact military testing and training. Specifically, the heights of renewable energy structures and transmission lines pose potential hazards to low-level aircraft entering and exiting the range airspace, as well as those transiting military training routes and special use airspace in and around the CMAGR. See BLM's ISDRAMP Draft EIS Map 2-28 *Utility Corridors and Communication Sites All Alternatives* for specified area. We recommend BLM coordinate with the MCIWEST WREC at the earliest stages of planning for any renewable energy and transmission development on the ISDRA to eliminate any hazards to low-level aircraft entering, exiting and transiting military training routes and special use airspace in and around the CMAGR.

MCIWEST stands ready to work with all concerned to see that this project goes forward with a solution that successfully balances both the RAMP and national defense

Thank you for the opportunity to participate in the scoping process. We look forward to further discussions with BLM on the Draft EIS in support of the ISDRAMP. The point of contact for Marine Corps Installations-West is Major Ernie Govea, Western Regional Environmental Coordination Office, telephone (760) 725-2631, email: ernest.govea@usmc.mil.

Sincerely,

Patrick L. Christman

PATRICK L. CHRISTMAN
Director, West Reg Environ Coord Off
By direction of the Commanding General
Marine Corps Installations-West

Copy to: CMC (LFL)
CO, MCAS Yuma

MR. EATON: Jay Eaton, E-A-T-O-N. Erin stated there was a question asked on how many times in the last recent 10 years this area would come to the area of meeting the rainfall requirements. How many times in the past 50 years of data, how many times in the last 50 years would this have been met, according to what you have as statistics?

MR. EATON: With that in hand, and if it came to January 15 and you went to close the Yuma Flats area and you want all these campers to go to another place, I know the funding is a big thing. What is your anticipation of how long it would be before you would be able to put over in Desert Vista or around Ogilby larger pads and areas for people to camp because a large amount of that area is real hard for everybody to get into.

MR. EATON: On the existing areas that are closed now with the signs that have been up there for years, would you say that there's a very good success ratio of keeping people out of the closed areas?

MR. EATON: Do you not think it would be prudent to leave the Dune Buggy Flats area open or do a better job of flagging the areas. I know sometimes it is pretty difficult as far as the distance between where the stakes are, as far as seeing those.

Do you not think it would be more prudent and certainly ruffle a lot less feathers if you did a better job of flagging off the areas that you want to keep people out of in that area rather than close Dune Buggy Flats to keep people away?

MR. EATON: My final comment is it was brought up as far as access lanes. It is a huge area. Do you not think it would be prudent to put in some fairly narrow access lanes along that area for access into it from the Sand Highway over?

MR. EATON: You are saying you think the best shot you have of getting this through the court is to do this plan as outlined. Is that correct?

MR. EATON: Thank you.

MR. CLEMENTS: John Clements. C-L-E-M-E-N-T-S. I would like to cite the Yuma Wetlands Reclamation Project which involves many entities, probably the Fish and Wildlife, right across the Colorado River north. The City of Yuma where this invasive plan called Tamarist took over a lot of the wetlands.

Through government grants and whatever, I got to go down there and actually work to reestablish native indigenous plants. They actually took bulldozers and leveled out, cleared out an area and reestablished this wonderful wetland that now is just north of the City of Yuma. You can see it from the freeway.

I would like to submit that and I just heard that there's a nursery or a greenhouse that might be propogating the PMV and I would certainly love to go there and plant seedlings. We can create a nice little area that is out of everybody's way with the right textures of sand and that kind of thing. We can help nature along, is what I would like to say.

MS. SCHNKE: Sheri Schnke. Real simple. Not technical. Why can't you move to the middle? Why does it have to be right there?

MS. SCHNKE: Only that specific area?

MR. BEELER: My name is Clinton Beeler. C-L-I-N-T-O-N B-E-E-L-E-R. I guess my comment is in the beginning of this whole thing it was brought up a couple times that some of the closures that were going to map up north were done because of economic reasons. Does the north end of Gecko Road, does it bring in more money than the south end of the dunes do and that's the reason is why they didn't get any closure up there and we are getting more closure on the south end?

MR. PRENDERGAST: My name is Gerry Prendergast G-E-R-R-Y. P-R-E-N-D-E-R-G-A-S-T. A few of the people have made the observation that the heaviest-traveled areas by the dune buggy class is where that PMV is growing at its best. It has been submitted that it very well may be that the PMV it thriving there so good because of the OHV use.

If that does, indeed, prove to be a fact, is there any sort of cause in the closure plan to reserve that? If the closure becomes detrimental to the PMV growth, is there any sort of cause to reserve that closure or does it have to go through another extended long, drawn-out process to reopen that area?

MR. PRENDERGAST: Thank you.

MR. WEATHERMAN: Stuart Weatherman. S-T-U-A-R-T W-E-A-T-H-E-R-M-A-N. Gary HeideLman had brought up the reseeding. We didn't really get a response to that.

MR. TABB: Shawn Tabb. S-H-A-W-N, T-A-B-B. The question was in the past decade, how many times has that threshold been met?

MR. CARMICKLE: Gene Carmickle. C-A-R-M-I-C-K-L-E. I represent the Dirty SOB Club here in the Valley. Appreciate you coming out to Arizona. You are going to actually ruin Ogilby here again and make your own road instead of a private road that is accessible now, also. How are you going to manage all these little slots going through here instead of making a nice, straight area for signage and stuff because right now, a lot of people find yourselves in protected areas because your signs are down from China Wall in.

You'd never know you were in protected area until you hit the dune stands. I am wondering if you square it, make it a more rectangled area. I am all for keeping Patton dune open, but also since you said the most density of your weeds is down in the southern part, is that because we are using it quite a bit?

MR. CARMICKLE: You just said that the highest percentage is in the southern part by Gordon's Well. That's where we are playing all the time. Is it possible we are doing it a favor?

MR. CARMICKLE: How are you going to mark and manage whether you should close if it is all jagged edges as it is on the map here? Because of the straight edges you are still not managing your wildlife enforcement?

MR. CARMICKLE: It is scored off too much to the east. Let's square it off more to the west.

MR. CARMICHAEL [*sic*]: What is the process this is going to take so we can go play again in the area that you temporarily closed? Is it possible even to temporarily open some of these places relatively soon or is it going to be hung up in court forever. I am getting old. My time is limited.

MR. THOMPSON: Daniel Thompson. T-H-O-M-P-S-O-N. I have a question. If the Game and Fish are so involved in the plan, why aren't there representatives here tonight?

MR. WIGHT: Timothy Wight. I am a member of the ASA in Arizona. I am representing myself and my family. First of all, to touch on what the gentleman just asked, you are providing extraordinary protection if it meets a rainfall threshold.

Sounds like you are assuming if people are camping there they will violate the closures in place and our history during the time that the current closure has been in place or that we follow the rules and respect the enclosures. There will always be the idiots out there that won't, they can still ride in from Buttercup across the bridge or come in from occasional side and violate the closure.

Having a camping closure after a certain threshold, unless you are assuming we will ignore the thresholds anyway, I don't know if it has been considered. It is a lot of forms. The economic impact with that alternative to Duners Diner, Sidewinder in Yuma that they changed the critical habitat for the north side because of the economic impact.

With that type of closure, there are a lot of people that won't be using Gordon's Well, even if they are allowed to camp there and go elsewhere, probably to the north side. It will definitely impact the businesses that are on the south end that need to be considered, as opposed to the alternative.

I do believe we need like an alternative A that we could look at. I know you said it was the highest driving area. It has been open. If ATVs are driving, it would be easy to make a logical conclusion to leave it open like it is now. Have some protected area that balances it out. Not to mention the other closed areas in the wilderness area that also needs to be considered. That way you could see monitors between closed areas and open areas and do a better study. Right now it is thriving business where we have been riding for 40 years.

If the alternatives can't be made from the canal to Patton area, you want to keep that critical habitat. I would urge that corridors, reasonable access, 100-yard corridors be put through there, otherwise, it will be unmanageable.

I can't believe that people will go all around either way and it will be set up for failure with that current closure right there. We do need to have some reasonable access. Not as much, but down from Patton Valley south, it would be unmanageable for the law enforcement side of it and set itself up for failure.

MR. WIGHT: Tim Wight again. I have a follow-up question. I appreciate the answer for that. How about the BLM rationalization when threshold rain is met in closing down Dune Buggy Flats for that extended period of time? How will that affect Duners Diner? Obviously, that is a large camping area. Some people go to Buttercup and Ogilby. Some will be pushed north to go to Blythe in Arizona and go through Raleigh and not visit those businesses on the south.

MR. WIGHT: I am talking about the BLM plan for the threshold enclosure. That is the extraordinary protection which should not be in there. The economic impact for that is the rain threshold.

MR. AMENSON: Steve Amenson. A-M-E-N-S-O-N. I would like to apologize if I missed something. I am not clear on what is accomplished by preventing RVs and trailers from camping at Dune Buggy Flats in the high rainfall years. What are we going to accomplish by prohibiting that? If I understand correctly, it was stated off-highway vehicle use will still be permitted in that area.

There would be no camping, which in my assumption means that you can still ride in those areas, you just can't bring your truck and haul your RV into that area to stay. I have been going there for 10 years. I tend to avoid the bushes and go in open sand areas. I am not sure I understand what the benefit of prohibiting RV and trailer traffic in that area would be.

MR. AMENSON: Perhaps I am not clear. I don't understand what is being accomplished is an area of high concentration as Pierson's Milk-vetch and the Dune Buggy Flats campground.

MR. HILL: Vahoa, V-A-H-O-A, last name is Hill. There has been a lot of the conversation about data. I would like to know what data we had is in force. What kind of economic impact is this going to have, both on the areas surrounding the dunes and in business and jobs that are dependent on this activity.

MR. HILL: From an environmental impact, currently now we have ex-number of people in a large area. Now you are probably going to have the same number or growing population in a smallish area. How is that going to effect the ecology of the area they we are in. Are we not worried about the outer area or only worried about the center? Do you understand my question?

MR. HILL: The issue was brought up about safety and egress issues. The pathways sounded like a good alternative. Still be able to allow egress and not have to take a four-mile drive to go a very short distance. That sounded like a great idea. That was it. I appreciate this forum. Thank you.

MR. HEITELMAN: My name is Gary Heitelmann, G-A-R-Y H-E-I-T-E-L-M-A-N. First of all, ladies and gentlemen and fellow duners, I'd like to thank you guys for giving Arizona a voice in a California issue. We appreciate it. I want to touch quickly on what Bryden and Bob talked about. That is access through those areas.

Alternative seven and eight are most beneficial for us. That area, obviously, shutting down the Patton Valley, which is a major point for everybody, a very high recreation area, makes it kind of tough. Some sort of give-and-take to keep that area open. They are also talking about areas of egress to get into that area for emergency reasons.

That's important, but why in that area that scales off to be 12 miles from bottom to top, why couldn't there be areas that bisect that are wide enough for people to get out there, not just emergency vehicles, but for actual access. You can put an area as wide as the Sand Highway for people to safely pass in both directions on several areas so they can get into the better part of the dunes and have some fun. That Gordon's Well area is going to start disbursing into all the other areas.

Now, you are taking a lot of people and putting them in fewer places, which are going to create, I think, a dangerous situation all together.

The little area you have in the bottom, that's fine. You have to go down the bottom or travel 12 miles north to get into the dunes. There's going to be a lot of traffic going in and out of the dunes. That creates major hazards. People are going to get hurt. People are going fast. Big rails, big buggies and people on little bikes. Kids on bikes, whatever, are not going to pay attention. You are putting a lot of traffic in a small area.

There will be some give-and-take to have a couple of swatches that cut through that area. Keep the little valleys closed where all this PMV is concentrated. Consider giving us that Valley as access to the dunes.

Also, about the solar wind areas around the perimeter of the dunes. What is east and west of those areas. Why is everybody centered around the perimeter of the dunes. There is a heck of a lot of land east and west of there. Let's make sure we focus on the dune area and make it even more difficult.

I am curious to why they are looking at that area only and why all that land out there is not being used. It is public land. There's plenty of sunlight out there, too. I have checked. Is there any way to plant. We clear out forests for lumber and replant to try to vitalize that area. Are we just going to stand there and let nature take its course as far as refurbishing it while the human element is trying to recreate? Can't there be any human involvement to stimulate the growth that isn't affected by human interaction.

Is it only cut-and-dry. We are the most intelligent, supposedly, beings on the face of the earth. You think we would come up with a way to help things flourish in that area that are indigenous to that area. We should focus a little bit on helping it as opposed to just cutting humans off so they can do it naturally.

My other questions and comments were taken care

of before. Thank you for coming out to Arizona.

MR. HEITELMAN: Gary Heitelman again. Just two quick things. Just as a layman, this area up here down to about here was closed down before. Now you are opening an area that was closed so the area was protected. Logic. But you are closing an area that was open, which that flies in the face of general logic. Closed area not growing so good, let's open it. Open area, growing great, let's close it. It doesn't make sense.

Also, is there a finite populative number that either Game and Fish, Sierra Club, needs to have if they are looking for it and say let's go ahead and open all the dunes or we are unhappy, let's close all the dunes. Without some kind of finite number there will never be a point where any real decision is made.

Is that data or expectation anywhere in that document or is that arbitrary that it will be left up to some Ninth Circuit Judge somewhere that won't make anybody happy except for the Sierra club or whoever. There has to be some finite number for all of us to look at and actual third-party study done to say where we are going. Are these closures helping or hurting, or she would do something else.

This isn't making sense. If you are going close anything, this was closed. Why can't this whole thing be shifted up. In my opinion, your closures and openings aren't doing what you are saying to us they are supposed to do.

From: robert
To: caisdrmp@ca.blm.gov
Subject: Ramp
Date: 07/14/2010 11:53 PM

This letter is to inform the BLM of my opinion on the upcoming RAMP.

Alternative #1 is what I think would be the best for the people and the BLM .

More dunes to use and ride = more people in the dunes

More people in the dunes = more revenue for the BLM.

In this economic time the BLM. Has to come up with ways to get more people to the dunes. so the dunes will support the BLM.

I am sending this email from Iraq where I am in support of the us army .

Thank you for the opportunity to comment on this issue .

Robert Harrison

Po Box 720640

Pinon Hills ca. 92372

(760) 868-2444

JEFFREY S. AAL
1155 SOUTH POWER ROAD
SUITE # 114-105
MESA, AZ 85206
480-628-6818, FAX 877-684-4788

July 18, 2010

RAMP Team Lead
Attention: Erin Dreyfuss
1661 South 4th Street
El Centro, CA 92243

Subject: Comments on 2010 Draft Recreation Area Management Plan (DRAMP)

Dear Ms Dreyfuss:

My name is Jeffrey S Aal My family and friends enjoy visits to the ISDRA throughout the winter months and are becoming increasingly active in their care and management through our activities during our visit to include litter removal, new visitor education, and self policing of our camp sites

I have recently had the opportunity to review the proposed RAMP alternatives As a stake holder in the outcome of these I would like to express my concern and state a preference as to a RAMP alternative While I would prefer that all areas south of highway 78 be reopened for public use without closures I am sensitive to the issues of endangered species and am realistic that full opening will not occur Therefore I would prefer seeing a hybrid solution of plan 7 and 8

Specifically it would appear that a minor realignment of closed areas could occur resulting in fewer incursions into closed areas I also note that any other alternative appears to adversely affect capacity during "wet" winters That is, the closure of the Gordon's Well southern dune area to camping would be a significant impact to the area in general It would affectively increase usage of the northern dunes area, decrease access to the southern dunes and significantly impact the access of Arizona residents It has been my anecdotal observation that the southern dunes are generally an Arizona destination whereas the northern dunes, i e Glamis, are a California destination

- **The closure of any areas to camping is unwarranted.**
- **Additional closures for critical habitat are unfounded.**
- **Realignment of the critical habitat areas will decrease incursions.**

As a responsible visitor to the ISDRA I would respectfully request that the selected RAMP alternative have a minimal impact in accordance with the concerns as outlined above

Thank you in advance for your consideration

Sincerely,

Jeffrey S Aal

From:	wes Freedle
To:	caisdrmp@ca.blm.gov
Subject:	Dune proposal
Date:	07/18/2010 03:51 PM

Dear Ms. Dreyfuss,

I have recently had the opportunity to review the proposed RAMP alternatives. As a stake holder in the outcome of these I would like to express my concern and state a preference as to a RAMP alternative. While I would prefer that all areas south of highway 78 be reopened for public use without closures I am sensitive to the issues of endangered species and am realistic that full opening will not occur. Therefore I would prefer seeing a hybrid solution of plan 7 and 8.

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As a responsible visitor to the ISDRA I would respectfully request that the selected RAMP alternative have a minimal impact in accordance with the concerns as outlined above.

Sincerely,
Wes Freedle
2488 freedle lane 6202510920
coffeyville,ks 67337

From: FOUR Z MFG
To: caisdrmp@ca.blm.gov
Subject: Dune closure
Date: 07/18/2010 04:05 PM

Dear Ms. Dreyfuss,

I have recently had the opportunity to review the proposed RAMP alternatives. As a stake holder in the outcome of these I would like to express my concern and state a preference as to a RAMP alternative. While I would prefer that all areas south of highway 78 be reopened for public use without closures I am sensitive to the issues of endangered species and am realistic that full opening will not occur. Therefore I would prefer seeing a hybrid solution of plan 7 and 8.

Specifically it would appear that a minor realignment of closed areas could occur resulting in less incursions into closed areas. I also note that any other alternative appears to adversely affect capacity during "wet" winters. That is, the closure of the Gordon's Well southern dune area to camping would be a significant impact to the area in general. It would increase usage of the northern dunes area, decrease access to the southern dunes and significantly impact the access of Arizona residents. It has been my anecdotal observation that the southern dunes are generally an Arizona destination whereas the northern dunes, I.e. Glamis, is a California destination.

As a responsible visitor to the ISDRA I would respectfully request that the selected RAMP alternative have a minimal impact in accordance with the concerns as outlined above.

Sincerely,

Glenn R. Ziesenis
Four Z Manufacturing
Shop Line 620-584-2218
Cell 316-655-3162
email fourzinc@sktc.net

From:	rwk
Reply To:	rwk@gcis.net
To:	caisdrmp@ca.blm.gov
Subject:	attention Erin Dreyfuss
Date:	07/18/2010 04:34 PM

Dear Ms. Dreyfuss,

I have recently had the opportunity to review the proposed RAMP alternatives. As a stake holder in the outcome of these I would like to express my concern and state a preference as to a RAMP alternative. While I would prefer that all areas south of highway 78 be reopened for public use without closures I am sensitive to the issues of endangered species and am realistic that full opening will not occur. Therefore I would prefer seeing a hybrid solution of plan 7 and 8.

Specifically it would appear that a minor realignment of closed areas could occur resulting in less incursions into closed areas. I also note that any other alternative appears to adversely affect capacity during “wet” winters. That is, the closure of the Gordon’s Well southern dune area to camping would be a significant impact to the area in general. It would increase usage of the northern dunes area, decrease access to the southern dunes and significantly impact the access of Arizona residents. It has been my anecdotal observation that the southern dunes are generally an Arizona destination whereas the northern dunes, i.e. Glamis, is a California destination.

As a responsible visitor to the ISDRA I would respectfully request that the selected RAMP alternative have a minimal impact in accordance with the concerns as outlined above.

Sincerely,
Richard Kosar
1336 St. Rte. 131
Milford, OHIO 45150
513 260-6129

From: Brenda Dennison
To: caisdrmp@ca.blm.gov
Subject: Attn: Erin Dreyfuss
Date: 07/19/2010 11:30 AM

-------- Original Message --------
Subject: Dune closures are coming. Please send a quick email to the BLM to voice concern:
Date: Sun, 18 Jul 2010 14:07:45 -0700
From: Jeffrey Aal <JAal@absoluteadjusting.com>
To: Shon A. Scism <sscism@yahoo.com>, 'Jason' <mrdubien@cox.net>, 'Randall Webb' <rrw2@pinnaclerestore.com>, rex@pinnaclerestore.com, floyd@pinnaclerestore.com, terrystearoff@juno.com, Jamie.E.Faulkner@emcins.com, 'Jeff Catlin' <jmcatlinturbo@yahoo.com>, 'Shana Noe' <SNoe@AbsoluteAdjusting.com>

Some information is below: They are planning some significant changes to the dunes. You can email concerns here: caisdrmp@ca.blm.gov attention Erin Dreyfuss.

Feel free to copy and paste from below: (You must include your contact information; address, phone, etc. Else the comments are not "valid."

Dear Ms. Dreyfuss,

I have recently had the opportunity to review the proposed RAMP alternatives. As a stake holder in the outcome of these I would like to express my concern and state a preference as to a RAMP alternative. While I would prefer that all areas south of highway 78 be reopened for public use without closures I am sensitive to the issues of endangered species and am realistic that full opening will not occur. Therefore I would prefer seeing a hybrid solution of plan 7 and 8.

Specifically it would appear that a minor realignment of closed areas could occur resulting in less incursions into closed areas. I also note that any other alternative appears to adversely affect capacity during "wet" winters. That is, the closure of the Gordon's Well southern dune area to camping would be a significant impact to the area in general. It would affectively increase usage of the northern dunes area, decrease access to the southern dunes and significantly impact the access of Arizona residents. It has been my anecdotal observation that the southern dunes are generally an Arizona destination whereas the northern dunes, i.e. Glamis, is a California destination.

As a responsible visitor to the ISDRA I would respectfully request that the selected RAMP alternative have a minimal impact in accordance with the concerns as outlined above.

Also, please note that we have been going to the dunes for 30 years as a family and would be devastated to lose this fun, family outing that had been a part of our lives for so long. We are responsible duners and don't destroy the environment.

Sincerely, Dan and Brenda Dennison

623-910-5849
Dunebuggy416@gmail.com

Special Report

The Deadline for Public Comments on the
Draft Imperial Sand Dune Recreation Management Plan is near.
OUR COMMENTS WILL COUNT.

If implemented as currently proposed by the BLM,

the new plan will

·INCREASE PERMANENT CLOSURES

·DECREASE CAMPING ACREAGE

·RESTRICT CAMP AREA USE

We need to make a difference. Please send in your comments.

CLICK HERE FOR aSa's OFFICIAL

COMMENTS

ASA Cover letter

Feel free to cut and paste

Dr. Art Phillip's Comments are HERE

Dr. Glenn Haas Comments are HERE

Members' Comments are HERE

Review the ASA suggested comments and email your personal comments to Erin Dreyfuss

or by US mail to:

BLM
attention Erin Dreyfuss
1661 S. 4th Street
El Centro, CA 92243

To view abbreviated suggested comments go to

ACT NOW: Have your comments in by Aug 7, 2010

(the Deadline is Aug 9)

Don't forget to include you contact info or your comments are void.

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"It's on time or it's FREE!
- The Absolute report guarantee."

From: phil3162@juno.com
To: caisdrmp@ca.blm.gov
Subject: Re:Comments on 2010 Draft Recreation Area Management Plan (DRAMP)
Date: 07/25/2010 02:50 PM

RAMP Team Lead
Attention: Erin Dreyfuss
1661 South 4th Street
El Centro, CA 92243

Dear Ms. Dreyfuss:
My name is Phillip Jennings . My family and friends enjoy visiting the imperial sand dunes throughout the winter months and are becoming increasingly active in their care and management through our activities during our visit to include litter removal, new visitor education, and self policing of our camp sites.

We have recently had the opportunity to review the proposed RAMP alternatives. As stake holders in the outcome of these We would like to express our concern and state a preference as to a RAMP alternative. We would prefer that all areas south of highway 78 be reopened for public use without closures, we are sensitive to the issues of endangered species and are realistic that full opening will not occur. Therefore we would prefer seeing a hybrid solution of plan 7 and 8.

Specifically it would appear that very little realignment of closed areas could occur resulting in fewer incursions into closed areas. Also note that any other alternative appears to adversely affect capacity during “wet” winters. That is, the closure of the Gordon’s Well southern dune area to camping would be a significant impact to the area in general. It would increase usage of the northern dunes area, decrease access to the southern dunes and significantly impact the access of us from Arizona. It has been our observation that the southern dunes are generally an Arizona destination whereas the northern dunes, i.e. Glamis, are a California destination.

- The closure of any areas to camping is unwarranted.
- Additional closures for critical habitat are unfounded.
- Realignment of the critical habitat areas will decrease incursions.

As a responsible visitor to the imperial sand dunes we would respectfully request that the selected RAMP alternative have a minimal impact in accordance with the concerns as what we have talked to in the above statements

Thank you in advance for your consideration.

Sincerely, Phil and Annie Jennings

From:	Dave
To:	caisdrmp@ca.blm.gov
Subject:	Attention Erin Dreyfuss
Date:	07/26/2010 09:25 PM

RAMP Team Lead
Attention: Erin Dreyfuss
1661 South 4th Street
El Centro, CA 92243

Subject: Comments on 2010 Draft Recreation Area Management Plan (DRAMP)

Dear Ms. Dreyfuss:
My name is David Lydick. My wife and I enjoy going to the Imperial Sand Dunes Recreational Area with our friends and coworkers. I have been going for the last 11 years and have introduced camping there with my wife. Her and I are both avid off-road enthusiasts and love spending time there together.

We recently had the opportunity to review the proposed RAMP alternatives. As a stake holder in the outcome of these I would like to express my concern and state a preference as to a RAMP alternative. While I would prefer that all areas south of highway 78 be reopened for public use without closures I am sensitive to the issues of endangered species and am realistic that full opening will not occur. Therefore I would prefer seeing a hybrid solution of plan 7 and 8.

Specifically it would appear that a minor realignment of closed areas could occur resulting in fewer incursions into closed areas. I also note that any other alternative appears to adversely affect capacity during “wet” winters. That is, the closure of the Gordon’s Well southern dune area to camping would be a significant impact to the area in general. It would increase usage of the northern dunes area, decrease access to the southern dunes and significantly impact the access of Arizona residents. It has been my anecdotal observation that the southern dunes are generally an Arizona destination whereas the northern dunes, i.e. Glamis, are a California destination.

- The closure of any areas to camping is unwarranted.
- Additional closures for critical habitat are unfounded.
- Realignment of the critical habitat areas will decrease incursions.

As responsible visitors to the ISDRA, we would respectfully request that the selected RAMP alternative have a minimal impact in accordance with the concerns as outlined above.

Thank you in advance for your consideration.

Sincerely,

David & Jamie Lydick
15816 S. 29th Street
Phoenix, AZ 85048

From: Cortni Dixon
To: caisdrmp@ca.blm.gov
Subject: Comments for RAMP 2010
Date: 07/25/2010 12:43 PM

Dear Ms. Dreyfuss:

My name is Cortni Dixon and I am an Arizona resident and avid off-roader. My family and friends enjoy visits to the ISDRA throughout the year and are active in their care and management through our activities during our visit to include litter removal, new visitor education, and self policing of our camp sites.

I have recently had the opportunity to review the proposed RAMP alternatives. As a stake holder in the outcome of these I would like to express my concern and state a preference as to a RAMP alternative. I cannot see a viable reason that prevents the areas south of highway 78 be reopened for public use without closures. I fully support the comments already submitted by the ASA including Dr. Art Phillip and Dr. Glenn Haas. Their has been several studies done by well-respected independent scientists that PROVE off-roading has zero to little impact on the so-called "endangered" species and the vitality of this plant is based on rainfall. For my 2nd preferred alternative, I would prefer seeing a hybrid solution of plan 7 and 8.

Specifically it would appear that a minor realignment of closed areas could occur resulting in fewer incursions into closed areas. I also note that any other alternative appears to adversely affect capacity during “wet” winters. That is, the closure of the Gordon’s Well southern dune area to camping would be a significant impact to the area in general. It would increase usage of the northern dunes area, and severely decrease access to the southern dunes.

- The closure of any areas to camping is unwarranted.
- Additional closures for critical habitat are unfounded.
- Realignment of the critical habitat areas will decrease incursions.

I have been going to the dunes for 10 years, my husband since the 1970's and his parents since the 1950s. We met at the dunes, got married at the dunes (Glamis), raising our kids going to Glamis, met some of the greatest people we have ever known at the dunes, and look forward to seeing future generations of our families going to the ISDRA. It is a HUGE part of our life and we hold a tremendous respect and reverence for the ISDRA. We appreciate the unique recreational opportunities it offers, from the off-roading, the unique plant life and animal life, and natural beauty that we are fortunate enough to access.

We are a "typical" hard working American family that enjoys the freedom to recreate in the public lands of the ISDRA. We are just like thousands of people that we have met over our years while duning, we work hard for what we have, and when we go to the dunes we spend our hard earned dollars at CA businesses, especially those that support the ISDRA.

We have been involved in the improvement and care of the ISDRA for years now. We attend clean-ups, we volunteer our time to assist in any way possible to educate people to the benefit of being a responsible duner, we personally helped landscape the South Dunes BLM Ranger Station. We pick up trash when we see it, we are compliant with all of the BLM regulations and support law enforcement. Over the years I have seen the "temporary" closures evolve into the "permanent" closures they are becoming. We complied with the "rules" and now tens of thousands of acres are closed to us, yet the plant continues to flourish OUTSIDE of the closures because of the rainfall. I believe if the closures were opened you would expand the riding area to support to amount of people that the ISDRA has visit every year and would resolve the "crowding" issues.

I am an American citizen that is a member of a close community of like-minded people. We don't have

the resources the "environmental" groups do, we don't have the huge amounts of money they have, or maybe the right political people in Sacramento and Washington DC, but we DO have an enormous loyalty to the ISDRA, and do pour millions of dollars into the surrounding communities of Brawley, El Centro, Blythe etc every year. We DO count for many of the areas in and around the ISDRA, and it is time that our voices are heard! As a long-time and loyal visitor to the ISDRA I would respectfully request that the selected RAMP comments I have shared above be considered.

Thank you in advance for your consideration.

Sincerely,

Cortni Dixon
1006 West Pecos
Mesa AZ 85210
480-495-1699
cdixon@e2cc.com
Proud member of the American Sand Association
Proud Member of GlamisDunes.com

RAMP Team Lead
Attention: Erin Dreyfuss
1661 South 4th Street
El Centro, CA 92243

Subject: Comments on 2010 Draft Recreation Area Management Plan (DRAMP)

Dear Ms. Dreyfuss:
My name is Craig Donaldson. My family and friends have enjoyed visits to the ISDRA fpr 23 years and we are active in their care and management through our activities during our visit to include litter removal, new visitor education, and self policing of our camp sites.

I have recently had the opportunity to review the proposed RAMP alternatives. As a stake holder in the outcome of these I would like to express my concern and state a preference as to a RAMP alternative. While I would prefer that all areas south of highway 78 be reopened for public use without closures I am sensitive to the issues of endangered species and am realistic that full opening will not occur. Therefore I would prefer seeing a hybrid solution of plan 7 and 8.

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- The closure of any areas to camping is unwarranted.
- Additional closures for critical habitat are unfounded.
- Realignment of the critical habitat areas will decrease incursions.

As a responsible visitor to the ISDRA I would respectfully request that the selected RAMP alternative have a minimal impact in accordance with the concerns as outlined above.

Thank you in advance for your consideration and your attentive concern.

Sincerely,
Craig Donaldson
310-351-6666

August 4, 2010

RAMP Team Lead
Attention: Erin Dreyfuss
1661 South 4th Street
El Centro, CA 92243

Subject: Comments on 2010 Draft Recreation Area Management Plan (DRAMP)

Dear Ms Dreyfuss:
My name is Anna Radice. My family and friends have been avid off road enthusiast for over twenty years. Our visits to the ISDRA throughout the winter months are very dear to us and we are extremely active in their care and management.

I have recently reviewed the proposed RAMP alternatives. As a stake holder in the outcome of these I would like to express my concern and state a preference as to a RAMP alternative. While I would prefer that all areas south of highway 78 be reopened for public use without closures I am sensitive to the issues of endangered species and am realistic that full opening will not occur. Therefore I would prefer seeing a hybrid solution of plan 7 and 8.

Specifically it would appear that a minor realignment of closed areas could occur resulting in fewer incursions into closed areas. I also note that any other alternative appears to adversely affect capacity during "wet" winters. That is, the closure of the Gordon's Well southern dune area to camping would be a significant impact to the area in general. It would increase usage of the northern dunes area, and severely decrease access to the southern dunes.

- The closure of any areas to camping is unwarranted.
- Additional closures for critical habitat are unfounded.
- Realignment of the critical habitat areas will decrease incursions.

Above all I ask that the Bureau of Land Management (BLM) implement a plan based on sound science, without bias and incomplete studies. Remember, the decisions made greatly affect thousands of families and generations to come

Thank you for considering my comments,

Anne Marie Radice

Anne-Marie Radice

From: Burt
To: caisdrmp@ca.blm.gov
Subject: DRAMP Comments
Date: 08/03/2010 05:19 PM

Dear Ms. Dreyfuss:

My name is Burt Neal and I am an Arizona resident and avid off-roader. My wife, son and friends enjoy visits to the ISDRA throughout the year and are active in their care and management through our activities during our visit to include litter removal, new visitor education, and self policing of our camp sites.

I have recently had the opportunity to review the proposed RAMP alternatives. As a stake holder in the outcome of these I would like to express my concern and state a preference as to a RAMP alternative. I cannot see a viable reason that prevents the areas south of highway 78 be reopened for public use without closures. I fully support the comments already submitted by the ASA including Dr. Art Phillip and Dr. Glenn Haas. There have been several studies done by well-respected independent scientists that PROVE off-roading has zero to little impact on the so-called "endangered" species and the vitality of this plant is based on rainfall. For my 2nd preferred alternative, I would prefer seeing a hybrid solution of plan 7 and 8.

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- The closure of any areas to camping is unwarranted.
- Additional closures for critical habitat are unfounded.
- Realignment of the critical habitat areas will decrease incursions.

I have been going to the dunes for 10 years and have met some of the greatest people we have ever known at the dunes, and look forward to seeing future generations of our families going to the ISDRA. It is a HUGE part of our life and we hold a tremendous respect and reverence for the ISDRA. We appreciate the unique recreational opportunities it offers, from the off-roading, the unique plant life and animal life, and natural beauty that we are fortunate enough to access.

We are a "typical" hard working American family that enjoys the freedom to recreate in the public lands of the ISDRA. We are just like thousands of people that we have met over our years while duning, we work hard for what we have, and when we go to the dunes we spend our hard earned dollars at CA businesses, especially those that support the ISDRA.

We have been involved in the improvement and care of the ISDRA for years now. We attend clean-ups, we volunteer our time to assist in any way possible to educate people to the benefit of being a responsible duner. We pick up trash when we see it, we are compliant with all of the BLM regulations and support law enforcement. Over the years I have seen the "temporary" closures evolve into the "permanent" closures they are becoming. We complied with the "rules" and now tens of thousands of acres are closed to us, yet the plant continues to flourish OUTSIDE of the closures because of the rainfall. I believe if the closures were opened you would expand the riding area to support to amount of people that the ISDRA has visit every year and would resolve the "crowding" issues.

I am an American citizen that is a member of a close community of like-minded people. We don't have the resources the "environmental" groups do, we don't have the huge amounts of money they have, or maybe the right political people in Sacramento and Washington DC, but we DO have an enormous loyalty to the ISDRA, and do pour millions of dollars into the surrounding communities of Brawley, El Centro, Blythe etc every year. We DO count for many of the areas in and around the ISDRA, and it is time that our voices are heard! As a long-time and loyal visitor to the ISDRA I would respectfully request that the selected RAMP comments I have shared above be considered.

Thank you in advance for your consideration.

Sincerely,

Burt R. Neal
1414 S 30th St.
Mesa, AZ 85204
480-216-1870
burt@housingourcommunities.org

From: Brian Bond
To: caisdrmp@ca.blm.gov
Subject: Sand dune comment submittal
Date: 08/04/2010 08:18 AM

Dear Ms. Dreyfuss:

My name is Brian Bond and I am an Arizona resident and avid off-roader. My family, friends and I enjoy visits to the ISDRA throughout the year and are active in their care and management through our activities during our visit to include litter removal, new visitor education, and self policing of our camp sites.

I have recently had the opportunity to review the proposed RAMP alternatives. As a stake holder in the outcome of these I would like to express my concern and state a preference as to a RAMP alternative. I cannot see a viable reason that prevents the areas south of highway 78 be reopened for public use without closures. I fully support the comments already submitted by the ASA including Dr. Art Phillip and Dr. Glenn Haas. There have been several studies done by well-respected independent scientists that PROVE off-roading has zero to little impact on the so-called "endangered" species and the vitality of this plant is based on rainfall. For my 2nd preferred alternative, I would prefer seeing a hybrid solution of plan 7 and 8.

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- The closure of any areas to camping is unwarranted.
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I have been going to the dunes for 10 years and have met some of the greatest people we have ever known at the dunes, and look forward to seeing future generations of our families going to the ISDRA. It is a HUGE part of our life and we hold a tremendous respect and reverence for the ISDRA. We appreciate the unique recreational opportunities it offers, from the off-roading, the unique plant life and animal life, and natural beauty that we are fortunate enough to access.

We are a "typical" hard working American family that enjoys the freedom to recreate in the public lands of the ISDRA. We are just like thousands of people that we have met over our years while duning, we work hard for what we have, and when we go to the dunes we spend our hard earned dollars at CA businesses, especially those that support the ISDRA.

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I am an American citizen that is a member of a close community of like-minded people. We don't have the resources the "environmental" groups do, we don't have the huge amounts of money they have, or maybe the right political people in Sacramento and Washington DC, but we DO have an enormous loyalty to the ISDRA, and do pour millions of dollars into the surrounding communities of Brawley, El Centro, Blythe etc every year. We DO count for many of the areas in and around the ISDRA, and it is time that our voices are heard! As a long-time and loyal visitor to the ISDRA I would respectfully request that the selected RAMP comments I have shared above be considered.

Thank you in advance for your consideration.

Sincerely,

Brian Bond
238 W. Ivyglen St
Mesa Arizona, 85201
(602)421-6571
bndstyle@hotmail.com

From: Robby Neal
To: caisdrmp@ca.blm.gov
Subject: Keep the Dunes open
Date: 08/04/2010 09:03 AM

Dear Ms. Dreyfuss:

My name is Robby Neal and I am an Arizona resident and avid off-roader. My family and friends enjoy visits to the ISDRA throughout the year and are active in their care and management through our activities during our visit to include litter removal, new visitor education, and self policing of our camp sites.

I have recently had the opportunity to review the proposed RAMP alternatives. As a stake holder in the outcome of these I would like to express my concern and state a preference as to a RAMP alternative. I cannot see a viable reason that prevents the areas south of highway 78 be reopened for public use without closures. I fully support the comments already submitted by the ASA including Dr. Art Phillip and Dr. Glenn Haas. There have been several studies done by well-respected independent scientists that PROVE off-roading has zero to little impact on the so-called "endangered" species and the vitality of this plant is based on rainfall. For my 2nd preferred alternative, I would prefer seeing a hybrid solution of plan 7 and 8.

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I have been going to the dunes for 10 years and have met some of the greatest people we have ever known at the dunes, and look forward to seeing future generations of our families going to the ISDRA. It is a HUGE part of our life and we hold a tremendous respect and reverence for the ISDRA. We appreciate the unique recreational opportunities it offers, from the off-roading, the unique plant life and animal life, and natural beauty that we are fortunate enough to access.

I am a "typical" hard working American that enjoys the freedom to recreate in the public lands of the ISDRA. I am just like thousands of people that I have met over our years while duning, I work hard for what I have, and when I go to the dunes I spend my hard earned dollars at CA businesses, especially those that support the ISDRA.

We have been involved in the improvement and care of the ISDRA for years now. We attend clean-ups, we volunteer our time to assist in any way possible to educate people to the benefit of being a responsible duner. We pick up trash when we see it, we are compliant with all of the BLM regulations and support law enforcement. Over the years I have seen the "temporary" closures evolve into the "permanent" closures they are becoming. We complied with the "rules" and now tens of thousands of acres are closed to us, yet the plant continues to flourish OUTSIDE of the closures because of the rainfall. I believe if the closures were opened you would expand the riding area to support to amount of people that the ISDRA has visit every year and would resolve the "crowding" issues.

I am an American citizen that is a member of a close community of like-minded people. We don't have the resources the "environmental" groups do, we don't have the huge amounts of money they have, or maybe the right political people in Sacramento and Washington DC, but we DO have an enormous loyalty to the ISDRA, and do pour millions of dollars into the surrounding communities of Brawley, El Centro, Blythe etc every year. We DO count for many of the areas in and around the ISDRA, and it is time that our voices are heard! As a long-time and loyal visitor to the ISDRA I would respectfully request that the selected RAMP comments I have shared above be considered.

Thank you in advance for your consideration.

Sincerely,

Robby Neal
238 W Ivyglen St
Mesa, AZ 85201
480-720-8135
robbyneal@hotmail.com

Robby B. Neal
Property Development Specialist
Housing Our Communities, Inc
Housing For Nevada, Inc
(480)649-1335 phone
(480)649-1020 fax

From: PRupprecht@henselphelps.com
To: caisdrmp@ca.blm.gov
Subject: Attention Erin Dreyfuss
Date: 08/04/2010 05:03 PM

Subject: Comments on 2010 Draft Recreation Area Management Plan (DRAMP)

Dear Ms. Dreyfuss:

My name is Paul Rupprecht. My fiancé and I enjoy going to the Imperial Sand Dunes Recreational Area with our friends and coworkers. I have been going for the last 3 years and have introduced star gazing there to my fiancé. Her and I are both avid off-road enthusiasts and love spending time there together.

We recently had the opportunity to review the proposed RAMP alternatives. As a stake holder in the outcome of these I would like to express my concern and state a preference as to a RAMP alternative. While I would prefer that all areas south of highway 78 be reopened for public use without closures I am sensitive to the issues of endangered species and am realistic that full opening will not occur. Therefore I would prefer seeing a hybrid solution of plan 7 and 8.

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- The closure of any areas to camping is unwarranted.
- Additional closures for critical habitat are unfounded.
- Realignment of the critical habitat areas will decrease incursions.

As responsible visitors to the ISDRA, we would respectfully request that the selected RAMP alternative have a minimal impact in accordance with the concerns as outlined above.

Thank you in advance for your consideration.

Sincerely,

Paul Rupprecht
1441 E Topeka Drive
Phoenix, AZ 85024

From: RPierce@henselphelps.com
To: caisdrmp@ca.blm.gov
Subject: Attention Erin Dreyfuss
Date: 08/05/2010 05:59 AM

Subject: Comments on 2010 Draft Recreation Area Management Plan (DRAMP)

Dear Ms. Dreyfuss:

My name is Russell Pierce. My family and I enjoy going to the Imperial Sand Dunes Recreational Area with our friends and coworkers. I have been going for the last 4 years. We are avid off-road enthusiasts and love spending time there together.

We recently had the opportunity to review the proposed RAMP alternatives. As a stake holder in the outcome of these I would like to express my concern and state a preference as to a RAMP alternative. While I would prefer that all areas south of highway 78 be reopened for public use without closures I am sensitive to the issues of endangered species and am realistic that full opening will not occur. Therefore I would prefer seeing a hybrid solution of plan 7 and 8.

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- The closure of any areas to camping is unwarranted.
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- Realignment of the critical habitat areas will decrease incursions.

As responsible visitors to the ISDRA, we would respectfully request that the selected RAMP alternative have a minimal impact in accordance with the concerns as outlined above.

Thank you in advance for your consideration.

Russell Pierce
502 S. 24th St.
Phoenix, AZ 85034

From: Andrew.Norton@henselphelps.com
To: caisdrmp@ca.blm.gov
Subject: Attention Erin Dreyfuss
Date: 08/05/2010 08:27 AM

Subject: Comments on 2010 Draft Recreation Area Management Plan (DRAMP)

Dear Ms. Dreyfuss:

My name is Andrew Norton. My girlfriend and I enjoy going to the Imperial Sand Dunes Recreational Area with our friends and coworkers. I only recently moved to the Southwest from the Midwest and would have never imagined something as fun and exhilarating as the dunes and introduced her to campfire socializing. Her and I are both avid off-road enthusiasts and love spending time there together.

We recently had the opportunity to review the proposed RAMP alternatives. As a stake holder in the outcome of these I would like to express my concern and state a preference as to a RAMP alternative. While I would prefer that all areas south of highway 78 be reopened for public use without closures I am sensitive to the issues of endangered species and am realistic that full opening will not occur. Therefore I would prefer seeing a hybrid solution of plan 7 and 8.

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- The closure of any areas to camping is unwarranted.
- Additional closures for critical habitat are unfounded.
- Realignment of the critical habitat areas will decrease incursions.

As responsible visitors to the ISDRA, we would respectfully request that the selected RAMP alternative have a minimal impact in accordance with the concerns as outlined above.

Thank you in advance for your consideration.

Sincerely,

Andrew Norton
606 W. Colt Rd
Chandler, AZ 85225

From: Dan Jaques
To: caisdrmp@ca.blm.gov
Subject: Comments on 2010 Draft Recreation Area Management Plan (DRAMP)
Date: 08/04/2010 01:58 PM

Dear Ms. Dreyfuss,

I have been a frequent visitor to the ISDRA since I was a young child in the early 80's and as an adult since 1999. I have several cherished photographs as a child sitting in my grandfather's dune buggy or on the gas tank of my dad's ATC. I hope one day to repeat these same memories with my children and eventually my grandchildren. In order to preserve this area I would like to register with you my suggestions for the 2010 DRAMP. It is my preference that all areas south of highway 78 be reopened for public use. By now I'm sure you heard from others about the lack of scientific foundation for the central closures so I won't waste your time by repeating these references. It is my recollection that the closures instituted in 2000 where intended to be temporary in order to further study the effect of OHV use on the PMV. It is my belief that all evidence both scientific and anecdotal point to a negligible impact on the PMV and warrant the immediate opening of the temporary closures. My main points of concern regarding the 2010 DRAMP are as follows:

- The reopening of the closed areas south of highway 78
- No new closures of any riding areas south of highway 78
- No camping closures of any kind.

Thank you for your time.

Dan Jaques

From: mesmega@cox.net
To: caisdrmp@ca.blm.gov
Subject: Comments on 2010 Draft Recreation Area Management Plan (DRAMP)
Date: 08/04/2010 11:35 AM

August 4, 2010

RAMP Team Lead
Attention: Erin Dreyfuss
1661 South 4th Street
El Centro, CA 92243

Subject: Comments on 2010 Draft Recreation Area Management Plan (DRAMP)

Dear Ms. Dreyfuss:
My name is Anna Radice. My family and friends have been avid off road enthusiast for over twenty years. Our visits to the ISDRA throughout the winter months are very dear to us and we are extremely active in their care and management.

I have recently reviewed the proposed RAMP alternatives. As a stake holder in the outcome of these I would like to express my concern and state a preference as to a RAMP alternative. While I would prefer that all areas south of highway 78 be reopened for public use without closures I am sensitive to the issues of endangered species and am realistic that full opening will not occur. Therefore I would prefer seeing a hybrid solution of plan 7 and 8.
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Above all I ask that the Bureau of Land Management (BLM) implement a plan based on sound science, without bias and incomplete studies. Remember, the decisions made greatly affect thousands of families and generations to come.

Thank you for considering my comments,

Anne-Marie Radice

From: BILL FRITZ
To: caisdrmp@ca.blm.gov
Subject: RAMP
Date: 08/04/2010 08:22 AM

RAMP Team Lead
Attention: Erin Dreyfuss
1661 South 4th Street
El Centro, CA 92243

Subject: Comments on 2010 Draft Recreation Area Management Plan (DRAMP)

Dear Ms. Dreyfuss:
My name is William Fritz. My wife and I enjoy going to the Imperial Sand Dunes Recreational Area with our friends and coworkers. I have been going for the last 17 years and have introduced camping there to my wife. Her and I are both avid off-road enthusiasts and love spending time there together.

We recently had the opportunity to review the proposed RAMP alternatives. As a stake holder in the outcome of these I would like to express my concern and state a preference as to a RAMP alternative. While I would prefer that all areas south of highway 78 be reopened for public use without closures I am sensitive to the issues of endangered species and am realistic that full opening will not occur. Therefore I would prefer seeing a hybrid solution of plan 7 and 8.

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As responsible visitors to the ISDRA, we would respectfully request that the selected RAMP alternative have a minimal impact in accordance with the concerns as outlined above.

Thank you in advance for your consideration.

Sincerely,

William Fritz
17207 Rising Dale Way
Ramona, CA 92065

From: Stacy Neal
To: caisdrmp@ca.blm.gov
Subject: Sand Dunes - comments
Date: 08/05/2010 10:03 AM

Dear Ms. Dreyfuss:

My name is Stacy Neal and I am an Arizona resident and avid off-roader. My husband, son and friends enjoy visits to the ISDRA throughout the year and are active in their care and management through our activities during our visit to include litter removal, new visitor education, and self policing of our camp sites.

I have recently had the opportunity to review the proposed RAMP alternatives. As a stake holder in the outcome of these I would like to express my concern and state a preference as to a RAMP alternative. I cannot see a viable reason that prevents the areas south of highway 78 be reopened for public use without closures. I fully support the comments already submitted by the ASA including Dr. Art Phillip and Dr. Glenn Haas. There have been several studies done by well-respected independent scientists that PROVE off-roading has zero to little impact on the so-called "endangered" species and the vitality of this plant is based on rainfall. For my 2nd preferred alternative, I would prefer seeing a hybrid solution of plan 7 and 8.

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We are a "typical" hard working American family that enjoys the freedom to recreate in the public lands of the ISDRA. In fact, I work for a non-profit organization that changes lives every day and I would expect my government and those who are making decisions about my life would take into consideration all of us who visist the imperial sand dunes and enjoy all of our holidays there. We are just like thousands of people that we have met over our years while duning, we work hard for what we have, and when we go to the dunes we spend our hard earned dollars at CA businesses, especially those that support the ISDRA.

We have been involved in the improvement and care of the ISDRA for years now. We attend clean-ups, we volunteer our time to assist in any way possible to educate people to the benefit of being a responsible duner. We pick up trash when we see it, we are compliant with all of the BLM regulations and support law enforcement. Over the years I have seen the "temporary" closures evolve into the "permanent" closures they are becoming. We complied with the "rules" and now tens of thousands of acres are closed to us, yet the plant continues to flourish OUTSIDE of the closures because of the rainfall. I believe if the closures were opened you would expand the riding area to support to amount of people that the ISDRA has visit every year and would resolve the "crowding" issues.

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Thank you in advance for your consideration.

Sincerely,

--
Stacy L. Neal
1414 S. 30th Street
Mesa, AZ 85204
602-451-2473 cell

RAMP Team Lead
Attention Erin Dreyfuss
1661 South 4th Street
El Centro, CA 92243

Subject: Comments on 2010 Draft Recreation Area Management Plan (DRAMP)

Dear Ms Dreyfuss:

I have recently had the opportunity to review the proposed RAMP alternatives. As a stake holder in the outcome of these proceedings I would like to express my concern and state a preference as to a RAMP alternative

It would appear that a minor realignment of closed areas could occur resulting in fewer incursions into closed areas. I object to any alternative that would adversely affect camping capacity during "wet" winters That is, the closure of the Dune Buggy Flats I am in support of a compromise as outlined by the American Sand Association (A S A)

- **The closure of any areas to camping is unwarranted.**
- **Additional closures for critical habitat are unfounded.**
- **Realignment of the existing critical habitat areas will decrease incursions.**
- **I am in support of the A.S.A. recommendations.**

As a responsible visitor to the ISDRA I would respectfully request that the selected RAMP alternative have a minimal impact in accordance with the concerns as outlined above and as outlined by the American Sand Association (A S A)

Thank you in advance for your consideration

Sincerely,

Heather Nash
Heather NASH
5905 Saguaro Dr
Apache Jct., Az
85120

RAMP Team Lead
Attention Erin Dreyfuss
1661 South 4th Street
El Centro, CA 92243

Subject: Comments on 2010 Draft Recreation Area Management Plan (DRAMP)

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- **The closure of any areas to camping is unwarranted.**
- **Additional closures for critical habitat are unfounded.**
- **Realignment of the existing critical habitat areas will decrease incursions.**
- **I am in support of the A.S.A. recommendations.**

As a responsible visitor to the ISDRA I would respectfully request that the selected RAMP alternative have a minimal impact in accordance with the concerns as outlined above and as outlined by the American Sand Association (A.S A.)

Thank you in advance for your consideration

Sincerely,

JC Cooney
JMC
623 W Guadalupe Rd #103
Mesa Az 85210
480-283-3837

RAMP Team Lead
Attention Erin Dreyfuss
1661 South 4th Street
El Centro, CA 92243

Subject: Comments on 2010 Draft Recreation Area Management Plan (DRAMP)

Dear Ms Dreyfuss:

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- **Additional closures for critical habitat are unfounded.**
- **Realignment of the existing critical habitat areas will decrease incursions.**
- **I am in support of the A.S.A. recommendations.**

As a responsible visitor to the ISDRA I would respectfully request that the selected RAMP alternative have a minimal impact in accordance with the concerns as outlined above and as outlined by the American Sand Association (A S A.)

Thank you in advance for your consideration

Sincerely,

Kelly Voris

3845 S. Angler dr.
Gilbert, AZ 85297

480-272-6098

RAMP Team Lead
Attention Erin Dreyfuss
1661 South 4th Street
El Centro, CA 92243

Subject: Comments on 2010 Draft Recreation Area Management Plan (DRAMP)

Dear Ms. Dreyfuss:

I have recently had the opportunity to review the proposed RAMP alternatives. As a stake holder in the outcome of these proceedings I would like to express my concern and state a preference as to a RAMP alternative

It would appear that a minor realignment of closed areas could occur resulting in fewer incursions into closed areas. I object to any alternative that would adversely affect camping capacity during "wet" winters. That is, the closure of the Dune Buggy Flats. I am in support of a compromise as outlined by the American Sand Association (A.S.A.).

- **The closure of any areas to camping is unwarranted.**
- **Additional closures for critical habitat are unfounded.**
- **Realignment of the existing critical habitat areas will decrease incursions.**
- **I am in support of the A.S.A. recommendations.**

As a responsible visitor to the ISDRA I would respectfully request that the selected RAMP alternative have a minimal impact in accordance with the concerns as outlined above and as outlined by the American Sand Association (A.S.A.)

Thank you in advance for your consideration

Sincerely,

Jim Cox

Jim Cox

16630 N. 43rd Ave #285

602-885-7927

RAMP Team Lead
Attention Erin Dreyfuss
1661 South 4th Street
El Centro, CA 92243

Subject: Comments on 2010 Draft Recreation Area Management Plan (DRAMP)

Dear Ms. Dreyfuss:

I have recently had the opportunity to review the proposed RAMP alternatives As a stake holder in the outcome of these proceedings I would like to express my concern and state a preference as to a RAMP alternative

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- **The closure of any areas to camping is unwarranted.**
- **Additional closures for critical habitat are unfounded.**
- **Realignment of the existing critical habitat areas will decrease incursions.**
- **I am in support of the A.S.A. recommendations.**

As a responsible visitor to the ISDRA I would respectfully request that the selected RAMP alternative have a minimal impact in accordance with the concerns as outlined above and as outlined by the American Sand Association (A S A)

Thank you in advance for your consideration

Sincerely,

Christina Morrissette
15815 S Yakewood Pky W
#2025
Phoenix Az 85048
602-814-6682

RAMP Team Lead
Attention Erin Dreyfuss
1661 South 4th Street
El Centro, CA 92243

Subject: Comments on 2010 Draft Recreation Area Management Plan (DRAMP)

Dear Ms Dreyfuss:

I have recently had the opportunity to review the proposed RAMP alternatives As a stake holder in the outcome of these proceedings I would like to express my concern and state a preference as to a RAMP alternative

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- **Additional closures for critical habitat are unfounded.**
- **Realignment of the existing critical habitat areas will decrease incursions.**
- **I am in support of the A.S.A. recommendations.**

As a responsible visitor to the ISDRA I would respectfully request that the selected RAMP alternative have a minimal impact in accordance with the concerns as outlined above and as outlined by the American Sand Association (A S A.)

Thank you in advance for your consideration

Sincerely,

Katrina Morales
8762 E. Caval Ave
Mesa, AZ 85208
480-650-1544

RAMP Team Lead
Attention Erin Dreyfuss
1661 South 4th Street
El Centro, CA 92243

Subject: Comments on 2010 Draft Recreation Area Management Plan (DRAMP)

Dear Ms Dreyfuss:

I have recently had the opportunity to review the proposed RAMP alternatives As a stake holder in the outcome of these proceedings I would like to express my concern and state a preference as to a RAMP alternative

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- **Additional closures for critical habitat are unfounded.**
- **Realignment of the existing critical habitat areas will decrease incursions.**
- **I am in support of the A.S.A. recommendations.**

As a responsible visitor to the ISDRA I would respectfully request that the selected RAMP alternative have a minimal impact in accordance with the concerns as outlined above and as outlined by the American Sand Association (A S A)

Thank you in advance for your consideration

Sincerely,

Bradley A Schultz
2451 W Friesian Dr
San Tan Valley, AZ 85140

RAMP Team Lead
Attention Erin Dreyfuss
1661 South 4th Street
El Centro, CA 92243

Subject: Comments on 2010 Draft Recreation Area Management Plan (DRAMP)

Dear Ms Dreyfuss:

I have recently had the opportunity to review the proposed RAMP alternatives. As a stake holder in the outcome of these proceedings I would like to express my concern and state a preference as to a RAMP alternative.

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- **Additional closures for critical habitat are unfounded.**
- **Realignment of the existing critical habitat areas will decrease incursions.**
- **I am in support of the A.S.A. recommendations.**

As a responsible visitor to the ISDRA I would respectfully request that the selected RAMP alternative have a minimal impact in accordance with the concerns as outlined above and as outlined by the American Sand Association (A S A).

Thank you in advance for your consideration

Sincerely,

Floyd Jay Corns
421 S Honeysuckle Rd
Gilbert AZ 85296

(480) 570-7482

RAMP Team Lead
Attention Erin Dreyfuss
1661 South 4th Street
El Centro, CA 92243

Subject: Comments on 2010 Draft Recreation Area Management Plan (DRAMP)

Dear Ms. Dreyfuss:

I have recently had the opportunity to review the proposed RAMP alternatives As a stake holder in the outcome of these proceedings I would like to express my concern and state a preference as to a RAMP alternative

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- **Additional closures for critical habitat are unfounded.**
- **Realignment of the existing critical habitat areas will decrease incursions.**
- **I am in support of the A.S.A. recommendations.**

As a responsible visitor to the ISDRA I would respectfully request that the selected RAMP alternative have a minimal impact in accordance with the concerns as outlined above and as outlined by the American Sand Association (A S A)

Thank you in advance for your consideration

Sincerely,

Jeff Henderson
1342 S Salem
Mesa AZ 85706

480 570 2738

RAMP Team Lead
Attention Erin Dreyfuss
1661 South 4th Street
El Centro, CA 92243

Subject: Comments on 2010 Draft Recreation Area Management Plan (DRAMP)

Dear Ms Dreyfuss:

I have recently had the opportunity to review the proposed RAMP alternatives As a stake holder in the outcome of these proceedings I would like to express my concern and state a preference as to a RAMP alternative

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- **I am in support of the A.S.A. recommendations.**

As a responsible visitor to the ISDRA I would respectfully request that the selected RAMP alternative have a minimal impact in accordance with the concerns as outlined above and as outlined by the American Sand Association (A S A)

Thank you in advance for your consideration

Sincerely,

ALEXANDER HYDE
APA, HJ.
39453 N ZAMPINO ST.
SAN TAN VALLEY, AZ 85140
480 298 3547

RAMP Team Lead
Attention Erin Dreyfuss
1661 South 4th Street
El Centro, CA 92243

Subject: Comments on 2010 Draft Recreation Area Management Plan (DRAMP)

Dear Ms. Dreyfuss:

I have recently had the opportunity to review the proposed RAMP alternatives As a stake holder in the outcome of these proceedings I would like to express my concern and state a preference as to a RAMP alternative

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- **I am in support of the A.S.A. recommendations.**

As a responsible visitor to the ISDRA I would respectfully request that the selected RAMP alternative have a minimal impact in accordance with the concerns as outlined above and as outlined by the American Sand Association (A S A).

Thank you in advance for your consideration.

Sincerely,

Diane M Kopf

Diane Kopf
4519 E. VERBENA DR
PHOENIX, AZ 85044
(480) 650-3585

RAMP Team Lead
Attention Erin Dreyfuss
1661 South 4th Street
El Centro, CA 92243

Subject: Comments on 2010 Draft Recreation Area Management Plan (DRAMP)

Dear Ms. Dreyfuss:

I have recently had the opportunity to review the proposed RAMP alternatives As a stake holder in the outcome of these proceedings I would like to express my concern and state a preference as to a RAMP alternative

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As a responsible visitor to the ISDRA I would respectfully request that the selected RAMP alternative have a minimal impact in accordance with the concerns as outlined above and as outlined by the American Sand Association (A S A)

Thank you in advance for your consideration

Sincerely,

Randall Webb

Randall Webb
2894 E Waterman Ct
Gilbert AZ 85209

RAMP Team Lead
Attention Erin Dreyfuss
1661 South 4th Street
El Centro, CA 92243

Subject: Comments on 2010 Draft Recreation Area Management Plan (DRAMP)

Dear Ms Dreyfuss:

I have recently had the opportunity to review the proposed RAMP alternatives As a stake holder in the outcome of these proceedings I would like to express my concern and state a preference as to a RAMP alternative

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As a responsible visitor to the ISDRA I would respectfully request that the selected RAMP alternative have a minimal impact in accordance with the concerns as outlined above and as outlined by the American Sand Association (A.S.A.)

Thank you in advance for your consideration

Sincerely,

3121 E 33rd Place
Yuma AZ 85365
(928) 783-5668

RAMP Team Lead
Attention Erin Dreyfuss
1661 South 4th Street
El Centro, CA 92243

Subject: Comments on 2010 Draft Recreation Area Management Plan (DRAMP)

Dear Ms Dreyfuss:

I have recently had the opportunity to review the proposed RAMP alternatives As a stake holder in the outcome of these proceedings I would like to express my concern and state a preference as to a RAMP alternative

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Thank you in advance for your consideration

Sincerely,

A. Trumpore
Alexis Trumpore
1008 W. Sherri Dr.
Gilbert Az, 85233

RAMP Team Lead
Attention Erin Dreyfuss
1661 South 4th Street
El Centro, CA 92243

Subject: Comments on 2010 Draft Recreation Area Management Plan (DRAMP)

Dear Ms Dreyfuss:

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As a responsible visitor to the ISDRA I would respectfully request that the selected RAMP alternative have a minimal impact in accordance with the concerns as outlined above and as outlined by the American Sand Association (A S A)

Thank you in advance for your consideration

Sincerely,

ERIC ADAMS
1035 N. PARKER ST.
ORANGE, CA 92867

RAMP Team Lead
Attention Erin Dreyfuss
1661 South 4th Street
El Centro, CA 92243

Subject: Comments on 2010 Draft Recreation Area Management Plan (DRAMP)

Dear Ms. Dreyfuss:

I have recently had the opportunity to review the proposed RAMP alternatives As a stake holder in the outcome of these proceedings I would like to express my concern and state a preference as to a RAMP alternative.

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- **Additional closures for critical habitat are unfounded.**
- **Realignment of the existing critical habitat areas will decrease incursions.**
- **I am in support of the A.S.A. recommendations.**

As a responsible visitor to the ISDRA I would respectfully request that the selected RAMP alternative have a minimal impact in accordance with the concerns as outlined above and as outlined by the American Sand Association (A S A.)

Thank you in advance for your consideration

Sincerely,

David L. Klein

DAVID L KLEIN
812 W. Baker Ave
Fullerton, CA 92832

RAMP Team Lead
Attention Erin Dreyfuss
1661 South 4th Street
El Centro, CA 92243

Subject: Comments on 2010 Draft Recreation Area Management Plan (DRAMP)

Dear Ms Dreyfuss:

I have recently had the opportunity to review the proposed RAMP alternatives. As a stake holder in the outcome of these proceedings I would like to express my concern and state a preference as to a RAMP alternative

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- **Realignment of the existing critical habitat areas will decrease incursions.**
- **I am in support of the A.S.A. recommendations.**

As a responsible visitor to the ISDRA I would respectfully request that the selected RAMP alternative have a minimal impact in accordance with the concerns as outlined above and as outlined by the American Sand Association (A S A)

Thank you in advance for your consideration

Sincerely,

16425 Harbor Blvd Apt 89
Fountain Valley, CA 92708

RAMP Team Lead
Attention Erin Dreyfuss
1661 South 4th Street
El Centro, CA 92243

Subject: Comments on 2010 Draft Recreation Area Management Plan (DRAMP)

Dear Ms Dreyfuss:

I have recently had the opportunity to review the proposed RAMP alternatives As a stake holder in the outcome of these proceedings I would like to express my concern and state a preference as to a RAMP alternative

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- **The closure of any areas to camping is unwarranted.**
- **Additional closures for critical habitat are unfounded.**
- **Realignment of the existing critical habitat areas will decrease incursions.**
- **I am in support of the A.S.A. recommendations.**

As a responsible visitor to the ISDRA I would respectfully request that the selected RAMP alternative have a minimal impact in accordance with the concerns as outlined above and as outlined by the American Sand Association (A.S.A.)

Thank you in advance for your consideration

Sincerely,

Steve Marshall

7831 Shaffer Circle #3

Huntington Beach, Ca. 92648

From: Justin Smith
To: caisdrmp@ca.blm.gov
Subject: Comments on 2010 Draft Recreation Area Management Plan (DRAMP)
Date: 08/04/2010 02:46 PM

RAMP Team Lead
Attention: Erin Dreyfuss
1661 South 4th Street
El Centro, CA 92243

Dear Ms. Dreyfuss:

My name is Justin Smith. I made my first visit to the ISDRA over 20 years ago. Since then I have been returning routinely along with my family and my friends. We are conscientious visitors who purchase annual passes, follow the laws and clean up after ourselves and other people. We are increasingly active in our concern for the dunes. Our activities during our visits to include litter removal, new visitor education, and self policing of our camp sites. I typically visit the ISDRA an average of once a month during the span of October - April. As you can imagine, the ISDRA is a location I hold very dear - frankly speaking it is my favorite place in the world. My feelings on the topic of this email are very passionate.

I recently had the opportunity to review the proposed RAMP alternatives. As a stake holder in the outcome of these I would like to express my concern and state a preference as to a RAMP alternative. While I would prefer that all areas south of highway 78 be reopened for public use without closures, I am sensitive to the issues of endangered species. However, notable subject matter experts have studied the area and have come to the conclusion that the Pierson's Milk Vetch is a very resilient plant that is unaffected by off road vehicles. Rainfall has been identified as the key item linked to the success or demise of the Pierson's Milk Vetch, not off road activity. The fact that public land has been closed off to the public using erroneous facts regarding the Pierson's Milk Vetch is very frustrating to responsible ISDRA visitors like myself. Ultimately I feel reopening the closures that were made on a false premise is the most reasonable action.

However, my second choice would be a hybrid solution of plan 7 and 8. Specifically it would appear that a minor realignment of closed areas could occur resulting in fewer incursions into closed areas. I also note that any other alternative appears to adversely affect capacity during "wet" winters. That is, the closure of the Gordon's Well southern dune area to camping would be a significant impact to the area in general. It would effectively increase usage of the northern dunes area, decrease access to the southern dunes and significantly impact the access of Arizona residents. It has been my anecdotal observation that the southern dunes are generally an Arizona destination whereas the northern dunes, i.e. Glamis, are a California destination.

The closure of any areas to camping is unwarranted.

Additional closures for critical habitat are unfounded.

Realignment of the critical habitat areas will decrease incursions.

As a responsible visitor to the ISDRA I would respectfully request that the selected RAMP alternative have a minimal impact in accordance with the concerns as outlined above.
Thank you in advance for your consideration.

Sincerely,

Justin Smith
714-814-2883
3237 Montana Ave
Costa Mesa, CA 92626

From: Pro-Seal Systems
To: caisdrmp@ca.blm.gov
Subject: Comments on 2010 Draft Recreation Area Management Plan (DRAMP)
Date: 08/09/2010 02:41 PM

My name is Randy Karlyleand I am an California resident and avid off-roader. My wife, son and friends enjoy visits to the ISDRA throughout the year and are active in their care and management through our activities during our visit to include litter removal, new visitor education, and self policing of our camp sites.

I have recently had the opportunity to review the proposed RAMP alternatives. As a stake holder in the outcome of these I would like to express my concern and state a preference as to a RAMP alternative. I cannot see a viable reason that prevents the areas south of highway 78 be reopened for public use without closures. I fully support the comments already submitted by the ASA including Dr. Art Phillip and Dr. Glenn Haas. There have been several studies done by well-respected independent scientists that PROVE off-roading has zero to little impact on the so-called "endangered" species and the vitality of this plant is based on rainfall. For my 2nd preferred alternative, I would prefer seeing a hybrid solution of plan 7 and 8.

Specifically it would appear that a minor realignment of closed areas could occur resulting in fewer incursions into closed areas. I also note that any other alternative appears to adversely affect capacity during “wet” winters. That is, the closure of the Gordon’s Well southern dune area to camping would be a significant impact to the area in general. It would increase usage of the northern dunes area, and severely decrease access to the southern dunes.

- The closure of any areas to camping is unwarranted.
- Additional closures for critical habitat are unfounded.
- Realignment of the critical habitat areas will decrease incursions.

I have been going to the dunes for 10 years and have met some of the greatest people we have ever known at the dunes, and look forward to seeing future generations of our families going to the ISDRA. It is a HUGE part of our life and we hold a tremendous respect and reverence for the ISDRA. We appreciate the unique recreational opportunities it offers, from the off-roading, the unique plant life and animal life, and natural beauty that we are fortunate enough to access.

We are a "typical" hard working American family that enjoys the freedom to recreate in the public lands of the ISDRA. We are just like thousands of people that we have met over our years while duning, we work hard for what we have, and when we go to the dunes we spend our hard earned dollars at CA businesses, especially those that support the ISDRA.

We have been involved in the improvement and care of the ISDRA for years now. We attend clean-ups, we volunteer our time to assist in any way possible to educate people to the benefit of being a responsible duner. We pick up trash when we see it, we are compliant with all of the BLM regulations and support law enforcement. Over the years I have seen the "temporary" closures evolve into the "permanent" closures they are becoming. We complied with the "rules" and now tens of thousands of acres are closed to us, yet the plant continues to flourish OUTSIDE of the closures because of the rainfall. I believe if the closures were opened you would expand the riding area to support to amount of people that the ISDRA has visit every year and would resolve the "crowding" issues.

I am an American citizen that is a member of a close community of like-minded people. We don't have the resources the "environmental" groups do, we don't have the huge amounts of money they have, or maybe the right political people in Sacramento and Washington DC, but we DO have an enormous loyalty to the ISDRA, and do pour millions of dollars into the surrounding communities of Brawley, El Centro, Blythe etc every year. We DO count for many of the areas in and around the ISDRA, and it is time that our voices are heard! As a long-time and loyal visitor to the ISDRA I would respectfully request that the selected RAMP comments I have shared above be considered.

Thank you in advance for your consideration.

Sincerely,

Randy Karlyle

From:	wade chance
To:	caisdrmp@ca.blm.gov
Subject:	Attention Erin Dreyfuss
Date:	08/09/2010 05:00 PM

RAMP Team Lead
Attention: Erin Dreyfuss
1661 South 4th Street
El Centro, CA 92243

Subject: Comments on 2010 Draft Recreation Area Management Plan (DRAMP)

Dear Ms. Dreyfuss:
My name is Wade Chance and I enjoy going to the Imperial Sand Dunes Recreational Area on a regular bases with many of my friends and coworkers. I have been going for the last 4 years and have introduced camping there to several of my family and friends. I am an avid off-road enthusiasts and love spending time there together relaxing and having fun.

I recently had the opportunity to review the proposed RAMP alternatives. As a stake holder in the outcome of these I would like to express my concern and state a preference as to a RAMP alternative. While I would prefer that all areas south of highway 78 be reopened for public use without closures I am sensitive to the issues of endangered species and am realistic that full opening will not occur. Therefore I would prefer seeing a hybrid solution of plan 7 and 8.

Specifically it would appear that a minor realignment of closed areas could occur resulting in fewer incursions into closed areas. I also note that any other alternative appears to adversely affect capacity during “wet” winters. That is, the closure of the Gordon’s Well southern dune area to camping would be a significant impact to the area in general. It would increase usage of the northern dunes area, decrease access to the southern dunes and significantly impact the access of Arizona residents. It has been my anecdotal observation that the southern dunes are generally an Arizona destination whereas the northern dunes, i.e. Glamis, are a California destination.

- The closure of any areas to camping is unwarranted.
- Additional closures for critical habitat are unfounded.
- Realignment of the critical habitat areas will decrease incursions.

As responsible visitors to the ISDRA, I would respectfully request that the selected RAMP alternative have a minimal impact in accordance with the concerns as outlined above.

Thank you in advance for your consideration.

Sincerely,

Wade Chance

24411 N. 39th Ave

Glendale, AZ 85310

From:	DBenjamin@henselphelps.com
To:	caisdrmp@ca.blm.gov
Subject:	Attention Erin Dreyfuss
Date:	08/09/2010 04:44 PM

RAMP Team Lead
Attention: Erin Dreyfuss
1661 South 4th Street
El Centro, CA 92243

Subject: Comments on 2010 Draft Recreation Area Management Plan (DRAMP)

Dear Ms. Dreyfuss:

My name is Dave Benjamin. My family and I enjoy going to the Imperial Sand Dunes Recreational Area with our friends and coworkers. I have been going for the last 12 years and have introduced camping there to my wife. Her and I are both avid off-road enthusiasts and love spending time there together with our three children. For the last 3 years, we have introduced the New Year with friends and family at Gordons Well and shared many wonderful memories there.

We recently had the opportunity to review the proposed RAMP alternatives. As a stake holder in the outcome of these I would like to express my concern and state a preference as to a RAMP alternative. While I would prefer that all areas south of highway 78 be reopened for public use without closures I am sensitive to the issues of endangered species and am realistic that full opening will not occur. Therefore I would prefer seeing a hybrid solution of plan 7 and 8.

Specifically it would appear that a minor realignment of closed areas could occur resulting in fewer incursions into closed areas. I also note that any other alternative appears to adversely affect capacity during “wet” winters. That is, the closure of the Gordon’s Well southern dune area to camping would be a significant impact to the area in general. It would increase usage of the northern dunes area, decrease access to the southern dunes and significantly impact the access of Arizona residents. It has been my anecdotal observation that the southern dunes are generally an Arizona destination whereas the northern dunes, i.e. Glamis, are a California destination.

- The closure of any areas to camping is unwarranted.
- Additional closures for critical habitat are unfounded.
- Realignment of the critical habitat areas will decrease incursions.

As responsible visitors to the ISDRA, we would respectfully request that the selected RAMP alternative have a minimal impact in accordance with the concerns as outlined above.

Thank you in advance for your consideration.

Sincerely,

Dave & Melanie Benjamin
2320 W. Hidden Valley Dr
Phoenix, AZ 85086

Dave Benjamin**, LEED AP**
Project Superintendent
Hensel Phelps Construction Co.
Phoenix Sky Train
502 South 24th Street
Phoenix, AZ 85034
Office (480)289-3780
Fax (480)289-3779

Mobile (602)471-4005

From: Valerie Kastoll
To: caisdrmp@ca.blm.gov
Subject: Fw: elcentro feedback
Date: 08/09/2010 08:32 AM

----- Forwarded by Valerie Kastoll/CASO/CA/BLM/DOI on 08/09/2010 08:31 AM -----

rmasavage@hotmail.com

08/07/2010 09:47 AM

Please respond to rmasavage@hotmail.com

To vkastoll@ca.blm.gov, mwest@ca.blm.gov
cc
Subject elcentro feedback

name = Ryan Savage

organization =

email = rmasavage@hotmail.com

subject = Sand Dune Change

FeedbackType = Comment

request_comment = We recently had the opportunity to review the proposed RAMP alternatives. As a stake holder in the outcome of these I would like to express my concern and state a preference as to a RAMP alternative. While I would prefer that all areas south of highway 78 be reopened for public use without closures I am sensitive to the issues of endangered species and am realistic that full opening will not occur. Therefore I would prefer seeing a hybrid solution of plan 7 and 8.

Specifically it would appear that a minor realignment of closed areas could occur resulting in fewer incursions into closed areas. I also note that any other alternative appears to adversely affect capacity during “wet” winters. That is, the closure of the Gordon’s Well southern dune area to camping would be a significant impact to the area in general. It would increase usage of the northern dunes area, decrease access to the southern dunes and significantly impact the access of Arizona r esidents. It has been my anecdotal observation that the southern dunes are generally an Arizona destination whereas the northern dunes, i.e. Glamis, are a California destination.

- The closure of any areas to camping is unwarranted.
- Additional closures for critical habitat are unfounded.
- Realignment of the critical habitat areas will decrease incursions.

As responsible visitors to the ISDRA, we would respectfully request that the selected RAMP alternative have a minimal impact in accordance with the concerns as outlined above.

Thank you in advance for your consideration.

username123 =

sentinal = Sentinal

page_referred_from = http://www.blm.gov/ca/st/en/fo/elcentro/recreation/ohvs/isdra/dunesinfo/docs/isdramp.html

fo = 8

Submit = Send Request

From:	tom friesen
To:	caisdrmp@ca.blm.gov
Subject:	
Date:	08/09/2010 05:51 PM

RAMP Team Lead
Attention: Erin Dreyfuss
1661 South 4th Street
El Centro, CA 92243

Subject: Comments on 2010 Draft Recreation Area Management Plan (DRAMP)

Dear Ms. Dreyfuss:
My name is Thomas Friesen My family and I enjoy going to the Imperial Sand Dunes Recreational Area with our friends and coworkers. I have been going for the last 41 years and have introduced camping there to my wife and children and grand childern. We are all avid off-road enthusiasts and love spending time there together.

We recently had the opportunity to review the proposed RAMP alternatives. As a stake holder in the outcome of these I would like to express my concern and state a preference as to a RAMP alternative. While I would prefer that all areas south of highway 78 be reopened for public use without closures I am sensitive to the issues of endangered species and am realistic that full opening will not occur. Therefore I would prefer seeing a hybrid solution of plan 7 and 8.

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Thank you in advance for your consideration.

Thomas Friesen
2523 n 79th st
Mesa AZ 85207

From: Paul Varda
To: caisdrmp@ca.blm.gov
Subject: Comments on the draft plan for ISDRA
Date: 07/18/2010 09:06 AM

Erin Dreyfuss:

I have recently reviewed the comments regarding the draft plan for the Imperial Sand Dunes Recreational Area by Dr. Phillips and Haas.

I can agree with the following comments and hope the BLM will take them into consideration prior to drafting the final plan for the Imperial Sand Dunes.

Paul Varda
1516 W Laurel Ave
Gilbert, AZ 85233

1. **The DRAMP is fraught with superficial and incomplete data.**

BLM has chosen to ignore the work of Dr. Art Phillips III. His work is comprised of a large body of published information and data regarding the distribution and ecology of the PMV. This is peer-reviewed science. More importantly, his studies were conducted in areas open to OHV operations that document PMV and OHVs can co-exist. This omission renders many of the DRAMP recommendations invalid.

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From: VJBrunasso@aol.com
To: caisdrmp@ca.blm.gov
Subject: ISDRA DRAMP Comments
Date: 07/10/2010 05:05 PM
Attachments: Vince_DRAMP_comments4.doc

Erin,

Please see attached files.

Vince Brunasso
4992 Old Ranch Rd
La Verne CA 91750
714-307-3904

1. **Peirson's Milk Vetch (PMV) Critical Habitat (CH) should remain open to OHV activities.**

There is no legal requirement to close CH.

Closure has not been scientifically proven necessary for the plant's survival. The best available science indicates that PMV colonies do well in the presence of OHV activity. Moreover, contrary to many opinions, OHVs are not the greatest threat to the PMV.

In a study performed by the BLM entitled, "2005 Monitoring of Peirson's Milk-vetch in the Algodones Dunes, Imperial County, California", scientific evidence is quite the opposite. Page 24 states, *"Dunes-wide, an estimated 8,113 plants, representing 0.44% of the total estimated plants, showed signs of impact from OHVs." Page 25 states, "Dunes-wide, an estimated 81,174 plants, representing 4.43% of the total estimated plants, showed signs of damage from sources other than OHVs."* Basic math shows that the impact from OHVs are only 1/10 that of natural impacts which are in themselves insignificant.

The same report indicates that there were 1.8 million plants in 2005. Page 25 states, *"The 2004-2005 growing season was very favorable for the germination and establishment of Astragalus magdalenae var. peirsonii and was likely the best growing season for the species since the 1997-1998 growing season. Rains beginning in October 2004 resulted in a significant germination event and an estimated 1,831,076 plants occupied the Dunes in spring 2005. Of this total, 1,369,482 plants (75%) were flowering or past-flowering at the time of monitoring. Only 21,777 (1.6%) of these plants were more than a year old. Thus, 98.4% of the 2005 plants represented a 2004-2005 growing season cohort. This supports previous contentions that this species functions more like an annual than a perennial and that the majority of seeds in the seed bank are produced from current year plants in good rainfall years."* The report shows that PMV numbers are influenced by rainfall more than anything.

The results of the above study confirm those of an earlier study performed by Thomas Olsen & Associates in 2001 where less than 1% of PMV were affected by OHVs. It is important to note that the TOA study was performed exclusively in areas open to OHVs. Thus the <1% is a true figure for open areas and cannot be construed as being higher because no closed areas were included.

Additionally, page 30 of the report entitled, "Monitoring of Special Status Plants in the Algodones Dunes, Imperial County, California 1977, 1998, 1999, and 2000" by John Willoughby, State Botanist, Bureau of Land Management (BLM), California State Office states, *"The response of Astragalus magdalenae var. peirsonii, a short-lived perennial, is closely tied to precipitation. It was most abundant in 1998, the highest rainfall year, and least abundant in 2000, the lowest rainfall year. Responses of this species were similar in both the closed and open areas across all four years of monitoring….Healthy populations of all three species remain in the open area, though the above-ground expression of populations of Peirson's milk-vetch fluctuates dramatically with precipitation.* ***There is no evidence of any OHV effect on either Peirson's milk-vetch or Algodones Dunes sunflower****. An increase in sand food in the open area between 2001 and 2002 may result from a release in pressure from OHV use in the interim closures, but this is inconclusive and may be at least partially an artifact of sampling.*

… This indicates that there has been little change in Peirson's milk-vetch abundance and distribution in the open area relative to the closed area since 1977. ***Changes in year-to-year abundance are related primarily to weather in both the open and closed areas."***

In some instances (probably due to rainfall), the PMV will actually do better in open areas than in closed areas as noted on page 22 of Monitoring of Special Status Plants in the Algodones Dunes, Imperial County, California 1977, 1998, 1999, and 2000

"Rainfall in 1998 was much more favorable to the species, ***resulting in higher abundance class values in the open area than in the closed area.*** *This disparity also existed in 1999, but was smaller. This may mean that the southern dunes have more favorable habitat for ASMAP, but the reverse pattern observed in 1977 argues against this hypothesis. It is possible that more precipitation fell in the southern part of the dunes in 1998 and 1999 than in the northern part. There is some evidence for such a trend from RAWS data collected between November 16, 2000 and March 16, 2001: 1.40 inches of precipitation were recorded at Cahuilla in the northwest part of the dunes and 2.67 inches were recorded at Buttercup in the southern part of the dunes. The higher abundance class values in the closed area in 1977 may have resulted from higher rainfall in the northern dunes during that year. In any event, differences between open and closed areas were not great in any year and, as previously stated, ASMAP responded similarly in*

both areas
over the four years."

All studies indicate that PMV numbers are predominately the result of rainfall and are not significantly influenced by whether the area is closed to OHV operation or not.

Based on the foregoing, there is no valid reason, scientific or otherwise, to close the PMV CH to OHV operation. No purpose is served by PMV CH closure.

If FWS must have CH closure, I suggest that it be only in years where an explosive germination even is underway and there is every expectation that the crop will flower and produce seed as in 2005. This does not directly tie a closure to rainfall where the exact amount required for explosive germination is unknown.

Other years, the closure can be advisory in nature where vehicles are allowed to enter and education plays a major role.

Visitors can be instructed to see and avoid all vegetation to the best of their ability. Adverse modification should not be a concern as dune vehicles are designed to float on top of the sand and the tracks disappear in minutes in a strong wind. A single strong windstorm is known to deflate the dunes several feet and move thousands of tons of sand. This is much more than what all ISDRA OHV visitors can do in a whole season.

OHV use in the low swales, where the PMV grows, is not where OHV riders prefer to operate their vehicles (see attached photo). Riders select the tops of ridges where it is smooth and there is no vegetation to damage thin tires. As stated in the reports above, this is the reason that PMV, and other dune vegetation, can co-exist with OHVs.

While many OHV enabled ISDRA visitors wishing a quiet experience full of solitude would take advantage of the deep dunes, it is doubtful large numbers as seen at the major hills on holiday weekends will enter much of the CH. Today's equipment uses more fuel, is heavier, and thus presents many challenges when venturing too far from camp. Towing long distances is problematic as is running out of fuel. There are no popular gathering spots deep in the dunes and the sand is of finer grain making it too soft for a good ride. In addition, there are no large bowls or long stretches where the roller coaster effect can be achieved.

Continued monitoring would be used to validate this strategy.

1. **Dune Buggy Flats closure is without scientific basis.**

The rainfall-triggered camping closure of Dune Buggy Flats **lacks sufficient rational** to support this major action. This proposal presumes that BLM is incapable of enforcing the PMV CH closures. This proposal ignores historical closure compliance and assumes that BLM cannot provide the required enforcement resources.

1. **Microphyll Woodland Closure is without scientific basis.**

The proposed camping closure in the eastern part of the dunes is unreasonable. Under Alternative 8, this closure would be implemented to protect microphyll woodland and would extend from Wash 25 to Wash 69. There is no scientific evidence that any of the microphyll woodland in this eastern portion of the ISDRA has been damaged from camping or any other recreational activity.

Appendix "O" regarding bird populations provides no conclusive evidence in support of a camping closure. Even if it did, balanced use is not achieved by closing 100% of microphyll woodlands.

The PRBO study quoted in appendix "O" states that best quality woodlands exist in the wilderness area across Hwy 78. The study indicates that increased bird numbers in closed areas may be due to it being the best quality habitat.

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Microphyll woodlands do not compose all of proposed closure. The microphyll woodlands are farther from wash road as the wash numbers increase to the Southeast – thousands of acres of non-microphyll woodlands are able to support camping.

A large area exists between microphyll woodlands and wash road. From Wash 25 to Wash 69, there are approximately 5600 acres that are not microphyll woodlands (using rough tools provided by Google Earth). The proposed closure includes these acres that are previously disturbed.

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Addendum Comments to the 2010 ISDRA DRAMP

We always have known that rain is what makes the PMV grow or not grow, but no correlation has ever been done. To that end, here it is.

The rainfall data was taken from the Cauhilla ranger station and the Buttercup automated weather station (AWS) web pages. Each plot is the rainfall for the month as indicated added to the previous month - so it accumulates. The chart shows only rainfall from September through April as rains in other months probably don't do much good for the PMV and would clutter the graph. PMV numbers were taken from the BLM survey reports and are divided by 250,000 to keep the graph scale within reasonable limits.

The chart covers the following growing seasons:

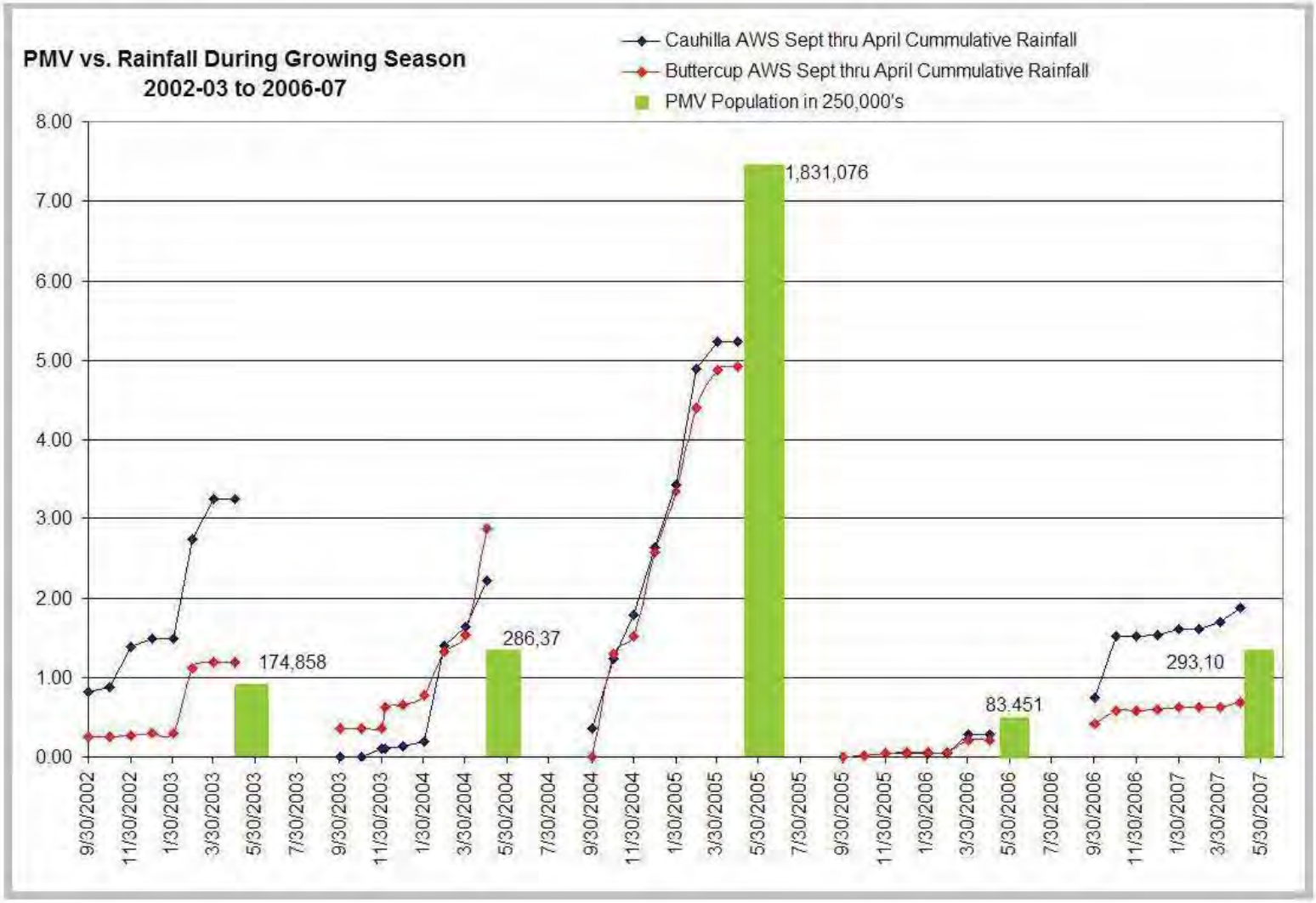
2003 Survey for the 02-03 Growing Season: Not much rain so low PMV numbers
2004 Survey for the 03-04 Growing Season: What little rain there was came too late
2005 Survey for the 04-05 Growing Season: Rains started in August and were consistent through the season resulting in explosive germination and seed production. As perfect a rain curve as we're likely to see.
2006 Survey for the 05-06 Growing Season: A big storm in August, then little after that resulting in the worst year
2007 Survey for the 06-07 Growing Season: Fair amount of rain at beginning of season, not much after that - fewer numbers than if rain had continued.

Even though not scientific (but the data used is), the rain data we have is from only two stations, and rains can occur in one area and not another, it still paints a vivid picture - bottom line: the amount and timing of rain makes the plants grow (or not).

Given that several of the BLM and other studies indicate that less than 1% of the PMV are impacted by OHV activities, it is easy to see that rainfall, more than anything else, is responsible for PMV numbers or the lack of them.

Please see the PDF below and attached.

Vince Brunasso
4992 Old Ranch Rd
La Verne CA 9175
714-307-3904


PMV vs. Rainfall During Growing Season
2002-03 to 2006-07
Cauhilla AWS Sept thru April Cummulative Rainfall
Buttercup AWS Sept thru April Cummulative Rainfall
PMV Population in 250,000's
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
174,858
286,37
1,831,076
83,451
293,10
9/30/2002
11/30/2002
1/30/2003
3/30/2003
5/30/2003
7/30/2003
9/30/2003
11/30/2003
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7/30/2005
9/30/2005
11/30/2005
1/30/2006
3/30/2006
5/30/2006
7/30/2006
9/30/2006
11/30/2006
1/30/2007
3/30/2007
5/30/2007

From: Lyle Carlson
To: caisdrmp@ca.blm.gov
Subject: DRAMP comments
Date: 07/15/2010 06:46 AM

Hello Erin Dreyfuss,
I'd like to make a few comments on the current state of the DRAMP:

1. The DRAMP is fraught with superficial and incomplete data.
BLM has chosen to ignore the work of Dr. Art Phillips III. I personally drove around with Dr. Phillips and his associate top count the PMV sprouts during the Easter week vacation a few years ago. His work is comprised
of a large body of published information and data regarding the distribution and ecology of the PMV. This is peer-reviewed science. More importantly, his studies were conducted in areas open to OHV operations that document PMV and OHVs can co-exist. This omission renders many of the DRAMP recommendations invalid.
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The same report indicates that there were 1.8 million plants in 2005. Page 25 states, *"The 2004-2005 growing season was very favorable for the germination and establishment of Astragalus magdalenae var. peirsonii and was likely the best growing season for the species since the 1997-1998 growing season. Rains beginning in October 2004 resulted in a significant germination event and an estimated 1,831,076 plants occupied the Dunes in spring 2005. Of this total, 1,369,482 plants (75%) were flowering or past-flowering at the time of monitoring. Only 21,777 (1.6%) of these plants were more than a year old. Thus, 98.4% of the 2005 plants represented a 2004-2005 growing season cohort. This supports previous contentions that this species functions more like an annual than a perennial and that the majority of seeds in the seed bank are produced from current year plants in good rainfall years."* The report shows that PMV numbers are influenced by rainfall more than anything.

The results of the above study confirm those of an earlier study performed by Thomas Olsen & Associates in 2001 where less than 1% of PMV were affected by OHVs. It is important to note that the TOA study was performed exclusively in areas open to OHVs. Thus the <1% is a true figure for open areas and cannot be construed as being higher because no closed areas were included.

Additionally, page 30 of the report entitled, "Monitoring of Special Status Plants in the Algodones Dunes, Imperial County, California 1977, 1998, 1999, and 2000" by John Willoughby, State Botanist, Bureau of Land Management (BLM), California State Office states, *"The response of Astragalus magdalenae var. peirsonii, a short-lived perennial, is closely tied to precipitation. It was most abundant in 1998, the highest rainfall year, and least abundant in 2000, the lowest rainfall year. Responses of this species were similar in both the closed and open areas across all four years of monitoring….Healthy populations of all three species remain in the open area, though the above-ground expression of populations of Peirson's milk-vetch fluctuates dramatically with precipitation. There is no evidence of any OHV effect on either Peirson's milk-vetch or Algodones Dunes sunflower. An increase in sand food in the open area between 2001 and 2002 may result from a release in pressure from OHV use in the interim*

closures, but this is inconclusive and may be at least partially an artifact of sampling.

… This indicates that there has been little change in Peirson's milk-vetch abundance and distribution in the open area relative to the closed area since 1977. Changes in year-to-year abundance are related primarily to weather in both the open and closed areas."

In some instances (probably due to rainfall), the PMV will actually do better in open areas than in closed areas as noted on page 22 of Monitoring of Special Status Plants in the Algodones Dunes, Imperial County, California 1977, 1998, 1999, and 2000

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All studies indicate that PMV numbers are predominately the result of rainfall and are not significantly influenced by whether the area is closed to OHV operation or not.

Based on the foregoing, there is no valid reason, scientific or otherwise, to close the PMV CH to OHV operation. No purpose is served by PMV CH closure.

If FWS must have CH closure, I suggest that it be only in years where an explosive germination even is underway and there is every expectation that the crop will flower and produce seed as in 2005. This does not directly tie a closure to rainfall where the exact amount required for explosive germination is unknown. Other years, the closure can be advisory in nature where vehicles are allowed to enter and education plays a major role.

Visitors can be instructed to see and avoid all vegetation to the best of their ability. Adverse modification should not be a concern as dune vehicles are designed to float on top of the sand and the tracks disappear in minutes in a strong wind. A single strong windstorm is known to deflate the dunes several feet and move thousands of tons of sand. This is much more than what all ISDRA OHV visitors can do in a whole season.

OHV use in the low swales, where the PMV grows, is not where OHV riders prefer to operate their vehicles (see attached photo). Riders select the tops of ridges where it is smooth and there is no vegetation to damage thin tires. As stated in the reports above, this is the reason that PMV, and other dune vegetation, can

co-exist with OHVs.
While many OHV enabled ISDRA visitors wishing a quiet experience full of solitude would take advantage of the deep dunes, it is doubtful large numbers as seen at the major hills on holiday weekends will enter much of the CH. Today's equipment uses more fuel, is heavier, and thus presents many challenges when venturing too far from camp. Towing long distances is problematic as is running out of fuel. There are no popular gathering spots deep in the dunes and the sand is of finer grain making it too soft for a good ride. In addition, there are no large bowls or long stretches where the roller coaster effect can be achieved. Continued monitoring would be used to validate this strategy.

3. Dune Buggy Flats closure is without scientific basis.

The rainfall-triggered camping closure of Dune Buggy Flats **lacks sufficient rational** to support this major action. This proposal presumes that BLM is incapable of enforcing the PMV CH closures. This proposal ignores historical closure compliance and assumes that BLM cannot provide the required enforcement resources.

4. Microphyll Woodland Closure is without scientific basis.

The proposed camping closure in the eastern part of the dunes is unreasonable. Under Alternative 8, this closure would be implemented to protect microphyll woodland and would extend from Wash 25 to Wash 69. There is no scientific evidence that any of the microphyll woodland in this eastern portion of the ISDRA has been damaged from camping or any other recreational activity. Appendix "O" regarding bird populations provides no conclusive evidence in support of a camping closure. Even if it did, balanced use is not achieved by closing 100% of microphyll woodlands.

The PRBO study quoted in appendix "O" states that best quality woodlands exist in the wilderness area across Hwy 78. The study indicates that increased bird numbers in closed areas may be due to it being the best quality habitat.

The study admits its own flaws and recommends further studies and data gathering.

Microphyll woodlands do not compose all of proposed closure. The microphyll woodlands are farther from wash road as the wash numbers increase to the Southeast – thousands of acres of non-microphyll woodlands are able to support camping.

A large area exists between microphyll woodlands and wash road. From Wash 25 to Wash 69, there are approximately 5600 acres that are not microphyll woodlands (using rough tools provided by Google Earth). The proposed closure includes these acres that are previously disturbed.

Thank you for taking the time to read this, please let me know if there is anything else I can do to help.

--Lyle

Lyle M. Carlson
Senior Network Engineer

Enterprise Network Services
San Diego Supercomputer Center
University California, San Diego
858-822-3613 - Desk
858-204-7858 - Cell

From:	Steve Rockwood
To:	caisdrmp@ca.blm.gov
Subject:	DRAMP Comments
Date:	08/04/2010 11:08 AM
Attachments:	Rockwood_DRAMP_Comments.pdf

To whom it may concern:

Please accept the attached comments for submission.

Respectfully,

Steve Rockwood
2318 Doubletree Rd
Spring Valley, CA 91978

From: BRYCE K WAITE
To: caisdrmp@ca.blm.gov
Subject: Public Comments on the Draft Imperial Sand Dune Recreation Management Plan
Date: 08/04/2010 01:53 AM

Ms. Dreyfuss,

I am writing today to add my comments to the Imperial Sand Dune Recreation Management Plan. My family and I have been visitors to the ISDRA for more than 20 years. My children have grown up playing in the sand. It is not uncommon for our group to consist of 20 or more families camping together, celebrating holiday's together, and enjoying the outdoors together. I am concerned that more and more of our recreating area is being closed, access is being limited and we are forced to camp and recreate in a smaller more confined area increasing the risks of safety due to the number of people being forced into a smaller area. I am not asking for more established camp grounds or improvements to the area, only access to the areas that our families have grown to enjoy. We are responsible campers and area users. Our philosophy is to leave the area cleaner than we found it, pack it in, pack it out, and to not only respect the land, but law enforcement as well. Back in the 1970's, a large portion of the ISDRA was closed north of Highway 78 for preservation. It concerns me that the current closures south of Highway 78 were the result of a lack of a current RAMP and based on nothing more than a lawsuit filed by the Center for Biological Diversity without any scientific backing. I would like you to consider the following points in determining the outcome of the recreation area management plan.

1. The DRAMP is fraught with superficial and incomplete data.

BLM has chosen to ignore the work of Dr. Art Phillips III. His work is comprised of a large body of published information and data regarding the distribution and ecology of the PMV. This is peer-reviewed science. More importantly, his studies were conducted in areas open to OHV operations that document PMV and OHVs can co-exist. This omission renders many of the DRAMP recommendations invalid.

Following are the references to the seven reports. These were sent annually to BLM in El Centro and FWS in Carlsbad, as well as other agencies. It is my understanding that ASA has recently sent electronic copies to BLM in case hard copies are missing from files.

Phillips, A. M., III, D. J. Kennedy, and M. Cross. 2001. Biology, distribution, and abundance of Peirson's milkvetch and other special status plants of the Algodones Dunes, California. Report submitted by Thomas Olsen Associates, Inc. to the American Sand Association. 29 p. ("TOA 2001")

Phillips, A. M., III and D. J. Kennedy. 2002. The Ecology of *Astragalus magdalenae* var. *peirsonii:* Distribution, reproduction and seed bank. Report submitted to the American Sand Association. 41 p.

Phillips, A. M., III and D. J. Kennedy. 2003. The Ecology of *Astragalus magdalenae* var. *peirsonii:* Germination and survival. Report submitted to the American Sand Association. 27 p.

Phillips, A. M., III and D. J. Kennedy. 2004. The Ecology and Life History of Peirson's Milkvetch in the Algodones Dunes, California: 2003-2004. Report submitted to the American Sand Association.

Phillips, A. M., III and D. J. Kennedy. 2005. The Life History of Peirson's Milkvetch (*Astragalus magdalenae* var. *peirsonii*) in the Algodones Dunes,

California: 2004-2005. Report submitted to the American Sand Association.

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Phillips, A. M., III and D. J. Kennedy. 2007. Assessing the effects of drought conditions on Peirson's Milkvetch (*Astragalus magdalenae* var. *peirsonii*) in the Algodones Dunes, California, 2006-07. Report submitted to the American Sand Association.

2. Peirson's Milk Vetch (PMV) Critical Habitat (CH) should remain open to OHV activities.

There is no legal requirement to close CH.

Closure has not been scientifically proven necessary for the plant's survival. The best available science indicates that PMV colonies do well in the presence of OHV activity. Moreover, contrary to many opinions, OHVs are not the greatest threat to the PMV.

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A large area exists between microphyll woodlands and wash road. From Wash 25 to Wash 69, there are approximately 5600 acres that are not microphyll woodlands (using rough tools provided by Google Earth). The proposed closure includes these acres that are previously disturbed.

I truly believe that motorized off road recreation in the ISDRA can be managed for the benefit of the enthusiasts as well as the environment. As a user of the area, we avoid any plants due to the damage that can be inflicted not only to the environment but to the thin tires that are utilized on our off road vehicles. Tires are very expensive and it doesn't take much to puncture one of these tires, we voluntarily avoid areas of plant growth.

Again, please consider these points as you implement the final RAMP.

Sincerely,

Bryce Waite
48 N. Fraser Dr. West
Mesa, AZ 85203