

Webinar: Methods for Identifying Impacts that Warrant Mitigation – Overview in Preparation for Workshop 3

January 10, 2013; 9-10:30 am Pacific Standard Time

BLM Solar Regional Mitigation Planning – Dry Lake SEZ Pilot Project

Participant Dial-In: 1-877-685-5350; Passcode: 830546

NOTE: PARTICIPANT DISCUSSION NOTES AND LIST OF PARTICIPANTS ARE INCLUDED AT THE END OF THE PRESENTATION FILE

Instructions:

- ***Please mute phone and computer when you are not speaking***
- ***Q&A periods will be included after each presentation***
- ***If you have a question, please click on “Raise Hand” under the Set Status icon (on status bar at top of web page)***
- ***You will be called on to state your question. When you have finished speaking, please lower your hand and re-mute your phone***

Webinar Objectives – Joe Vieira, BLM

- Discuss pilot methodology for identifying impacts of utility-scale solar development that warrant off-site mitigation
- Present an example of methods and applicability to the Dry Lake SEZ.

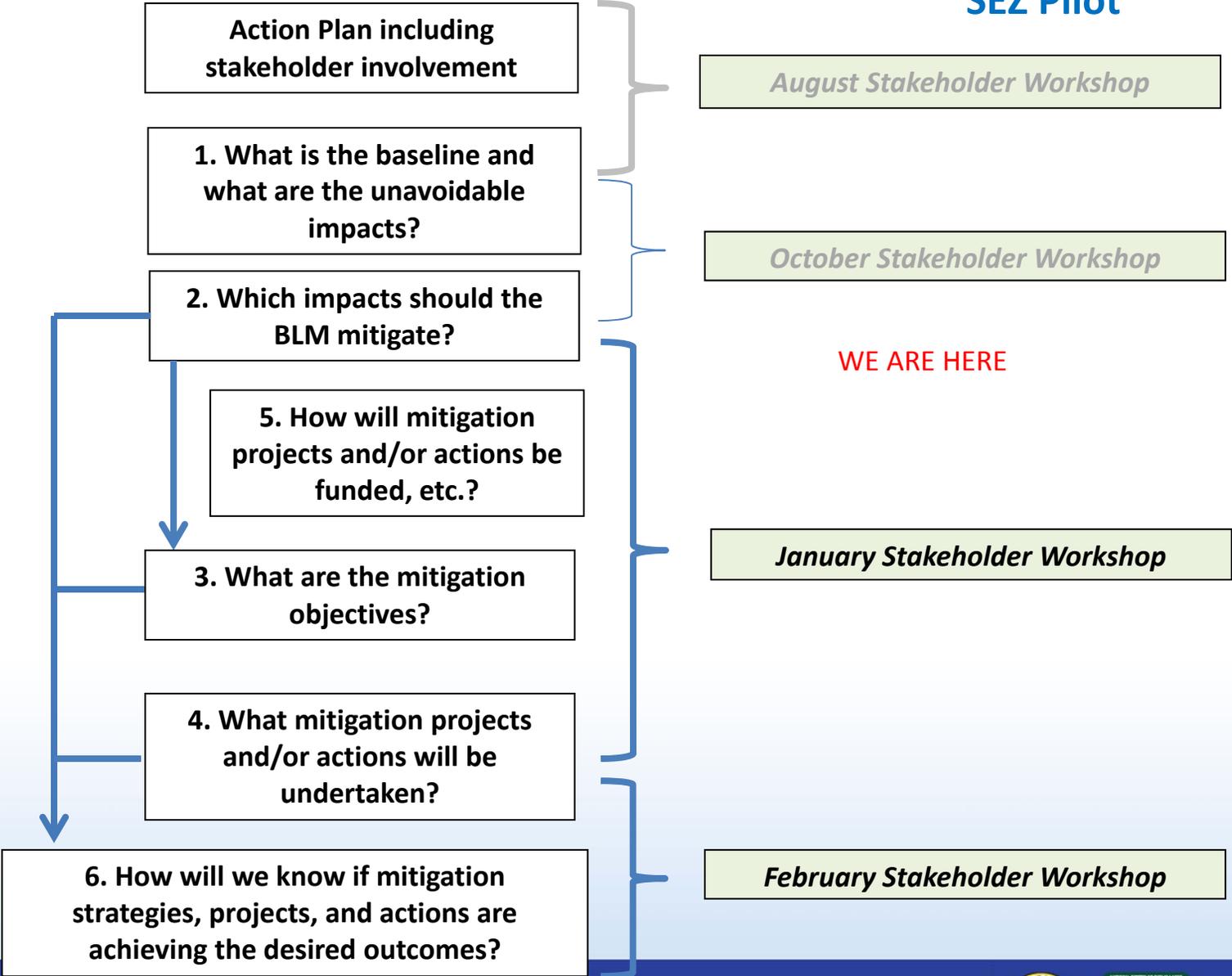
AGENDA (Times are Pacific Standard Time)

- 9:00 – 9:15 Introduction: Where we are in the regional mitigation planning process for the Dry Lake SEZ; Webinar Overview
- 9:15 – 9:45 Presentation of proposed methodology for identifying the impacts of utility-scale solar energy development in solar energy zones that warrant off-site mitigation (Mike Dwyer, BLM; Conceptual Model: Lee Walston, Argonne)
- 9:45-10:15 Example – Vegetation (Mike Dwyer)
- 10:15 – 10:30 Questions and Discussion

Where are we in the Regional Mitigation Planning Process?

- **Workshop 3 (January 30-31, 2013)**
- **Previous workshop, background, and pilot working documents posted to the Dry Lake SEZ project Web site**
(http://www.blm.gov/nv/st/en/fo/lvfo/blm_programs/energy/dry_lake_solar_energy.html)
- **Pilot Method Descriptions posted to the project Web site**
 - *Draft Methodology to identify unavoidable impacts*
 - *Draft methodology to identify unavoidable impacts that warrant mitigation*
- **Pilot Method Descriptions to be made available through the project Web site by January 28, 2013:**
 - *Methods for valuing unavoidable impacts by resource*

Action Plan: Dry Lake SEZ Pilot



Webinar Overview

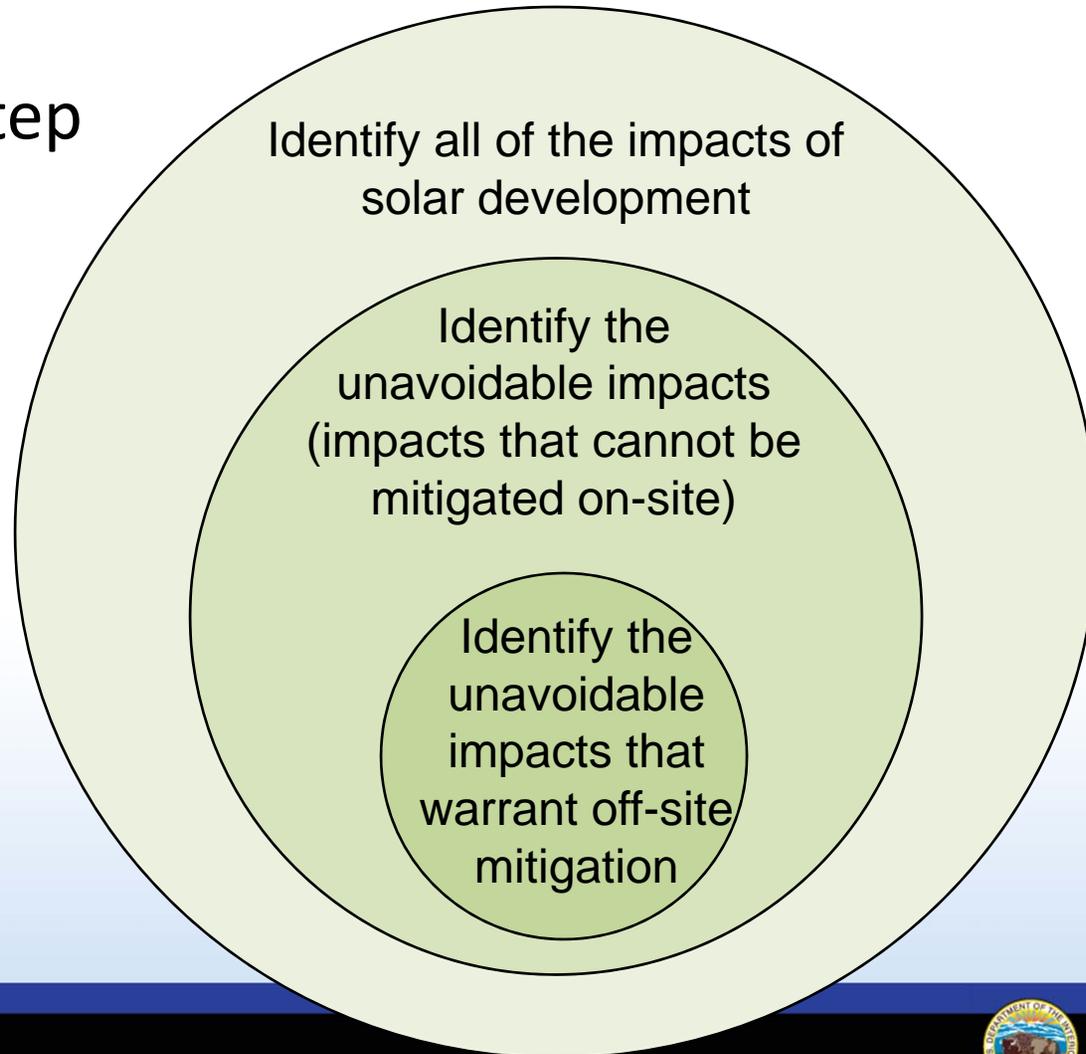
- Presentations (Mike Dwyer, BLM)
 - Draft Method for identifying impacts that warrant off-site mitigation (30 min)
 - Dry Lake SEZ resource impact example (30 min)
- Questions & Discussion (lead by Joe Vieira and Mike Dwyer, BLM)
 - Key issues & criteria
 - Considerations for applying methods in the Dry Lake SEZ & application
 - Application as a general framework for BLM SEZ regional mitigation planning

Methodology for Identifying the Impacts of Utility-Scale Solar Development in Solar Energy Zones (SEZs) that Warrant Off-site Mitigation

Michael Dwyer, Ph.D.
BLM Ely District Office

Methodology for Identifying the Impacts of Solar Development that Warrant Off-site Mitigation

Three step
process



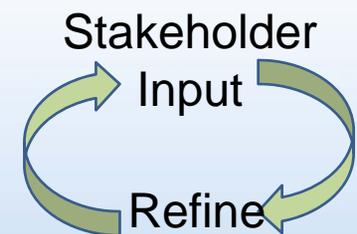
Identify the unavoidable impacts that warrant off-site mitigation

Method Steps

1. Refine avoidance areas
2. Adopt a conceptual model
3. Identify at-risk resources and processes in the region
4. Estimate how the unavoidable impacts of solar development will affect the status and trend of the at-risk resource values.
5. Identify problematic trends criteria
6. Apply the criteria to identify which unavoidable impacts warrant off-site mitigation.

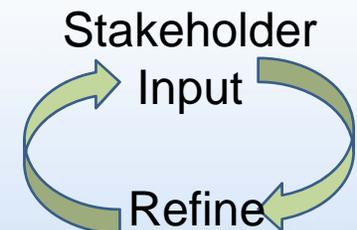
Refine avoidance areas

- Local BLM resource specialists refine the developable area based on:
 - mining claims
 - existing right-of-way grants
 - any other potential land-use conflicts with resource values that might be avoided by restricting development within the SEZ
- Based on refined developable area, specialists estimate the type, acreage and/or quantity of the unavoidable impacts



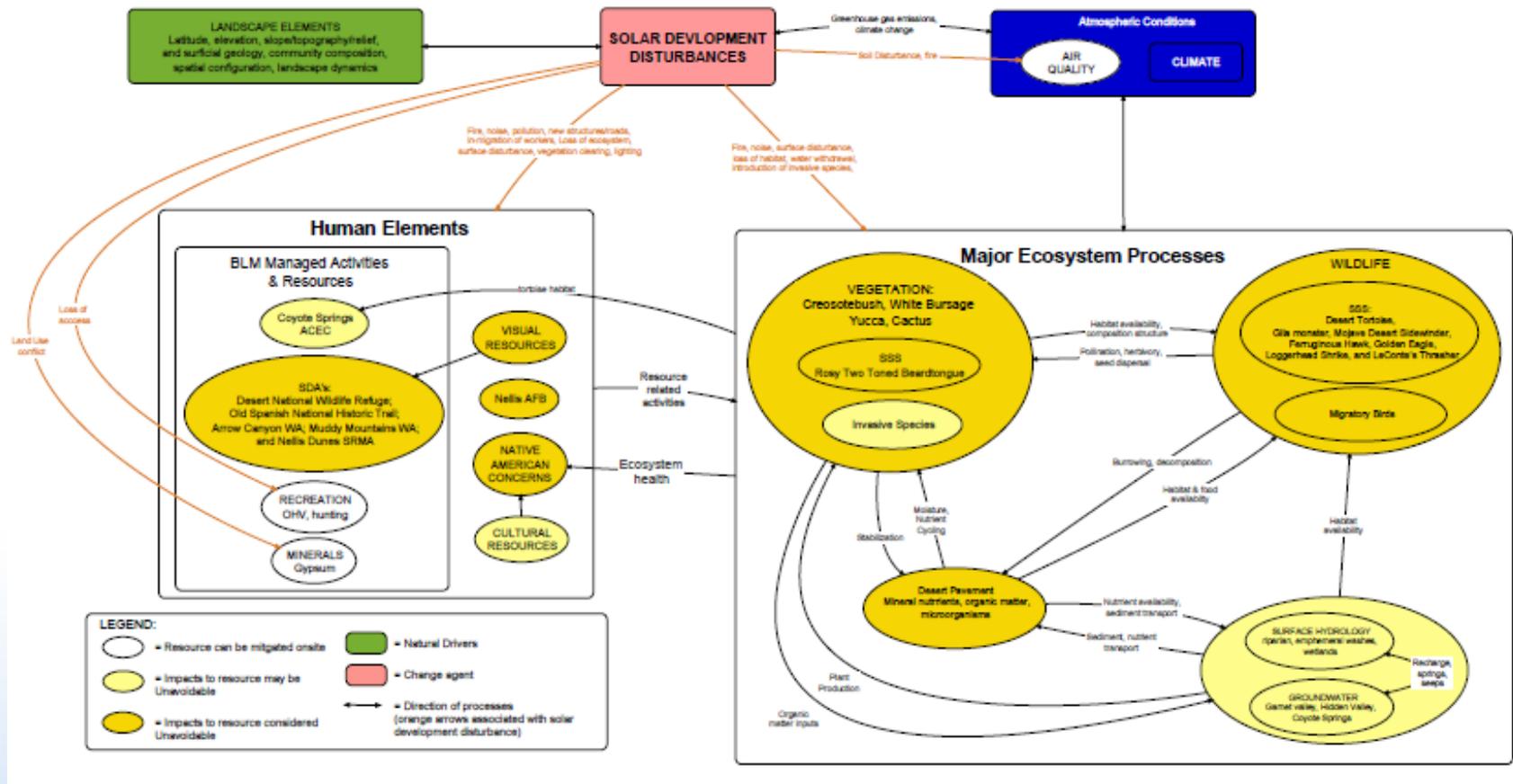
Conceptual model

- A BLM team adopts and adapts a conceptual model
 - Explains the role that resources, individually and in concert with one another, play in the function of the relevant ecological, social, and cultural systems present in the region.
 - Provides the context to identify critical resources



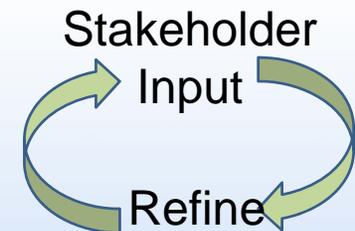
Draft Conceptual Model for Dry Lake SEZ

Tier 3 Conceptual Model
Dry Lake SEZ Solar Development Disturbances



At Risk Resources & Functions

- A BLM interdisciplinary team identifies at-risk resources and processes in the region
 - Crosswalk with resources identified as experiencing unavoidable adverse impacts due to solar development within the SEZ.
 - Based on best-available information, conceptual models, assessments, and expert opinion.

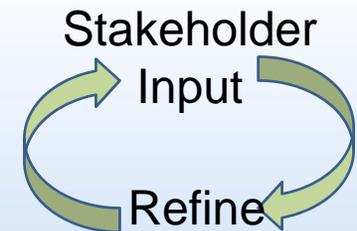


Information sources (not exclusive):

- BLM Rapid Eco-regional Assessments (REAs)
- BLM Resource Management Plans (RMPs)
- The Nature Conservancy Eco-Regional Assessments
- Habitat Conservation Plans
- Other baseline resource surveys, inventories, occurrence records, studies/research, assessments, and plans that provide insight into regional conditions and trends
- Ethnographic studies
- BLM, county, or regional land use plans
- Federal, State, or local social and economic studies
- Resource specialist expert opinion

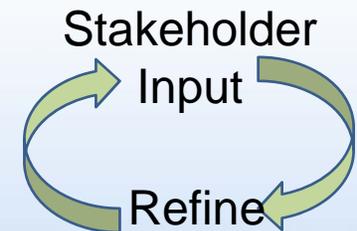
Affect of unavoidable impacts on at-risk resources

- A BLM interdisciplinary team will estimate how the unavoidable impacts of solar development will affect the status and trend of the at risk resource values at both local and regional scales.



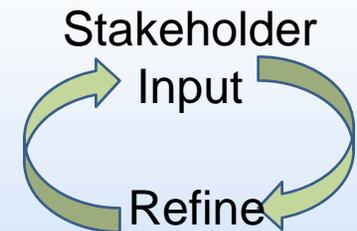
Problematic Trend Criteria

- For each unavoidable impact a BLM interdisciplinary team will identify criteria that describe at what point the unavoidable impacts would warrant off-site mitigation. The criteria/decision point will reference:
 - The relative importance placed on the resource in the land use plan;
 - The rarity, legal status, or state or national policy status of the resource; and
 - The resilience of the resource in the face of change and impact.



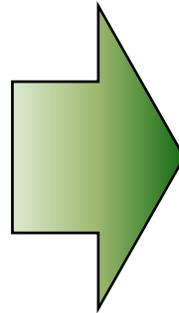
Unavoidable Impacts that Warrant Off-site Mitigation

- A BLM interdisciplinary team will apply the criteria to the full build-out of the SEZ to identify which unavoidable impacts, in the context of the regional setting, will likely warrant off-site mitigation.
- Following regional condition and trends assessment, the BLM interdisciplinary team will finalize the list of unavoidable impacts that will likely warrant off-site mitigation.

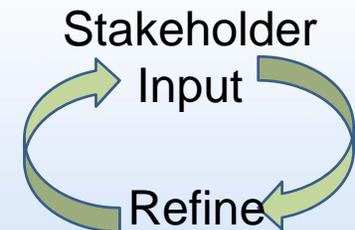


What Next?

Unavoidable impacts that warrant off-site mitigation



- Mitigation objectives
- Mitigation actions
- Monitoring scheme



Applying the Methodology

Example: Vegetation*

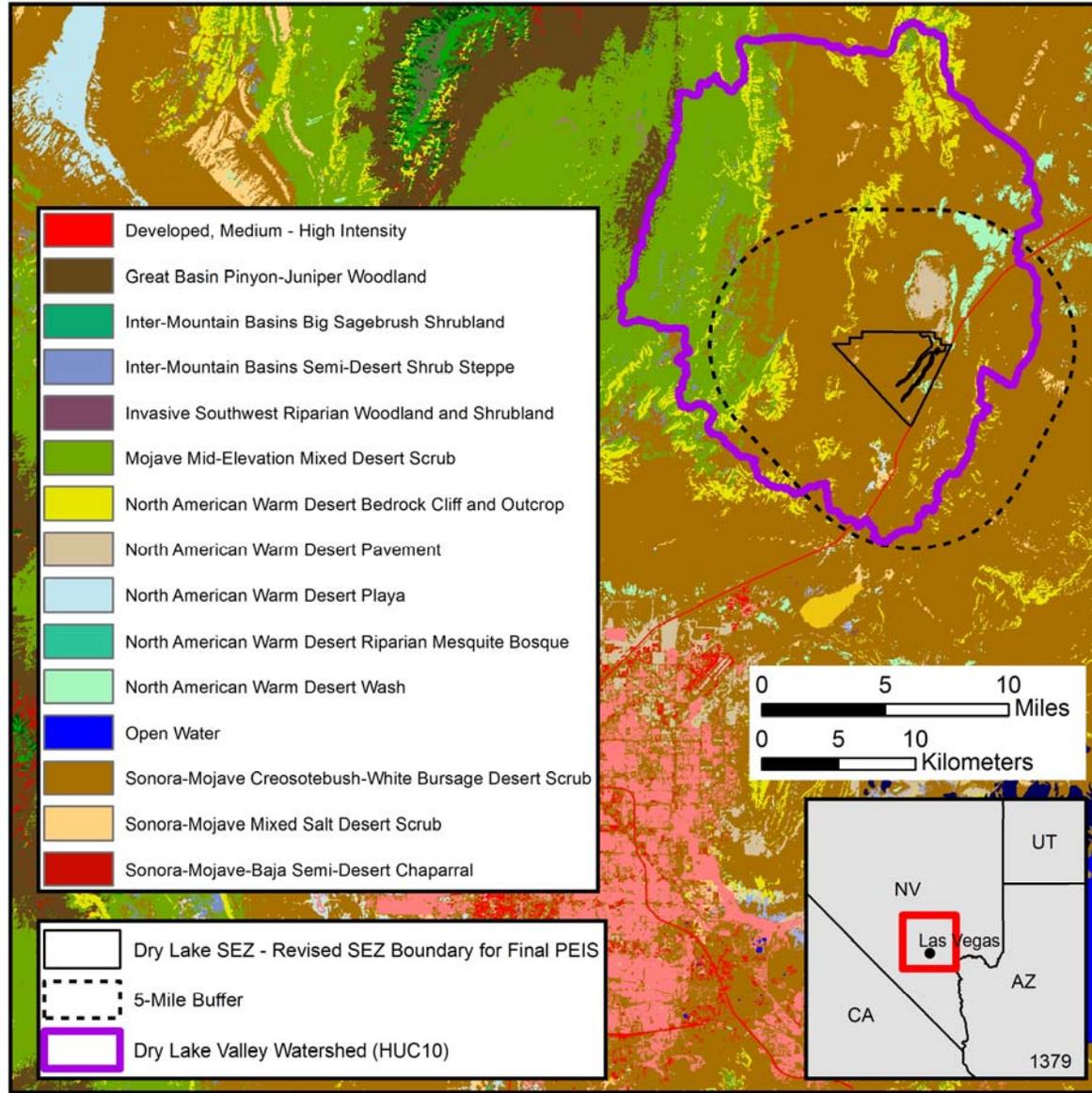


*Not including: special status species plants

Unavoidable Impacts

Resource	Impacts	On-site Mitigation	Unavoidable Impacts?
Vegetation	<p>Direct: Development will adversely affect characteristic vegetation (e.g., creosotebush, white bursage, cactus, yucca) through destruction and loss of habitat</p> <p>Indirect: Loss of native vegetation due to dust deposition from construction and operations, increased surface water runoff and related erosion, or through the introduction of invasive species.</p> <p>Cumulative: impacts on primary cover species would be small due to their abundance in the region and the relatively small portion of total lands required for solar development.</p>	<p>Possible to minimize disturbance of existing vegetation for some technologies. Salvage cactus and yucca prior to disturbance.</p>	Yes

Affected Environment: Vegetation



Method Steps

Identify the unavoidable impacts that warrant off-site mitigation

1. Refine avoidance areas
2. Adopt a conceptual model
3. Identify at-risk resources and processes in the region
4. Estimate how the unavoidable impacts of solar development will affect the status and trend of the at-risk resource values.
5. Identify problematic trend criteria
6. Apply the criteria to identify which unavoidable impacts warrant off-site mitigation.

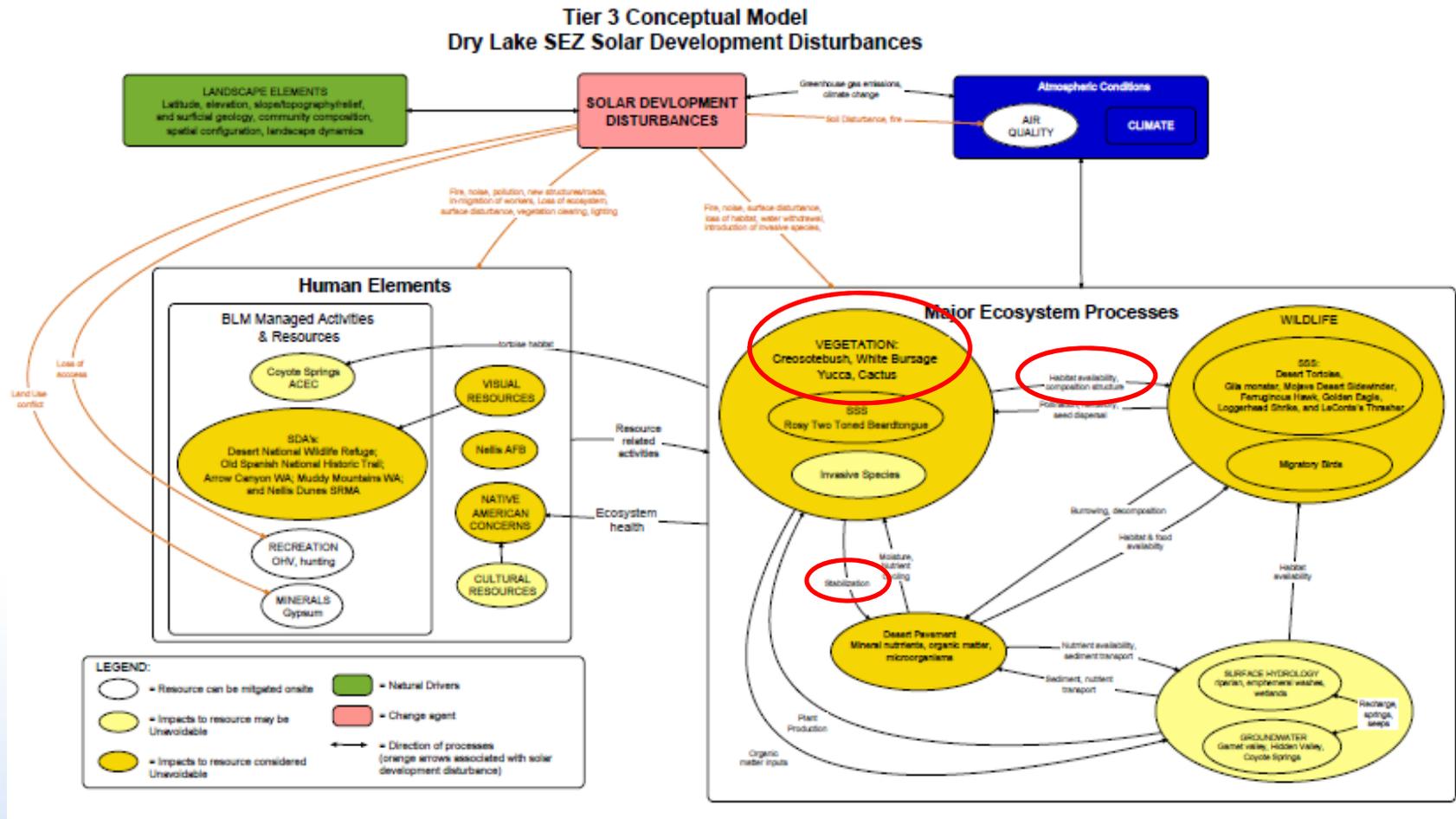
1. Refine the development area

- **Impact:**

- Development of the Dry Lake SEZ would result in the direct loss of up to 5,171 acres of Mojave creosote bursage scrub

2. Adopt a conceptual model

Role of Vegetation in the Ecosystem



2. Adopt a conceptual model: Role of Vegetation in the Ecosystem

- These native plant communities contribute to ecosystem services including:
 - Stabilizing soils against wind and water erosion
 - Maintaining air and water quality
 - Maintaining landscape connectivity including the dispersal and migration of species across the landscape
 - Protection against colonization by non-native weeds and protection against wildfire
 - Provide shelter and forage for migratory birds, special status animal species, and general wildlife species

3. Identify at-risk resources and processes in the region: All vegetation resources and processes

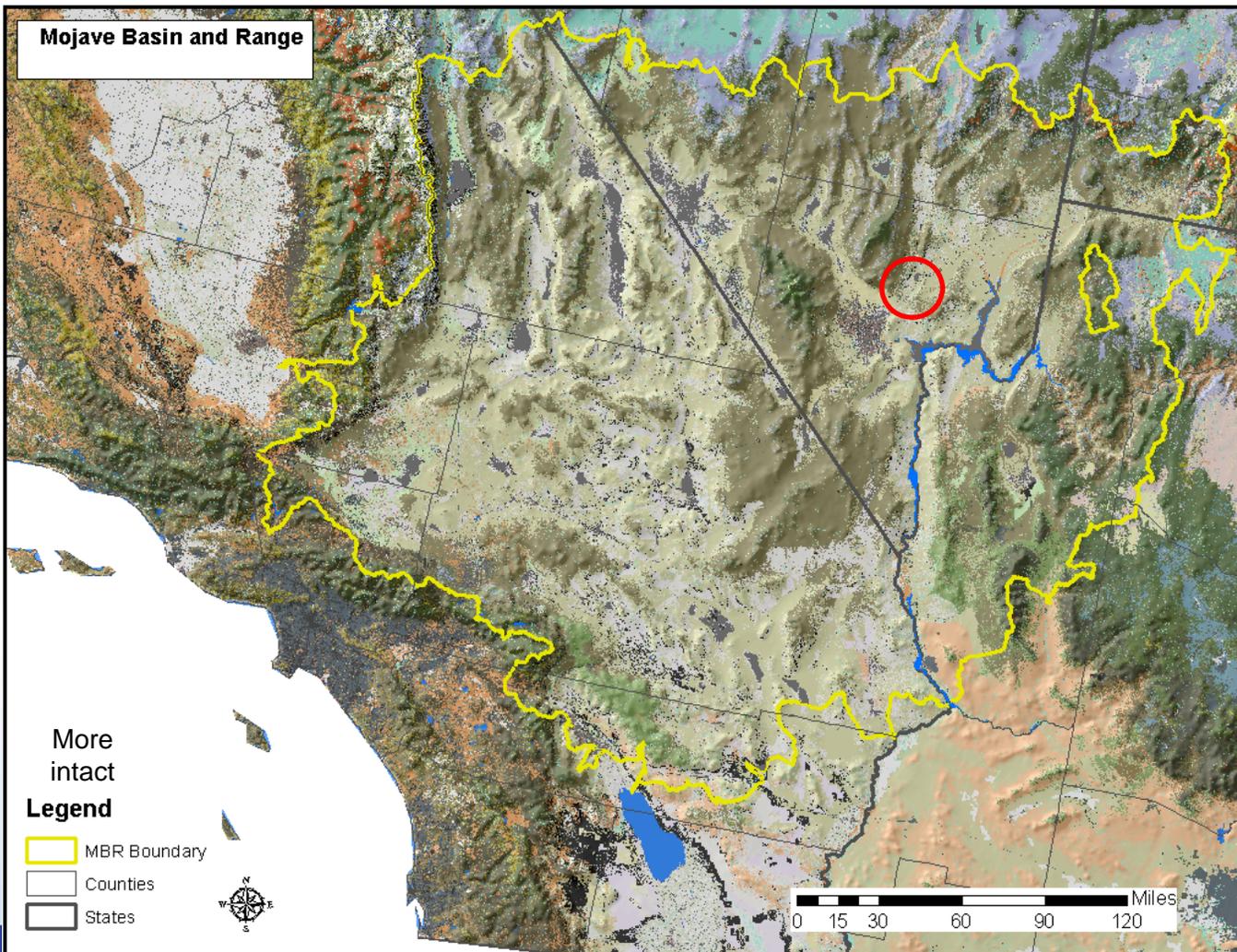
- **Resource**

- Creosote brush dominated vegetation community

- **Ecological Services**

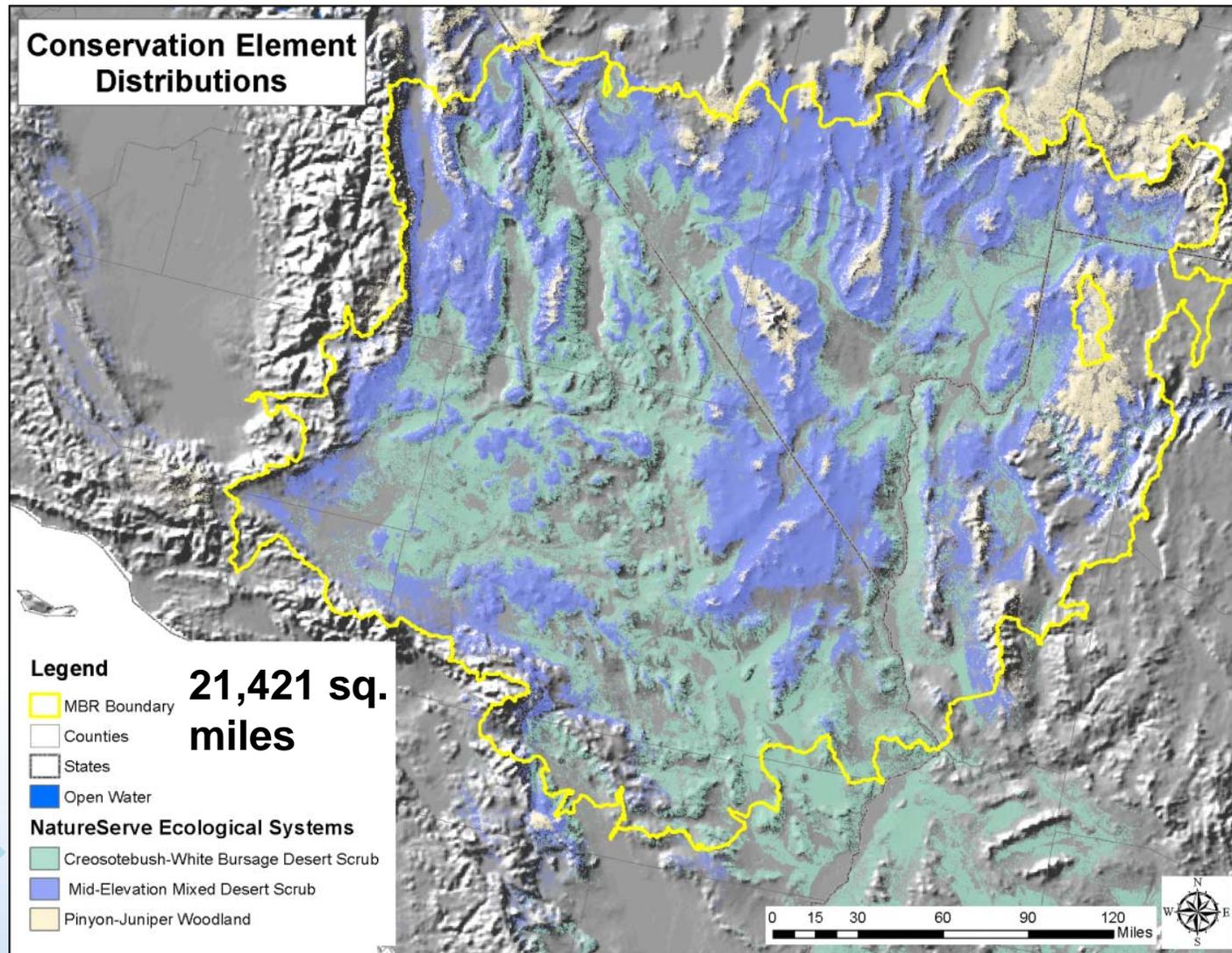
- Soil Stability
- Air Quality
- Water Quality
- Preventing colonization by non-native species
- Habitat & migration (general wildlife)
- Habitat & migration (special status species)

3. Identify at-risk resources and processes in the region: Identify the regional boundary



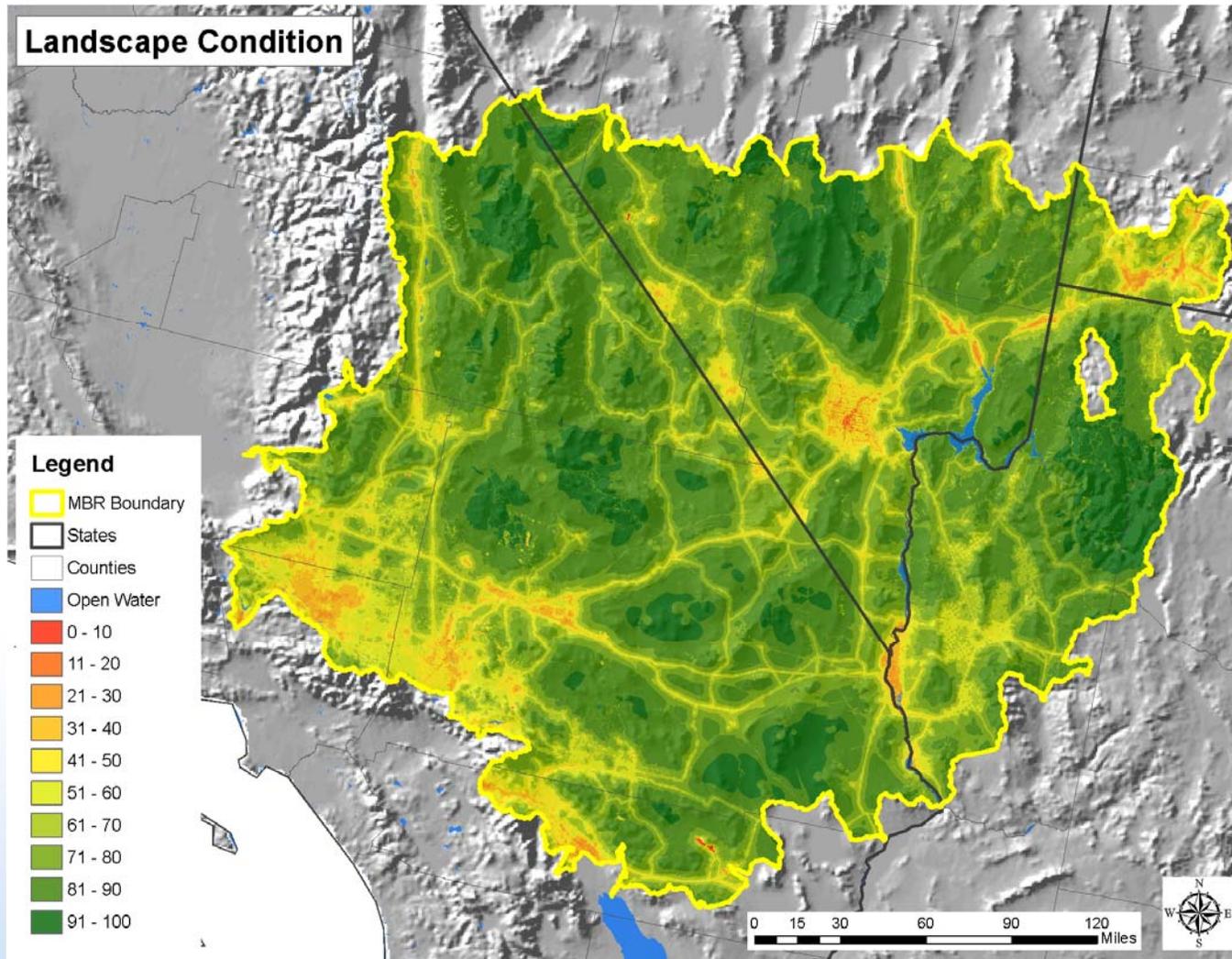
- Level III eco-region delineation of the Commission for Environmental Cooperation
- 63,377 sq. miles

3. Identify at-risk resources and processes in the region

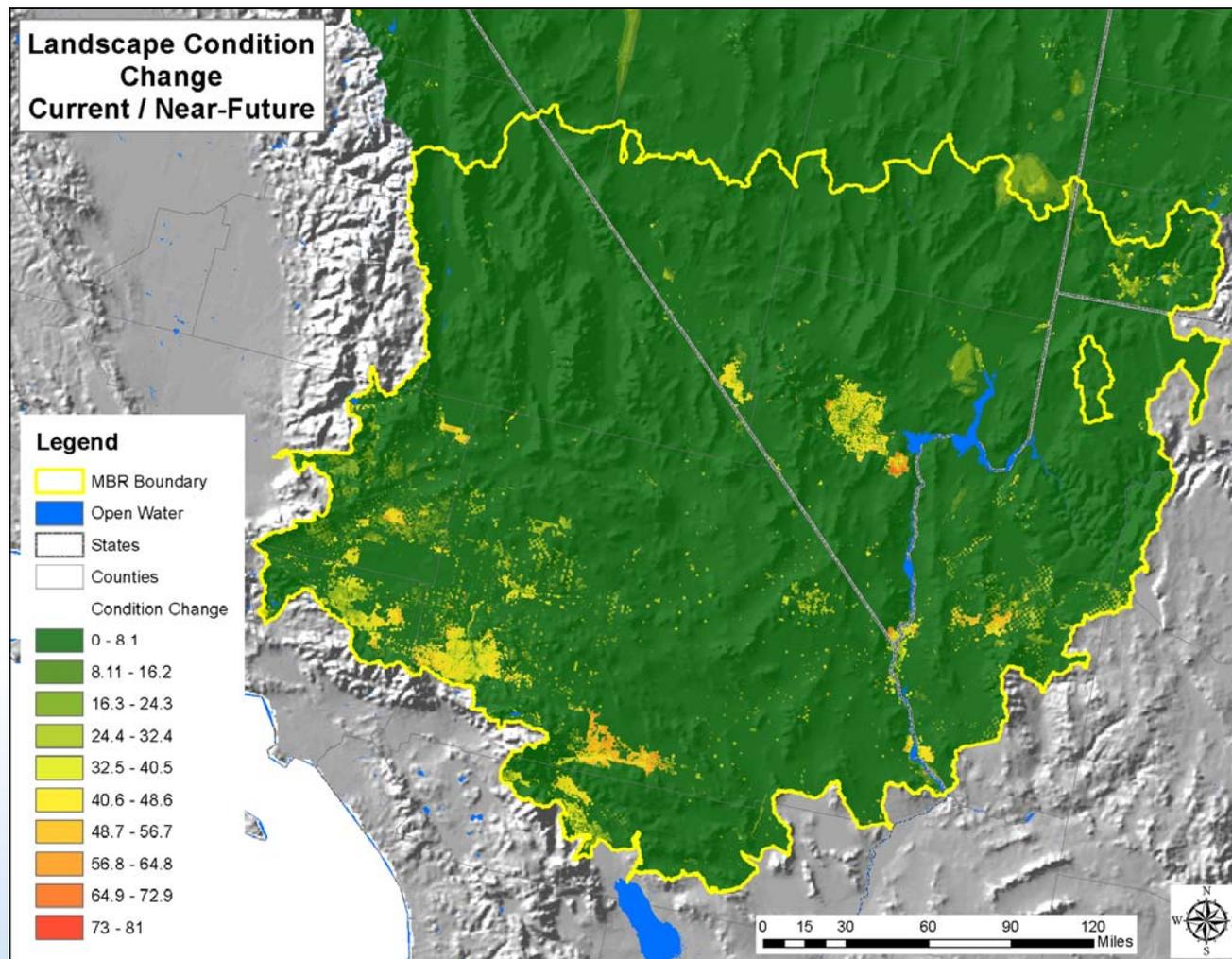


33.8%

3. Identify at-risk resources and processes in the region: Landscape condition

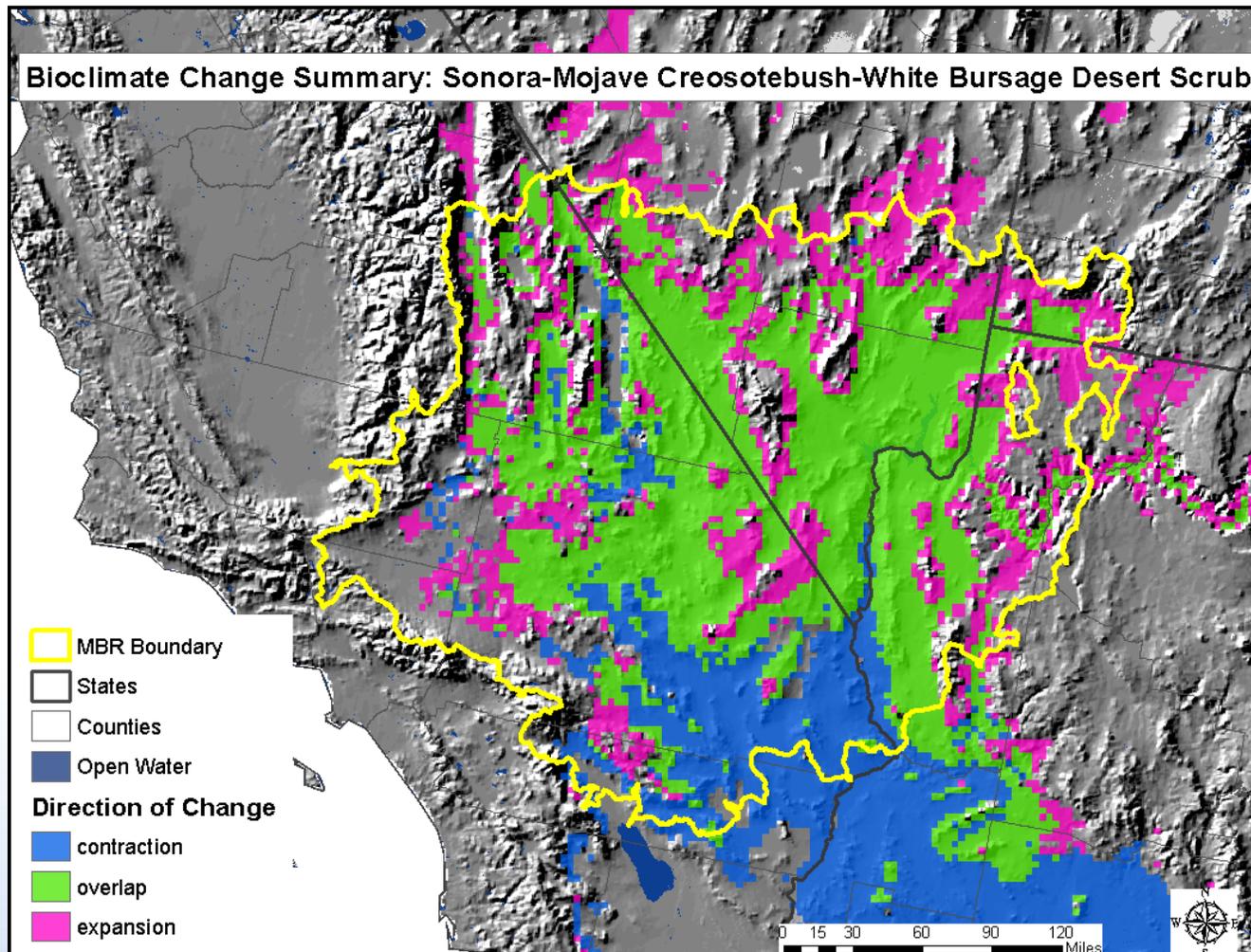


3. Identify at-risk resources and processes in the region: Change due to development



- Trend: Decreasing

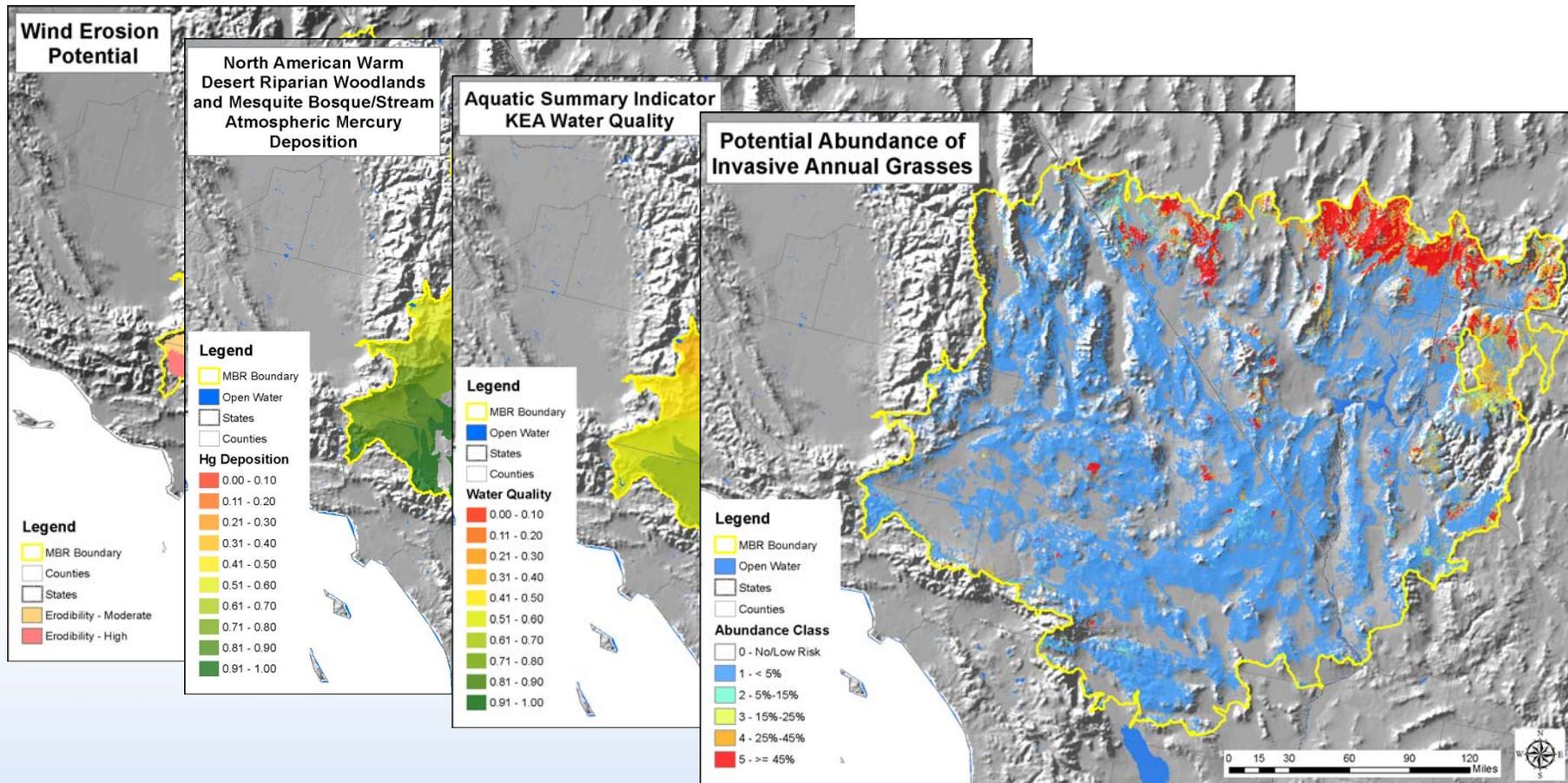
3. Identify at-risk resources and processes in the region: Change due to climate change



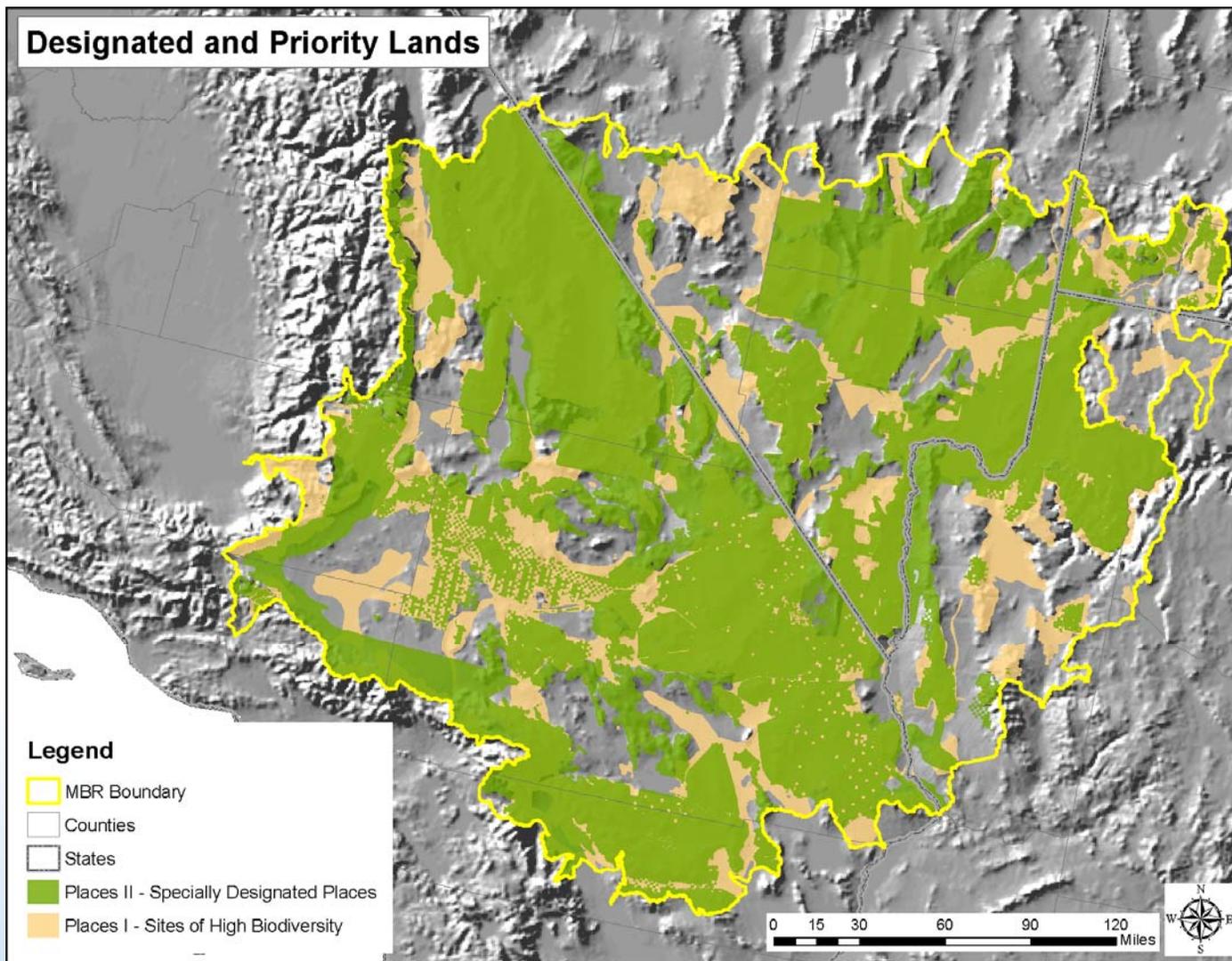
- 2060 Projection
- Trend: Undetermined

3. Identify at-risk resources and processes in the region: Ecological Services

BLM Mojave Basin and Range Rapid Ecoregional Assessment



3. Identify at-risk resources and processes in the region



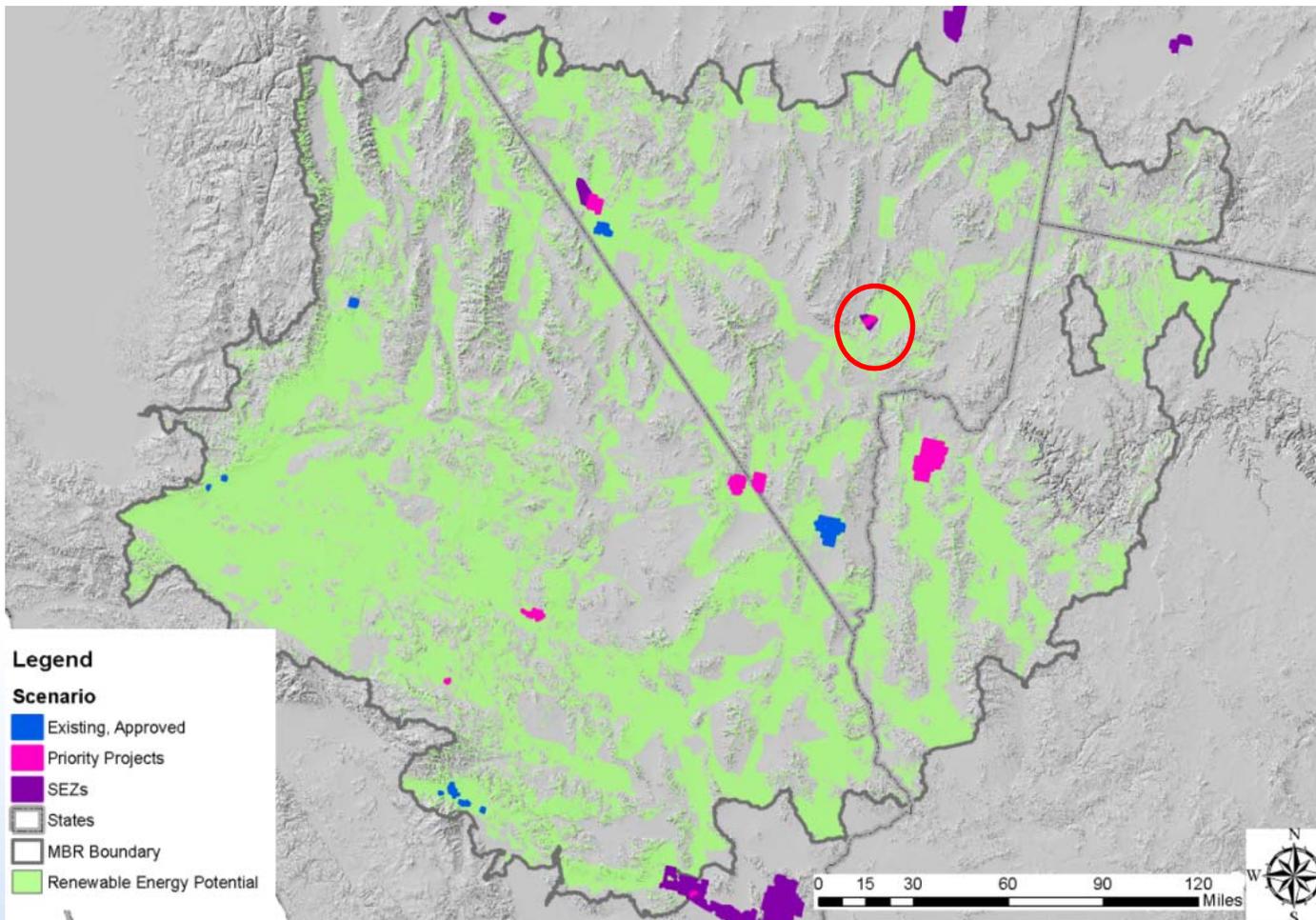
3. Identify the at-risk resources in the region

Resource	Relative rarity	Regional Trend	Relative rate of change in the region	Relative risk (regional level)
Creosote Veg	<i>Common</i> ¹	<i>Decreasing</i> ²	<i>Slow loss</i> ³	<i>Very low</i> ⁴

Ecosystem Service	Regional Trend	Relative rate of loss in the region	Relative risk (regional level)
Soil stabilization	<i>Decreasing</i> ⁵	<i>Slow</i> ⁶	<i>Low</i> ⁷
Air Quality	<i>Decreasing</i> ⁸	<i>Moderate</i> ⁹	<i>Moderate</i> ¹⁰
Water Quality	<i>Decreasing</i> ¹¹	<i>Slow</i> ¹²	<i>Low</i> ¹³
Water Quantity	<i>Decreasing</i> ¹⁴	<i>Moderate</i> ¹⁵	<i>High</i> ¹⁶
Habitat (general)	<i>Decreasing</i> ¹⁷	<i>Slow</i> ¹⁸	<i>Low</i> ¹⁹
Habitat (SSS)	<i>Decreasing</i> ²⁰	<i>Slow</i> ²¹	<i>Low</i> ²²

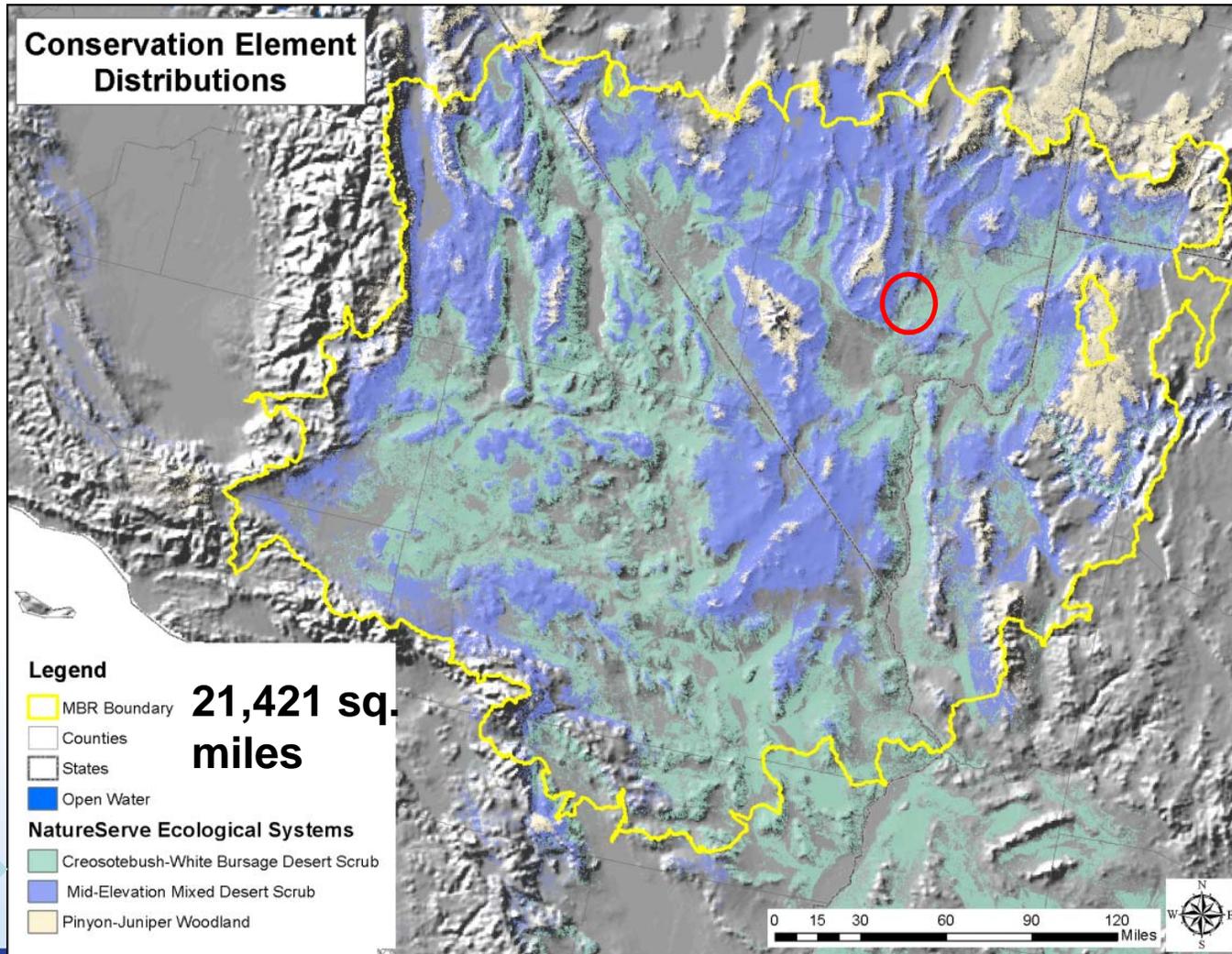
Italic = hypothetical entry

4. Estimate how the unavoidable impacts will affect the status and trend of the at-risk resources



- 8 sq. miles
(5,171 acres)

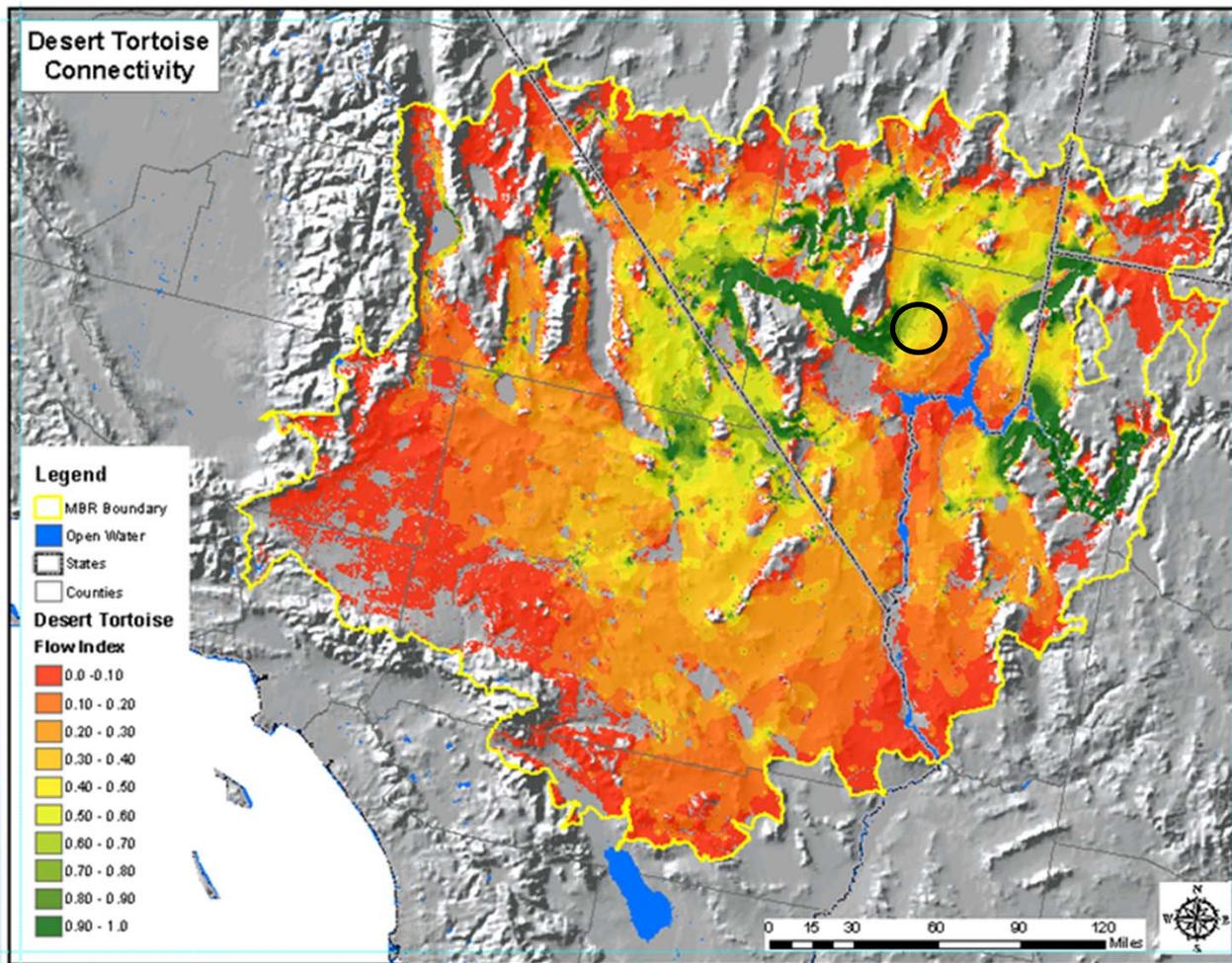
4. Estimate how the unavoidable impacts will affect the status and trend of the at-risk resources



0.037%
of the
vegetation
community
in the
region

33.8%

4. Estimate how the unavoidable impacts will affect the status and trend of the at-risk resources



Warm colors (yellows to oranges) indicate where generalized connectivity exists, and there are many alternative pathways for connecting the current population.

4. Estimate how the unavoidable impacts will affect the status and trend of the at-risk resources

Resource	Relative risk	How will the unavoidable impacts of developing the SEZ affect the resource?
Creosote dominated community	<i>Very low</i>	<i>One-time loss of 5,171 acres (0.037 %)</i>

Ecological Service	Relative risk	How will the unavoidable impacts of developing the SEZ affect the service?
Soil stabilization	<i>Low</i>	<i>Loss of vegetation will destabilize soils on-site and increase the risk of erosion. On-site mitigation measures are expected to minimize impact.</i>
Air Quality	<i>Moderate</i>	<i>Loss of vegetation will reduce the quantities of carbon dioxide absorbed and oxygen produced.</i>
Water Quality	<i>Low</i>	<i>Development will alter natural run-off pattern and sediment load in a closed hydrologic basin.</i>
Water Quantity	<i>High</i>	<i>Development may involve the extraction of groundwater.</i>
Habitat (general)	<i>Low</i>	<i>Significant degradation of habitat for several species of small mammals and reptiles.</i>
Habitat (SSS)	<i>Low</i>	<i>Loss of non-critical habitat for the Desert Tortoise. Degradation of habitat for Bald and Golden Eagles and migratory birds.</i>

5. Identify problematic trend criteria

- Categories
 - How important is the resource (creosote bursage vegetative community)?
 - Is it identified as an important resource in the Resource Management Plan (RMP)? A Habitat Conservation Plan (HCP)? Other plan?
 - Is the project in an area of high biodiversity as identified in a Ecoregional Assessment?
 - How rare is the resource in the region?
 - How resilient is the resource to change?

6. Apply the criteria to identify which unavoidable impacts warrant off-site mitigation

Category	Level 1 criteria	Findings
How important is the resource?	Is it identified as an important resource in the Resource Management Plan (RMP)? A Habitat Conservation Plan (HCP)? Other plan?	<i>No</i>
	Is the project in an area of high biodiversity as identified in a Eco-regional Assessment?	<i>No</i>
How rare is the resource in the region?		<i>Not rare</i>
How resilient is the resource to change?		<i>Not particularly resilient</i>

Recommendation: Loss of vegetation does not warrant off-site mitigation

What's Next?

- Will follow the methodology for all unavoidable impacts and the ecological services to which they contribute.
- Preliminary results presented at the January 30-31 workshop.

Next Steps:

- Stakeholder Review and Input (December 2012- January 2013):
 - Revised Unavoidable Impact Assessment
 - Dry Lake SEZ Pilot Method to Assess Unavoidable Impacts
 - Dry Lake SEZ Pilot Method to Determine which Unavoidable Impacts Warrant Off-site Mitigation
 - Revised methodology for identifying problematic regional conditions and trends

- Internal BLM Mojave Regional Action Team Work Group (January 14-16, 2013):
 - Purpose: Identify problematic conditions and trends in the Mojave Desert Ecosystem that could be exacerbated by the development of the Dry Lake Solar Energy Zone (SEZ)
 - Outcomes: Conceptual model, List of problematic trends, Revised methodology for identifying problematic regional conditions and trends

Next Steps (continued):

- Workshop 3 (January 30-31, 2013) : Hampton Inn Tropicana, Las Vegas –
 - Dry Lake SEZ Regional Conditions & Trends
 - Unavoidable Impacts Warranting Off-site mitigation
 - Impact Valuation
 - Mitigation Objectives & Priorities
 - Monitoring and Adaptive Management

- Workshop 4 (February 28-29, 2013): Hampton Inn Tropicana, Las Vegas –
 - Draft Dry Lake SEZ Regional Mitigation Plan
 - Draft BLM SEZ Regional Mitigation Planning Framework
 - Monitoring and Adaptive Management

General Comments and Questions

- Send Comments/Questions to Joe Vieira, jvieira@blm.gov,
- Office Phone - 719-852-6213



DRY LAKE SEZ SOLAR REGIONAL MITIGATION PLANNING: Webinar 2 January 10, 2013

PARTICIPANT DISCUSSION NOTES

Erin Lieberman, Defenders of Wildlife: Moving forward is the BLM assuming full build out at 80% of the SEZ?

Mike Dwyer, BLM: Yes, it is full build out at 80% and could become less after the refinements for existing rights-of-way are completed.

Lee Walston, Argonne National Laboratory described the 3-tiered approach to the conceptual model. He explained that the 1st tier looks at the fundamental or basic elements of the ecoregion and is directly from the BLM rapid ecoregional assessment (REA). The 2nd tier looks at all of the resources and can be applied to any SEZ. The 3rd tier is SEZ specific and solar specific for development on the Dry Lake SEZ. It uses components of the 2nd tier model. All of the models are planned to be posted to the project website before the 3rd workshop on Jan 30th.

Rob Mrowka, Center for Biological Diversity: What about the MSHCP covered species?

Mike Dwyer, BLM: These species were reviewed by the IDT. The species that were included are federally recognized Special Status Species.

Amelia Savage, BLM: The BLM uses a federal Special Status Species list for federal lands. The BLM can receive comments on this topic.

Sue Wainscott, Clark County Multi-Species Habitat Conservation Plan (CCMSHCP): Species are covered for the purposes of the CCMSHCP's covered activities so they are plan/permit specific.

Rob Mrowka, Center for Biological Diversity: Because the CCMSHCP is through a Cooperative agreement it is applicable for the federal government. CCMSHCP mitigation measures are largely implemented on public lands, so impacts to covered species is very important

Erin Lieberman, Defenders of Wildlife: Please clarify how the region is being defined. Will the boundary that has been presented be the same for all resources? Is that known?

Mike Dwyer, BLM: The ecoregion boundary will be used initially for all of the ecological resources; will consider other boundaries for some resources (e.g., cultural or socioeconomic resources). The individual resource specialists on the IDT will decide on the appropriate boundaries.

Fred Edwards, BLM: The boundary will be dependent on the resource.

Mike Baughman, Lincoln County: When a resource is at risk in the region will you be able to understand what has caused the resource to be at risk? Current conditions cannot be solar related, since solar development has not occurred. Will Solar Energy Industry be uniquely held responsible for problematic resource condition and trend when there are no other public land uses? What are root causes driving resource conditions and trends? What about other resource uses driving problematic conditions and trends? Will those resource condition drivers be held to mitigation? Need to determine what are the root causes of the impact.

Mike Dwyer, BLM: Models should incorporate all of the causal relationships to understand the reasons impacts are occurring. There may not be enough time to do a robust model of causal relationships for the Dry Lake SRMP project now because of timing, but in the future we plan to develop the high-level conceptual model from which such a robust causal relationship may be generated for the Mojave Ecoregion.

Sue Wainscott, Clark County MSHCP: How will the newer data on vegetation and other resources be incorporated? And at what step of the process?

Mike Dwyer, BLM: New data will be included and revisited periodically.

Laura Crane, TNC: Is the BLM REA available to the public now?

Gordon Toevs, BLM: The BLM REA should be available in about a month and will be posted to the BLM website. We will let you know availability via the Dry Lake SEZ project website.

Mike Baughman, Lincoln County: Change agents: climate change, fire and invasive species are all related. Development may be contributing to climate change. How are you handling these interrelated agents? How to mitigate based upon this?

Karen Prentice, BLM: BLM acknowledges the relationship between the change agents. Once the REA is available individuals will be able to look at and manipulate the change agent data. BLM is assuming additional work on model development will occur. The REA is a good ecoregional scale look, but additional work will be required.

Rob Mrowka, Center for Biological Diversity: Changes to the environment should show all known and reasonably foreseeable disturbance projects including SEZs and other energy projects.

Jim Moore, TNC: This map does not account for all current solar development (e.g., Ivanpah Valley not included – Acknowledged)

Brian Cohen, TNC: Is the landscape condition based on solely on road density? Or are there other characteristics factored into the analysis?

Mike Dwyer, BLM: There are other things factored in to the landscape condition. The BLM REA has appendices that describe what is included.

Rob Mrowka, Center for Biological Diversity: Fire disturbance should be considered.

Mike Dwyer, BLM: Yes it will be included, just a few were selected to show during this presentation.

Rob Mrowka, Center for Biological Diversity: OK, this looks like a reasonable approach to test the method.

Alex Daue, TWS: Would like to acknowledge the work, looks like a reasonable approach. Would like to provide feedback once the method is tested.

Mike Dwyer, BLM: BLM will be presenting the results of applying the method at workshop 3 and will accept comments then. The BLM REA is an important data source, BLM (Mike) can give direction on using the REA once it is publicly available.

Brian Cohen, TNC: The Mojave ecoregion has many differences between the east and west. Vegetation differences throughout the ecoregion need to be considered. Perhaps also focus in on a subregion when doing analyses.

Mike Dwyer, BLM: Agreed; local biologists helping next week will consider this.

Mike Cameron, TNC: Thank you for the great work, it's moving in the right direction. It seemed that off site mitigation could not be required in the example presented. I could follow and understand the decision. Could the description be more explicit? Using the low/medium/high method could have guidelines. If low/low/low than no mitigation is justified. What are the specific criteria for when you cross the threshold requiring mitigation?

Mike Dwyer, BLM: When we move into a loss of vegetation then we are moving into an unacceptable level. We will do our best to come up with quantitative criteria and will be explicit and as quantitative as we can get.

Laura Crane, TNC: Thank you. How do the legal aspects fit into the methodology? Some decisions on off- site mitigation are based on legal instead of biological knowledge. How does this fit into analysis?

Mike Dwyer, BLM: If there is a legal requirement to protect a resource, then it legally must be done. If it's a federally listed species then we must follow the regulations. Part of the process is trying to figure out what to do with things that are not legally covered.

Laura Crane, TNC: This helps and explains guidance for the future. The first cut is what is legally required and the analysis that you are doing applies to everything else.

Rob Mrowka, Center for Biological Diversity: CCMSHCP is a must follow due to the implementing agreement between BLM and Clark County and cities. . (Note: this question was not resolved during the webcast discussions).

Joe Vieira, BLM: Thank you for participating and I encourage you to provide comments through the project website. The methodologies are posted on the website we would appreciate any comments.

Mike Baughman, Lincoln County: Any news on the release of the competitive leasing document?

Shannon Stewart: The document is being reviewed - no news on a release date.

Webinar #2 Participants - January 10, 2013

ARREOLA, Eduardo	BLM Arizona
BAUGHMAN, Mike	Intertech Services Corporation
BELIN, Letty	Department of the Interior
BRASHER, DeEllen	DOD - U.S. Navy Region Southwest
BROWN, Jeff	San Luis Valley Public Land Center
BUTSAVICH, Andy	NewFields
CAMERON, Michael	The Nature Conservancy
COHEN, Brian	The Nature Conservancy
COWGER, Lane	BLM, Arizona
CRANE, Laura	The Nature Conservancy
DAUE, Alex	The Wilderness Society
DAVIS, Lynn	National Parks Conservation Association
DICINTIO, Tim	National Fish & Wildlife Foundation
DONOHUE, Charlie	Division of State Lands
DWYER, Mike	BLM, NV Ely District Office
EDWARDS, Fred	BLM, Nevada
ELLIS, Grace	Galileo Project
FOX, Laura	Argonne National Laboratory
FULLER, Garth	The Nature Conservancy
GALLAGHER, Sean	kRoadPower
GUAJARDO, Andrea	Conejos County Clean Water
HARDENBROOK, Brad	Nevada Dept of Wildlife
HARTMANN, Heidi	Argonne National Laboratory
HOWARD, Amee	National Park Service
KEOHANE, Nancy	BLM
LACY, Darrell	Nye County
LIEBERMAN, Erin	Defenders of Wildlife
LOWREY, Chiaki	Southern Nevada Water Authority

MARTIN, Robert	The Nature Conservancy
MCCARTY, John	BLM
McKnight, Matt	
MILLER, Lara	
MOFFAT, Sara	U.S. Senator Harry Reid
MOORE, James	The Nature Conservancy
MROWKA, Rob	Center for Biological Diversity
MURPHY, Dave	Argonne National Laboratory
NELSON, Richard	BEC Environmental Inc (Nye county)
POFF, Boris	BLM, Southern NV District Office
PRENTICE, Karen	BLM
RITTER, Ginger	AZ Fish and Game Department
ROBLES, Marcos	The Nature Conservancy
SAVAGE, Amelia	BLM
SELEY, Wendy	BLM, Nevada
SIMKINS, Connie	Lincoln County Nevada
SMITH, Karen	Argonne National Laboratory
STEPANEK, Vanessa	BLM
STEWART, Shannon	ESA Energy and Industrial Practice
TOEVS, Gordon	BLM, Washington
TOMCOUPE, Stephanie	National Fish and Wildlife Foundation
TULL, John	The Wilderness Society
VIEIRA, Joe	BLM, Colorado
WAINSCOTT, Sue	Desert Conservation Plan
WALSTON, Lee	Argonne National Laboratory
WESCOTT, Konnie	Argonne National Laboratory
WHELAN, Will	The Nature Conservancy
WHITE, Ellen	Argonne National Laboratory