

APPENDICES

APPENDIX 1: SPECIAL STATUS SPECIES

Part A: Federal Endangered Species List [50 CFR 17 (10/31/96)]

<u>Taxon</u> (Common Name) Global Distribution	RRCNCA Population Estimate RRCNCA Occurrence Records
[01] LISTED ENDANGERED	
<u>Falco peregrinus anatum</u> ① (American peregrine falcon) Western Hemisphere	01 adult male; 01 adult unknown (suspected female) Bridge Mtn, 08/95: unknown adult (02?), rapid flight Bridge Mtn, 10/95: adult ♂, cliff perched* Bridge Mtn, 05/96: unk adult, perched*, then cacking & repeated swooping of underslung cliff area* (defensive behavior) Blue Diamond, 06/97: unk adult, killed dove, flew NW
Biological Significance:	Suspected nesting pair (*all within 150' cliff area)
RRCNCA Priority: <u>High</u>	NV has only 06 nesting pairs; nest pairs; key target element of FWS Species Recovery Plan (Pacific Coast)
Additional Comments:	See Appendix 2: Priority Management Areas Also are unconfirmed Red Rock reports from 1970-80's
[01] LISTED THREATENED	
<u>Gopherus agassazii</u> ① (Desert tortoise) CA, NV, AZ, UT; Mexico	400-1760 (40 mi ² [low] habitat @ 10-44 animals/mi ²) Red Rocks, Many : Widespread, Creosote bush habitats 10-Mi Cyn, 05/96: 02-11 tortoises (ie, sign indexed) 13-Mi Cyn, 07/96: 09-39 tortoises (ie, sign indexed)
Biological Significance:	Important reptile species within desert ecosystem
RRCNCA Priority: <u>Low</u>	Minimal threats or problems; in low density range
[01] CANDIDATE SPECIES	
<u>Opuntia whipplei</u> var. <u>multigeniculata</u> ① (Blue Diamond cholla) Red Rock Canyon endemic	6250 BD Hill, 05/91: Occupy 269 of 1,000-acre portion of south Blue Diamond Hill (intensive inventory by J.D. Morefield)
Biological Significance:	Solitary world population
RRCNCA Priority: <u>High</u>	FWS Conservation Agreement species (see Appendix 2)
Additional Comments:	Taxonomy not fully resolved (species or variety?)
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RRCNCA Total:	3 Species
KEY:	① Covered Species, Clark County Multiple Species Habitat Conservation Plan (MSHCP) ② Evaluation Species, Clark County MSHCP ③ Watch List Species, Clark County MSHCP

APPENDIX 1: SPECIAL STATUS SPECIES

Part B: Nevada Species of Concern List, FWS (01/09/97)
Nevada Sensitive Species List, BLM (04/23/97)

Taxon (Common Name)	Citation	Occurrence (*Unconfirmed)
[09] BATS		
<u>Euderma maculatum</u> * (Spotted bat)③	Ramsey/97	White Rock Spring (heard*)
<u>Idionycteris phyllotis</u> ③ (Allen's big-eared bat)	Ramsey/94	Calico Hills; White Rock Spring; Pine Creek
<u>Myotis ciliolabrum</u> (Small-footed myotis)②	Ramsey/94	White Rock Spring
<u>Myotis evotis</u> (Long-eared myotis)①	Ramsey/94	White Rock Spring
<u>Myotis thysanodes</u> (Fringed myotis)②	Ramsey/94	Calico Hills; White Rock; Pine Cr; Grapevine Spr
<u>Myotis volans</u> (Long-legged myotis)①	Ramsey/94	Calico Hills; White Rock Spring
<u>Myotis yumanensis</u> * (Yuma myotis)③	Ramsey/94	Potosi Spring (USFS) but potential RRCNCA resident
<u>Nyctinomops macrotis</u> (Big free-tailed)③	RRHMP/69	No subsequent confirmation
<u>Plecotus townsendii pallescens</u> ② (Pale Townsend's big-eared bat)	Ramsey/94 Ramsey/97	CH's; WR Spg; Tea Kettle & Wounded Knee & Desert Cave
[01] SMALL MAMMAL		
<u>Tamias palmeri</u> * (Palmer's chipmunk)① [Spring Range endemic]	n/a	Suitable fir-pine habitat on La Madre Mountain
[02] BIRDS		
<u>Accipiter gentilis</u> (Northern goshawk)③	RRRL/86	Not recorded
<u>Phainopepla nitens</u> (Phainopepla)①	RRAS/96	Wheeler Camp Spring
[02] REPTILES		
<u>Heloderma suspectum cinctum</u> ② (Banded Gila monster)	NDOW/96	Widespread but uncommon, Calico to Bonnie Springs
<u>Sauromalus obesus obesus</u> ① (Western chuckwalla)	NDOW/95	Widespread but uncommon
[09] INVERTEBRATES		
<u>Pyrquulopsis deaconi</u> ① (formerly nov.1a) (Spring Mountains springsnail) [Spring Range endemic]	Sada/96	Red Spring; Willow Spring population extirpated but pending re-introduction
<u>Pyrquulopsis turbatrix</u> ① (formerly nov.58) (Southeast Nevada springsnail) [Southern Nevada endemic]	Sada/96	Lost Creek; La Madre Spg; Willow Spg (extirpated but pending re-introduction)

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<u>Taxon</u> (Common Name)	Citation	Occurrence (*Unconfirmed)
[07] BUTTERFLIES		
<u>Chlosyne acastus</u> *② (Spring Mtns acastus checkerspot) [Spring Range endemic]	Weiss/95	Widespread hostplant is <u>Chrysothamnus nauseosus</u>
<u>Euphilotes enoptes</u> ssp.*② (Dark blue butterfly) [Spring Range endemic]	Weiss/95	Suspected to be widespread throughout Spring Range
<u>Euphydryas anicia morandi</u> *② (Morand's checkerspot) [Spring Range endemic]	Weiss/95	Widespread host plant is <u>Castilleja lineriaefolia</u>
<u>Hesperia comma</u> spp.* (Spring Mountains comma skipper)② [Spring Range endemic]	Weiss/95	Wide distribution among woodlands and forests
<u>Limenitus weidemeyerii nevadae</u> ② (Nevada admiral) [Southern NV endemic]	NNHP/78	Pine Creek Canyon (File # IILEPL3031-002)
<u>Plebejus icarioides</u> ssp.*② (Spring Mountains icarioides blue) [Spring Range endemic]	Weiss/95	Wide distribution among woodlands and forests
<u>Speyeria zerene carolae</u> *② (Carole's silverspot butterfly) [Spring Range endemic]	Weiss/95	Uncommon host plant <u>Viola purpurea charlestonensis</u> occurs on Bridge Mountain
[20] PLANTS		
<u>Angelica scabrida</u> (Rough angelica)① [Spring Range endemic]	Nachlinger /94	Wide distribution among main escarpment/canyons
<u>Arctomecon merriamii</u> (White bearpoppy)①	RRCNCA/94	Calico Spring
<u>Astragalus aequalis</u> (Clokey milkvetch)① [Spring Range endemic]	Deacon/64	North Fork, Pine Creek Cyn No subsequent confirmation
<u>Astragalus mohavensis</u> var. <u>hemigyvus</u> ② (Curve-podded Mojave milkvetch)	NNHP/83	Lucky Strike Canyon Very rare species in NV
<u>Astragalus remotus</u> (Spg Mtns milkvetch)① [Spring Range endemic]	Leary/96	Widespread near ephemeral washes and riparian areas
<u>Calochortus striatus</u> ① (Alkali mariposa lily)	Babcock/97	Red, Calico, Ash Springs & 2 seeps; Lone Willow Spr.
<u>Eriogonum heermanni</u> var. <u>clokeyi</u> ② (Clokey buckwheat) [Southern NV endemic]	Leary/96	Blue Diamond Hill, Kyle & Lee Canyon (3 populations)
<u>Glossopetalon pungens</u> var. <u>glabra</u> ① (Smooth dwarf greasebush)	Leary/96	La Madre Mtn to Cottonwood (Scattered populations)

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<u>Taxon</u> (Common Name)	Citation	Occurrence {*Unconfirmed}
<u>Ionactis caelestis</u> ① (Red Rock Canyon aster) [Red Rock Canyon endemic]	Leary/96	Bridge Mountain (Solitary worldwide population)
<u>Ivesia jaegeeri</u> (Jaeger ivesia)①	Leary/96	Scattered populations (8)
<u>Pedicularis semibarbata</u> v <u>charlestonensis</u> (Charleston pinewood lousewort)① [Southern NV endemic]	Leary/96	La Madre Mountain (Single RRCNCA population)
<u>Penstemon bicolor</u> ssp. <u>bicolor</u> ② (Yellow twotone beardtongue) [Southern NV endemic]	Babcock/97	Very common in RRCNCA (20+ known populations)
<u>Salvia dorrii</u> var. <u>clokeyi</u> ① (Clokey mountain sage) [Southern NV endemic]	Nachlinger /94	Mt. Wilson; Bridge Mtn (2 RRCNCA populations)
<u>Townsendia jonesii</u> var. <u>tumulosa</u> ① (Charleston grounddaisy) [Southern NV endemic]	Leary/96	Mt. Wilson; Bridge Mtn; Cottonwood ridgeline (3)
<u>Arenaria kingii</u> var. <u>rosea</u> *② (Rosy king sandwort) [Spring Range endemic]	Leary/96	Suitable dry, +5900' pine habitat on La Madre Mtn
<u>Astragalus funereus</u> *② (Black woolypod)	Leary/96	Suitable +7200' ponderosa habitat on La Madre Mtn
<u>Astragalus oophorus</u> var. <u>clokeyanus</u> *① (Clokey's eggvetch) [Southern NV endemic]	Leary/96	Adjacent USFS populations in Lucky Strike Canyon {Candidate ESA Species}
<u>Epilobium nevadense</u> *① (Nevada willowherb)	Leary/96	Suitable +7400' ponderosa habitat on La Madre Mtn
<u>Glossopetalon clokeyi</u> *① (Clokey's greasebush) [Spring Range endemic]	Leary/96	Proximity of Kyle Canyon (USFS) populations
<u>Phacelia parishii</u> *① (Parish's phacelia)	Leary/96	Known regional occurrence
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RRCNCA Total:	43 Species	

APPENDIX 1: SPECIAL STATUS SPECIES

Part C: Species of Local Concern (Clark County MSHCP; RRCNCA GMP)

[Note: Excluded are MSHCP species already listed under Parts A & B.]

<u>Taxon</u> (Common Name)	Citation	Occurrence (*Unconfirmed)
- ☐ Clark County MSHCP, Covered Species		
{Plants}		
<u>Erigeron uncialis</u> var. <u>conjugans</u> (Inch High Fleabane)	Leary/96	La Madre Mtn; Cottonwood [Southern NV endemic]
<u>Penstemon thompsoniae</u> var. <u>jaegeri</u> (Jaeger beardtongue)	Sada/97	Bootleg Spg; Rainbow Spg [Southern NV endemic]
<u>Viola purpurea</u> var. <u>charlestonensis</u> (Limestone violet)	Leary/96	Bridge Mtn (Appendix 2) - <u>Speyeria</u> sp. hostplant
<u>Castilleja martinii</u> var. <u>clokeyi</u> (Clokey paintbrush)	NNHP/60 NNHP/70	Pine Creek Canyon Lost Creek Canyon
{Birds}		
<u>Guiraca caerulea</u> (Blue grosbeak)	RRAS/96	Wheeler Camp Spring
<u>Pyrocephalus rubinus</u> (Vermillion flycatcher)	RRAS/96	Wheeler Camp Spring
<u>Piranga rubra</u> (Summer tanager)	RRAS/96	Wheeler Camp Spring
{Reptiles & Amphibians}		
<u>Coleonyx variegatus</u> (Banded gecko)	NDOW/93	Loop Drive (Night Survey)
<u>Dipsosaurus dorsalis</u> (Desert iguana)	RRHMP/69	Not recorded
☐ Clark County MSHCP, Evaluation Species		
{Mammals}		
<u>Vulpes macrotus</u> (Kit fox)	Misc/97	Throughout the NCA
<u>Dipodomys deserti</u> (Desert kangaroo rat)	RRHMP/69	Not recorded
<u>Dipodomys microps occidentalis</u> (Chisel-toothed kangaroo rat)	RREIS/75	Not recorded
<u>Sylvilagus nuttallii</u> (Nuttall's cottontail)	RRHMP/69	Not recorded

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[Note: Excluded are MSHCP species already listed under Parts A & B.]

<u>Taxon</u> (Common Name)	Citation	Occurrence {*Unconfirmed}
☐ Clark County MSHCP, Evaluation Species		
{Birds}		
<u>Toxostoma bendirei</u> (Bendire's thrasher)	RRRL/86	Not recorded
<u>Toxostoma crissale</u> (Crissal thrasher)	RRAS/95	Wheeler Camp
<u>Toxostoma lecontei</u> (Le Conte's thrasher)	RRRL/86	Not recorded
<u>Vireo vicinior</u> (Gray vireo)	RRRL/86	Not recorded
<u>Lanius ludovicianus</u> (Loggerhead shrike)	NCA/93	Mud Spring #1
<u>Sialia mexicana</u> (Western bluebird)	RRRL/86	Not recorded
{Reptiles & Amphibians}		
<u>Phyllorhynchus descurtatus</u> (Western leaf-nosed snake)	RRHMP/69	Not recorded
<u>Crotalus scutulatus</u> (Mojave green rattlesnake)	NDOW/95	Wheeler Camp
<u>Trimorphodon biscutatus lamda</u> (Sonoran lyre snake)	RRHMP/69	Not recorded
<u>Bufo punctatus</u> (Red-spotted toad)	NDOW/93	Not recorded
<u>Xantusia vigilis</u> (Desert night lizard)	NDOW/93	Not recorded
☐ Clark County MSHCP, Watch List Species		
{Plants}		
<u>Coryphantha vivipara</u> ssp. <u>rosea</u> (Clokey pincushion)	Leary/96	Lost Creek to Cottonwood (Scattered populations)
<u>Selaginella utahensis</u> (Utah spikemoss)	Pinzl/84	Pine Creek Canyon Very rare in Nevada
<u>Penstemon bicolor</u> ssp. <u>roseus</u> (Rosy twotone beardtongue)	Leary/96	Lost Creek to Cottonwood (Scattered populations)
<u>Ferocactus acanthoides</u> var. <u>lecontei</u> (Barrel cactus)	Leary/96	Widespread and common
<u>Cryptantha tumulosa</u> (New York Mountains catseye)	Leary/96	Lucky Strike Canyon to Cottonwood (Scattered)
{Mammals}		
<u>Chaetodipus penicillatus</u> <u>sobrinus</u> (Desert pocket mouse)	RREIS/75	Not recorded

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[Note: Excluded are MSHCP species already listed under Parts A & B.]

Taxon (Common Name)	Citation	Occurrence (*Unconfirmed)
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☐ Clark County MSHCP, Watch List Species

{Birds}

<u>Aquila chrysaetos</u> (Golden eagle)	RRAS/95	Wheeler Camp
<u>Buteo regalis</u> (Ferruginous hawk)	RRRL/86	Not recorded
<u>Otus kennicottii</u> (Western screech owl)	RRHMP/69	Not recorded
<u>Butorides striatus</u> (Green-backed heron)	RRAS/94	Wheeler Camp
<u>Campylorhynchus brunneicapillus</u> (Cactus wren)	NCA/93	Juniper Canyon
<u>Catherpes mexicanus</u> (Canyon wren)	RRRL/86	Not recorded
<u>Icterus parisorum</u> (Scott's oriole)	RRRL/86	Not recorded

{Reptiles & Amphibians}

<u>Pseudacris regilla</u> (Pacific tree frog)	Misc/97	Escarpment canyons
<u>Callisaurus draconoides draconoides</u> (Common zebra-tailed lizard)	NDOW/94	Loop Drive (Night survey)

☐ RRCNCA Management Concern Species

<u>Phacelia hastata</u> var. <u>charlestonensis</u> (Cordilleran phacelia) {Southern NV endemic}	Leary/96	Icebox Canyon; Bridge Mtn
<u>Asplenium resileans</u> (Ebony spleenwort)	Leary/96	Pine Creek Canyon Rare in Nevada

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RRCNCA Total:	41 Species
	+46 Species (from Part A & B)
	=87 Species {85 in Clark County MSHCP}

Key: Misc/97 ... Denotes commonly observed species.
 NNHP ... Nevada Natural Heritage Program database.
 Babcock ... Field surveys by temporary BLM employee.
 RRAS Red Rock Canyon Audubon Society, Wheeler Camp Spring Sanctuary records.

APPENDIX 2: PRIORITY MANAGEMENT AREAS

<u>SITE NAME</u>	RRCNCA Management Rank- Rationale	Source
Biological Status	Species	
<u>WILLOW SPRING</u>	(1) Population Restoration	
Location/Size:	T20S,R58E Sec.33/ 0.10 acres	
Site Description:	Springflow corridor only (upon restoration)	
Threats:	Spring development; intensive recreation	
Species of Concern: (NV USFWS/BLM)	<u>Pyrgulopsis deaconi</u> (Spring Mtns springsnail) -Spring Range endemic species -Global population in 3 springs, 2 in RRCNCA: Red Spring; Willow Spring*	Apx 1B
	<u>Pyrgulopsis turbatrix</u> (SE Nevada springsnail) -Southern Nevada endemic species -Global population in 8 springs, 3 in RRCNCA: Lost Creek; La Madre Spring; Willow Spring*	Apx 1B
☐	Both species exhibit high potential for Candidate ESA-listing, due to their severely limited range and the existing threats to their occupied habitats.	
☐	*Both populations in Willow Spring were inadvertently extirpated due to the diversion of the natural spring flow into a series of artificial pools and/or the subsequent high-volume of recreational visitation and use pressure. Habitat restoration and rehabilitation efforts have been initiated, and the natural spring flow was restored during 1997. Population reintroduction and long-term site monitoring actions will also be completed, possibly in 1999.	
<u>BRIDGE MOUNTAIN</u>	(2) Special Status Species Protection	
Location/Size:	T21S,R58E Sec.8,9/ ≈300 acres	
Site Description:	Sandstone escarpment rimrock to limestone ridgeline	
Threats:	Recreational disturbance; trail-caused erosion	
Endangered Species: (Federally listed)	<u>Falco peregrinus anatum</u> -Probable nesting pair (7th known in Nevada) -Nest pair numbers= critical targets of USFWS Pacific Coast Recovery Plan for the species	Apx 1A
Species of Concern: (NV USFWS/BLM)	[6 plants, in both sandstone and limestone habitats]	
	<u>Ionactis caelestis</u> -RRCNCA endemic species (=Global population) -New to science in 1990	Apx 1B
	<u>Angelica scabrida</u>	Apx 1B
	<u>Salvia dorrii</u> var. <u>clokeyi</u>	Apx 1B
	<u>Townsendia jonesii</u> var. <u>tumulosa</u>	Apx 1B
Apx 1B	<u>Glossopetalon pungens</u> var. <u>glabra</u>	
	<u>Ivesia jaeqeri</u>	Apx 1B
Sensitive Species: (RRCNCA List)	<u>Viola purpurea</u> var. <u>charlestonensis</u> <u>Phacelia hastata</u> var. <u>charlestonensis</u>	Apx 1C Apx 1C

APPENDIX 2: PRIORITY MANAGEMENT AREAS

<u>SITE NAME</u>	RRCNCA Management Rank- Rationale	Source
Biological Status	Species	
<u>BLUE DIAMOND HILL</u>	(3) Special Status Species Protection	
Location/Size:	T21S,R59E Sec.31,32; T22S Sec.5-8/ 1000 acres	
Site Description:	South-end, from 3500-4100' in elevation	
Threats:	Mining activity; private land ownership; wildfire	
Candidate Species: (Federal ESA List)	<u>Opuntia whipplei</u> var. <u>multigeniculata</u> -RRCNCA endemic species -Sole global population -USFWS Conservation Agreement in effect	Apx 1A
Species of Concern: (NV USFWS/BLM)	<u>Heloderma suspectum cinctum</u> <u>Penstemon bicolor</u> ssp. <u>bicolor</u> <u>Astragalus remotus</u>	TNC92/ Apx 1B NNHP/ Apx 1B
Raptor Species: (High-use density)	<u>Falco mexicanus</u> <u>Bubo virginianus</u> <u>Buteo jamaicensis</u> -Nesting pair with 2 fledglings in 1997 <u>Falco peregrinus anatum</u> (forage use only)	Apx 8 Apx 8 Apx 8 Apx 1A
Plant Association:	Succulent Scrub community -Relatively rare plant community in Nevada -Sole RRCNCA occurrence	TNC92
<u>RED SPRING</u>	(4) Special Status Species Protection	
Location/Size:	T21S,R59E Sec.06/ 2.00 acres	
Site Description:	Spring flow corridor and riparian meadow	
Threats:	Recreational activity	
Species of Concern: (NV USFWS/BLM)	One invertebrate in aquatic habitat: <u>Pyrquulopsis deaconi</u> (Spring Mtns springsnail) -Spring Range endemic species -Global population in 3 springs, 2 in RRCNCA: Red Spring; Willow Spring -Both RRCNCA occupied habitats are the focus of intensive, high-volume recreation and visitation	Apx 1B
	Two plants in riparian meadow habitat: <u>Astragalus remotus</u> (Spring Mtns milkvetch) <u>Calochortus striatus</u> (Alkali mariposa lily) -Extremely rare in Nevada; easternmost known population of this species -Based on present information, some manner of site protection is required (existing meadow exclosure fence protects only a few plants)	Apx 1B Apx 1B

APPENDIX 2: PRIORITY MANAGEMENT AREAS

<u>SITE NAME</u> Biological Status	RRCNCA Management Rank- Rationale Species	Source
<u>PINE CREEK CANYON-</u> <u>NORTH FORK</u>	(5) Biodiversity Hotspot	
Location/Size: Site Description: Threats:	T21S,R58E Sec.16,17/ ≈50.0 acres Riparian corridor and cliff-faces Recreational activity; trail-braiding	
Endangered Species: (Federally listed)	<u>Falco peregrinus anatum</u> -Occupied habitat overlaps BRIDGE MOUNTAIN. Priority Management Area (see previous)	Apex 1A
Species of Concern: (NV USFWS/BLM)	<u>Angelica scabrida</u> * -Largest RRCNCA population <u>Astragalus remotus</u> * <u>Astragalus aequalis</u> * -Sole RRCNCA report; extremely rare species <u>Ivesia jaegeri</u> <u>Eudermia maculatum</u> -Evaluated as suitable habitat (Ramsey/94) <u>Idionycteris phyllotis</u> <u>Myotis thysanodes</u> <u>Limenitis weidemeyerii nevadae</u> *	Apex 1B Apex 1B Apex 1B Apex 1B Apex 1B Apex 1B Apex 1B Apex 1B
Sensitive Species: (RRCNCA List)	<u>Castilleja martinii</u> var. <u>clokeyi</u> <u>Selaginella utahensis</u> -Rare in Nevada (NNNPS Watch List species) -Sole RRCNCA population	Apex 1C Apex 1C
Ferns/Fern Allies: (Species richness)	<u>Adiantum capillus-veneris</u> (Maidenhair fern) <u>Cheilanthes covillei</u> (Coville lip fern) <u>Cheilanthes feei</u> (Fee lip fern) <u>Cheilanthes parryi</u> (Parry cloak fern) <u>Pellaea truncata</u> (Spiny cliff-brake) <u>Pentagramma triangularis</u> var. <u>triangularis</u> <u>Pityrogramma triangularis</u> (Goldback fern) <u>Woodwardia fimbriata</u> (Giant chain fern) -Largest fern species in Nevada <u>Polystichum scopulinum</u> (Rock holly fern) -rare species in Nevada <u>Selaginella leucobryoides</u> (Spikemoss)	Leary Leary Leary Leary Leary Leary Leary Leary Leary
Spring Range Distinctions:	-Greatest fern species diversity (10) -High number of Spring Range endemics* (4) -Lowest elevation of <u>Pinus ponderosa</u> - <u>Eumeces gilberti</u> is atypically common	Deacon Deacon Deacon Deacon

NOTES:

Leary: 1996. Flora of Red Rock Canyon NCA.
TNC92: Morefield. Status Report on Opuntia whipplei var. multigeniculata.
NNHP: Nevada Natural Heritage Program Database, Reno, Nevada.
Deacon: 1964. Biological significance of Pine Creek Canyon. Personal communication.

APPENDIX 3: FLORISTIC SUMMARY

Family	Common Name	Species/ *Potential	Distributional Significance	Non-native Cohort
<u>FERNS/FERN ALLIES</u>				
Pteridaceae	Maidenhairs	08/*01	Local Uncommon-1 RRCNCA Record- 1	None
Aspleniaceae	Spleenworts	01/---	Rare in Nevada-1	None
Blechnaceae	Chain ferns	01/---	None	None
Dryopteridaceae	Shield ferns	02/*02	Rare in Nevada-1	None
Ophioglossaceae	Adder tongues	--/*01	None	None
Selaginellaceae	Spikemosses	01/*02	Local Uncommon-1	None
Equisetaceae	Horsetails	01/*01	None	None
<u>GYMNOSPERMS</u>				
Ephedraceae	Ephedras	05/---	None	None
Cuppressaceae	Cypresses	01/---	None	None
Pinaceae	Pines	03/---	Relict, so NV-1	None
<u>ANGIOSPERMS</u>				
Aceraceae	Maples	02/---	None	None
Amaranthaceae	Amaranths	05/*01	None	None
Anacardiaceae	Cashews	01/---	None	None
Apiaceae	Parsleys	07/*06	Endemic, Spg Mt-1 Local Uncommon-1 RRCNCA Record- 1	None
Apocynaceae	Dogbanes	03/*01	None	None
Asclepiadaceae	Milkweeds	02/---	None	None
Asteraceae	Sunflowers	112/*32	Nevada Record-1 RRCNCA Record- 1	Adventive-2 Introduced-1
Berberidaceae	Barberrys	02/---	Local Uncommon-4 Rare in Nevada-2 Endemic, RRCNCA-1 Endemic, so NV-2 None	None
Bignoniaceae	Bignonias	01/---	None	None
Boraginaceae	Borages	22/*09	None	Adventive-1
Brassicaceae	Mustards	38/*12	Nevada Record- 1 RRCNCA Record- 5	Adventive- 5 Introduced-1
Buddlejaceae	Butterfly bushes	01/---	None	None

APPENDIX 3: FLORISTIC SUMMARY

Family	Common Name	Species/ *Potential	Distributional Significance	Non-native Cohort
Cactaceae	Cacti	21/*03	Endemic, RRCNCA-1	None
Campanulaceae	Bellflowers	02/---	None	None
Capparaceae	Capers	01/*01	None	None
Caprifoliaceae	Honeysuckles	03/---	None	None
Caryophyllaceae	Carnations	04/*01	None	None
Celastraceae	Stafftrees	01/---	None	None
Chenopodiaceae	Goosefoots	09/*03	None	Introduced-1
Convolvulaceae	Morning glories	01/---	None	Adventive -3 Introduced-1
Crassulaceae	Stonecrops	02/---	None	None
Crossomataceae	Greasebushs	02/*01	None	None
Cucurbitaceae	Gourds	01/---	None	None
Cuscutaceae	Dodders	01/*01	None	None
Elaeagnaceae	Oleasters	01/---	None	Introduced-1
Ericaceae	Heaths	01/*01	None	None
Euphorbiaceae	Spurges	07/*04	None	None
Fabaceae	Legumes	29/*13	Endemic, Spg Mt-2	Introduced-6
Fagaceae	Beeches	02/---	None	None
Garryaceae	Silk-tassels	01/---	None	None
Gentianaceae	Gentians	01/---	None	None
Geraniaceae	Geraniums	01/---	None	Adventive -1
Hydrophyllaceae	Waterleafs	21/*03	Endemic, so NV-1	None
Krameriaceae	Krameria	01/---	None	None
Lamiaceae	Mints	10/*01	Endemic, so NV-1	Adventive -1
Linaceae	Flaxes	02/---	None	None
Loasaceae	Loasa	06/*06	None	None
Lythraceae	Loosestrifes	01/---	None	None
Malvaceae	Mallows	04/*02	None	None
Nyctaginaceae	Four-O'Clocks	09/*02	None	None

APPENDIX 3: FLORISTIC SUMMARY

Family	Common Name	Species/ *Potential	Distributional Significance	Non-native Cohort
Oleaceae	Ashes	04/*01	None	None
Onagraceae	Evening primroses	18/*05	RRCNCA Record-2	None
Orobanchaceae	Broomrapes	03/*02	None	None
Papaveraceae	Poppies	03/---	None	None
Pedaliaceae	Sesames	01/---	None	None
Plantaginaceae	Plantains	04/---	None	Introduced-2
Polemoniaceae	Phloxes	16/*03	None	None
Polygonaceae	Buckwheats	26/*05	Endemic, so NV-1 Endemic, Nevada-1	Adventive -2
Portulacaceae	Purslanes	03/*01	Nevada Record -1	None
Primulaceae	Primroses	01/*02	None	None
Ranunculaceae	Buttercups	06/*02	None	None
Rhamnaceae	Buckthorns	04/*01	None	None
Rosaceae	Roses	17/*02	None	Introduced-1
Rubiaceae	Madders	08/*01	None	None
Rutaceae	Citruses	01/---	None	None
Salicaceae	Willows	05/---	None	Introduced-1
Santalaceae	Sandalwoods	01/*01	None	None
Saururaceae	Lizardtails	01/---	None	None
Saxifragaceae	Saxifrages	05/---	None	None
Scrophulariaceae	Figworts	25/*06	NV range extns-3 Endemic, so NV-3	None
Solanaceae	Nightshades	09/*01	None	Introduced-1
Tamaricaceae	Tamarisks	01/---	None	Introduced-1
Ulmaceae	Elms	02/---	None	Introduced-1
Urticaceae	Nettles	01/*01	None	None
Verbenaceae	Verbenas	02/---	None	None
Violaceae	Violets	01/*01	Relict, so NV-1	None
Viscaceae	Mistletoes	03/*01	None	None
Vitaceae	Grapes	01/---	None	None
Zygophyllaceae	Caltrops	02/---	None	Adventive -1

APPENDIX 3: FLORISTIC SUMMARY

Family	Common Name	Species/ *Potential	Distributional Significance	Non-native Cohort
<u>MONOCOTYLEDONS</u>				
Agavaceae	Agaves	05/*03	None	None
Cyperaceae	Sedges	13/*10	None	None
Iridaceae	Irises	02/---	None	None
Juncaceae	Rushes	08/*02	Nevada Record-1	None
Lemnaceae	Duckweeds	01/---	None	None
Liliaceae	Lilies	10/---	None	Introduced-1
Orchidaceae	Orchids	01/---	None	None
Poaceae	Grasses	73/*26	Nevada Record- 3 NV range extns-6	Introduced-18 Adventive -05
Typhaceae	Cattails	01/*01	None	None

[Sub-totals:]	<u>FERNS/ALLIES</u>	14/ *07	Rare in Nevada-2 RRCNCA Record -1 Local Uncommon-2	None
	<u>GYMNOSPERMS</u>	09/---	Relict, so NV -1	None
	<u>ANGIOSPERMS</u>	515/*139	Nevada Record -3 Rare in Nevada-2 NV range extns-3 Relict, So. NV -1 Local Uncommon-5 RRCNCA Record -9 Endemic, RRCNCA-2 Endemic, Spg Mt-3 Endemic, So. NV-8 Endemic, Nevada-1	Adventive -16 Introduced-18
	<u>MONOCOTYLEDONS</u>	114/ *42	Nevada Record -4 NV range extns-6	Introduced-19 Adventive -05

RRCNCA Total:		652/*188	[incl 58 non-native]	

NOTE: 1) Species numbers include subspecies & varieties.
2) Distributional significance notations do not include (*) potential species.
3) Source ... A Flora of Red Rock Canyon NCA (Leary & Niles, 1996).

APPENDIX 4: Vegetative Community Types

Part A. Classification Scheme for RRCNCA

NOTES:

- 1) Classification scheme, zonal community types¹ and definitions from Bradley & Deacon (1965).
 - 2) Community types² and RRCNCA species composition are from Leary & Niles (1996).
 - 3) Faunal cohorts are described separately in Appendices 1, 2, 5, 6, 7 and 8.
-

MAJOR BIOTIC COMMUNITIES of RED ROCK CANYON NCA:

I. Terrestrial Types (Permanent water absent)

A) Zonal Community Types (Gradient is elevational)

1. CREOSOTE BUSH Community¹ [Shrubland types]
2. BLACKBRUSH Community¹
3. JUNIPER-PINYON Community¹ [Woodland types]
4. FIR-PINE Community¹

B) Tranzonal Community Types (Gradient is not elevational)

5. DESERT WASH Community² [Shrub/woodlands]
6. CHAPARRAL Community²
7. CLIFF Community²

II. Hydric Type (Permanent water present)

8. RIPARIAN Community² [Shrub/woodlands]

Definitions:

VEGETATION ZONES	"Environmental phenomena... exist as gradients which in areas of topographical diversity are quite steep. These gradations consequently form vegetation zones... which can be recognized by even the casual observer. These vegetation zones form a basis for naming and recognizing natural communities".
BIOTIC COMMUNITY	"a natural grouping of populations of plants and animals occupying a given area...[and recognizable] as communities because of the overlapping ranges of tolerance... of the biota."
COMMUNITY TYPE	"an abstraction based on... sampling... [many] discrete areas (communities) which are similar, yet different in varying degrees. By this abstraction, several distinct communities are grouped together and described as a unit."

APPENDIX 4: Vegetative Community Types

Part B. Community Descriptions

COMMUNITY	[Elevational Range]	
Physiography		
Species Composition:	1. Shrubs; Trees	2. Grasses; Forbs
Management Significance		

CREOSOTE BUSH [Below 3600']

Prominent on the gently sloping lower bajadas (valley benches) of the Spring Range, generally up to the base of the steeper mountain slopes.

1. Larrea tridentata (Creosote bush) with various codominants forming a mosaic of communities; including Ambrosia dumosa (Bur-sage), Grayia spinosa (Hop-sage) and Ephedra spp. (Mormon tea). Krameria parvifolia (Range ratany) and Yucca schidigera (Mojave yucca) also common, along with various cacti, especially Opuntia spp. (Cholla).
2. Numbers and species vary greatly with annual precipitation totals. Non-native brome grasses dominant, especially Bromus rubens (Red brome) and B. tectorum (Cheatgrass). Hilaria rigida (Galleta) is a common native perennial grass. Eriogonum inflatum (Desert trumpet) is a typical forb.

Creosote bush-bursage is the preferred vegetative association habitat type of Gopherus agassazii (Desert tortoise), a Listed Threatened species under the federal Endangered Species Act (see Appendix 1). Also, Opuntia whipplei var. multigeniculata (Blue Diamond cholla), a Candidate species for the federal Endangered or Threatened list, occurs exclusively within the broad creosote bush community type, although within a site locality that is characterized by an anomalous vegetative species composition (see Appendix 2).

BLACKBRUSH [3500-6000']

Widespread throughout the upper bajadas, especially on soils shallowed over bedrock or caliche hardpans. Often occurs in nearly homogeneous stands.

1. Coleogyne ramosissima (Blackbrush) clearly dominant, interspersed with such desert shrubs as Yucca baccata (Banana yucca), Y. schidegera, Tetradymia spp. (Horsebrush) and Eriogonum spp. (Buckwheats). Cacti are less abundant but common. Yucca brevifolia (Joshua tree) commonly can occur in densities forming a strong codominance.
2. Herbaceous species composition is similar to the Creosotebush community, including Achnatherum speciosum (Desert needle grass) and A. hymenoides (Indian ricegrass), and Aristida purpurea (Purple three-awn).

The primary RRCNCA management concern relative to this vegetative community is Coleogyne's severe fire intolerance. Fire disturbance is invariably a type-converting event, since blackbrush demonstrates virtually no ability to re-establish itself. The problem affects the creosote bush community as well, but less critically, and in both cases stems from the presence of non-native annual grasses.

APPENDIX 4: Vegetative Community Types

Part B. Community Descriptions

JUNIPER-PINYON

[4000-7000']

Coniferous woodlands of the upper bajadas and mountain slopes. Soils higher in organic content; well-drained. Climate is cooler, with more precipitation.

1. Juniperous osteosperma (Utah juniper) numerous at lower elevations; gradually supplanted upslope by Pinus monophylla (Singleleaf pinyon). Artemisia tridentata (Sagebrush) is the common understory shrub.
2. Typically barren understory conditions with fewer grass/forb species, in sparser densities. Elymus elymoides (Squirreltail grass) not uncommon.

Fire is again a key management issue, but in an inverse relationship. Fire suppression in this community type generally detracts from overall biological biodiversity by preventing the creation of woodland openings that typically become re-colonized by chaparral community species (see Discussion (E)).

PONDEROSA PINE-WHITE FIR* [Generally above 6500']

Upland woodlands of patchy distribution and variable composition. Cooler and moisture climate conditions, with more highly developed soil profiles.

[* Associated species found in the southeastern Spring Range (RRCNCA) differ from those expected for pine-fir community types in southern Nevada. As such, Red Rock ponderosa pine is considered a relict population not properly classifiable under Bradley's coniferous forest series. Here the usage retains Bradley's zonal type but places it under the woodland vegetation series. Although not floristically precise this usage meets the non-technical descriptive purpose of this report, conforms to the key ecologic principle of elevational zonation and employs elements of a standard classification scheme that is widely recognized.]

- 1a. Pinus ponderosa* (Ponderosa pine) common and widespread, mostly as small scattered stands among the escarpment sandstone rimrock, but also forms more continuous, gallery-like stands in several east-draining canyons. Utah juniper, Singleleaf pinyon, Quercus turbinella (Scrub oak) and Cercocarpus ledifolius (Mountain-mahogany) are common associates.
- 1b. Abies concolor* (White fir) limited to a few sparse pockets above Pine Creek and one large closed-canopy forest atop La Madre Mountain. This stand typifies the normal zonal pattern for the two species, with ponderosa pine replaced by white fir at elevations above 7000'.
2. Numerous grasses and forbs occupy this open canopy woodland, including species commonly distributed throughout the Juniper-pinyon elevations, as well as species adapted to the more mesic (moister) uplands.

The relict population status bears management significance, as does the fire ecological condition of the Ponderosa pine, which requires disturbance events for optimal reproductive success.

APPENDIX 4: Vegetative Community Types

Part B. Community Descriptions

DESERT WASH

[Transzonal]

[This is Bradley's DESERT RIPARIAN type renamed to avoid confusion with the riparian terminology of present day usage.]

Shrub-tree community occurring along ephemeral washes that traverse elevations of both the creosote bush and blackbrush communities. Soils typically sandy, silty or rocky. Species composition differs noticeably from the traversed zonal communities, mainly as a function of increased water availability. The climate being identical, the difference is the subsurface storage of episodic precipitation runoff that accumulates in the wash channels.

1. Chrysothamnus paniculatus, (Mojave rabbitbrush), Prunus fasciculata (Desert almond), and Haplopappus spp. (Goldenbush) are common shrubs. Lower elevations of larger washes often retain enough water to support such trees as Chilopsis linearis (Desert [False] willow), Prosopis pubescens (Screwbean mesquite) and Acacia greggii (Catclaw acacia). Dominance is difficult to categorize since species composition often significantly varies from one wash to another, and between segments of the same wash.
2. Species composition of the herbaceous vegetation very similar to that of the adjacent alluvial fan terraces, though their numbers and flowering frequency are often much higher due to water availability and periodic surface disturbance (ie, flash-flooding).

The ephemeral wash communities exhibit greater biodiversity, in comparison to the adjacent creosote bush and blackbrush communities.

CHAPARRAL

[Transzonal]

Shrub-tree community of the upper washes and escarpment canyons; with cooler, more shaded conditions than in the traversed blackbrush, juniper-pinyon and pine-fir communities. Soils are shallow and overlain with rock and gravel.

1. These dense shrub thickets are comprised of a large variety of species, but commonly include Quercus turbinella (Scrub oak), Garrya flavescens (Silk tassel), Rhus trilobata (Squaw bush), Rhamnus spp. (Coffee berry), Arctostaphylos pungens (Mexican manzanita), Cercis canadensis (Redbud), Amelanchier spp. (Service berry), Celtis reticulata (Netleaf hackberry), and Symphoricarpos longiflorus (Snowberry).
2. Herbaceous composition mirrors that of the traversed communities, though usually in fewer numbers due to soil conditions and frequent surface scouring.

Two endemic special status plants, Angelica scabrida (Rough angelica) and Astragalus remotus (Spring Mountains milk vetch) occur widely here (Appendix 1). Fire ecology is also of concern, this being another community which requires periodic disturbance (flooding, rock slides, fire) in order to maintain itself.

APPENDIX 4: Vegetative Community Types

Part B. Community Descriptions

CLIFF COMMUNITY

[Transzonal]

[This and the chaparral type are split-offs from Bradley's RIPARIAN AND CLIFF community.]

Numerous, variably distributed species adapted to crevice micro-habitats in the escarpment sandstones (canyon walls; rimrock), the Spring Range limestone (ridge crags; upper slopes) and the La Madre Mountains limestone (cliff faces; ridges; slopes). Soils thin or absent; climate typically cooler and moister than adjacent habitat types, due to shading and precipitation storage.

1. Haplopappus cuneatus (Desert rock golden bush), Agave spp. (Century plant), Petrophytum caespitosum (Rock spirea), Forsellesia spp. (Grease bush) and many fern species are present. Diverse species composition again does not lend itself to dominance/codominance categorizations.
2. Monardella odoratissima (Pennyroyal), Heterotheca spp. (Golden aster), Frasera albomarginata (White-margined frasera) and various cacti species are common representatives of the highly variable herbaceous component.

This community harbors a strong preponderance of endemic and/or special status species, as exemplified by the Bridge Mountain biodiversity hotspot (Appendix 1 & 2).

RIPARIAN COMMUNITY

[Transzonal]

[This is lumped from Bradley's DESERT RIPARIAN, DESERT SPRINGS and STREAM RIPARIAN types.]

Composed of numerous, differentially distributed species that are exclusively restricted to sites with permanent water. In RRCNCA, all such riparian areas derive from contact springs (perched water table conditions). Soils deeper, more organic; climate cooler due to canopy-provided shade.

1. Populus fremontii (Cottonwood), Fraxinus velutina (Velvet ash) and Salix spp. (Arroyo; Coyote willows) are common trees; Baccharis sergiloides (Squaw waterweed) and Pluchea sericea (Arrow weed) are typical shrubs. Vitus arizonica (Canyon grape) is a widespread woody vine. Dominance is again difficult to identify due to species compositional variability.
2. Herbaceous plants include numerous sedges (Carex spp.; Eleocharis spp.), rushes (Juncus spp.) and grasses (Agrostis spp.; Muhlenbergia spp.; Polypogon spp.). Anemopsis californica (Yerba mansa) is a common perennial forb. Also common is Equisetum spp. (Horsetail) and Typha spp. (Cat-tail). Saline sites host such species as Distichlis spicata (Desert saltgrass) and Solidago spp. (Golden rod).

Of immediate management concern is the extreme concentration of recreational and feral animal use sustained by these riparian areas, in combination with the threat posed by invasive exotic plants (particularly Tamarix spp. (Salt cedar). It is also this community which supports the greatest proportion of endemic and/or special status species in RRCNCA (Appendix 1 & 2).

APPENDIX 5: SPECIES LIST, MAMMALS (Non-bats)

ORDER		
<u>Genus species</u>	Common Name	Cited by/Yr
*Unconfirmed in RRCNCA		
RODENTIA (Rodents, Squirrels)		
<u>Tamias panamintinus</u>	Panamint chipmunk	Misc/97
<u>Tamias palmeri</u> *	Palmer's chipmunk	RRHMP/69
<u>Ammospermophilus leucurus</u>	White-tailed antelope squirrel	NDOW/93
<u>Spermophilus tereticaudus</u>	Round-tailed ground squirrel	RRHMP/69
<u>Spermophilus variegatus</u>	Rock squirrel	Misc/97
<u>Thomomys bottae</u>	Botta's pocket gopher	NDOW/93
<u>Chaetodipus formosus</u> *	Long-tailed pocket mouse	NDOW/93
<u>Chaetodipus penicillatus sobrinus</u> *	Desert pocket mouse	RREIS/75
<u>Perognathus longimembris</u>	Little pocket mouse	NDOW/93
<u>Perognathus parvus</u>	Great Basin pocket mouse	RREIS/75
<u>Dipodomys desertii</u>	Desert kangaroo rat	RRHMP/69
<u>Dipodomys merriami</u>	Merriam's kangaroo rat	NDOW/93
<u>Dipodomys microps occidentalis</u>	Chisel-toothed kangaroo rat	RREIS/75
<u>Dipodomys ordii</u>	Ord kangaroo rat	NDOW/93
<u>Neotoma lepida</u>	Desert woodrat	NDOW/93
<u>Onychomys torridus</u>	Southern grasshopper mouse	NDOW/93
<u>Peromyscus boylii</u>	Brush mouse	UNLV/96
<u>Peromyscus crinitus</u>	Canyon mouse	UNLV/96
<u>Peromyscus eremicus</u>	Cactus mouse	UNLV/96
<u>Peromyscus maniculatus</u>	Deer mouse	UNLV/96
<u>Peromyscus truei</u>	Pinyon mouse	UNLV/96
<u>Reithrodontomys megalotis</u>	Western harvest mouse	UNLV/96
<u>Erithizon dorsatum</u>	Porcupine	RRHMP/69

APPENDIX 5: SPECIES LIST, MAMMALS (except Bats)

ORDER <u>Genus species</u>	Common Name	Cited by/Yr
LAGOMORPHA (Rabbits, Hares)		
<u>Sylvilagus nuttallii</u>	Nuttall's cottontail	RRHMP/69
<u>Sylvilagus audubonii</u>	Desert cottontail	NDOW/93
<u>Lepus californicus</u>	Black-tailed hare (jack rabbit)	NDOW/93
CARNIVORA (Carnivores)		
<u>Canis latrans</u>	Coyote	Misc/97
<u>Urocyon cinereoargenteus</u>	Gray fox	NDOW/93
<u>Vulpes macrotis</u>	Kit fox	Misc/97
<u>Taxidea taxus</u>	Badger	Misc/97
<u>Mephitis mephitis</u>	Striped skunk	RREIS/75
<u>Spilogale gracilis</u>	Western spotted skunk	RREIS/75
<u>Bassariscus astutus</u>	Ringtail (Civet Cat)	NDOW/95
<u>Felis concolor</u>	Mountain lion	NDOW1/96
<u>Felis rufus</u>	Bobcat	Misc/97
ARTIODACTYLA (Hoofed Animals)		
<u>Odocoileus hemionus</u>	Mule deer	Misc/97
<u>Cervus elaphus</u>	Elk	NDOW2/96
<u>Ovis canadensis</u>	Bighorn sheep	Misc/97
.....		
RRCNCA Total:	38 Species (non-bats)	

Key: Misc/97... Denotes commonly observed species.
 UNLV/96... Riddle, B.R. RRCNCA wildlife; personnel communication.
 NDOW1/96.. Hardenbrook, D.B. RRCNCA wildlife; personnel communication.
 NDOW2/96.. Cox, M. RRCNCA wildlife; personnel communication.

APPENDIX 6: SPECIES LIST, BATS

ORDER [Family] Genus species	Common Name	Cited by/Yr
*Unconfirmed in RRCNCA		
CHIROPTERA		
[Vespertilionidae]		
<u>Antrozous pallidus</u>	Pallid bat	Ramsey/97
<u>Eptesicus fuscus</u>	Big brown bat	Ramsey/97
<u>Euderma maculatum</u>	Spotted bat	Ramsey/97**
<u>Idionycteris phyllotis</u>	Allen's big-eared bat	Ramsey/97
<u>Lasiurus borealis</u>	Red bat	RREIS/75
<u>Lasiurus cinereus*</u>	Hoary bat	Ramsey/97◊
<u>Myotis californicus</u>	California myotis	Ramsey/97
<u>Myotis ciliolabrum</u>	Small-footed myotis	Ramsey/97
<u>Myotis evotis</u>	Long-eared myotis	Ramsey/94
<u>Myotis lucifugus</u>	Little brown myotis	Ramsey/94
<u>Myotis thysanodes</u>	Fringed myotis	Ramsey/97
<u>Myotis volans</u>	Long-legged myotis	Ramsey/97
<u>Myotis yumanensis*</u>	Yuma myotis	Ramsey/94◊
<u>Pipistrellus hesperus</u>	Western pipistrelle	Ramsey/97
<u>Plecotus townsendii pallescens</u>	Townsend's big-eared	Ramsey/97
[Molossidae]		
<u>Nyctinomops macrotis</u>	Big free-tailed bat	RRHMP/69
<u>Tadarida brasiliensis</u>	Brazilian free-tailed bat	Ramsey/97
.....		
RRCNCA Total:	17 Bat Species	

◊ Potosi Spring reports (USFS) indicate high probability of RRCNCA occurrence.
 ** Report solely based on heard vocalizations, not direct observation.

APPENDIX 7: SPECIES LIST, REPTILES & AMPHIBIANS

CLASS [Family] <u>Genus species</u>	Common Name	Cited by/Yr
REPTILIA		
[Gekkonidae: Geckos]		
<u>Coleonyx variegatus</u>	Western banded gecko	NDOW/93
[Iguanidae: Lizards]		
<u>Dipsosaurus dorsalis</u>	Desert iguana	RRHMP/69
<u>Sauromalus obesus</u>	Chuckwalla	NDOW/95
<u>Callisaurus draconoides draconoides</u>	Zebra-tailed lizard	NDOW/94
<u>Crotaphytus collaris</u>	Common collared lizard	RRHMP/69
<u>Crotaphytus insularis</u>	Desert collared lizard	NDOW/93
<u>Gambelia wislizenii</u>	Long-nosed leopard lizard	NDOW/93
<u>Sceloporus magister</u>	Desert spiny lizard	NDOW/93
<u>Sceloporus occidentalis</u>	Western fence lizard	NDOW/94
<u>Sceloporus graciosus</u>	Sagebrush lizard	NDOW/94
<u>Urosaurus graciosus</u>	Long-tailed brush lizard	RRHMP/69
<u>Urosaurus ornatus</u>	Tree lizard	RRHMP/69
<u>Uta stansburiana</u>	Side-blotched lizard	NDOW/93
<u>Phrynosoma platyrhinos</u>	Desert horned lizard	NDOW/93
[Xantusiidae: Night lizards]		
<u>Xantusia vigilis</u>	Desert night lizard	NDOW/93
[Scincidae: Skinks]		
<u>Eumeces gilberti</u>	Gilbert skink	NDOW/94
<u>Eumeces skiltonianus</u>	Western skink	NDOW/94
[Teiidae: Whiptails]		
<u>Cnemidophorus tigris</u>	Western whiptail	NDOW/93
[Helodermatidae: Venomous lizards]		
<u>Heloderma suspectum cinctum</u>	Banded Gila monster	NDOW/96
[Leptotyphlopidae: Slender blind snakes]		
<u>Leptotyphlops humilis</u>	Western blind snake	RRHMP/69

APPENDIX 7: SPECIES LIST, REPTILES & AMPHIBIANS

CLASS [Family] <u>Genus species</u>	Common Name	Cited by/Yr
[Colubridae: Snakes]		
<u>Diadophis punctatus</u>	Ringneck snake	NDOW/95
<u>Phyllorhynchus descortatus</u>	Western leaf-nosed	RRHMP/69
<u>Masticophis flagellum</u>	Coachwhip	NDOW/93
<u>Masticophis taeniatus</u>	Striped whipsnake	NDOW/94
<u>Salvadora hexalepis</u>	Western patch-nosed	NDOW/95
<u>Arizona elegans</u>	Glossy snake	NDOW/95
<u>Pituophis melanoleucus</u>	Gopher snake	NDOW/93
<u>Lampropeltis getulus</u>	Common kingsnake	NDOW/93
<u>Rhinocheilus lecontei</u>	Long-nosed snake	NDOW/93
<u>Sonora semiannulata</u>	Ground snake	NDOW/93
<u>Chionactis occipitalis</u>	Western shovel-nosed	NDOW/94
<u>Tantilla hobartsmithi</u>	Southwestern black-headed	NDOW/93
<u>Trimorphodon biscutatus</u>	Lyre snake	NDOW/93
<u>Trimorphodon biscutatus lambda</u>	Sonoran lyre snake	RRHMP/69
<u>Hypsiglena torquata</u>	Night snake	NDOW/93
[Viperidae: Vipers]		
<u>Crotalus mitchelli</u>	Speckled rattlesnake	NDOW/93
<u>Crotalus cerastes</u>	Sidewinder	NDOW/94
<u>Crotalus scutulatus</u>	Mojave green rattlesnake	NDOW/95
[Bufonidae: True toads]		
<u>Bufo punctatus</u>	Red-spotted toad	NDOW/93
[Hylidae: Tree frogs]		
<u>Pseudacris regilla</u>	Pacific chorus frog	NDOW/93
[Testudinidae: Land tortoises]		
<u>Gopherus agassazii</u>	Desert tortoise	Misc/97
.....		
RRCNCA Total:	41 Species	

APPENDIX 8: SPECIES LIST, BIRDS

[Family] <u>Genus species</u>	Common Name	Cited by/Yr
[Anatidae: Ducks, Geese]		
<u>Branta canadensis</u>	Canada goose	RRRL/86
<u>Anas platyrhynchos</u>	Mallard	RRAS/98
[Ardidae: Herons]		
<u>Ardea herodias</u>	Great blue heron	RRAS/94
<u>Butorides striatus</u>	Green-backed heron	RRAS/94
<u>Casmerodius albus</u>	Great egret	RRAS/95
[Charadriidae: Plovers]		
<u>Charadrius vociferus</u>	Killdeer	RRAS/95
<u>Gallinago gallinago</u>	Common snipe	RRAS/97
<u>Tringa solitaria</u>	Solitary sandpiper	RRAS/94
[Phasianidae: Quail]		
<u>Alectoris chukar</u>	Chukar	NCA/97
<u>Callipepla gambelii</u>	Gambel's quail	RRAS/95
[Columbidae: Doves]		
<u>Zenaida asiatica</u>	White-winged dove	RRRL/86
<u>Zenaida macroura</u>	Mourning dove	RRAS/96
[Cuculidae: Roadrunners]		
<u>Geococcyx californianus</u>	Greater roadrunner	RRAS/96
[Picidae: Woodpeckers]		
<u>Colaptes auratus</u>	Northern flicker	RRAS/96
<u>Picoides scalaris</u>	Ladder-backed woodpecker	RRAS/96
<u>Picoides villosus</u>	Hairy woodpecker	RRRL/86
<u>Sphyrapicus nuchalis</u>	Red-naped sapsucker	RRAS/96
<u>Sphyrapicus ruber</u>	Red-breasted sapsucker	RRRL/86
<u>Sphyrapicus varius</u>	Yellow-bellied sapsucker	RRRL/86
[Alcedinidae: Kingfishers]		
<u>Ceryle alcyon</u>	Belted kingfisher	RRAS/95

APPENDIX 8: SPECIES LIST, BIRDS

<u>Genus species</u>	Common Name	Cited by/Yr
[Cathartidae: Vultures]		
<u>Cathartes aura</u>	Turkey vulture	NCA/97
[Accipitridae: Hawks, Eagles]		
<u>Accipiter cooperii</u>	Cooper's hawk	RRAS/96
<u>Accipiter gentilis</u>	Northern goshawk	RRRL/86
<u>Accipiter striatus</u>	Sharp-shinned hawk	RRAS/95
<u>Buteo jamaicensis</u>	Red-tailed hawk	RRAS/96
<u>Buteo lagopus</u>	Rough-legged hawk	NCA/92
<u>Buteo regalis</u>	Ferruginous hawk	RRRL/86
<u>Buteo swainsoni</u>	Swainson's hawk	RRRL/86
<u>Circus cyaneus</u>	Northern harrier	RRRL/86
<u>Aquila chrysaetos</u>	Golden eagle	RRAS/95
[Falconidae: Falcons]		
<u>Falco columbarius</u>	Merlin	RRRL/86
<u>Falco mexicanus</u>	Prairie falcon	RRAS/97
<u>Falco peregrinus anatum</u>	American peregrine falcon	RRAS/97
<u>Falco sparverius</u>	American kestrel	RRAS/95
[Strigidae: Owls]		
<u>Aegolius acadicus</u>	Northern saw-whet owl	RRHMP/69
<u>Asio flammeus</u>	Short-eared owl	NCA/96
<u>Asio otus</u>	Long-eared owl	RRAS/96
<u>Athene cuniculari</u>	Burrowing owl	NCA/93
<u>Bubo virginianus</u>	Great horned owl	RRAS/97
<u>Otus kennicottii</u>	Western screech owl	RRHMP/69
<u>Tyto alba</u>	Barn owl	RRRL/86
[Trochilidae: Hummingbirds]		
<u>Archilochus alexandri</u>	Black-chinned hummingbird	RRAS/96
<u>Calypte anna</u>	Anna's hummingbird	RRAS/96
<u>Calypte costae</u>	Costa's hummingbird	RRAS/96

APPENDIX 8: SPECIES LIST, BIRDS

<u>Genus species</u>	Common Name	Cited by/Yr
<u>Selasphorus platycercus</u>	Broad-tailed hummingbird	RRRL/86
<u>Selasphorus rufus</u>	Rufous hummingbird	RRRL/86
<u>Stellula calliope</u>	Calliope hummingbird	RRRL/86
[Caprimulgidae: Nightjars]		
<u>Chordeiles acutipennis</u>	Lesser nighthawk	RRRL/86
<u>Chordeiles minor</u>	Common nighthawk	RRHMP/69
<u>Phalaenoptilus nuttallii</u>	Common poorwill	NDOW/93
[Tyrannidae: Tyrant flycatchers]		
<u>Contopus sordidulus</u>	Western wood pewee	RRAS/96
<u>Contopus borealis</u>	Olive-sided flycatcher	RRAS/98
<u>Empidonax hammondi</u>	Hammond's flycatcher	RRRL/86
<u>Empidonax oberholseri</u>	Dusky flycatcher	RRRL/86
<u>Empidonax occidentalis</u>	Cordilleran flycatcher	RRAS/95
<u>Empidonax traillii</u>	Willow flycatcher	RRRL/86
<u>Empidonax wrightii</u>	Gray flycatcher	RRAS/94
<u>Myiarchus cinerascens</u>	Ash-throated flycatcher	RRAS/96
<u>Myiarchus tyrannulus</u>	Brown-crested flycatcher	RRRL/86
<u>Pyrocephalus rubinus</u>	Vermillion flycatcher	RRHMP/69
<u>Sayornis nigricans</u>	Black phoebe	RRAS/96
<u>Sayornis saya</u>	Say's phoebe	RRAS/95
<u>Tyrannus verticalis</u>	Western kingbird	RRAS/96
<u>Tyrannus vociferans</u>	Cassin's kingbird	RRRL/86
[Hirundinidae: Swallows]		
<u>Hirundo pyrrhonota</u>	Cliff swallow	RRHMP/69
<u>Hirundo rustica</u>	Barn swallow	RRRL/86
<u>Stelgidopteryx serripennis</u>	Northern rough-winged swallow	RRAS/96
<u>Tachycineta bicolor</u>	Tree swallow	RREIS/75
<u>Tachycineta thalassina</u>	Violet-green swallow	RRAS/96
[Corvidae: Jays, Crows]		
<u>Aphelocoma coerulescens</u>	Scrub jay	RRAS/96

APPENDIX 8: SPECIES LIST, BIRDS

<u>Genus species</u>	Common Name	Cited by/Yr
<u>Corvus brachyrhynchos</u>	American crow	RRHMP/69
<u>Corvus corax</u>	Common raven	RRAS/95
<u>Gymnorhinus cyanocephalus</u>	Pinyon jay	RRRL/86
<u>Nucifraga columbiana</u>	Clark's nutcracker	NCA/97
[Alaudidae: Larks]		
<u>Eremophila alpestris</u>	Horned lark	RRRL/86
[Apodidae: Swifts]		
<u>Aeronautes saxatalis</u>	White-throated swift	RRAS/96
[Paridae: Chickadees, Titmice]		
<u>Parus gambeli</u>	Mountain chickadee	RRRL/86
<u>Parus inornatus</u>	Plain titmouse	RRRL/86
[Aegithalidae: Bushtit]		
<u>Psaltiriparus minimus</u>	Bushtit	RRRL/86
[Remizidae: Verdin]		
<u>Auriparus flaviceps</u>	Verdin	RRAS/96
[Sittidae: Nuthatches]		
<u>Sitta canadensis</u>	Red-breasted nuthatch	RRRL/86
<u>Sitta carolinensis</u>	White-breasted nuthatch	RRRL/86
<u>Sitta pygmaea</u>	Pygmy nuthatch	RRRL/86
[Troglodytidae: Wrens]		
<u>Thryomanes bewickii</u>	Bewick's wren	RRAS/96
<u>Troglodytes aedon</u>	House wren	RRAS/95
<u>Troglodytes troglodytes</u>	Winter wren	RRRL/86
<u>Campylorhynchus brunneicapillus</u>	Cactus wren	NCA/93
<u>Catherpes mexicanus</u>	Canyon wren	RRRL/86
<u>Salpinctes obsoletus</u>	Rock wren	RRRL/86
[Laniidae: Shrikes]		
<u>Lanius ludovicianus</u>	Loggerhead shrike	NCA/93
[Sturnidae: Starlings]		
<u>Sturnus vulgaris</u>	European starling	RRAS/95

APPENDIX 8: SPECIES LIST, BIRDS

<u>Genus species</u>	Common Name	Cited by/Yr
[Bombycillidae: Waxwings]		
<u>Bombycilla cedrorum</u>	Cedar waxwing	RRAS/96
[Ptilogonatidae: Silky flycatchers]		
<u>Phainopepla nitens</u>	Phainopepla	RRAS/96
[Muscicapidae: Gnatcatchers]		
<u>Regulus calendula</u>	Ruby-crowned kinglet	RRAS/96
<u>Regulus satrapa</u>	Golden-crowned kinglet	RRRL/86
<u>Polioptila caerulea</u>	Blue-gray gnatcatcher	RRAS/96
<u>Polioptila melanura</u>	Black-tailed gnatcatcher	RRRL/86
[Mimidae: Mimic thrushes]		
<u>Mimus polyglottos</u>	Northern mockingbird	RRAS/96
<u>Oreoscoptes montanus</u>	Sage thrasher	RRRL/86
<u>Toxostoma bendirei</u>	Bendire's thrasher	RRRL/86
<u>Toxostoma crissale</u>	Crissal thrasher	RRAS/95
<u>Toxostoma curvirostre</u>	Curve-billed thrasher	RRRL/86
<u>Toxostoma lecontei</u>	LeConte's thrasher	RRRL/86
<u>Catharus guttatus</u>	Hermit thrush	RRRL/86
<u>Myadestes townsendii</u>	Townsend's solitaire	RRRL/86
<u>Sialia currucoides</u>	Mountain bluebird	RRRL/86
<u>Sialia mexicana</u>	Western bluebird	RRRL/86
<u>Turdus migratorius</u>	American robin	RRAS/96
[Vireonidae: Vireos]		
<u>Vireo bellii</u>	Bell's vireo	RRRL/86
<u>Vireo hutoni</u>	Hutton's vireo	RRRL/86
<u>Vireo solitarius</u>	Solitary vireo	RRAS/95
<u>Vireo gilvus</u>	Warbling vireo	RRAS/96
<u>Vireo olivaceus</u>	Red-eyed vireo	RRRL/86
<u>Vireo vicinior</u>	Gray vireo	RRRL/86
[Emberizidae: Wood warblers]		
<u>Guiraca caerulea</u>	Blue grosbeak	RRAS/96

APPENDIX 8: SPECIES LIST, BIRDS

<u>Genus species</u>	Common Name	Cited by/Yr
<u>Pheucticus melanocephalus</u>	Black-headed grosbeak	RRAS/96
<u>Passerina amoena</u>	Lazuli bunting	RRAS/96
<u>Passerina cyanea</u>	Indigo bunting	RRRL/86
<u>Cardinalis cardinalis</u>	Northern cardinal	RRRL/86
<u>Amphispiza belli</u>	Sage sparrow	RRRL/86
<u>Amphispiza bilineata</u>	Black-throated sparrow	RRAS/96
<u>Chondestes grammacus</u>	Lark sparrow	RRAS/95
<u>Melospiza melodia</u>	Song sparrow	RRAS/96
<u>Melospiza lincolni</u>	Lincoln's sparrow	RRAS/96
<u>Passerculus sandwichensis</u>	Savannah sparrow	RRAS/94
<u>Spizella atrogularis</u>	Black-chinned sparrow	RRRL/86
<u>Spizella breweri</u>	Brewer's sparrow	RRAS/96
<u>Spizella passerina</u>	Chipping sparrow	RRAS/95
<u>Zonotrichia atricapilla</u>	Golden-crowned sparrow	RRRL/86
<u>Zonotrichia leucophrys</u>	White-crowned sparrow	RRAS/96
<u>Calcarius ornatus</u>	Chestnut-collared longspur	RRRL/86
<u>Pipilo aberti</u>	Abert's towhee	RRAS/95
<u>Pipilo chlorurus</u>	Green-tailed towhee	RRAS/95
<u>Pipilo erythrophthalmus</u>	Rufous-sided towhee	RRAS/96
<u>Junco hyemalis</u>	Dark-eyed junco	RRAS/95
<u>Dendroica magnolia</u>	Magnolia warbler	RRRL/86
<u>Dendroica nigrescens</u>	Black-throated gray warbler	NDOW/95
<u>Dendroica occidentalis</u>	Hermit warbler	RRRL/86
<u>Dendroica petechia</u>	Yellow warbler	RRAS/95
<u>Dendroica coronata</u>	Yellow-rumped warbler	RRAS/96
<u>Dendroica graciae</u>	Grace's warbler	RRRL/86
<u>Dendroica townsendi</u>	Townsend's warbler	RRAS/95
<u>Geothlypis trichas</u>	Common yellowthroat	RRAS/95
<u>Oporornis tolmiei</u>	MacGillivray's warbler	RRAS/96
<u>Vermivora celata</u>	Orange-crowned warbler	RRAS/96

APPENDIX 8: SPECIES LIST, BIRDS

<u>Genus species</u>	<u>Common Name</u>	<u>Cited by/Yr</u>
<u>Vermivora luciae</u>	Lucy's warbler	RRAS/96
<u>Vermivora ruficapilla</u>	Nashville warbler	RRRL/86
<u>Vermivora virginiae</u>	Virginia's warbler	RRRL/86
<u>Wilsonia pusilla</u>	Wilson's warbler	RRAS/96
<u>Icteria virens</u>	Yellow-breasted chat	RRRL/86
<u>Euphagus cyanocephalus</u>	Brewer's blackbird	RRAS/94
<u>Icterus cucullatus</u>	Hooded oriole	RRAS/96
<u>Icterus galbula</u>	Northern oriole	RRAS/96
<u>Icterus parisorum</u>	Scott's oriole	RRRL/86
<u>Molothrus ater</u>	Brown-headed cowbird	RRAS/96
<u>Quiscalus mexicanus</u>	Great-tailed grackle	RRAS/96
<u>Sturnella neglecta</u>	Western meadowlark	RRRL/86
<u>Piranga flava</u>	Hepatic tanager	RRHMP/69
<u>Piranga ludoviciana</u>	Western tanager	RRAS/96
<u>Piranga rubra</u>	Summer tanager	RRAS/96
[Fringillidae: Finches]		
<u>Carpodacus cassinii</u>	Cassin's finch	RRRL/86
<u>Carpodacus mexicanus</u>	House finch	RRAS/96
<u>Carpodacus purpureus</u>	Purple finch	RRRL/86
<u>Carduelis lawrencei</u>	Lawrence's goldfinch	RRRL/86
<u>Carduelis pinus</u>	Pine siskin	RRAS/96
<u>Carduelis psaltria</u>	Lesser goldfinch	RRAS/96
<u>Carduelis tristis</u>	American goldfinch	RRAS/95
<u>Coccothraustes vespertina</u>	Evening grosbeak	RRRL/86
<u>Loxia curvirostra</u>	Red crossbill	RRRL/86
[Passeridae: Weaver finches]		
<u>Passer domesticus</u>	House sparrow	RRAS/95
.....		
RRCNCA Total:	170 Bird Species	

APPENDIX 9: SPECIES LIST, INVERTEBRATES

CLASS: Order Family	Genus species Common Name	Sites of Occurrence
CRUSTACEA: <i>Crustaceans</i>		
Ostracoda Unidentified	<u>Unidentified</u> <u>Ostracod</u>	Mormon Green #1; Bootleg; Rainbow; Lone Pine; Mud #1 & Moonshine Springs

GASTROPODA: <i>Molluscs; Snails</i>		
Limnophila Physidae	<u>Physella virgata</u>	Calico & Lone Pine Springs
Mesogastropoda Hydrobiidae	<u>Pyrgulopsis sp.?</u> <u>Springsnail</u>	Rainbow Spring
	<u>Pyrgulopsis turbatrix</u> <u>SE NV Springsnail</u>	Lost Creek; La Madre & Willow* Springs [*Pending reintroduction]
	<u>Pyrgulopsis deaconi</u> Red; <u>Spring Mtns Springsnail</u>	Willow* Springs [*Pending reintroduction]

INSECTA: <i>Insects</i>		
Coleoptera Dytiscidae	<u>Agabus sp.</u> <u>Predacious diving</u> <u>beetle</u>	Calico; Sheep; South Fork and Lone Pine Springs
	<u>Hydroporus sp.</u> <u>Predacious diving</u> <u>beetle</u>	Bootleg; Rainbow; Sheep; Moonshine; Red Rock Seep; South Fork & Lone Pine Spgs
	<u>Laccophilus sp.</u> <u>Predacious diving</u> <u>beetle</u>	Mud Spring #1
Hydrophilidae	<u>Cymbiodyta sp.</u> <u>Water scavenger beetle</u>	Bootleg; Rainbow; Sheep; Red Rock Seep; Schumacher & Lone Pine Springs
	<u>Agabinus sp.</u> <u>Water scavenger beetle</u>	Sheep Spring
	<u>Enochrus sp.</u> <u>Water scavenger beetle</u>	Schumacher Spring

APPENDIX 9: SPECIES LIST, INVERTEBRATES

CLASS: Order Family	Genus <u>species</u> <u>Common Name</u>	Sites of Occurrence
INSECTA: (Cont.)		
Hydraenidae	<u>Hydraena</u> <u>sp.</u>	Red Rock Seep & Bootleg Spring
Diptera Chironomidae	<u>Unidentified</u> <u>sp.</u> <u>Midge</u>	Calico; Bootleg; Rainbow; Shovel; Moonshine; Red Rock Seep (3 spp.); Mud #1; Mormon Green #1; Schumacher; South Fork & Lone Pine Springs
Stratiomyidae	<u>Unidentified</u> <u>sp.</u> <u>Soldier fly</u>	Calico Spring
	<u>Odontomyia</u> <u>sp.</u> <u>Soldier fly</u>	Bootleg; Rainbow; Red Rock Seep; Schumacher & South Fork Springs
	<u>Stratiomys</u> <u>sp.</u> <u>Soldier fly</u>	Mormon Green #1 & Sheep Springs
Psychodidae	<u>Pericoma</u> <u>sp.</u>	Red Rock Seep & Bootleg Springs
Simuliidae	<u>Unidentified</u> <u>sp.</u> <u>Black fly</u>	Bootleg; Rainbow; Moonshine; Red Rock seep; Mormon Green #1; South Fork & Lone Pine Springs
Ceratopogonidae	<u>Unidentified</u> <u>sp.</u> <u>Punkies</u>	Sheep; Shovel; Schumacher; South Fork; Mormon Green #1 & Lone Pine Springs
Tabanidae	<u>Tabanus</u> <u>sp.</u> <u>Horse fly</u>	Sheep & Moonshine Springs
Dixidae	<u>Dixella</u> <u>sp.</u>	Mormon Green #1 & Moonshine Springs
Culicidae	<u>Unidentified</u> <u>sp.</u> <u>Mosquito</u>	Moonshine Spring
Tipulidae	<u>Unidentified</u> <u>sp.</u> <u>Crane fly</u>	Schumacher Spring
Ephemeroptera Ameletidae	<u>Ameletus</u> <u>sp.</u> <u>Mayfly</u>	South Fork Spring
Baetidae	<u>Baetis</u> <u>sp.</u> <u>Mayfly</u>	Calico; Mormon Green #1; Rainbow; Bootleg & Lone Pine Springs
	<u>Unidentified</u> <u>sp.</u> <u>Mayfly ?</u>	Schumacher Spring
	<u>Callibaetis</u> <u>sp.</u> <u>Mayfly</u>	Mormon Green Spring #1
Hemiptera Corixidae	<u>Hesperocorix</u> <u>laevigata</u> <u>Water boatman</u>	Calico Spring

APPENDIX 9: SPECIES LIST, INVERTEBRATES

CLASS:		
Order	<u>Genus species</u>	Sites of Occurrence
Family	<u>Common Name</u>	
Gerridae	<u>Unidentified sp.</u> <i>Water Strider</i>	Bootleg & Moonshine Springs
	<u>Gerris sp.</u> <i>Water Strider</i>	South Fork Spring
Veliidae	<u>Microvelia sp.</u> <i>True Bug</i>	Mud #1; Schumacher; Bootleg; South Fork & Lone Pine Springs
Odonata Coenagrionidae	<u>Argia sp.</u> <i>Damselfly</i>	Calico; Sheep; Rainbow; Moonshine; Bootleg; Mud #1; Mormon Green #1 & Lone Pine Springs
Trichoptera Hydroptilidae	<u>Ochrotrichia sp.</u>	Bootleg; South Fork; Rainbow; Sheep & Lone Pine Springs
Limnephilidae	<u>Limnephilus sp.</u> <i>Northern caddisfly</i>	Bootleg & South Fork Springs
	<u>Hesperophylax sp.</u> <i>Northern caddisfly</i>	Sheep Spring
Hydropsychidae	<u>Hydropsyche sp.</u>	Lone Pine Spring

Reference cited:

Sada, D. and J. Nachlinger. 1998. Spring Mountains Ecosystem: Vulnerability of Spring-fed Aquatic and Riparian Systems to Biodiversity Loss. Part II, Springs Surveyed in 1997. Contract report prepared for U.S. Bureau of Land Management, Las Vegas, NV.

APPENDIX 10: INVENTORY OF SPRINGS (Conducted 1993-1998)

Part A. Confirmed Springs

SPRING NAME	Twn,Rng,Sec,Qtrs	Type (*)	Discharge (Gal/min)	Survey Date	N-No.
*P=Perennial; I=Intermittent					
SCHUMACHER	18S 58E 33 NW SW	P	00.10	01/96	N-01
GRASSY	18S 58E 32 NW SE	P	10.00	01/96	N-02
GRAPEVINE	19S 58E 16 SW NW	P	00.30	01/96	N-03
SHEEP	20S 57E 36 SW SW	P	05.00	05/97	N-08
SOUTH FORK	20S 57E 36 SE SE	P	50.00	01/96	N-09
UNNAMED	20S 58E 29 SW SW	P	05.00	01/96	N-14
LA MADRE	20S 58E 29 SE NW	P	100.0	01/96	N-15
WILLOW	20S 58E 33 SW SW	P	04.50	05/95	N-17
LOST CREEK	21S 58E 04 NW NW	P	50.00	01/96	N-18
WHITE ROCK	20S 58E 33 NE NE	P	00.50	05/95	N-19
ASH CREEK	21S 58E 01 NW NE	P	00.10	05/95	N-25
LITTLE CREEK	21S 58E 01 SE NE	I	00.10	01/96	N-26
LONE PINE	21S 58E 07 NW NW	P	10.00	01/96	N-27
[or UPPER SWITCHBACK]					
SWITCHBACK	21S 58E 07 NW NW	P	15.00	05/95	N-28
[or LOWER SWITCHBACK]					
ICEBOX CANYON	21S 58E 08 SE NW	?	03.50	09/79	N-29
CLAY BANK #2	20S 57E 25 NW SW	P	05.00	08/98	N-30
PINE CREEK	21S 58E 16 NW SE	P	25.00	05/95	N-31
OAK CREEK	21S 58E 21 SE SE	P	30.00	05/95	N-32
FIRST CREEK	21S 58E 33 SW NE	P	10.00	05/95	N-33
CALICO	21S 59E 06 NW SW	I	00.10	12/96	N-34
RED	21S 59E 06 SW SW	P	07.40	05/95	N-35
OLIVER RANCH	22S 58E 01 SE SW	P	40.00	05/96	N-36
[or INDIAN SPRING]					
LONE WILLOW	22S 58E 02 SE NE	I	00.10	05/96	N-37
RAINBOW	22S 58E 07 SE NE	P	25.00	05/97	N-40
BOOTLEG	22S 58E 07 NE SE	P	25.00	05/97	N-41
MORMON GREEN #1	22S 58E 12 NW NW	P	30.00	01/96	N-43
MORMON GREEN #2	22S 58E 01 SW SW	I	00.10	08/74	N-44
MORMON GREEN #3	22S 58E 12 NW NW	I	00.10	12/96	N-61
POINT #2	22S 58E 10 NW NW	I	00.10	??/79	N-42
POINT	22S 58E 11 NW NW	?	00.30	01/96	N-45
SANDSTONE #2	22S 58E 14 NW SE	I	00.01	10/96	N-46
MUD #1	22S 58E 14 SE SW	P	00.40	01/96	N-47
[or LOWER MUD SPRING]					
L.M.	22S 58E 14 NW SW	I	00.01	10/96	N-48
[or UPPER MUD SPRING]					
MOONSHINE	22S 58E 22 SW SE	P	05.00	01/96	N-52
RED ROCK SEEPS	22S 58E 22 NW NE	P	02.00	01/96	N-53
LONE GRAPEVINE	22S 58E 22 NE SE	P	00.50	05/95	N-54
MUD SPRING #2	22S 58E 23 NW NE	I	04.50	01/96	N-55
SHOVEL SPRING	22S 58E 22 SW SE	P	01.00	01/96	N-56
WHEELER CAMP	22S 59E 07 NW NW	P	30.00	05/95	N-57
WILSON TANK	23S 58E 24 NE SW	P	00.01	01/96	N-58
[or TUNNEL SPRING]					
BIRD	24S 59E 04 SW NE	P	00.01	01/96	N-59
COTTONWOOD (private?)	22S 58E 03 SE SE	P	00.50	01/96	N-60

APPENDIX 10: INVENTORY OF SPRINGS (Conducted 1993-1998)

Part B. Deleted Springs (Springs listed in prior planning documents but now reclassified on the basis of a 1993-1998 status verification inventory).

N-No./SITE NAME	T,S,R,E,S.,1/4s	Date	Status Determination
N-** UNNAMED	20,58,S.29 SE NW	01/96	Seep within La Madre Spring drainage.
N-04 UNNAMED	20,57,S.36 SE NE	04/98	Seep within South Fork Spring drainage.
N-05 UNNAMED	20,57,S.36 SE NW	04/98	Upland habitat site (dry).
N-06 UNNAMED	20,57,S.36 NE SE	04/98	Seep within South Fork Spring drainage.
N-07 UNNAMED	20,57,S.36 NE SE	04/98	Seep within South Fork Spring drainage.
N-10 UNNAMED	21,58,S.06 SE NW	04/98	Seep within South Fork Spring drainage.
N-11 DJ SPRING	20,58,S.18 NW SW	05/98	Upland habitat site (dry).
N-12 UNNAMED	20,58,S.19 SW SW	08/98	Upland habitat site (dry).
N-13 UNNAMED	20,58,S.25 SE NW	04/97	Damp soil below CCC masonry reservoir.
N-16 UNNAMED	20,58,S.30 SW SW	04/98	Upland habitat site (dry).
N-20 UNNAMED	21,57,S.01 NW NW	04/98	Upland habitat site (dry):
N-21 UNNAMED	21,57,S.01 NW NE	04/98	Seep within South Fork Spring drainage.
N-22 UNNAMED	21,57,S.01 NW NE	04/98	Seep within South Fork Spring drainage.
N-24 SOUTH SPRING	21,57,S.25 NW SW	06/97	Subsurface water-retaining location in a major ephemeral wash.
N-** ICEBOX SPRING	21,58,S.09 NW NW	01/96	Waterfall pool downstream from the actual Icebox Canyon Spring location.
N-** PINE CREEK SPRING (3)	21,58,S.16 NW SW	04/97	One point in the PINE CREEK drainage.
	21,58,S.17 NE NW	04/97	One point in the PINE CREEK drainage.
	21,58,S.17 SE	04/97	One point in the PINE CREEK drainage.
N-23 UNNAMED	21,57,S.12 SW NE	08/98	Upland habitat site (dry).
N-38 SANDSTONE SEEP #2	22,58,S.05 NE NE	05/97	Scant water & rush/sedge vegetation, but is just one site in a canyon-length zone of diffuse, ephemeral discharge seepage.
N-39 UPPER SANDSTONE SEEPS	22,58,S.05 NW SE	05/97	Identical status as for site N-38.
N-49 UNNAMED	22,58,S.15 SE NE	07/98	Persistent pool from ephemeral run-off.
N-50 RED ROCK SEEPS	22,58,S.15 NW SE	07/98	Upland habitat site (dry).
N-51 UNNAMED	22,58,S.16 NE NE	07/98	One site in a major ephemeral canyon.

APPENDIX 11: SPRING DISCHARGE MEASUREMENTS

SPRING NAME	Flow Type	Discharge Volume (Gal/min) by Author/Year Surveyed:		
		Hughes/ 1965 Gal/min (GPM)	VanDerPuy/ 79 GPM (Month)	Sada/ 95 & 97 GPM (MM/YY)
P=Perennial; I=Intermittent				
SCHUMACHER	P	N/a	Dry (Aug)	0.52 (05/97)
GRASSY	P	18.70	0.25 (Aug)	0.52 (08/95)
GRAPEVINE	P	Dry	0.25 (June)	Tank (08/95)
SHEEP	P	N/a	5.50 (Aug)	5.20 (05/97)
SOUTH FORK	P	N/a	20.00 (July)	7.80 (05/97)
UNNAMED [N-14]	P	N/a	N/a	Trace (05/97)
LA MADRE	P	4.50	20.00 (July)	1.56 (05/95)
WILLOW	P	1.10	0.35 (June)	4.42 (05/95)
LOST CREEK	P	N/a	15.00 (June)	49.10 (05/95)
WHITE ROCK	P	0.30	1.00 (June)	0.52 (05/95)
ASH CREEK	P	1.90	0.10 (Aug)	0.13 (05/95)
LITTLE CREEK	I	Trace	0.10 (Aug)	N/a
LONE PINE	P	N/a	1.50 (Aug)	1.30 (05/97)
SWITCHBACK	P	Dry	3.00 (Aug)	14.82 (05/95)
ICEBOX CANYON	?	N/a	3.50 (Sept)	N/a
CLAY BANK #2	P	N/a	6.00 (Sept)	N/a
PINE CREEK	P	12.80	25.00 (July)	24.70 (05/95)
OAK CREEK	P	14.20	15.00 (July)	29.64 (05/95)
FIRST CREEK	P	1.30	10.00 (July)	9.88 (05/95)
CALICO	I	Trace	0.20 (Aug)	0.03 (05/95)
RED	P	11.60	8.00 (June)	7.28 (05/95)
OLIVER RANCH	P	1.00	N/a	N/a
LONE WILLOW	I	Dry	N/a	N/a
RAINBOW	P	Dry	Dry (July)	7.80 (05/97)
BOOTLEG	P	Dry	0.50 (July)	3.90 (05/97)
MORMON GREEN #1	P	0.50	7.00 (June)	0.26 (07/95)
MORMON GREEN #2	I	Dry	N/a	N/a
MORMON GREEN #3	I	N/a	N/a	N/a

APPENDIX 11: SPRING DISCHARGE MEASUREMENTS

SPRING NAME	Flow Type	Discharge Volume (Gal/min) by Author/Year Surveyed:		
		Hughes/ 1965 Gal/min (GPM)	VanDerPuy/ 79 GPM (Month)	Sada/ 95 & 97 GPM (MM/YY)
P=Perennial; I=Intermittent				
POINT	?	N/a	N/a	N/a
POINT #2	I	0.10	N/a	N/a
SANDSTONE #2	I	N/a	6.00 (7/83)	N/a
MUD #1	P	0.30	0.20 (July)	0.03 (05/97)
L.M.	I	N/a	Dry (Sept)	N/a
MOONSHINE	P	N/a	2.00 (July)	0.26 (05/97)
RED ROCK SEEPS	P	0.70	2.00 (Sept)	0.52 (05/97)
LONE GRAPEVINE	P	N/a	10.00 (July)	0.52 (05/95)
MUD SPRING #2	I	Dry	1.50 (July)	1.60 (05/95)
SHOVEL SPRING	P	Trace	N/a	0.52 (05/97)
WHEELER CAMP	P	Pool	18.00 (June)	29.64 (05/95)
WILSON TANK	P	N/a	0.12 (8/78)	N/a
BIRD	P	N/a	1.00 (July)	N/a
COTTONWOOD	P	N/a	N/a	N/a

Citations:

- Hughes, J.L. 1966. Some Aspects of the Hydrogeology of the Spring Mountains and Pahrump Valley, Nevada, and Environs, as Determined by Spring Evaluations. University of Nevada, Reno, School of Mines. Master's Thesis.
- Sada, D. and J. Nachlinger. 1996. Spring Mountains Ecosystem: Vulnerability of Spring-fed Aquatic and Riparian Systems to Biodiversity Loss. Contract report prepared for U.S. Fish & Wildlife Service, Reno, NV.
- Sada, D. and J. Nachlinger. 1998. Spring Mountains Ecosystem: Vulnerability of Spring-fed Aquatic and Riparian Systems to Biodiversity Loss. Part II, Springs Surveyed in 1997. Contract report prepared for U.S. Bureau of Land Management, Las Vegas, NV.
- VanDerPuy, M. and D. Sparks. 1984. Water Resources of the Las Vegas District. Las Vegas District BLM. Unpublished report.

APPENDIX 12: SPRING DEVELOPMENTS

N-No. Structure	SPRING NAME Specifications	Type Agency/Yr	Gal/Min Status	% Impounded Project No.
N-01 Pipe/Trough	SCHUMACHER Iron; Cement 3'x3' (Headbox?)	Perennial Unknown	0.10 Abandoned	000 % Unknown
N-02 Exclosures	GRASSY Steel pole; 560'/175' circum.	Perennial BLM/91	10.0 Functional	000 % R5230
N-03 Headbox Pipeline Trough Corral Exclosure	GRAPEVINE Rock, unmortared; 4'x 4'x 3' Iron, 1.5"; 90'; 0.25 gpm Masonry; 12'x12'x2'; 1560 gal. Wire-strand & steel pole Steel pole; 125' span	Perennial CCC/41 CCC/41 CCC/41 BLM/83 BLM/91	0.30 Functional Functional Functional Functional Functional	100 % C558/R0726 C559/R0726 C560/R0726 R4794 R5229
N-15 Dam	LA MADRE [Outflow=springbrook] Cement; 20'x6'	Perennial Unknown	100.0 Functional	001 % Unknown
N-17 Headbox Pipeline Trough Exclosure	WILLOW Rock, mortared; 4'x 4'x 3' Iron, 1.5"; 100'; 1.25 gpm Cement; 10'x10'x2'; 1020 gal. Wood pole; 20'x 100'	Perennial CCC/41 CCC/41 CCC/41 BLM/97	4.50 Functional Functional Functional Functional	095 % C567/JR0731 C568/JR0731 C569/JR0731 Unknown
N-19 Head/pipe Pipeline Trough	WHITE ROCK Mortar 4'x4'x3' Iron 1.5"x100' Cement; 10'x10'x2'; 1020 gal.	Perennial CCC/41 CCC/41 CCC/41	0.50 Functional Functional Functional	099 % C???/JR0767 C???/JR0767 C651/JR0786
N-25 Excavation	ASH CREEK Hand-shoveled (Now reverted)	Perennial Krupp/54	0.10 Abandoned	000 % JR0170
N-26 Excavation	LITTLE CREEK Hand-shoveled (Now reverted)	Intermitt. Krupp/54?	0.10 Abandoned	000 % JR0178
N-27 Headbox Pipe/Trough	LONE PINE [*Destroyed in Unknown flood, pre-1986] Iron 1.5"; Masonry 10'x10'x2'	Perennial Unknown Unknown	10.0 Abandoned* Abandoned*	000 % J0086 Unknown
N-28 Headbox Pipe/Trough	SWITCHBACK Cement [*Same flood as N-27] Iron 150'; Masonry 15'x15'x2'	Perennial Hughes/69 Hughes/69	15.0 Abandoned* Abandoned*	000 % J3542 J3542
N-32 Excavation	OAK CREEK Hand-shoveled (Now reverted)	Perennial Krupp/56	30.0 Abandoned	000 % JR0162
N-33 Excavation	FIRST CREEK Hand-shoveled (Now reverted)	Perennial Krupp/?/?	10.0 Abandoned	000 % J0096
N-34 Excavation	CALICO Hand-shoveled (Now reverted)	Intermitt. Krupp/56	0.10 Abandoned	000 % JR0183
N-35 Excavation Exclosure Exclosure	RED Rock-drilled tunnel Wood pole; 400' circumf. Wood pole; 140' circumf.	Perennial Krupp/?/55 BLM/96 BLM/97	7.40 Functional Functional Functional	000 % JR0172 Unknown Unknown
N-36 Pumphouse	OLIVER RANCH Residential use + springbrook	Perennial Unknown	40.0 Functional	025 % Unknown

APPENDIX 12: SPRING DEVELOPMENTS

N-No. Structure	SPRING NAME Specifications	Type Agency/Yr	Gal/Min Status	% Impounded Project No.
N-37 Excavation	LONE WILLOW Hand-shoveled (Now reverted)	Intermitt. Krupp/54	0.10 Abandoned	000 % JR0159
N-40 Pipe/Trough Corral	RAINBOW (Now reverted) Plastic; Unknown (Headbox?) Wood post & wire-strand	Perennial Unknown Krupp?/59	25.0 Abandoned Abandoned	000 % Unknown JR0362
N-41 Box/Pipe Trough Corral	BOOTLEG (Now reverted) Wood barrel; 1" plastic, 400' Steel, 4'x4' [*After 1975] Wood post & wire-strand	Perennial Krupp/58 Krupp/58 Krupp?/59	25.0 Abandoned* Abandoned* Abandoned*	000 % JR4132 J3542 JR0361
N-47 Headbox Headbox Pipeline Trough Exclosure	MUD #1 Unknown Steel casing Iron, 1.5"; 500' Steel, 8'x2'x2' Wire-strand; 5 acres	Perennial CCC/41 BLM/68 CCC/41 BLM/68 BLM/?? [J0792= Wildlife project no. J0672]	0.40 Replaced Functional Functional Functional Pending	075 % C735/JR0796 J0792 C736/JR0796 J0792 Pending
N-48 Headbox Pipe/Trough	L.M. Unknown (Now reverted) Plastic, 1"; Steel, 700 gal.	Intermitt. BLM/68 BLM/68	0.01 Abandoned Abandoned	000 % J0792 (=0672) J0792
N-54 Headbox Box/Trough Pipeline Trough Exclosure	LONE GRAPEVINE Unknown Unknown; Steel 8'x2'x2' Iron, 1.5"; 100' Unknown Wood pole & wire-strand	Perennial CCC/41 BLM/68 CCC/41 CCC/41 BLM/97	0.50 Replaced? Functional Functional Replaced Functional	050 % C729/JR0795 J0792)=0672 C730/JR0795 C731/JR0795 Unknown
N-55 Excavation	MUD #2 Hand-shoveled (Now reverted)	Intermitt. Krupp/54	4.50 Abandoned	000 % JR0191)=J791?
N-57 Head box Exclosure	WHEELER CAMP Cement, 6'x6'x4' Wire-strand; 5 acres	Perennial Unknown BLM/94	30.0 Functional Functional	000 % Unknown N/A
N-58 Excavation Pipe/Trough Exclosure Tank	TUNNEL Rock-drilled Plastic 1"x500'; Steel 200-gal Wire-strand; 40' circumf. Plastic; 1000 gallon	Intermitt. Krupp/54 Unknown Unknown Unknown [Krupp trough/3-mile pipe abandoned]	0.01 Functional Functional Functional Functional	095 % J0094/R0199 Unknown Unknown Unknown
N-59 Headbox Pipe/Trough Tanks Exclosure	BIRD Unknown Plas. 1"x1500'; Steel 200-gal Plastic; 1000 & 1500 gallons Wire-strand; 1 acre	Intermitt. Krupp/56 BLM/?? BLM/?? BLM/?? [Krupp trough/2-mile pipe abandoned]	0.01 Functional Functional Functional Functional	100 % J0092/R0197 Unknown Unknown Unknown

Project No. key: C = Civilian Conservation Corps
J = BLM Job Document Report
R = BLM Range Improvement Project System file

APPENDIX 13: ARTIFICIAL WATERS

<u>STRUCTURE</u> Component	<u>SITE NAME</u> Specifications	T,R,S,Qtr Agency/Yr	Project No.	Condition Status
<u>RESERVOIR</u>	<u>BROWNSTONE</u> (=RED SANDSTONE)	20S58E23SE		Marginal (dry in summer)
Dam	Masonry; 120'x12'	CCC/41	C650/JR0785	Retains 7" (due to leaks)
Pipeline	Iron, 1.5" x 125'	CCC/41	C703/JR0785	Removed (year unknown)
Trough	Masonry	CCC/41	C694/JR0785	Removed (year unknown)
<u>RESERVOIR</u>	<u>UNNAMED</u> ("white")	20S58E25NW		Non-operational
Dam	Masonry; 40'x 15'	CCC/unknown	Unknown	Does not retain water
<u>GUZZLERS</u> (bird)	[Each unit: Metal apron, 15'x16'; Fiberglass tank (1), 750-gal]			
	<u>SM-63</u>	23S58E03NW NDOW/87	JR5174	Fully operational -Water depth 9" (07/94)
	<u>SM-64</u>	22S58E26SE NDOW/87	JR5175	Fully operational -Water depth 9" (07/94)
	<u>SM-65</u>	23S58E14NW NDOW/87	Unknown	Fully operational -Water depth 5" (07/94)
	<u>SM-68</u>	23S58E03SW NDOW/87	JR5177	Fully operational -Water depth 9" (07/94)
	<u>SM-69</u>	23S58E36NW NDOW/87	JR5178	Fully operational -Water depth 6" (09/94)
	<u>SM-70</u>	22S58E25SE NDOW/87	JR5176	Fully operational -Water depth 5" (09/94)
<u>GUZZLERS</u> (mammal)	[Each unit: Metal apron, 30'x16'; Fiberglass tanks (2), 500-gal]			
	<u>Big Game #3</u>	19S59E32NW BLM/74	JR4922	Marginal (as of 09/97) -Needs float valve, etc
	{These three identical projects failed due to chronic vandalism.}			
	<u>Big Game #1</u>	20S59E08NW BLM/74	N5-WHA-T10	Removed in 1984
	<u>Big Game #2</u>	20S59E18SE BLM/74	Unknown	Removed (year unknown)
	<u>Big Game #4</u>	20S58E21SW BLM/74	Unknown	Removed in 1977

Project No. key: C = Civilian Conservation Corps
J = BLM Job Document Report
R = BLM Range Improvement Project System file

APPENDIX 14: IMPORTANT HABITAT AREAS

☐ HABITAT AREA NAME	[Reference Appendix #]
1) Ranked Attribute/Use	:Key Species *Special Status

☐ LA MADRE SPRING	[Appendix 1;2]
1) Springsnail habitat	: <i>Pyrgulopsis turbatrix</i> *
2) Bighorn water source	: <i>Ovis canadensis</i>
☐ LOST CREEK SPRING	[Appendix 1;2]
1) Springsnail habitat	: <i>Pyrgulopsis turbatrix</i> *
2) Special Status plants	: <i>Angelica scabrida</i> *; <i>Astragalus remotus</i> *; <i>Castilleja martinii clokeyi</i> *
☐ RAINBOW SPRING	[Appendix 1;2]
1) Springsnail habitat	: <i>Pyrgulopsis deaconi</i> *
2) Special Status plant	: <i>Penstemon thompsoniae ssp. jaegeri</i> *
☐ WOUNDED KNEE CAVE	[Appendix 1]
1) Bat maternity roost	: <i>Plecotus townsendii pallescens</i> *
☐ WHITE ROCK SPRING	[Appendix 1;5]
1) Bat water source	(Ramsey/94: greatest use in Spring Range) : <i>Plecotus townsendii pallescens</i> *; <i>Euderma maculatum</i> *; <i>Idionycteris phyllotis</i> *; <i>Myotis lucifugus</i> ; <i>M. volans</i> *; <i>M. evotis</i> *; <i>Myotis ciliolabrum</i> *; <i>M. californicus</i> ; <i>Myotis thysanodes</i> *; <i>Antrozous pallidus</i> <i>Eptesicus fuscus</i> ; <i>Pipistrellus hesperus</i>
2) Bighorn water source	: <i>Ovis canadensis</i>
☐ PINE CREEK CANYON, South	[Appendix 1;5]
1) Bat water source	: <i>Idionycteris phyllotis</i> *; <i>M. thysanodes</i> *; <i>M. californicus</i> ; <i>P. hesperus</i> ; <i>E. fuscus</i>
2) Special Status plants	: <i>Astragalus remotus</i> ; <i>Asplenium resilens</i>

APPENDIX 14: IMPORTANT HABITAT AREAS

☐ HABITAT AREA NAME	[Reference Appendix #]
1) Ranked Attribute/Use	:Key Species *Special Status
☐ CALICO HILLS	[Appendix 1;5]
1) Bat roost habitat	: <i>Plecotus townsendii pallescens</i> *; <i>Myotis thysanodes</i> *; <i>M. volans</i> *; <i>M. californicus</i> ; <i>Idionycteris phyllotis</i> *; <i>Eptesicus fuscus</i> ; <i>Antrozous pallidus</i> ; <i>Pipistrellus hesperus</i>
2) Special Status plant	: <i>Calochortus striatus</i> *
☐ LA MADRE MOUNTAIN	[Appendix 1;3;4]
1) Special Status plants	: <i>Pedicularis semibarbata charlestonensis</i> *; <i>Penstemon bicolor bicolor</i> *; <i>Glossopetalon pungens glabra</i> *; <i>Ivesia jaegeri</i> ; <i>Erigeron uncialis conjugans</i> *
2) Sole RRCNCA occurrence	: <i>Cystopteris fragilis</i> (Brittle fern);
☐ GRAPEVINE SPRING	[Appendix 1;5]
1) Bat water source	: <i>Myotis thysanodes</i> *; <i>Myotis californicus</i> ; <i>Eptesicus fuscus</i> ; <i>Antrozous pallidus</i> ; <i>Pipistrellus hesperus</i>
2) Wildlife water	{One of only 3 sources in northern RRCNCA}
☐ MT. WILSON	[Appendix 1]
1) Special Status plants	: <i>Townsendia jonesii tumulosa</i> *; <i>I. jaegeri</i> *; <i>A. scabrida</i> ; <i>P. bicolor bicolor</i> *; <i>Erigeron uncialis conjugans</i> *
☐ SANDSTONE CANYON	[Appendix 1;3]
1) Special Status plants	: <i>Angelica scabrida</i> *; <i>Astragalus remotus</i> *; <i>Glossopetalon p.glabra</i> *; <i>Ivesia jaegeri</i> ;
2) Sole RRCNCA occurrence	: <i>Pellaea mucronata</i> (Bird's foot fern)
☐ CALICO SPRING	[Appendix 1]
1) Special Status plants	: <i>Calochortus striatus</i> *; <i>Arctomecon merriamii</i>

APPENDIX 14: IMPORTANT HABITAT AREAS

☐ HABITAT AREA NAME	[Reference Appendix #]
1) Ranked Attribute/Use	:Key Species *Special Status
☐ VELVET CANYON	[Appendix 1]
1) Special Status plants	: <i>Ivesia jaegeri</i> *; <i>Angelica scabrida</i> *; <i>Astragalus remotus</i> *
☐ POTOSI FOOTHILLS	[Appendix 1]
1) Special Status plants	: <i>Townsendia jonesii tumulosa</i> *; <i>I. jaegeri</i> * <i>Glossopetalon pungens glabra</i> *; <i>Erigeron uncialis conjugans</i> *
2) Wildlife browse/cover	{Largest low elevation brushfield habitat}
☐ BROWNSTONE BASIN	[N/a]
1) Bighorn water/cover	{Key habitat in La Madre Mtn vicinity, due to gated protection; tenajas; reservoir}
☐ WHEELER CAMP SPRING	[Appendix 8]
1) Bird habitat	{Highest bird species diversity in NCA}
☐ MORMON GREEN SPRING #1	[Appendix 5]
1) Riparian habitat	{Greatest biodiversity/system integrity of NCA low elevation riparian areas, due to historical exclusion of feral animals}
2) Mule deer forage/cover	{Area not open to general recreation use}
☐ 10-MILE CANYON	[Appendix 1]
1) Wildlife burrowing habitat	{Deep-soiled basin has unusual density of large burrows (ie, badger, fox, coyote)}
2) Special Status wildlife	: <i>Gopherus agassazii</i> * (Desert tortoise)

APPENDIX 15: DISTURBED HABITAT AREAS

Part A. Tamarix sp. Encroachment

SITE NAME	Location	Severity
GRASSY SPRING	-at spring source	Moderate
GRAPEVINE SPRING	-at spring source	Low
SOUTH FORK SPRING	-along both upper canyons	Moderate
LONE PINE SPRING	-at spring source	Low
PINE CREEK	-south fork canyon at 4200'	Low
MUD SPRING #1	-at source and along wash	Moderate
MUD SPRING #2	-at source and along wash	Heavy
SANDSTONE SPRING #2	-at spring source -along bisecting dry wash	Low
SANDSTONE CANYON	-upstream of spring at 4900'	Low
LONE WILLOW SPRING	-at spring source	Low
WHEELER CAMP SPRING	-at source and along wash [*After 1997-98 eradication]	Low*
MORMON GREEN SPRING #1	-at source; dispersed along wash	Heavy
MORMON GREEN SPRING #2	-at source; dispersed along wash	Moderate
OLIVER RANCH SPRING	-pump ditch; scattered dry sites	Heavy
BLUE DIAMOND WASH	-near town, either side of SR 159	Heavy
BOOTLEG SPRING	-at spring source	Low
RAINBOW SPRING	-including downslope upland sites	Moderate
"SOUTH SPRING" SITE	-at "spring"; also 600' up wash	Moderate
OAK CREEK	-from Oak Creek Knoll to forks	Moderate

APPENDIX 15: DISTURBED HABITAT AREAS

Part B. Post-fire Bromus sp. Invasions

SITE NAME	Burn Reburn	-Landmarks -Landmarks	Cause Cause	Acres Acres
DEER PASTURE CANYON	07/94 06/96	-north end of basin floor -basin, to La Madre ridge	Fireworks Shooting	25.0 774.0
LA MADRE MTN	07/96	-on north ridgeline	Lightning	75.0
WHITE ROCK HILL	??/?? 06/95	-terrace slopes, southeast -below Scenic Drive @ 4500'	Unknown Lightning	300.0 20.0
RED ROCK WASH	??/86	-below Icebox Canyon	Fireworks	125.0
BLUE DIAMOND HILL (north)	1979? ??/80 06/94 06/96	-from SR 159 to ridgeline, on slopes and canyons -basin below Desert Cave -in canyon, at Desert Cave -basin below Desert Cave	Fireworks? Campfire Lightning Man-caused	1100.0 10.0 5.0 20.0
PINE CREEK CYN	??/??	-canyon mouth; on terrace into JUNIPER CANYON mouth	Unknown	200.0
OAK CREEK CYN	??/??	-canyon mouth; on terrace up to base of escarpment	Unknown	300.0
OAK CREEK, area	07/93	-along SR 159, across from designated campground	Fireworks	40.0
FIRST CREEK CYN	1979?	-canyon mouth and terrace	Unknown	1250.0
BIRD SPRING RANGE	1981?	-on ridges, south of SR 160	Unknown	300.0
COTTONWOOD VALLEY	1980? 06/93	-basin floor west ridgeline -junction of powerline with Goodsprings Road	Unknown Fireworks	2000.0 100.0

APPENDIX 15: DISTURBED HABITAT AREAS

Part C. Feral Horse & Burro Impacts

SITE NAME	Impact	Comments
GRASSY SPRING	Exclosure (presence of)	May deter wildlife usage
GRAPEVINE SPRING	Pipeline/trough/exclosure	Lost riparian habitat
SCHUMACHER SPRING	Soil churning & compaction; vegetative loss	Primarily burro impacts
PINE CREEK	Soil compaction; vegetative loss; trailing	Compounds recreation-use pressure on the area
OAK CREEK	Soil compaction; vegetative loss; trailing	Compounds recreation-use pressure on the area
FIRST CREEK	Vegetative loss; Trailing	Trail proliferation
SANDSTONE CANYON	Heavy grazing; trailing	Affects bighorn sheep
LONE WILLOW SPRING	Soil churning & compaction; loss of riparian vegetation	Primarily burro damage
MORMON GREEN SPRING 1	Soil churning & compaction	Adds to Tamarisk problem
WHEELER CAMP SPRING	Soil compaction; trailing	Outside the exclosure
VELVET CANYON	Heavy grazing; trailing	Affects bighorn sheep
MUD SPRING #1	Pipeline/trough (presence); Soil churning; compaction	Reduced surface flow; Compounds impacts from mtn bikers/equestrians
MUD SPRING #2	Soil churning; compaction	Adds to Tamarisk problem
MUD SPRING CANYON	Heavy grazing; soil damage	Affects bighorn sheep
LONE GRAPEVINE SPG	Pipeline/trough (presence); heavy grazing; soil damage	Reduced surface flow; Compounds impacts from mtn bikers/equestrians
SHOVEL SPRING	Exclosure (presence of); Severe grazing/trampling; soil churning/compaction	May deter wildlife use; Lost riparian habitat; Degraded surface flow
BIRD SPRING RANGE	Soil compaction; grazing	Leads to <u>Bromus</u> invasion
BIRD SPRING	Pipe/trough (presence of)	Lost riparian habitat
WILSON TANK SPRING	Pipe/trough (presence of)	Lost riparian habitat

APPENDIX 15: DISTURBED HABITAT AREAS
Part D. Recreation Impacts

Site Name	Resources Impacted	Activity
LEE CANYON	Soils; vegetation	Target shooting; off-roading
LUCKY STRIKE CANYON	Soils; vegetation	Target shooting; off-roading
KYLE CANYON	Soils; vegetation	Target shooting; off-roading
DEER PASTURE CANYON	Soils; vegetation	Target shooting; off-roading
LITTLE RED ROCK CYN	Soils; vegetation	Target shooting; off-roading
BROWNSTONE CANYON	Soils; vegetation	Off-roading
13-MILE CANYON	Soils; vegetation	Target shooting; off-roading
RED SPRING	Soils; vegetation	Day-use
CALICO HILLS	Soils; vegetation	Climbing; hiking; day-use
BLUE DIAMOND HILL	Soils; vegetation	Commercial horseriding
WOUNDED KNEE CAVE	Bat maternity roost	Exploration, by general public
DESERT CAVE	Bat roost habitat	Visitation; day-use
WILLOW SPRING	Soils; vegetation	Day-use
LOST CREEK	Soils; vegetation	Hiking (trail-braiding)
ROCKY GAP ROAD	Soils; vegetation	Off-roading (spur routes)
VELVET CANYON, North	Soils; vegetation	Steep trail causing erosion
VELVET CANYON, Knoll	Soils; vegetation	Overnight camping; off-roading
BRIDGE MOUNTAIN	Soils; vegetation	Hiking (steep trail = erosion)
MUD #1, SHOVEL, LONE GRAPEVINE SPRINGS	Soils; vegetation	Mountain-biking; horseriding (trail proliferation/erosion)
PINE CREEK, FIRST CREEK, OAK CREEK	Riparian habitat; soils; vegetation	Climbing; hiking; horseriding (Trail proliferation)
WILD HORSE LOOP	Soils; vegetation	Off-roading (spur routes)
RAINBOW SPRING	Riparian habitat; soils; vegetation	Horseriding; off-roading
BOOTLEG SPRING	Riparian habitat; soils; vegetation	Horseriding (trail= erosion); off-roading

APPENDIX 16: FIRE OCCURRENCE HISTORY, 1980-1997

Part A. Annual Occurrence and Acres Burned, by Vegetative Type and Source of Origin

Overall Occurrence: Shrubland vs Woodland:					Lightning vs Human-cause:		
Year	Fires	Acres	Fires (Yr%)	Acres (Yr%)	Fires (Yr%)	Acres (Yr%)	
1980	19	30	[S] 17 (89%) [W] 02 (11%)	23 (77%) 07 (23%)	[L] 07 (37%) [H] 12 (63%)	14 (47%) 16 (53%)	
1981	27	49	[S] 23 (85%) [W] 04 (15%)	19 (39%) 30 (61%)	[L] 01 (04%) [H] 26 (96%)	00 (---%) 49 (100%)	
1982	19	*00 (<1.0)	[S] 18 (95%) [W] 01 (05%)	00 (---%) 00 (---%)	[L] 06 (32%) [H] 13 (68%)	00 (---%) 00 (---%)	
1983	14	1252	[S] 12 (86%) [W] 02 (14%)	1252 (100) 00 (---%)	[L] 00 (---%) [H] 14 (100)	00 (---%) 1252 (100)	
1984	14	00	[S] 09 (64%) [W] 05 (36%)	00 (---%) 00 (---%)	[L] 04 (29%) [H] 10 (71%)	00 (---%) 00 (---%)	
1985	16	15	[S] 11 (69%) [W] 05 (31%)	06 (40%) 09 (60%)	[L] 07 (44%) [H] 09 (56%)	13 (87%) 02 (13%)	
1986	23	127	[S] 21 (91%) [W] 02 (09%)	127 (100) 00 (---%)	[L] 11 (48%) [H] 12 (52%)	01 (---%) 126 (100)	
1987	23	00	[S] 15 (65%) [W] 08 (35%)	00 (---%) 00 (---%)	[L] 12 (52%) [H] 11 (48%)	00 (---%) 00 (---%)	
1988	10	00	[S] 00 (---%) [W] 10 (100)	--- (---%) 00 (---%)	[L] 02 (20%) [H] 08 (80%)	00 (---%) 00 (---%)	
1989	08	02	[S] 07 (87%) [W] 01 (13%)	00 (---%) 02 (100)	[L] 00 (---%) [H] 08 (100)	--- (---%) 02 (100)	
1990	13	04	[S] 12 (92%) [W] 01 (08%)	04 (100) 00 (---%)	[L] 04 (31%) [H] 09 (69%)	00 (---%) 04 (100)	
1991	10	00	[S] 10 (100) [W] 00 (---%)	00 (---%) --- (---%)	[L] 04 (40%) [H] 06 (60%)	00 (---%) 00 (---%)	
1992	03	00	[S] 02 (67%) [W] 01 (33%)	00 (---%) 00 (---%)	[L] 02 (67%) [H] 01 (33%)	00 (---%) 00 (---%)	
1993	19	173	[S] 15 (79%) [W] 04 (21%)	167 (96%) 06 (04%)	[L] 03 (16%) [H] 16 (84%)	05 (03%) 168 (97%)	
1994	23	37	[S] 20 (87%) [W] 03 (13%)	36 (97%) 01 (03%)	[L] 12 (52%) [H] 11 (48%)	09 (33%) 28 (67%)	
1995	11	26	[S] 10 (91%) [W] 01 (09%)	26 (100) 00 (---%)	[L] 07 (64%) [H] 04 (36%)	21 (81%) 05 (19%)	
1996	25	873	[S] 17 (68%) [W] 08 (32%)	798 (91%) 75 (09%)	[L] 12 (48%) [H] 13 (52%)	77 (09%) 796 (91%)	
1997	17	17	[S] 06 (35%) [W] 11 (65%)	01 (06%) 16 (94%)	[L] 14 (82%) [H] 03 (18%)	17 (100) 00 (---%)	
TOTAL	294	2605	S: 225 (77%) W: 69 (23%)	2459 (94%) 146 (06%)	L: 108 (37%) H: 186 (63%)	157 (06%) 2448 (94%)	
MEAN	16	145	S: 12 (75%) W: 04 (25%)	137 (94%) 08 (06%)	L: 06 (37%) H: 10 (63%)	09 (06%) 136 (94%)	

APPENDIX 16: FIRE OCCURRENCE HISTORY, 1980-1997

Part B. Individual Fires ≥ 10 Acres [Size Class C]

Year	Fire	Fire Name	Location TxxS,RxxE,S.xx	Veg Type / Origin	Acres	*Largest Fire, Proportion (% Yr Fires/ % Yr Acres)
1980	4234	No record	21,58,S.13	S / H	10*	*05% fires (01/19)/ 33% acres
1981	4313	No record	21,58,S.25	W / H	30*	*04% fires (01/27)/ 61% acres
	9116	No record	20,58,S.20	S / H	10	
1982	None	-----	-----	-----	---	-----
1983	4322	No record	21,58,S.30	S / H	1250*	*07% fires (01/14)/100% acres
1984	None	-----	-----	-----	---	-----
1985	None	-----	-----	-----	---	-----
1986	K389	No record	21,58,S.05	S / H	125*	*04% fires (01/23)/ 98% acres
1987	None	-----	-----	-----	---	-----
1988	None	-----	-----	-----	---	-----
1989	None	-----	-----	-----	---	-----
1990	None	-----	-----	-----	---	-----
1991	None	-----	-----	-----	---	-----
1992	None	-----	-----	-----	---	-----
1993	Y357	SR160,mm17	22,58,S.34	S / H	100*	*05% fires (01/19)/ 58% acres
	Y384	Oak Creek	21,58,S.26	S / H	40	
	Y514	Sportsman	21,59,S.03	S / H	20	
1994	K389	SR157	19,58,S.25	S / H	25*	*04% fires (01/23)/ 68% acres
1995	Y319	Willow	20,58,S.34	S / L	20*	*09% fires (01/11)/ 77% acres
1996	K329	Cave 2	21,58,S.13	S / H	20	
	K335	Deer	19,58,S.36	S / H	774*	*04% fires (01/25)/ 89% acres
	K370	La Madre	20,58,S.16	W / L	75	
1997	K372	Border	21,57,S.36	W / L	15*	*06% fires (01/17)/ 88% acres

MEAN: 0.8 Fires 140 =05% Fires (0.8/16)/ 97% Acres

TOTAL: 14 Fires 2514 =05% Fires (14/294)/ 97% Acres

By Vegetative Type / Origin:

Shrubland/Human-caused (S/H)	10 Fires	2374	=03% fires (10/294)/ 91% acres
/Lightning (S/L)	01 Fires	20	=.5% fires (01/294)/ 01% acres
Woodland /Human-caused (W/H)	01 Fires	30	=.5% fires (01/294)/ 01% acres
/Lightning (W/L)	02 Fires	90	=01% fires (02/294)/ 04% acres

APPENDIX 16: FIRE OCCURRENCE HISTORY, 1980-1997
Part C. Human-Caused Fires by Source of Origin

Year	Number of Human-caused Fires [Acres Burned, by Individual Source of Origin:									
	Camp Fire	Car Fire	Trash Fire	Fire- works	Smoking	Playing w/ Fire	Other Misc*	Arson	Unknown	TOTAL
*Vehicle exhaust (4); Firearms, Powerline, Equipment use, Blasting, Plane crash, Burning Building (1 each)										
Pre-NCA Land Status (Minimal BLM law enforcement presence):										
1980	04[10	02[00	03[02	01[00	01[00	00[00	01[04	00[00	00[00	12[16
1981	04[00	07[00	07[09	07[40	00[00	00[00	01[00	00[00	00[00	26[49
1982	02[00	02[00	07[00	01[00	00[00	00[00	01[00	00[00	00[00	13[00
1983	03[00	01[00	00[00	06[02	01[00	00[00	01[00	01[00	01[1250	14[1252
1984	02[00	01[00	02[00	02[00	01[00	01[00	00[00	01[00	00[00	10[00
1985	02[00	01[00	02[00	02[00	00[00	00[00	02[02	00[00	00[00	09[02
1986	05[01	02[00	00[00	01[125	00[00	03[00	00[00	00[00	01[00	12[126
1987	02[00	04[00	00[00	01[00	00[00	00[00	00[00	00[00	04[00	11[00
1988	03[00	02[00	02[00	00[00	00[00	00[00	00[00	00[00	01[00	08[00
1989	04[02	03[00	00[00	00[00	00[00	01[00	00[00	00[00	00[00	08[02
TOTAL	31[13	25[00	23[11	21[167	03[00	05[00	06[06	02[00	07[12501	23[1447
MEAN	03[1.3	2.5[0	2.3[1	02[17	.3[00	.5[00	.6[.6	.2[00	.7[125	12[145
Post-NCA Land Status (Increased BLM law enforcement presence):										
1990	03[00	02[00	01[00	02[04	00[00	00[00	00[00	00[00	01[00	09[04
1991	03[00	01[00	00[00	00[00	00[00	00[00	00[00	00[00	02[00	06[00
1992	00[00	01[00	00[00	00[00	00[00	00[00	00[00	00[00	00[00	01[00
1993	06[01	01[00	00[00	02[140	02[22	00[00	00[00	00[00	05[05	16[168
1994	02[00	01[00	00[00	02[25	00[00	00[00	01[01	00[00	05[02	11[28
1995	00[00	00[00	00[00	01[01	00[00	01[01	02[03	00[00	00[00	04[05
1996	02[00	00[00	02[00	01[20	02[00	00[00	01[774	00[00	05[02	13[796
1997	00[00	01[00	00[00	00[00	00[00	00[00	00[00	00[00	02[00	03[00
TOTAL	16[01	07[00	03[00	08[190	04[22	01[01	04[778	00[00	20[09	63[1001
MEAN	02[.1	.9[00	.4[00	01[24	.5[03	.1[.1	.5[97	00[00	2.5[1	08[125
1980-97										
TOTAL	47[14	32[00	26[11	29[357	07[22	06[01	10[784	02[00	27[1259	186[2448
As %	25/01	17/00	14/00	16/15	04/01	03/00	05/32	01/00	15/51	100%/100%
MEAN	03[01	02[00	01[00	01[20	00[01	00[00	01[44	00[00	02[70	10[136
As %	30/01	20/00	10/00	10/15	00/01	00/00	10/32	00/00	20/51	100%/100%

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APPENDIX 17

RED ROCK CANYON NATIONAL CONSERVATION AREA
ESTABLISHMENT ACT OF 1990

[H.R.4559] Public Law 101-621 --- November 16, 1990
 101st Congress

An Act

To establish the Red Rock Canyon National Conservation Area.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "Red Rock Canyon National Conservation Area Establishment Act of 1990".

SEC. 2. DEFINITIONS.

For the purposes of this Act, the term--

- (a) "conservation area" means the Red Rock Canyon National Conservation Area established pursuant to section 3 of this Act;
- (b) "public lands" has the meaning stated in section 103(e) of the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1702(e)); and
- (c) "Secretary" means the Secretary of the Interior.

SEC. 3. ESTABLISHMENT OF THE CONSERVATION AREA.

(a) IN GENERAL-

- (1) In order to conserve, protect, and enhance for the benefit and enjoyment of present and future generations the area in southern Nevada containing and surrounding the Red Rock Canyon and the unique and nationally important geologic, archeological, ecological, cultural, scenic, scientific, wildlife, riparian, wilderness, endangered species, and recreation resources of the public lands therein contained, there is established the Red Rock Canyon National Conservation Area.

- (2) The conservation area shall consist of approximately 83,100 acres of generally depicted on a map entitled "Red Rock Canyon National Conservation Area--Proposed" numbered NV-RRC-NCA-001, and dated June, 1990.