





















**Table 3. Special Status Wildlife Species That May Occur at the Desert National Wildlife Refuge Complex**

Common Name	Scientific Name	Status <sup>1</sup>				Refuge <sup>2</sup>			
		FWS	NV	BLM	AHME	DEST	MOVA	PAHR	
<b>Amphibian</b>									
Southwestern toad	<i>Bufo microscaphus</i>	NS	SCP	N		x	x		
Relict leopard frog	<i>Rana onca</i>	C	SCP	-			<u>x</u>	x	
Northern leopard frog	<i>Rana pipiens</i>	-	SCP	N					x
<b>Reptiles</b>									
Desert tortoise	<i>Gopherus agassizii</i>	T	SCP	S	x	x			x
Banded gila monster	<i>Heloderma suspectum cinctum</i>	NS	SCP	S	x	x	x	x	x
Common chuckwalla	<i>Sauromalus ater</i>	NS	SCP	N	x	x	x	x	x
<b>Birds</b>									
Northern goshawk	<i>Accipiter gentilis</i>	NS	SCP	P		x			x
Golden eagle	<i>Aquila chrysaetos</i>	-	SCP	N	x				x
Short-eared owl	<i>Asio flammeus</i>	-	SCP	N					x
Western burrowing owl	<i>Athene cunicularia hypugea</i>	BCC	SCP	P	x	x	x	x	x
Ferruginous hawk	<i>Buteo regalis</i>	BCC	SCP	P	x	x			x
Black tern	<i>Chlidonias niger</i>	NS	SCP	N	x	x	x	x	x
Yellow-billed cuckoo	<i>Coccyzus americanus</i>	BCC, C	SCP	P		x	x	x	x
Olive-sided flycatcher	<i>Contopus cooperi</i>	BCC	SCP	U	x	x	x	x	x
Yellow warbler	<i>Dendroica petechia</i>	BCC	SCP	P	x				x
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	E	SCP	S	x			x	x
Gray flycatcher	<i>Empidonax wrightii</i>	BCC	SS	U	x	x	x		x
Peregrine falcon	<i>Falco peregrinus</i>	BCC	SCP	S	x	x			x
Common yellow throat	<i>Geothlypis trichas</i>	-	SCP	P	x				x
Blue grosbeak	<i>Guiraca caerulea</i>	NS	SS	U	x	x	x	x	x
Bald eagle	<i>Haliaeetus leucocephalus</i>	BCC	SCP	S	x	x			x
Least bittern	<i>Ixobrychus exilis hesperis</i>	NS	SCP	-	x	x	x	x	x
Osprey	<i>Pandion haliaetus</i>	-	SCP	P	x				x
American white pelican	<i>Pelecanus erythrorhynchos</i>	-	SCP	P	x				x
Phainopepla	<i>Phainopepla nitens</i>	NS	SCP	N	x	x	x	x	x
Summer tanager	<i>Piranga rubra</i>	NS	SS	U	x	x	x	x	x
White-faced ibis	<i>Plegadis chihi</i>	NS	SCP	P	x	x	x	x	x
Vermilion flycatcher	<i>Pyrocephalus rubinus</i>	-	-	-	x				
Yuma clapper rail	<i>Rallus longirostris yumanensis</i>	E	SCP	-	x			x	x

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Common Name	Scientific Name	Status <sup>1</sup>				Refuge <sup>2</sup>			
		FWS	NV	BLM	AHME	DEST	MOVA	PAHR	
Lucy's warbler	<i>Vermivora luciae</i>	NS	SCP	U	x	x	x	x	
Arizona Bell's vireo	<i>Vireo bellii arizonae</i>	BCC	SCP	P	x	x	x	x	
<b>Mammals</b>									
Pallid bat	<i>Anitrozous pallidus</i>		SCP	—	—	—	—	x	
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	NS	SCP	N	x	x	x	x	
Desert kangaroo rat	<i>Dipodomys deserti deserti</i>		SCP S		x				
Spotted bat	<i>Euderma maculatum</i>	NS	SCP	S <sup>x</sup>	x <sup>x</sup>	x <sup>x</sup>	x	x	
Greater western mastiff-bat	<i>Eumops perotis californicus</i>	NS		N	x	x	x	x	
Allen's big-eared bat	<i>Idionycteris phyllotis</i>	NS	SCP	N	x	x	x	x	
Silver-haired bat	<i>Lasionycteris noctivagans</i>		SCP		x				
Western red bat	<i>Lasiurus blossevillii</i>		SCP		x		x		
Hoary bat	<i>Lasiurus cinereus</i>		SCP		x		x		
Western yellow bat	<i>Lasiurus xanthinus</i>		SCP		x		x		
California leaf-nosed bat	<i>Macrotus californicus</i>	NS	SCP	S			x		
Pahranagat Valley montane vole	<i>Microtus montanus fucosus</i>	NS	SCP	N				x	
Ash Meadows montane vole <sup>3,4</sup>	<i>Microtus montanus nevadensis</i>	NS	SCP	N	x				
Western small-footed myotis	<i>Myotis ciliolabrum</i>	NS	SCP	N	x	x	x	x	
Long-eared myotis	<i>Myotis evotis</i>	NS	SCP	N	x	x	x	x	
Fringed myotis	<i>Myotis thysanodes</i>	NS	SCP	N	x	x	x	x	
Long-legged myotis	<i>Myotis volans</i>	NS		N	x	x	x	x	
Yuma myotis	<i>Myotis yumanensis</i>	NS		N	x	x	x	x	
Big free-tailed bat	<i>Nyctinomops macrotis</i>	NS	SCP	N	x	x	x	x	
Desert bighorn sheep	<i>Ovis Canadensis nelsoni</i>		SCP		x				
Brush mouse	<i>Peromyscus boylei</i>		SCP		x				
Brazilian free-tailed bat	<i>Tadarida brasiliensis</i>		S	S	x	x	x	x	
Hidden Forest Uinta chipmunk	<i>Tamias umbrinus nevadensis</i>	NS	SCP			x			
Kit fox	<i>Vulpes macrotis arsipus</i>		S		x				
<b>Fish</b>									
Moapa White River springfish <sup>3</sup>	<i>Crenichthys baileyi moapae</i>	NS	SCP				x		
Devils Hole pupfish <sup>3</sup>	<i>Cyprinodon diabolis</i>	E	SCP	S	x				
Ash Meadows Amargosa pupfish <sup>3</sup>	<i>Cyprinodon nevadensis mionectes</i>	E	SCP	S	x				
Warm Springs Amargosa pupfish <sup>3</sup>	<i>Cyprinodon nevadensis pectoralis</i>	E	SCP	S	x				

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Common Name	Scientific Name	Status <sup>1</sup>				<sup>2</sup>			
		FWS	NV	BLM	AHME	DEST	MOVA	PAHR	
Pahrump poolfish	<i>Empetrichthys latos latos</i>	E	SCP	S		x			
Pahrnagat roundtail chub	<i>Gila robusta jordani</i>	E	SCP	S				x	
Virgin River chub (Muddy River)	<i>Gila seminuda</i>	NS	SCP	S			x		
Moapa dace <sup>3</sup>	<i>Moapa coriacea</i>	E	SCP	S			x		
<b>Fish, continued</b>									
Moapa speckled dace <sup>3</sup>	<i>Rhinichthys osculus moapae</i>	NS	SCP	P			x		
Ash Meadows speckled dace <sup>3</sup>	<i>Rhinichthys osculus nevadensis</i>	E	SCP	S	x				
Pahrnagat speckled dace	<i>Rhinichthys osculus velifer</i>	NS	SCP	P				x	
<b>Invertebrates</b>									
Death Valley Agabus diving beetle	<i>Agabus rumpfi</i>	NS	-	-	x				
Ash Meadows naucorid <sup>3</sup>	<i>Ambrysus amargosus</i>	T	-	S	x				
MacNeil sootywing skipper	<i>Hesperopsis graciaelae</i>	NS	-	N			x		
Nevada admiral	<i>Limenitus weidemeyerii nevadae</i>	NS	-	N		x			
Warm Springs naucorid <sup>3</sup>	<i>Ambrysus relictus</i>	NS	-	-			x		
Amargosa naucorid	<i>Pelocoris shoshone amargosus</i>	NS	-	-	x				
Pahrnagat naucorid	<i>Pelocoris shoshone shoshone</i>	NS	-	N			x	x	
Ash Meadows alkali skipperling	<i>Pseudocopaeodes eunus alinea</i>	NS	-	-	x				
Moapa pebblesnail <sup>3</sup>	<i>Pyrgulopsis avernalis</i>	NS	SCP	-			x		
Moapa Valley springsnail	<i>Pyrgulopsis carinifera</i>	NS	SCP	-			x		
Crystal Spring springsnail <sup>3</sup>	<i>Pyrgulopsis crystalis</i>	NS	SCP	-	x				
Ash Meadows pebblesnail <sup>3</sup>	<i>Pyrgulopsis erythropoma</i>	NS	-	-	x				
Fairbanks springsnail <sup>3</sup>	<i>Pyrgulopsis fairbanksensis</i>	NS	SCP	-	x				
Corn Creek springsnail	<i>Pyrgulopsis fausta</i>	NS	SCP	-		x			
Elongate-gland springsnail <sup>3</sup>	<i>Pyrgulopsis isolata</i>	NS	SCP	-	x				
Pahrnagat pebblesnail	<i>Pyrgulopsis merriami</i>	NS	SCP	N				x	
Oasis Valley springsnail	<i>Pyrgulopsis micrococcus</i>	NS	SCP	N	x				
Distal-gland springsnail <sup>3</sup>	<i>Pyrgulopsis nanus</i>	NS	SCP	-	x				
Median-gland Nevada springsnail <sup>3</sup>	<i>Pyrgulopsis pisteri</i>	NS	SCP	-	x				
Southeast Nevada springsnail	<i>Pyrgulopsis turbatrix</i>	NS	SCP	-		x			
Devils Hole Warm Spring riffle beetle <sup>3</sup>	<i>Stenelmis calida calida</i>	NS	-	N	x				
Moapa Warm Spring riffle beetle <sup>3</sup>	<i>Stenelmis moapa</i>	NS	-	N			x	x	
Sportinggoods tryonia <sup>3</sup>	<i>Tryonia angulata</i>	NS	SCP	-	x				

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Common Name	Scientific Name	Status <sup>1</sup>				Refuge <sup>2</sup>		
		FWS	NV	BLM	AHME	DEST	MOVA	PAHR
Grated tryonia	<i>Tryonia clathrata</i>	NS	SCP	N			x	x
Point of Rocks tryonia <sup>3</sup>	<i>Tryonia elata</i>	NS	SCP	-	x			
Minute tryonia <sup>3</sup>	<i>Tryonia ericae</i>	NS	SCP	-	x			
Amargosa tryonia	<i>Tryonia variegata</i>	NS	SCP	-	x			
<b>Invertebrates, continued</b>								
Virile Amargosa snail	Undescribed	-	-	-	x			
Amphipod	Undescribed	-	-	-	x			

<sup>1</sup>Status: BCC=Bird of Conservation Concern; C=Candidate for listing under ESA; E=Endangered; N=Nevada special status species, sensitive; NS=No Status; these species were previously considered species of concern; P=proposed Nevada special status species, proposed sensitive; S=Nevada special status species, state or federal protected or federal candidate; SCP=Species of Conservation Priority (Many of these species also fall under Nevada special status species); SS=Stewardship Species; T=Threatened; U=Unknown status

<sup>2</sup>Refuges: AHME- Ash Meadows NWR; DEST- Desert NWR; MOVA- Moapa Valley NWR; PAHR- Pahrangat NWR

<sup>3</sup>Endemic to Refuge

<sup>4</sup>Possibly extinct

Sources: Service 2006b; NNHP 2004; Service 2002a; NDOW 2005.

**Table 4. Management Priority Bird Species in Nevada: Status**

Common Name	Scientific Name	Service	State	Status <sup>1</sup>		Management Plan Status <sup>2</sup>
				G-Rank	S-Rank	
<b>Waterbirds</b>						
Eared Grebe	<i>Podiceps nigricollis</i>	BCC	YES	G5	S4	WAP priority; NAWCP moderate concern; IWWCP high concern
Western Grebe	<i>Aechmophorus occidentalis</i>			G5	S4	WAP priority; NAWCP moderate concern; IWWCP high concern
American White Pelican	<i>Pelecanus erythrorhynchos</i>	YES	YES	G3	S2	NBP priority; WAP priority; NAWCP moderate concern; IWWCP high concern
Black-crowned Night-heron	<i>Nycticorax nycticorax</i>			G5	S5	NAWCP moderate concern; IWWCP moderate concern
Franklin's Gull	<i>Larus pipixcan</i>	YES	YES	G4G5	S3	WAP priority; NAWCP moderate concern; IWWCP high concern
California Gull	<i>Larus californicus</i>			G5	S5	NAWCP moderate concern; IWWCP moderate concern
Forster's Tern	<i>Sterna forsteri</i>	YES	YES	G5	S3	WAP priority; NAWCP moderate concern; IWWCP moderate concern
Black Tern	<i>Chlidonias niger</i>			G4	S2S3	NBP priority; WAP priority; NAWCP moderate concern; IWWCP high concern
Clark's Grebe	<i>Aechmophorus clarkii</i>	YES	YES	G5	S4	NBP priority; WAP priority; NAWCP low concern
White-faced Ibis	<i>Plegadis chihi</i>			G5	S3	NBP priority; WAP priority; NAWCP low concern; IWWCP high concern
Snowy Egret	<i>Egretta thula</i>	YES	YES	G5	S4	WAP priority; NAWCP high concern; IWWCP high concern
<b>Shorebirds</b>						
Marbled Godwit	<i>Limosa fedoa</i>	BCC	YES	G5	S3	Audubon Society declining; SCP high concern
Western Sandpiper	<i>Calidris mauri</i>		YES	G5	S5	Audubon Society rare; SCP high concern
Dunlin	<i>Calidris alpina</i>		YES	G5	S4	SCP high concern
Wilson's Phalarope	<i>Phalaropus tricolor</i>		YES	G5	S2S3	SCP high concern
Snowy Plover	<i>Charadrius alexandrinus</i>	BCC	YES	G4	S3	Audubon Society declining; NBP priority; WAP priority; SCP highly imperiled
Long-billed curlew	<i>Numenius americanus</i>	BCC	YES	G5	S2S3	Audubon Society declining; NBP priority; WAP priority; SCP highly imperiled

**Table 4. Management Priority Bird Species in Nevada: Status**

Common Name	Scientific Name	Service	State	Status <sup>1</sup>		Management Plan Status <sup>2</sup>
				G-Rank	S-Rank	
<b>Landbirds</b>						
Bendire's Thrasher	<i>Toxostoma bendirei</i>	BCC		G4G5	S1	LCP watch list and increase population 100%; Audubon Society highest concern; WAP priority
White-throated Swift	<i>Aeronautes saxatalis</i>		YES	G5	S4	LCP watch list and increase population 100%; WAP priority
Pinyon Jay	<i>Gymnorhinus cyanocephalus</i>	BCC	YES	G5	S3S4	LCP watch list and increase population 100%; Audubon Society declining; NBP priority; WAP priority
Arizona Bell's Vireo	<i>Vireo bellii arizonae</i>		YES	G5	S2	LCP watch list and increase population 100%; Audubon Society highest concern; WAP priority
Southwestern Willow Flycatcher	<i>Empidonax traillii extimus</i>	BCC/E	YES	G5	S1	LCP watch list and increase population 50%; Audubon Society declining; NBP priority; WAP priority
Black-chinned Sparrow	<i>Spizella atrogularis</i>	BCC	YES	G5	S3	LCP watch list and increase population 50%; Audubon Society highest concern; WAP priority
Virginia's Warbler	<i>Vermivora virginiae</i>	BCC	YES	G5	S4	LCP watch list and maintain/increase population; Audubon Society rare; NBP priority; WAP priority
Costa's Hummingbird	<i>Calypte costae</i>	BCC	YES	G5	S3	LCP watch list and maintain/increase population; Audubon Society rare; WAP priority
LeConte's Thrasher	<i>Toxostoma lecontei</i>	BCC	YES	G3	S2	LCP watch list and maintain/increase population; Audubon Society rare; NBP priority; WAP priority
Lucy's Warbler	<i>Vermivora luciae</i>	BCC	YES	G5	S2S3	LCP watch list and maintain/increase population; Audubon Society rare; NBP priority; WAP priority
Abert's Towhee	<i>Pipilo aberti</i>			G3G4	S3	LCP watch list and maintain/increase population; Audubon Society rare; WAP priority
Lewis's Woodpecker	<i>Melanerpes lewis</i>	BCC	YES	G4	S3	LCP watch list and maintain/increase population; NBP priority; WAP priority

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Common Name	Scientific Name	Service	State	Status <sup>1</sup>		Management Plan Status <sup>2</sup>
				G-Rank	S-Rank	
<b>Landbirds, continued</b>						
Flammulated Owl	<i>Otus flammeolus</i>	BCC		G4	S4	LCP watch list and maintain/increase population; Audubon Society rare; NBP priority
Gray Vireo	<i>Vireo vicinior</i>	BCC	YES	G4	S3	LCP watch list and maintain population; Audubon Society rare; NBP priority; WAP priority
Gambel's Quail	<i>Callipepla gambelii</i>		YES	G5	S5	LCP stewardship and maintain population
Red-naped Sapsucker	<i>Sphyrapicus nuchalis</i>		YES	G5	S4S5	LCP stewardship and maintain population; NBP priority
Dusky Flycatcher	<i>Empidonax oberholseri</i>		YES	G5	S4	LCP stewardship and maintain population
Gray Flycatcher	<i>Empidonax wrightii</i>		YES	G5	S4	LCP stewardship and maintain population; NBP priority
Verdin	<i>Auriparus flaviceps</i>			G5	S3	LCP stewardship and maintain population; WAP priority
Cactus Wren	<i>Campylorhynchus brunneicapillus</i>		YES	G5	S4	LCP stewardship and maintain population
Black-tailed Gnatcatcher	<i>Poliophtila melanura</i>	YES	YES	G5	S4	LCP stewardship and maintain population
Mountain Bluebird	<i>Sialia currucoides</i>		YES	G5	S4	LCP stewardship and maintain population
Crissal Thrasher	<i>Toxostoma crissale</i>			G5	S3	LCP stewardship and maintain population; WAP priority
Phainopepla	<i>Phainopepla nitens</i>	YES	YES	G5	S2	LCP stewardship and maintain population; NBP priority; WAP priority
Black-throated Gray Warbler	<i>Dendroica nigrescens</i>			G5	S5	LCP stewardship and maintain population; NBP priority
Green-tailed Towhee	<i>Pipilo chlorurus</i>	BCC	YES	G5	S5	LCP stewardship and maintain population
Black-throated Sparrow	<i>Amphispiza bilineata</i>	YES	YES	G5	S5	LCP stewardship and maintain population
Sage Sparrow	<i>Amphispiza belli</i>	BCC	YES	G5	S4	LCP stewardship and maintain population; Audubon Society declining; NBP priority; WAP priority
Yellow-headed Blackbird	<i>Xanthocephalus xanthocephalus</i>		YES	G5	S4	LCP stewardship and maintain population
Scott's Oriole	<i>Icterus parisorum</i>		YES	G5	S4	LCP stewardship and maintain population; NBP priority; WAP priority
Peregrine Falcon	<i>Falco peregrinus</i>	BCC	YES	G4	S2	LCP stewardship
Western Yellow-billed Cuckoo	<i>Coccyzus americanus occidentalis</i>	BCC/C	YES	G5	S1	WAP priority

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Common Name	Scientific Name	Service State	Status <sup>1</sup>		Management Plan Status <sup>2</sup>
			G-Rank	S-Rank	
Western Burrowing Owl	<i>Athene cunicularia hypugea</i>		G4	S3	WAP priority
<b>Waterfowl</b>					
American Wigeon	<i>Anas americana</i>	YES	G5	S4	No WMP plan trend
Canada Goose	<i>Branta canadensis</i>		G5	S5	Increasing WMP plan trend
Canvasback	<i>Aythya valisineria</i>		G5	S3	No WMP plan trend; WAP priority
Cinnamon Teal	<i>Anas cyanoptera</i>		G5	S5	No WMP plan trend; WAP priority
Gadwall	<i>Anas strepera</i>		G5	S4	Increasing WMP plan trend
Greater White-fronted Goose	<i>Anser albifrons</i>		G5	S4	Increasing WMP plan trend
Green-winged Teal	<i>Anas crecca</i>		G5	S4	Increasing WMP plan trend
Lesser Scaup	<i>Aythya affinis</i>		G5	S4	Decreasing WMP plan trend
Lesser snow goose	<i>Chen caerulescens caerulescens</i>		G5	S4	No WMP plan trend
Mallard	<i>Anas platyrhynchos</i>		G5	S5	No WMP plan trend
Northern Pintail	<i>Anas acuta</i>		G5	S5	Decreasing WMP plan trend; WAP priority
Northern Shoveler	<i>Anas clypeata</i>		G5	S4	Increasing WMP plan trend
Redhead	<i>Aythya americana</i>		G5	S4	No WMP plan trend; WAP priority
Ring-necked Duck	<i>Aythya collaris</i>		G5	S4	Increasing WMP plan trend
Tundra Swan	<i>Cygnus columbianus</i>		G5	S4	Increasing WMP plan trend
Wood Duck	<i>Aix sponsa</i>		G5	S4	Increasing WMP plan trend

<sup>1</sup>Status: BCC=Service Bird of Conservation Concern, E=Endangered under Endangered Species Act, YES=State of Nevada listed wildlife species, G3=Vulnerable, G4=Apparently secure, G5=Secure, S1=Critically imperiled, S2=Imperiled, S3=Vulnerable, S4=Apparently secure, S5=Secure.

G-rank is the global rank indicator based on worldwide distribution at the species level, S-rank is the state rank indicator based on distribution within the state at the lowest taxonomic level. Status is based on the Nevada Natural Heritage Program ranking.

<sup>2</sup>Sources and Acronyms: LCP=North American Landbird Conservation Plan (Rich et al. 2004), IWWCP=Intermountain West Waterbird Conservation Plan (Ivey and Herziger 2005), WMP=North American Waterfowl Management Plan (Service 1986), SCP=United States Shorebird Conservation Plan (Brown et al. 2001), NAWCP=North American Waterbird Conservation Plan (Kushlan et al. 2002), NBP=Nevada Bird Plan (Nevada Partners in Flight 1999), and WAP=Nevada Wildlife Action Plan (NDOW 2005).

**Table 5. Management Priority Bird Species in Nevada: Habitat Preferences on Each Refuge**

Common Name	Ash Meadows NWR					Desert NWR					Moapa Valley NWR					Pahrnagat NWR				
	Wet Mead <sup>1</sup>	Upl	Mes Bos/ Rip	Em Mar	Spr/ Chan	Des Scr	P-J	Pon Pine	Spr/ Chan	Mes Bos/ Rip	Spr/ Chan	Rip	Mes Bos	Em Mar	Des Scr	Open Water	Em Mar	Wet Mead	Alkali Flat	Rip
<b>Waterbirds</b>																				
Eared Grebe			x	x	x				x	x	x	x	x	x		x	x			x
Western Grebe			x	x						x		x	x	x		x	x			x
American White Pelican															x					
Black-crowned Night-heron			x	x	x			x	x	x	x	x	x				x			
Franklin's Gull	x			x										x			x	x		
California Gull	x			x										x			x	x		
Forster's Tern	x			x										x			x	x		
Black Tern	x			x										x			x	x		
Clark's Grebe			x	x					x		x	x	x		x	x				x
White-faced Ibis	x			x										x			x	x		
Snowy Egret	x		x	x	x			x	x	x	x	x	x				x	x		x
<b>Shorebirds</b>																				
Marbled Godwit	x														x			x		
Western Sandpiper	x														x					
Dunlin	x														x					
Wilson's Phalarope	x			x											x	x		x		
Snowy Plover	x																		x	
Long-billed curlew	x																			x
<b>Landbirds</b>																				
Bendire's Thrasher						x										x				
White-throated Swift		x				x												x		
Pinyon Jay							x													x
Arizona Bell's Vireo			x						x		x	x								x
Southwestern Willow Flycatcher									x		x	x								x
Black-chinned Sparrow							x												x	
Virginia's Warbler												x	x							x
Costa's Hummingbird		x <sup>x</sup>	x			x			x		x	x			x					x
LeConte's Thrasher		x				x									x					x
		x							x											

**Table 5. Management Priority Bird Species in Nevada: Habitat Preferences on Each Refuge**

Common Name	Ash Meadows NWR						Desert NWR				Moapa Valley NWR				Pahranagat NWR					
	Wet Mead <sup>1</sup>	Upl	Mes Rip	Bos/ Mar	Em Spr/ Chan	Des Scr	P-J	Pon Pine	Spr/ Chan	Mes Rip	Bos/ Chan	Spr/ Rip	Mes Bos	Em Mar	Des Scr	Open Water	Em Mar	Wet Mead	Alkali Flat	Rip
Lucy's Warbler			x							x		x	x							x
<b>Landbirds, continued</b>																				
Abert's Towhee			x							x		x								x
Lewis's Woodpecker																				x
Flammulated Owl								x												
Gray Vireo			x				x			x		x								x
Gambel's Quail		x	x							x									x	x
Red-naped Sapsucker			x					x		x		x								x
Dusky Flycatcher			x		x					x	x	x		x						x
Gray Flycatcher			x					x		x		x								x
Verdin		x	x							x			x		x					x
Cactus Wren		x				x									x				x	
Black-tailed Gnatcatcher		x	x		x					x	x		x		x					x
Mountain Bluebird			x					x		x										x
Crissal Thrasher		x	x		x					x	x		x		x					x
Phainopepla			x							x		x	x							x
Black-throated Gray Warbler					x					x			x	x						
Green-tailed Towhee			x					x		x		x	x							x
Black-throated Sparrow		x				x									x				x	
Sage Sparrow		x				x									x				x	
Yellow-headed Blackbird					x															x
Scott's Oriole		x	x			x	x			x		x	x		x					x
Peregrine Falcon	x	x	x	x	x	x			x	x	x	x	x	x	x				x	x
Western Yellow-billed Cuckoo			x							x		x	x							x
Western Burrowing Owl		x	x							x			x		x				x	x
<b>Waterfowl</b>																				
American Wigeon					x						x									
Canada Goose																				
Canvasback					x									x		x	x			
Cinnamon Teal																				

**Table 5. Management Priority Bird Species in Nevada: Habitat Preferences on Each Refuge**

Common Name	Ash Meadows NWR					Desert NWR				Moapa Valley NWR					Pahranagat NWR				
	Wet Mead <sup>1</sup>	Upl	Mes Bos/ Rip	Em Mar	Spr/ Chan	Des Scr	P-J	Pon Pine	Spr/ Chan	Mes Bos/ Rip	Spr/ Chan	Mes Bos	Em Mar	Des Scr	Open Water	Em Mar	Wet Mead	Alkali Flat	Rip
Gadwall																			
<b>Waterfowl, continued</b>																			
Greater White-fronted Goose																			
Green-winged Teal																			
Lesser Scaup																			
Lesser snow goose																			
Mallard																			
Northern Pintail																			
Northern Shoveler																			
Redhead																			
Ring-necked Duck																			
Tundra Swan																			
Wood Duck																			

Sources: Rich et al. 2004, Ivey and Herzigler 2005, Service 1986, Brown et al. 2001, Kushlan et al. 2002, Nevada Partners in Flight 1999, and NDOW 2005.

<sup>1</sup>Habitats: Wet Mead=Alkali wet meadow or montane wet meadow, Upl=Native upland, Mes Bos=Mesquite bosque, Rip=Lowland riparian or riparian, Em Mar=Emergent marsh, Spr/Chan=Spring/Channel, Des Scr=Desert scrub, P-J=Pinyon-juniper woodland (prescribed burns), Pon Pine=Ponderosa pine forest (prescribed burn),

## Desert NWR Big Game Species Accounts

**Desert bighorn sheep** are a subspecies of the bighorn sheep (*Ovis canadensis*). *O. canadensis* is a large, herbivorous ungulate that lives in open grasslands or shrub-steppe communities in mountains, foothills, or river canyons (Shackleton 1985). Escape terrain, such as cliffs and talus slopes, are a necessary habitat requirement for the bighorn sheep. During winter months, as much as 86 percent of their time is spent near escape terrain. In southern Nevada, *O. canadensis nelsoni* lives at higher elevations and moves to lower elevations during the cold winter months (Air Warfare Center 1999). This vertical migration coincides with the increasing abundance of new growth and presence of snow at higher elevations. During spring and summer, new growth begins to appear and provides food for the bighorn sheep as they return to the higher elevations.

Desert bighorn sheep are adapted to survival in the desert by being able to withstand 10 days without water (Warrick and Krausman 1989). They will eat barrel cactus to satisfy their water requirements. The mating season for desert bighorns is in the fall and may encompass several months (Shackleton 1985). Lambs are born in early spring, usually March, and are weaned in 4 to 6 months. Females live with their young, and males live apart from both during most of the year.

Desert bighorn sheep utilize habitat within the Desert NWR along all of the major mountain ranges: Pintwater, Sheep, Spotted, Desert, and Las Vegas (BLM 2001). They forage, breed, and raise young on barren cliffs along these mountain ranges. The Desert NWR is one of the largest intact blocks of habitat for the bighorn sheep in the southwestern United States. Water is a limiting resource, so 30 springs and 26 “guzzlers,” or catchments, have been improved to maintain a permanent water source. Hunting is permitted for three weeks in late fall to winter in the Spotted and Pintwater Ranges depending on the current population estimate of the herd (Air Warfare Center 1999).

**Mule deer** (*Odocoileus hemionus*) are herbivorous ungulates that browse on a wide variety of woody plants and graze on grasses and forbs (Anderson and Wallmo 1984). Feeding on agricultural crops and eating mushrooms in the fall are also common forage habits for mule deer. Preferred habitat types for the mule deer include coniferous forest, desert shrub, chaparral, and grasslands with shrubs. They are often associated with successional growth near agricultural fields. Precipitation patterns tend to trigger migration in mule deer.

Mating occurs in late November to mid-December, and young are born the following spring or as late as July or August in some cases (Anderson and Wallmo 1984). Litter size is 1 to 2 young and varies with the age and condition of the female. Young are usually weaned by their fourth month and depend heavily on sufficient cover to survive to adulthood. Predation by mountain lions and coyotes is a major threat to fawns.

Mule deer utilize habitat on the Desert NWR along the Pintwater Range, the Sheep Range, and the Desert Mountain Range, as well as other areas outside the Desert NWR (BLM 2001).

## Special Status Species Accounts

**Arizona Bell's vireo** (*Vireo bellii arizonae*) is considered a Bird of Conservation Concern by the Service. In southern Nevada, the Arizona Bell's vireo occurs along rivers and streams, in desert washes, and in mesquite bosques (NDOW 2005). The vireo's preferred habitat consists of dense undergrowth with low, shrubby vegetation. It occupies riparian areas, brushy fields, young second-growth forest or woodland, scrub oak, and mesquite woodlands. Nests are built on branches in dense bushes and small trees and occasionally in herbaceous vegetation. This bird's diet consists primarily of insects and spiders.

The **Ash Meadows Amargosa pupfish** (*Cyprinodon nevadensis mionectes*) was federally listed as endangered with critical habitat on September 2, 1983 (48 FR 40178). It is only found in ten spring areas within Ash Meadows, all of which have been designated as critical habitat (Service 1990). The pupfish's habitat ranges from large, deep springs (Crystal Pool) to small spring pools with no overflow discharge (Five Springs complex). Streamflow from several of the springs joins at some point on the Ash Meadows NWR, but many do not as a result agricultural diversions; thus habitat fragmentation has occurred. Other threats to this pupfish have included drying of springs due to pumping of groundwater, elimination of riparian vegetation, and the introduction of non-native species (e.g., crayfish, bullfrog).

The **Ash Meadows naucorid** (*Ambrysus relictus*) is an aquatic beetle that was listed as threatened with critical habitat on May 20, 1985 (50 FR 20777). The naucorid is known to exist at Point of Rocks Springs within the Ash Meadows NWR, where it occupies an extremely restricted habitat where flowing water passes over rock and pebble substrates (Service 1990). It can also be found on stones and rocky substrates in thermal swift currents (Hershler and Sada 1987). If factors threaten the naucorid, such as non-native species, the naucorid is more susceptible to extirpation given its limited distribution.

The **Ash Meadows speckled dace** (*Rhinichthys osculus nevadensis*) was federally listed as endangered with critical habitat on September 2, 1983 (48 FR 40178). It is only found in four springs on the Ash Meadows NWR: Bradford, Big, Tubbs, and Jackrabbit Springs (Service 1990). Flowing streams are the preferred habitat for the dace because they like to feed on drifting insects. Females lay eggs over stream riffles, and males fertilize them as they drift to the substrate. The dace's naturally limited range and presence of introduced species are the main threats to this species' population.

The **bald eagle** (*Haliaeetus leucocephalus*) was adopted as the United States national emblem in 1782 (Service 1999). Bald eagles are large brown raptors with wingspans up to 8 feet across. As adults, they have white heads and yellow beaks. Juveniles are brown with some white spots on their bodies and black beaks. Habitat for bald eagles consists of streams, rivers, lakes, and ponds with tall trees nearby for perching and nesting (Service 1999).

The bald eagle's range is from Alaska and southern Canada to Florida (Alaska Department of Natural Resources 2001). It is only found on the North American continent. The bald eagle was listed as endangered in most of the lower 48 states in 1973. Since then, populations have increased, and it was downlisted to threatened status in 1995. In 1999, the Service proposed that the bald eagle be de-listed, and on August 8, 2007, the bald eagle was officially de-listed (72 FR 37345-37372). Populations are considered stable in the lower 48 states with an estimate of 6,000 nesting pairs.

The **desert tortoise** (*Gopherus agassizii*) occurs in the Mojave, Colorado, and Sonoran Deserts in North America and is listed as threatened in the Mojave Desert (Berry 1997). It is most commonly found in creosote bush scrub communities in the lower Sonoran life zones. Habitat often consists of well-drained sandy loam soils, suitable for burrowing. Tortoise burrows may be found in washes and arroyos or in other locations with suitable soil in the Mojave Desert.

Tortoises utilize their underground burrows to escape the heat in summer, rest, and find warmth in winter. They often use multiple burrows within a short time frame (about 1 week) (Berry 1997). Tortoises also have separate burrows for the winter and summer months and can sometimes be found under bushes at night. Eggs are laid in shallow depressions near or inside a burrow. Eggs are often laid in late spring/early summer and are relatively large in size, with a diameter of 30 to 40 millimeters and weight of 20 to 40 grams. Clutch size can be up to 15 eggs, but averages 3 to 7. Incubation period and size and sex of the hatchlings depend on the temperature; cooler temperatures yield longer periods and mostly larger, male hatchlings.

Desert tortoises can live more than 50 years, with juveniles reaching sexual maturity between 13 and 16 years of age (Berry 1997). Juveniles have distinct growth rings on their carapaces, and their growth rate is much higher than an adult's growth rate. At about 20 to 25 years of age, these rings begin to fade and wear out. Tortoise age can be easily determined up to this point when the vegetation growth season is known for the area. Rings are grown annually when there is only one growth season and multiple times a year for more than one season. Adult tortoises have a 20- to 36-centimeter-long carapace, and males are larger than females. Males can also be distinguished by their longer gular shield and larger chin glands on both sides of the lower jaw.

Tortoise populations are generally stable in Arizona, but they are declining in other areas. Destruction of habitat is the main reason for their decline, but other factors such as disease and mortality caused by humans also contribute to the decrease in tortoise populations in the Southwest.

The final rule for critical habitat for the Mojave Desert population was made in 1994, but it is subject to change if the need arises from future management plans. This ruling used 14 Desert Wildlife Management Areas determined by the Desert Tortoise Recovery Plan as the basis for critical habitat units and designated approximately 10,000 square miles of critical habitat (Berry 1997). These areas contain ideal habitat for the desert tortoise and help divide the populations into smaller areas, so they can be monitored more easily. The desert tortoise population on the Desert NWR is part of the Northeastern Mojave Desert Recovery Unit. All of the Desert NWR is located within the Coyote Spring Desert Wildlife Management Area. The desert tortoise has also been detected in the Pahranaagat Valley foothills and likely occurs on Pahranaagat NWR (Manville 2007). The Moapa Valley and Ash Meadows NWRs are located within desert tortoise habitat, and it is likely that tortoises occupy lands on or around these refuges.

The **Devils Hole pupfish** (*Cyprinodon diabolis*) was listed as endangered by the Service on March 11, 1967 (32 FR 4001). It was also listed as critically endangered by the State of Nevada on January 1, 1969 (Service 1980). Devils Hole is the only natural habitat for this species, so it was designated as a detached part of Death Valley National Monument on January 17, 1952, in order to protect the fish.

Devils Hole is the opening to a deep, water-filled limestone cavern, and it is the smallest habitat in the world containing the entire population of a vertebrate species (Service 1980). The segment of the water table that is exposed to sunlight measures approximately 10 by 70 feet, and it is this area that the pupfish use for feeding and reproduction. As water level declined in the late 1960s and early 1970s due to groundwater pumping for irrigation, less area was exposed to sunlight, limiting habitat for the pupfish. A minimum water level was established in the late 1970s to ensure the survival of this species by maintaining its only natural habitat.

Two refugia were established in the 1970s and 1980s to support additional populations of Devils Hole pupfish (Service 1980). One of the refugia was located at Hoover Dam and was constructed by the U.S. Bureau of Reclamation. The second alternate population was started at Amargosa Pupfish Station on Ash Meadows NWR. The objective of the pupfish's recovery plan is to down-list the fish from endangered to threatened and manage it as such in its natural habitat. Nearby groundwater pumping has been halted, but more recent threats to the pupfish in its natural habitat include habitat degradation from surface runoff, vandalism, accidents, and impacts associated with major land use changes in the surrounding area.

The **ferruginous hawk** (*Buteo regalis*) is considered a Bird of Conservation Concern by the Service. It occurs throughout Nevada and is a year-round resident in southern Nevada (NDOW 2005). Ferruginous hawks occur in montane shrublands, open land, and lower montane woodlands. Nests are

primarily built in live Utah juniper trees, but some nests have been observed on hills, banks, tall trees, or other tall structures. The breeding and nesting period is generally late February to early October.

The **Moapa dace** (*Moapa coriacea*) was federally listed as endangered under the Endangered Species Preservation Act of 1966 on March 11, 1967 (32 FR 4001), and has been protected under the ESA since its inception in 1973.

The Moapa dace is unique because it is the only representative of the genus *Moapa* (Service 1983). Its habitat is restricted to the headwaters of the Muddy River where water temperatures occur in the narrow range between 82° and 90°F. The dace does not extend beyond the headwater springs because further from the spring orifice, the water becomes cooler and more silty. Currently, the dace's distribution is even more restricted to portions of three springs and less than 2 miles of streams in the Warm Springs area. The remainder of the spring system has been invaded by tilapia (*Oreochromis aurea*), a non-native fish, and made unsuitable for the dace by other habitat modifications (Service 1996).

Moapa dace habitat is managed under the Moapa Dace Recovery Plan (Service 1983) and the Recovery Plan for the Rare Aquatic Species of the Muddy River Ecosystem (Service 1996). Attempts to transplant this species into waters of two other habitats failed. During a snorkel survey conducted in January 2001, 935 Moapa dace were recorded in the Muddy River and its tributaries (Heinrich 2001). Of those observed during the survey, 580 dace were on the Pedersen Unit and 59 were on the Plummer Unit. The population of this species was estimated at 1,000 individuals in 2002, which declined from 4,000 in 1995 after the invasion of the tilapia (*Oreochromis aureus*) (Scoppettone 2002). More recent snorkel surveys in 2007 reported 1,172 Moapa dace in the Muddy River and its tributaries. Of those observed during the 2007 surveys, 565 Moapa dace were located at the Moapa Valley NWR (Goodchild 2007). Reasons for decline in dace populations include competition with shortfin molly and other introduced species and destruction and modification of habitat; efforts to remove introduced species and improve habitat have allowed the dace population to increase.

The **Pahranagat roundtail chub** (*Gila robusta jordani*) is a subspecies of the roundtail chub (*G. robusta*) in the Colorado River system (Service 1998). The Pahranagat roundtail chub is greenish in color with black blotches and reaches a total length of approximately 10 inches. Historically, the Pahranagat roundtail chub was found in streams, creeks, and ditches throughout the Pahranagat Valley. In 1997, the population was estimated to contain 150 to 260 adults. It is restricted to the Ash Spring outflow, including a portion of Pahranagat Creek and an irrigation ditch, in the Pahranagat Valley (NDOW 2005).

The Pahranagat roundtail chub was listed as endangered in October 1970 (35 FR 16047). Recovery criteria for the Pahranagat roundtail chub include improved habitat within the Pahranagat Creek and Ditch and along the outflow stream of Crystal Spring, reduced impacts to the species such that they no longer threaten the fish, and establishment of a self-sustaining population in the Crystal Spring outflow stream and Pahranagat Creek/Ditch (Service 1998).

The **Pahrump poolfish** (*Empetrichthys latos*), also known as the Pahrump killifish, is a small, slender, omnivorous fish about 2 inches long (Service 1993). It spawns in spring, but may spawn during any time of the year under proper conditions. The poolfish is a thermal species that can be found in warm springs with little fluctuation in temperature. Their tolerant range is between 74 and 77 degrees Fahrenheit. The Pahrump poolfish is native to Manse Springs in Pahrump Valley. In 1975 its habitat was dessicated due to groundwater pumping.

The Pahrump poolfish was listed as endangered in March 1967, but in 1993, it was proposed for reclassification as threatened (Service 1993). As of 1993, it was found in Nevada at only three sites where the populations had to be introduced. Two were outside of Las Vegas: one in the Spring Mountains and one on the Desert NWR. The third was in Shoshone Springs outside of Ely. Corn Creek Springs on the Desert NWR was home to one of the populations that was introduced in the 1970s. The Spring Mountain Ranch State Park population was established in an irrigation reservoir after the species became extirpated from its natural home. Non-native species forced the poolfish out of the population in Corn Creek Springs during the last 10 years. Bullfrogs and crayfish out-competed the poolfish, but in June 2003, it was reintroduced to a refugium at Corn Creek.

The **peregrine falcon** (*Falco peregrinus*) is considered a Bird of Conservation Concern by the Service. It occurs throughout Nevada as a permanent resident (NDOW 2005). Peregrine falcons occur in open areas, developed areas, marsh habitat, and in or near cliffs and canyons. This species nests on rocky cliff faces or ledges and forages in farmland, developed areas, along rivers, and in marshes. Nests are typically found on ledges with a sheltering overhang. The breeding and nesting period is generally late April to early September.

The **southwestern willow flycatcher** (*Empidonax traillii extimus*) was listed as endangered on February 27, 1995 (60 FR 10693), and critical habitat was designated on October 19, 2005 (70 FR 60885). The critical habitat designation includes 120,824 acres or 737 miles of suitable habitat along several streams and rivers in California, Arizona, Nevada, Utah, and New Mexico (Service 1997). This flycatcher subspecies nests in dense, riparian woodlands with trees averaging 13 to 23 feet tall. Common species associated with flycatcher habitat include willow, seep willow, boxelder (*Acer negundo*), stinging nettle (*Urtica* spp.), blackberry (*Rubus* spp.), cottonwood, and arrowweed (*Tessaria sericea*) (Service 2002b). Riparian habitat in the Southwest has, however, declined dramatically over the past 100 years, and this loss of habitat has been a major threat to flycatcher populations.

The southwestern willow flycatcher is only found in six states in the southwestern U.S. (Finch and Stoleson 2000). During winter months it can be found in Central America. A survey of flycatcher populations between 1993 and 1996 estimated less than 1,000 individuals in the U.S. New Mexico had the most abundant population with around 300 individuals. Only three individuals were estimated to occur in Nevada according to surveys conducted between 1993 and 1996 (Finch and Stoleson 2000). The flycatcher is known to occur at Ash Meadows NWR, and resident and/or breeding individuals have been reported on the Refuge since 1999 (NDOW 2007). It may also occur at Moapa Valley NWR because it has been observed along the Muddy River, near its confluence with the Colorado River. Surveys are conducted annually at Pahrangat NWR. In 2005, 37 adult southwestern willow flycatchers were detected in the riparian habitats on the refuge with 11 breeding individuals, and 21 nestlings were observed at 7 nest sites (Koronkiewicz et.al 2006). Preliminary data for 2006 surveys estimate 34 adult flycatchers with 15 breeding pairs (McLeod 2006).

Habitat loss and brood parasitism are the common causes of the decline of this subspecies (Finch and Stoleson 2000). The brown-headed cowbird (*Molothrus ater*) often lays its eggs in flycatcher nests and reduces the survival rate of young flycatchers.

The **Virgin River chub** (*Gila seminuda*, Muddy River population) is a silvery colored fish with olive shading on the back (Service 1995). It can reach a maximum length of 18 inches and has a streamlined body with a deeply forked tail. Virgin River chub occur in two distinct populations in the Muddy and Virgin Rivers. These populations were historically connected prior to establishment of Lake Mead; however, since Lake Mead filled, there has been no movement between the two populations. In the mid-1990s, the Muddy River population in the main stem was estimated at more than 20,000

individuals. Muddy River chub are monitored annually by NDOW using hoop nets and other methods (NDOW 2005).

The **Warm Springs pupfish** (*Cyprinodon nevadensis pectoralis*) was federally listed as endangered on October 13, 1970 (35 FR 16047). It occupies six small, isolated springs less than 1 mile west of Devils Hole (Service 1990). These springs encompass an area less than 0.77 square mile. Alteration of the springs has decreased the available water, reduced the quality of the habitat, and threatened the survival of the Warm Springs pupfish. Since this pupfish's habitat is located within the area surrounding Devils Hole that is protected from groundwater withdrawal, its ability to survive is similar to the Devils Hole pupfish. The introduction of predatory and/or competing species has also threatened the pupfish's small population. Factors threatening the Warm Springs pupfish, such as alteration of springs and non-native fish, can make the species more susceptible to extirpation given its limited distribution.

The **western burrowing owl** (*Athene cunicularia hypugea*) is considered a Bird of Conservation Concern by the Service (NDOW 2005). It migrates to Nevada in the spring, and some individuals may spend most of the year in Nevada. Preferred habitat for western burrowing owl consists of short vegetation with fresh small mammal burrows. Because this species is a ground-nesting bird, burrow use is influenced by availability, soils, and dynamics of the small mammals population. This species often uses rodent burrows to nest in and may use satellite burrows to relocate young and avoid predation.

The **yellow-billed cuckoo** (*Coccyzus americanus*) is a federal candidate species in the western continental U.S.. The most recent review of this species categorizes it as a lower priority species for listing although evidence shows that its populations are declining as suitable habitat continues to decline in the West (Service 2002c). The main cause for this species' decline is habitat loss, degradation, and fragmentation. The loss of riparian habitats in Arizona is estimated at 90 to 95 percent.

The preferred breeding habitat for cuckoos in the western U.S. includes large blocks of riparian woodland habitat consisting of cottonwoods, willows, and tamarisk. Nests are built in trees with dense understory foliage, and breeding occurs from mid-June to August, which overlaps with the emergence of large insects. Foraging occurs in the same habitat as nesting, and typical prey species include caterpillars, katydids, and cicadas.

The **Yuma clapper rail** (*Rallus longirostris yumanensis*) was listed as endangered without critical habitat on March 11, 1967 (32 FR 4001). The clapper rail utilizes freshwater or brackish stream sides and marshlands at elevations less than 4,500 feet (Service 2002d). It is known to occur in Arizona, and its current range is along portions of the Colorado, Gila, and Salt Rivers; Picacho Reservoir; and Tonto Creek. In Nevada, the clapper rail occurs along the Colorado River (south of Lake Mead toward Mexico), Las Vegas Wash, Virgin River, Muddy River, Pahrnagat Valley, and Amargosa Valley. Loss of habitat is the main reason for the decline of this species. The clapper rail has been documented to nest in the Muddy River drainage adjacent to Moapa Valley NWR and along the Colorado and Virgin Rivers in Nevada. It has also been reported at Ash Meadows NWR and in the Pahrnagat Valley and likely occurs at Pahrnagat NWR (Manville 2007). Habitat restoration at all refuges, but especially at Moapa Valley NWR, could result in additional breeding pairs and expansion of their range within Nevada.

## References

- Air Warfare Center. 1999. Integrated Natural Resource Management Plan. Nellis Air Force Base.
- Alaska Department of Natural Resources, Division of Parks and Recreation. 2001. Alaska Chilkat Bald Eagle Preserve. Available on the internet: <http://www.dnr.state.ak.us/parks/units/eagleprv.htm>. Accessed 6/03.
- Anderson, A.E., and O.C. Wallmo. 1984. *Odocoileus hemionus*. Mammalian Species. Published by the American Society of Mammalogists. 219:1–9.
- Berry, Kristin H. 1997. The desert tortoise recovery plan: an ambitious effort to conserve biodiversity in the Mojave and Colorado Deserts of the United States. Conservation, Restoration, and Management of Tortoises and Turtles—An International Conference. pp. 430–440.
- Brown, Stephen, Catherine Hickey, Brian Harrington, and Robert Gill, editors. 2001. *United States Shorebird Conservation Plan*. Second Edition. May.
- Carpenter, A.T. and T.A. Murray. 1998. Element stewardship abstract for *Acroptilon repens*. The Nature Conservancy. Available on the Internet: <http://tncweeds.ucdavis.edu/esadocs/documnts/acrorep.html>. 1/19/99.
- Carpinelli, Michael. 2003. Spotted knapweed. Plant Conservation Alliance, U.S. Department of Agriculture, Agricultural Research Service. Available on the internet: <http://www.nps.gov/plants/alien/fact/cebi1.htm>. Accessed 6/03.
- Goodchild, Shawn. 2007. Moapa dace 2007 survey results. Comments on the Administrative Draft Environmental Impact Statement. U.S. Fish and Wildlife Service, Nevada Fish and Wildlife Office. August 2007.
- Finch, Deborah M. and Scott H. Stoleson (editors). 2000. Status, Ecology, and Conservation of the Southwestern Willow Flycatcher. Gen. Tech. Rep. RMRS-GTR-60. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 131 pp.
- Heinrich, Jim E. 2001. Muddy River dive counts- January 2001. E-mail to Shawn Goodchild, Cynthia Martinez, Gary Scopettone, Bruce Lund, J.C. Sjoberg, and James Harvey. February 7, 2001.
- Hershler, R. and D. Sada. 1987. Springsnails (Gastropoda: Hydrobiidae) of Ash Meadows, Amargosa Basin, California-Nevada. Proceedings of the Biological Society of Washington. 100(4), 1987, pp. 776-843.
- Ivey, G. L., and C. P. Herziger, compilers. 2005. *Intermountain West Waterbird Conservation Plan—A plan associated with the Waterbird Conservation for the Americas initiative*. Version 1.0. Intermountain West Joint Venture, West Valley City, Utah.
- Koronkiewicz, T.J., McLeod, M.A., Brown, B.T., and S.W. Carothers. 2006. Southwestern willow flycatcher surveys, demography, and ecology along the lower Colorado River and tributaries, 2005. Annual report submitted to U.S. Bureau of Reclamation, Boulder City, NV by SWCA Environmental Consultants, Flagstaff, AZ. 176 pp.

- Kushlan, James A., Melanie J. Steinkamp, Katharine C. Parsons, Jack Capp, Martin Acosta Cruz, Malcolm Coulter, Ian Davidson, Loney Dickson, Naomi Edelson, Richard Elliot, R. Michael Erwin, Scott Hatch, Stephen Kress, Robert Milko, Steve Miller, Kyra Mills, Richard Paul, Roberto Phillips, Jorge E. Saliva, Bill Sydeman, John Trapp, Jennifer Wheeler, and Kent Wohl. 2002. *Waterbird Conservation for the Americas: The North American Waterbird Conservation Plan, Version 1*. Waterbird Conservation for the Americas, Washington, D.C., 78 pp.
- Manville, Christiana. 2007. Sensitive species occurrences at Desert Complex. Comments on the Administrative Draft Environmental Impact Statement. U.S. Fish and Wildlife Service, Nevada Fish and Wildlife Office. August 2007.
- McLeod, M.A. 2006. Southwestern willow flycatcher population estimate. Personal communication with Leslie Wagner, SWCA. Biologist, SWCA Environmental Consultants. October 10, 2006.
- Morefield, James D. 2001. Nevada Rare Plant Atlas. Compiled by the Nevada Natural Heritage Program for the U.S. Fish and Wildlife Service. June. Available on the Internet: <http://heritage.nv.gov/atlas/atlas.html>.
- Nevada Department of Wildlife. 2005. State of Nevada Comprehensive Wildlife Conservation Strategy. Nevada Department of Wildlife, Reno, NV. 605 p. Available on the Internet: <http://www.ndow.org/wild/conservation/cwcs/index.shtm#plan>.
- Nevada Department of Wildlife. 2007. Southwestern willow flycatcher occurrences in Nevada. Comments on the Administrative Draft Environmental Impact Statement. August 2007.
- Nevada Natural Heritage Program. 2005. Detailed Rare Plant and Lichen List. Nevada Department of Conservation and Natural Resources. List dated April 1, 2005. Available on the Internet: <http://heritage.nv.gov/plantbig.htm>.
- Nevada Natural Heritage Program. 2004. Detailed Rare Animal List. Nevada Department of Conservation and Natural Resources. List dated March 18, 2004. Available on the Internet: <http://heritage.nv.gov/animlbig.htm>.
- Nevada Partners in Flight. 1999. *Nevada Partners in Flight Bird Conservation Plan*. Edited by Larry A. Neel. November 29, 1999.
- Otis Bay, Inc. and Stevens Ecological Consulting, LLC. 2006. Ash Meadows Geomorphic and Biological Assessment: Draft Final Report.
- Parker, K. F. 1990. *An Illustrated Guide to Arizona Weeds*. The University of Arizona Press, Tucson.
- Rich, T. D., C. J. Beardmore, H. Berlanga, P. J. Blancher, M. S. W. Bradstreet, G. S. Butcher, D. W. Demarest, E. H., Dunn, W. C. Hunter, E. E. Iñigo-Elias, J. A. Kennedy, A. M. Martell, A. O. Panjabi, D. N. Pashley, K. V. Rosenberg, C., M. Rustay, J. S. Wendt, T. C. Will. 2004. *Partners in Flight North American Landbird Conservation Plan*. Cornell Lab of Ornithology. Ithaca, NY.
- Reveal, J. L., Broome, C. R., and J. C. Beatley. 1973. A new Centaurium (Gentianaceae) from Death Valley region of Nevada and California. *Bulletin of the Torrey Botanical Club* 100: 353-356.

- Scoppettone, Gary. 2002. Moapa dace. Presented at the Upper Muddy River Integrated Science Workshop, July 17-19.
- Shackleton, D.M. 1985. *Ovis canadensis*. Mammalian Species. Published by The American Society of Mammalogists. 230: 1-9.
- Thunhorst, G., and J.M. Swearingen. 1999. Leafy spurge. Plant Conservation Alliance, The Nature Conservancy and U.S. National Park Service. Available on the internet: <http://www.nps.gov/plants/alien/fact/eues1.htm>. Accessed 6/03.
- U.S. Bureau of Land Management. 2001. Draft Nevada Test and Training Range Resource Management Plan and Environmental Impact Statement. U.S. Department of the Interior, U.S. Bureau of Land Management, Las Vegas Field Office, Nevada.
- U.S. Bureau of Land Management. 1999. Partners against weeds. Available on the Internet: [http://www.nv.blm.gov/Resources/noxious\\_weeds.htm](http://www.nv.blm.gov/Resources/noxious_weeds.htm). Accessed 6/03.
- U.S. Fish and Wildlife Service. 2006a. Integrated Pest Management Plan for Ash Meadows National Wildlife Refuge. U.S. Fish and Wildlife Service, Southern Nevada Field Office. May.
- U.S. Fish and Wildlife Service. 2006b. Memorandum regarding species lists for the Comprehensive Conservation Plans for the Desert National Wildlife Refuge Complex in Clark, Lincoln, and Nye Counties, Nevada. Ecological Services, U.S. Fish and Wildlife Service, Department of the Interior. November 6.
- U.S. Fish and Wildlife Service. 2002a. Birds of conservation concern 2002. Division of Migratory Bird Management, Arlington, Virginia. Available on the Internet: <http://migratorybirds.fws.gov/>.
- U.S. Fish and Wildlife Service. 2002b. Southwestern willow flycatcher recovery plan. U.S. Fish and Wildlife Service, Albuquerque, New Mexico.
- U.S. Fish and Wildlife Service. 2002c. Yellow-billed cuckoo (*Coccyzus americanus*) general species information. Arizona Ecological Services Field Office, Phoenix, Arizona. 1 p.
- U.S. Fish and Wildlife Service. 2002d. Yuma clapper rail (*Rallus longirostris yumanensis*) general species information. Arizona Ecological Services Field Office, Phoenix, Arizona. 1 p.
- U.S. Fish and Wildlife Service. 1999. Proposed rule to remove the bald eagle in the lower 48 states from the list of endangered and threatened wildlife. Federal Register. Vol. 64: 36454–36464.
- U.S. Fish and Wildlife Service. 1998. Recovery Plan for the Aquatic and Riparian Species of Pahranaagat Valley. Portland, Oregon. 82 pp.
- U.S. Fish and Wildlife Service. 1997. Final determination of critical habitat for the southwestern willow flycatcher. Federal Register. Vol. 62, No. 140: 39129–39147.
- U.S. Fish and Wildlife Service. 1996. Recovery Plan for the Rare Aquatic Species of the Muddy River Ecosystem. Portland, Oregon. 60 pp.
- U.S. Fish and Wildlife Service. 1995. Proposed determination of critical habitat for woundfin, Virgin River chub, and virgin spinedace and notice of public hearing. *Federal Register*. Vol. 60, No. 65: 17296-17311.

- U.S. Fish and Wildlife Service. 1993. Proposed reclassification of the Pahrump poolfish (*Empetrichthys latos latos*) from endangered to threatened status. Federal Register. Vol. 58: 49279–49283.
- U.S. Fish and Wildlife Service. 1990. Recovery plan for the endangered and threatened species of Ash Meadows, Nevada. U.S. Fish and Wildlife Service, Portland Oregon.
- U.S. Fish and Wildlife Service. 1986. *North American Waterfowl Management Plan: A Strategy for Cooperation*. Original version May.
- U.S. Fish and Wildlife Service. 1985. Endangered and threatened wildlife and plants: determination of threatened status with critical habitat for six plants and one insect in Ash Meadows, Nevada and California; and endangered status with critical habitat for one plant in Ash Meadows, Nevada and California. Federal Register 50(97):20777-20794.
- U.S. Fish and Wildlife Service. 1983. Moapa Dace Recovery Plan. February 14.
- U.S. Fish and Wildlife Service. 1980. Devil's Hole Pupfish Recovery Plan. Prepared in cooperation with the Devil's Hole Pupfish Recovery Team. July 15.
- Warrick, G.D. and P.R. Krausman. 1989. Barrel cacti consumption by desert bighorn sheep. The Southwestern Naturalist. 34:483–486.
- Young, James A., Blank, Robert R., and Charlie D. Clements. 2005. Tall whitetop (*Lepidium latifolium*). In Resource Notes, Number 76, January 19, 2005. U.S. Department of Agriculture, Agricultural Research Service. Available on the Internet: <http://www.blm.gov/nstc/resourcenotes/resnotes.html>.



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## Species Lists: Ash Meadows NWR

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### Birds

#### Loons

Common loon	<i>Gavia immer</i>
Pacific loon	<i>Gavia pacifica</i>

#### Grebes

Clark's grebe	<i>Aechmophorus clarkii</i>
Western grebe	<i>Aechmophorus occidentalis</i>
Horned grebe	<i>Podiceps auritus</i>
Eared grebe	<i>Podiceps nigricollis</i>
Pied-billed grebe	<i>Podilymbus podiceps</i>

#### Pelicans and Cormorants

American white pelican	<i>Pelecanus erythrorhynchos</i>
Double-crested cormorant	<i>Phalacrocorax auritus</i>

#### Bitterns, Herons, and Ibis

Great egret	<i>Ardea alba</i>
Great blue heron	<i>Ardea herodias</i>
American bittern	<i>Botaurus lentiginosus</i>
Cattle egret	<i>Bubulcus ibis</i>
Green heron	<i>Butorides virescens</i>
Snowy egret	<i>Egretta thula</i>
Least bittern	<i>Ixobrychus exilis</i>
Black-crowned night-heron	<i>Nycticorax nycticorax</i>
White-faced ibis	<i>Plegadis chihi</i>

#### Waterfowl

Wood duck	<i>Aix sponsa</i>
Northern pintail	<i>Anas acuta</i>
American wigeon	<i>Anas americana</i>
Northern shoveler	<i>Anas clypeata</i>
Green-winged teal	<i>Anas crecca</i>
Cinnamon teal	<i>Anas cyanoptera</i>
Blue-winged teal	<i>Anas discors</i>
Mallard	<i>Anas platyrhynchos</i>

**Waterfowl, continued**

Gadwall	<i>Anas strepera</i>
Greater white-fronted goose	<i>Anser albifrons</i>
Lesser scaup	<i>Aythya affinis</i>
Redhead	<i>Aythya americana</i>
Ring-necked duck	<i>Aythya collaris</i>
Greater scaup	<i>Aythya marila</i>
Canvasback	<i>Aythya valisineria</i>
Canada goose	<i>Branta canadensis</i>
Bufflehead	<i>Bucephala albeola</i>
Common goldeneye	<i>Bucephala clangula</i>
Snow goose	<i>Chen caerulescens</i>
Tundra swan	<i>Cygnus columbianus</i>
Hooded merganser	<i>Lophodytes cucullatus</i>
Common merganser	<i>Mergus merganser</i>
Red-breasted merganser	<i>Mergus serrator</i>
Ruddy duck	<i>Oxyura jamaicensis</i>

**Vultures**

Turkey vulture	<i>Cathartes aura</i>
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**Raptors**

Cooper's hawk	<i>Accipiter cooperii</i>
Sharp-shinned hawk	<i>Accipiter striatus</i>
Golden eagle	<i>Aquila chrysaetos</i>
Red-tailed hawk	<i>Buteo jamaicensis</i>
Rough-legged hawk	<i>Buteo lagopus</i>
Red-shouldered hawk	<i>Buteo lineatus</i>
Ferruginous hawk	<i>Buteo regalis</i>
Swainson's hawk	<i>Buteo swainsoni</i>
Northern harrier	<i>Circus cyaneus</i>
White-tailed kite	<i>Elanus caeruleus</i>
Merlin	<i>Falco columbarius</i>
Prairie falcon	<i>Falco mexicanus</i>
Peregrine falcon	<i>Falco peregrinus</i>
American kestrel	<i>Falco sparverius</i>
Bald eagle	<i>Haliaeetus leucocephalus</i>
Osprey	<i>Pandion haliaetus</i>

**Gallinaceous Birds**

Chuckar	<i>Alectoris chuckar</i>
Gambel's quail	<i>Callipepla gambelii</i>

**Rails**

American coot	<i>Fulica americana</i>
Common moorhen	<i>Gallinula chloropus</i>
Sora	<i>Porzana carolina</i>
Virginia rail	<i>Rallus limicola</i>

## Shorebirds

Spotted sandpiper	<i>Actitis macularia</i>
Ruddy turnstone	<i>Arenaria interpres</i>
Sanderling	<i>Calidris alba</i>
Western sandpiper	<i>Calidris mauri</i>
Least sandpiper	<i>Calidris minutilla</i>
Willet	<i>Catoptrophorus semipalmatus</i>
Snowy plover	<i>Charadrius alexandrinus</i>
Semipalmated plover	<i>Charadrius semipalmatus</i>
Killdeer	<i>Charadrius vociferus</i>
Dunlin	<i>Clidris alpina</i>
Common snipe	<i>Gallinago gallinago</i>
Black-necked stilt	<i>Himantopus mexicanus</i>
Long-billed dowitcher	<i>Limnodromus scolopaceus</i>
Marbled godwit	<i>Limosa fedoa</i>
Long-billed curlew	<i>Numenius americanus</i>
Red-necked phalarope	<i>Phalaropus lobatus</i>
Wilson's phalarope	<i>Phalaropus tricolor</i>
Black-bellied plover	<i>Pluvialis squatarola</i>
American avocet	<i>Recurvirostra americana</i>
Lesser yellowlegs	<i>Tringa flavipes</i>
Greater yellowlegs	<i>Tringa melanoleuca</i>
Solitary sandpiper	<i>Tringa solitaria</i>

## Gulls and Terns

Black tern	<i>Chlidonias niger</i>
California gull	<i>Larus californicus</i>
Ring-billed gull	<i>Larus delawarensis</i>
Bonaparte's gull	<i>Larus philadelphia</i>
Forster's tern	<i>Sterna forsteri</i>
Common tern	<i>Sterna hirundo</i>

## Doves

Rock dove	<i>Columba livia</i>
Mourning dove	<i>Zenaida macroura</i>

## Cuckoos

Greater roadrunner	<i>Geococcyx californianus</i>
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## Owls

Long-eared owl	<i>Asio otus</i>
Burrowing owl	<i>Athene cunicularia</i>
Great horned owl	<i>Bubo virginianus</i>
Common barn owl	<i>Tyto alba</i>

**Goatsuckers**

Lesser nighthawk  
Common poorwill

*Chordeiles acutipennis*  
*Phalaenoptilus nuttallii*

**Swifts**

White-throated swift

*Aeronautes saxatalis*

**Hummingbirds**

Black-chinned hummingbird  
Costa's hummingbird  
Broad-tailed hummingbird  
Rufous hummingbird

*Archilochus alexandri*  
*Calypte costae*  
*Selasphorus platycercus*  
*Selasphorus rufus*

**Kingfishers**

Belted kingfisher

*Ceryle alcyon*

**Woodpeckers**

Northern flicker  
Ladder-backed woodpecker  
Red-naped sapsucker

*Colaptes auratus*  
*Picoides scalaris*  
*Sphyrapicus nuchalis*

**Flycatchers**

Olive-sided flycatcher  
Wood-pewee  
Dusky flycatcher  
Cordilleran flycatcher  
Willow flycatcher  
Gray flycatcher  
Ash-throated flycatcher  
Brown-crested flycatcher  
Black phoebe  
Say's phoebe  
Western kingbird

*Contopus borealis*  
*Contopus sordidulus*  
*Empidonax oberholseri*  
*Empidonax occidentalis*  
*Empidonax traillii*  
*Empidonax wrightii*  
*Myiarchus cinerascens*  
*Myiarchus tyrannulus*  
*Sayornis nigricans*  
*Sayornis saya*  
*Tyrannus verticalis*

**Shrikes**

Northern shrike  
Loggerhead shrike

*Lanius excubitor*  
*Lanius ludovicianus*

**Vireos**

Bell's vireo  
Plumbeousvireo  
Warbling vireo

*Vireo bellii*  
*Vireo solitarius*  
*Vireo gilvus*

**Jays and Crows**

Western scrub jay  
Common raven

*Aphelocoma californica*  
*Corvus corax*

**Larks**

Horned lark *Eremophila alpestris*

**Swallows**

Cliff swallow *Hirundo pyrrhonota*  
 Barn swallow *Hirundo rustica*  
 Bank swallow *Riparia riparia*  
 Northern rough-winged swallow *Stelgidopteryx serripennis*  
 Tree swallow *Tachycineta bicolor*  
 Violet-green swallow *Tachycineta thalassina*

**Verdins and Bushtits**

Bushtit *Psaltriparus minimus*  
 Verdin *Auriparus flaviceps*

**Wrens**

Marsh wren *Cistothorus palustris*  
 Rock wren *Salpinctes obsoletus*  
 Bewick's wren *Thryomanes bewickii*  
 House wren *Troglodytes aedon*

**Kinglets and Gnatcatchers**

Golden-crowned kinglet *Regulus satrapa*  
 Ruby-crowned kinglet *Regulus calendula*  
 Blue-gray gnatcatcher *Polioptila caerulea*

**Thrushes**

Hermit thrush *Catharus guttatus*  
 Swainson's thrush *Catharus ustulatus*  
 Townsend's solitaire *Myadestes townsendi*  
 Mountain bluebird *Sialia currucoides*  
 American robin *Turdus migratorius*

**Mockingbirds and Thrashers**

Northern mockingbird *Mimus polyglottos*  
 Sage thrasher *Oreoscoptes montanus*  
 Crissal thrasher *Toxostoma crissale*  
 Le Conte's thrasher *Toxostoma lecontei*

**Pipits**

American pipit *Anthus spinoletta*

**Starlings**

European starling *Sturnus vulgaris*

**Waxwings**

Cedar waxwing *Bombycilla cedrorum*

## Silky Flycatchers

Phainopepla

*Phainopepla nitens*

## Warblers

Yellow-rumped warbler

*Dendroica coronata*

Black-throated gray warbler

*Dendroica nigrescens*

Yellow warbler

*Dendroica petechia*

Townsend's warbler

*Dendroica townsendi*

Common yellowthroat

*Geothlypis trichas*

Yellow-breasted chat

*Icteria virens*

Macgillivray's warbler

*Oporornis tolmiei*

Orange-crowned warbler

*Vermivora celata*

Lucy's warbler

*Vermivora luciae*

Virginia's warbler

*Vermivora virginiae*

Wilson's warbler

*Wilsonia pusilla*

## Tanagers

Western tanager

*Piranga ludoviciana*

## Grosbeaks, Buntings, and Sparrows

Sage sparrow

*Amphispiza belli*

Black-throated sparrow

*Amphispiza bilineata*

Lark sparrow

*Chondestes grammacus*

Dark-eyed junco

*Junco hyemalis*

Song sparrow

*Melospiza melodia*

Lincoln's sparrow

*Melospiza lincolni*

Savannah sparrow

*Passerculus sandwichensis*

Blue grosbeak

*Passerina caerulea*

Lazuli bunting

*Passerina amoena*

Indigo bunting

*Passerina cyanea*

Black-headed grosbeak

*Pheucticus melanocephalus*

Green-tailed towhee

*Pipilo chlorurus*

Spotted towhee

*Pipilo maculatus*

American tree sparrow

*Spizella arborea*

Brewer's sparrow

*Spizella breweri*

Chipping sparrow

*Spizella passerina*

White-crowned sparrow

*Zonotrichia leucophrys*

## Meadowlarks, Blackbirds, and Orioles

Red-winged blackbird

*Agelaius phoeniceus*

Brewer's blackbird

*Euphagus cyanocephalus*

Bullock's oriole

*Icterus bullockii*

Hooded oriole

*Icterus cucullatus*

Brown-headed cowbird

*Molothrus ater*

Great-tailed grackle

*Quiscalus mexicanus*

Western meadowlark

*Sturnella neglecta*

Yellow-headed blackbird

*Xanthocephalus xanthocephalus*

## **Finches**

Pine siskin  
Lesser goldfinch  
American goldfinch  
House finch

*Carduelis pinus*  
*Carduelis psaltria*  
*Carduelis tristis*  
*Carpodacus mexicanus*

## **Weaver Finches**

House sparrow

*Passer domesticus*

# Mammals

Pallid bat  
 Townshend's big eared bat  
Pacific Western big-eared bat  
Big brown bat  
 Pacific Western big-eared bat  
 Big brown bat  
 Spotted bat  
 Greater western mastiff-bat  
 Allen's big-eared bat  
Silver-haired bat  
 Hoary bat  
Western red bat  
Western yellow bat  
 California leaf-nosed bat  
 California myotis  
 Long-eared myotis  
Western small-footed myotis  
 Fringed myotis  
 Long-legged myotis  
 Yuma myotis  
 Big free-tailed bat  
 Western parastrelle  
Brazilian free-tailed bat  
  
 Black-tailed jackrabbit  
 Desert cottontail  
  
 White-tailed ground squirrel  
 Long-tailed pocket mouse  
Desert pocket mouse  
 Desert kangaroo rat  
 Merriam's kangaroo rat  
Chisel-toothed kangaroo rat  
Porcupine  
 Ash Meadows montane vole  
 House mouse  
 Desert wood rat  
 Southern grasshopper mouse  
 Little pocket mouse  
Brush mouse  
 Canyon mouse  
Cactus mouse  
 Deer mouse  
Norway rat  
 Western harvest mouse  
 Round-tailed ground squirrel  
 Botta's pocket gopher

*Antrozous pallidus*  
*Corynorhinus townsendii*  
*Corynorhinus townsedii townsedii*  
*Eptesicus fuscus*  
*Corynorhinus townsedii townsedii*  
*Eptesicus fuscus*  
*Euderma maculatum*  
*Eumops perotis californicus*  
*Idionycteris phyllotis*  
*Lasionycteris noctivagans*  
*Lasiurus cinereus*  
*Lasiurus blossevillii*  
*Lasiurus xanthinus*  
*Macrotus californicus*  
*Myotis californicus*  
*Myotis evotis*  
*Myotis ciliolabrum*  
*Myotis thysanodes*  
*Myotis volans*  
*Myotis yumanensis*  
*Nyctinomops macrotis*  
*Parastrellus hesperus*  
*Tadarida brasiliensis*  
  
*Lepus californicus deserticolai*  
*Sylvilagus audubonii arizonae*  
  
*Ammospermophilus leucurus leucurus*  
*Chaetodipus formosus mohavensis*  
*Chaetodipus penicillatus*  
*Dipodomys deserti deserti*  
*Dipodomys merriami merriami*  
*Dipodomys microps occidentalis*  
*Erethizon dorsatum epixanthum*  
*Microtus montanus nevadensis*  
*Mus musculus*  
*Neotoma lepida lepida*  
*Onychomys torridus longicaudus*  
*Perognathus longimembris panamintinus*  
*Peromyscus boylei*  
*Peromyscus crinitus stephensi*  
*Peromyscus eremicus eremicus*  
*Peromyscus maniculatus sonoriensis*  
*Rattus norvegicus*  
*Reithrodontomys megalotis megalotis*  
*Spermophilus tereticaudus tericaudus*  
*Thomomys bottae centralis*







































































