

**Afton Canyon
Mojave Trails National Monument
A Brief History & Compiled Avian Species Records 2016**

Tom Egan, Defenders of Wildlife



December 2016

Table of Contents

I. A Brief History of Afton Canyon, California.....	1
II. Compiled Avian Species Records for Afton Canyon	6
References.....	29

Tables

Table 1. Avian Species List & Records for Afton Canyon, California.....	17
Table 2. Avian Species Records for Afton Canyon, California by Numbers & Season.....	23

Figures

Figure 1. Regional Location of Afton Canyon, in the Mojave Trails National Monument, San Bernardino County, California	2
Figure 2. Afton Canyon Year 1863 Photo-point.....	3
Figure 3. Union Pacific Locomotive Crossing Central Afton Canyon in 1989.....	4
Figure 4. Afton Canyon Year 2000 Photo-point.....	5
Figure 5. Afton Canyon Year 2016 Photo-point.....	7
Figure 6. Panorama of Western Afton Canyon in 2016.....	8
Figure 7. Lizard Tail (<i>Anemopsis californica</i>) Meadow, Western Afton Canyon, in 2016.....	9
Figure 8. Fremont Cottonwood (<i>Populus fremontii</i>), Western Afton Canyon, in 2016.....	10
Figure 9. Screwbean Mesquite (<i>Prosopis pubescens</i>), Western Afton Canyon, in 2016.....	11
Figure 10. Gooding's Black Willow (<i>Salix nigra gooddingii</i>), Western Afton Canyon, in 2016.....	12
Figure 11. Zebratail (<i>Callisaurus draconoides</i>), Western Afton Canyon, in 2016.....	13
Figure 12. White-faced Ibis (<i>Plegadis chibi</i>) at Betty Ford Crossing of the Mojave River, West-central Afton Canyon, in 2016.....	14
Figure 13. Desert Bighorn Sheep (<i>Ovis canadensis nelsoni</i>), Western Afton Canyon, in 2016.....	15
Figure 14. Saltcedar (<i>Tamarix ramosissima</i>) in central Afton Canyon, in 2016.....	16

Afton Canyon
Mojave Trails National Monument
A Brief History & Compiled Avian Species Records 2016

Tom Egan¹, Defenders of Wildlife

I. A Brief History of Afton Canyon, California

The Afton Canyon Natural Area in San Bernardino County, California (Figure 1) is often referred to as the “Grand Canyon” of the Mojave Desert. These public lands, managed by the U.S. Bureau of Land Management (BLM), have been incorporated as part of the Mojave Trails National Monument by presidential proclamation in 2016.² The Mojave River, running below-ground for most of its reach, surfaces adjacent to the historic Mojave Road in this picturesque landscape.

Early in 1776, Father Francisco Garces became the first European to travel the Mojave Trail, which had long been used by the local Vanyume Serrano tribe of the Mojave River region, as well the Mojave and Chemehuevi tribes of the Colorado River. Numerous forays by famous trail blazers along the Mojave Trail followed, including Jedidiah Smith’s exploration in 1826 and Antonio Armijo’s expedition along the old Spanish Trail in 1829-30. John C. Fremont, the “Great Trailblazer” followed in 1844, with renowned southwestern guide Kit Carson scouting the way.

Decades later, a large influx of settlers and their wagon trains traveled what became the Mojave Road; with some initiating livestock grazing operations in Afton Canyon and others moving further south to San Bernardino, or on to the coast. Flooding in the canyon was a regular occurrence (Figure 2). The Union Pacific Railroad and various flood control features were built along the Mojave River near the turn of the nineteenth century, greatly modifying portions of Afton Canyon. The non-native phreatophyte saltcedar (*Tamarix ramosissima*) was reportedly introduced shortly thereafter in an attempt to stabilize moving river sands. A small railroad siding station was also established in Afton Canyon.

Open range ranching meanwhile, continued throughout the canyon. In the late 1950s, the non-native plant camelthorn (*Alhagi maurorum*) became established in portions of the canyon, with broad-scale aerial herbicide spraying initiated to control this invasive species in the early 1960s. The rather flashy Mojave River was also dammed in 1968, with considerable impact upon downstream riverine dynamics. The popularity of off-road vehicle recreation in the California Desert boomed in the 1970s, with the Mojave Road through Afton Canyon becoming a focal travel route; and the Afton Campground, constructed in 1968, becoming a significant vehicle play area.

BLM adopted an Interim Afton Canyon Management Plan in 1980, noting the considerable damage to natural resources arising from uncontrolled vehicle use/cattle grazing and expansive saltcedar growth. These public lands were then designated an Area of Critical Environmental Concern³ with a long-term management plan developed to combat inappropriate use and control saltcedar growth.

¹ California Desert Representative, Defenders of Wildlife. Former Wildlife Biologist/Afton Restoration Lead, Bureau of Land Management, Barstow Field Office 1990-2002.

² The White House. 2016. Presidential proclamation-establishment of the Mojave Trails National Monument. Washington D.C.

³ Bureau of Land Management. 1989. Management plan for Afton Canyon Natural Area and surrounding area. Barstow Field Office. Barstow, CA.

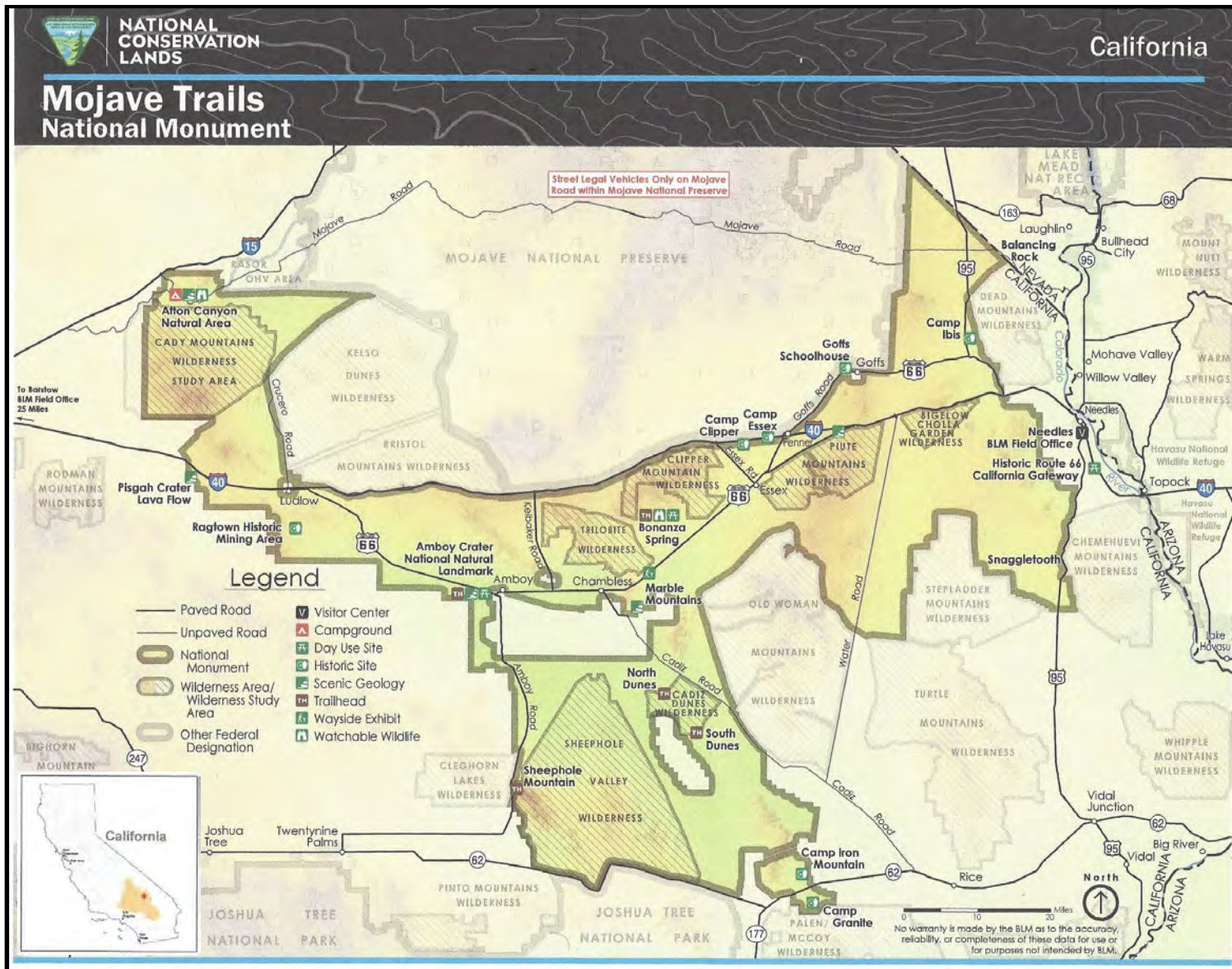


Figure 1. Regional Location of Afton Canyon Natural Area, in San Bernardino County, California (after BLM 2016a).

Figure 2. Afton Canyon Year 1863 Photo-point (Webb et al. 2001).



In March 1863, this downstream view of the Mojave River was taken at the head of Afton Canyon viewing east about a year after the 1862 flood. A wide, scoured channel with little riparian vegetation is present, with larger trees of unknown species in the middle distance (Richard D'Heureuse 1905.16894-A, courtesy of the Bancroft Library).

An ambitious riparian restoration project was initiated per management plan prescription in 1992.⁴ Extensive old-growth saltcedar stands occurred on elevated terraces at the inception of this effort, crowding out native plants and limiting wildlife access to water. Only a trickle of surface water was present; and this was largely limited to the central canyon (Figure 3). New saltcedar growth sprouted in the moist streambed sands of the main river channel, which was used as the primary route for travel on the historic Mojave Road. Only a few Gooding's black willow (*Salix nigra gooddingii*) occurred, along with scattered, water-stressed honey mesquite (*Prosopis glandulosa*) at the western head of the canyon.

Prior to restoration treatment, both willow and mesquite were noted as adversely affected by the expansive saltcedar growth. Emergent vegetation was sparse. Cattle grazed on the few native plants remaining in the canyon; avoiding use of saltcedar. Typical Mojave riparian community components, such as saltgrass (*Distichlis spicata*) meadows, Fremont cottonwood (*Populus fremontii*) and screwbean mesquite (*Prosopis pubescens*) woodlands, were absent.

BLM's restoration project in western Afton Canyon spanned a total of 12 years. It included controlling saltcedar with prescribed burns and mechanical cutting (Figure 4), concurrent with targeted herbicide application; restoration of native plant community structure; cattle exclusion; and minimization of vehicle use impacts. The focal project goal was improvement of the proper functioning condition (PFC)⁵ status of this stream segment by restoring key Potential Natural Community (PNC) elements.

⁴ Lovich, J.E., Egan, T.B., & de Gouvenain, R.C. 1994. Tamarisk control on public lands in the desert of southern California: two case studies. 46th Annual California Weed Conference, California Weed Science Society: 166±177. Sacramento, CA.

⁵ Bureau of Land Management. 1993; rev. 1995, 1998. Riparian area management. Process for assessing proper functioning condition. Technical reference 1737-9. Service Center, Denver, CO.



RailPictures.Net - Image Copyright © John Sistrunk

Figure 3. Union Pacific locomotive heading west across Mojave River in the central portion of Afton Canyon in 1989. The water trickle, barren ground and saltcedar pictured are representative of the entire canyon at this time.

Figure 4. Afton Canyon Year 2000 Photo-point (Webb et al. 2001).



By October 2000, many changes occurred in Afton Canyon, spurred by large floods, cattle grazing, and manipulations of the riparian ecosystem. Changes in vegetation include the establishment of non-native tamarisk (*Tamarix ramosissima*) in the middle part of the 20th century, aerial herbicide treatments to remove camelthorn (*Alhagi maurorum*) in the early 1960s, and targeted saltcedar removal in the 1990s (Dominic Oldershaw, Stake 2116).

By 1996, riparian restoration work resulted in a fairly high degree of saltcedar control in western Afton Canyon.⁶ Over 10,000 cottonwood and willow poles were planted. Saltcedar removal efforts extended east of the “Betty Ford Crossing” of the Mojave River to the Afton Oxbow. While no saltcedar removal occurred further to the east, post and cable fencing to exclude vehicle use was erected at the western end of the oxbow and across the eastern edge of the canyon. Cattle were removed in the late 1990s, following a voluntary U.S. Army purchase agreement with the BLM cattle allotment permittee.

The Mojave River’s condition in the western Afton Canyon segment improved from a “nonfunctioning” to a “functioning at risk” status as a result of the 1990s restoration efforts. Perennial water flow was subsequently noted throughout most of Afton Canyon; with extensive ponding documented in the west. While vegetation remained the same in the Afton Oxbow eastward, saltgrass meadows formed, emergent vegetation took root and native trees began to reproduce in the west.

Both resident and neotropical migratory bird use expanded significantly. Desert bighorn sheep (*Ovis canadensis nelsoni*), which found easier access to river water and improved forage availability, increased in number. Western pond turtles (*Emys marmorata*)⁷ occupied newly-created ponds. Following a decade of BLM restoration work as prescribed in the Afton Canyon Management Plan, native riparian vegetation growth had visibly increased in the western reach of the canyon.

⁶ Egan, T.B. 1999. Afton Canyon riparian restoration fourth year status report. In: 1999 Proceedings of the Weed Science Society. Volume 51.

⁷ Lovich, J, and K. Meyer. 2002. The western pond turtle (*Clemmys marmorata*) in the Mojave River, California USA: highly adapted survivor or tenuous relict. J. Zool. Lond. 256(2002) 537-545.

In 2016, perennial surface water flows through much of Afton Canyon. Vehicle exclusion fencing damaged by flooding has been repaired. The Mojave Road has been re-routed out of the immediate riverine area in the western and central portions of the canyon, with additional post and cable fencing erected along the historic Mojave Road. While riparian restoration efforts were never initiated in much of central and eastern Afton Canyon, and weed control maintenance in the west has dwindled in recent years, native riparian vegetation is thriving in western Afton Canyon (Figures 5-14). Several flood events have however, resulted in saltcedar re-establishment in restoration areas. Saltcedar is now expanding into restored riparian areas and again represents a threat to riverine functioning condition. Emergent and meadow vegetation has expanded within western Afton Canyon in recent years. Ponding has visibly receded in many areas. The continued existence of western pond turtle may now be precarious, but desert bighorn sheep numbers appear to be increasing. Travel movements by this resident sheep herd into the adjacent Soda Mountains now occurs with regularity. However, vehicle use from the adjacent Razor Off-road Open Area into eastern Afton Canyon is on the rise, with its attendant impacts upon soils, vegetation and wildlife.^{8,9} BLM has an opportunity to address this potential impact in its upcoming planning for the Razor Open Area,¹⁰ as well as renewed riparian restoration in Afton Canyon via the upcoming planning for the Mojave Trails National Monument.¹¹

II. Compiled Avian Species Records for Afton Canyon

Avian use of Afton Canyon is currently extensive. In 1996, BLM formally designated this natural area as a state Watchable Wildlife Area.¹² Avian use in the area, as described by BLM, is presented below:

Birds: More than 180 species of birds have been spotted in Afton Canyon. These include rare species such as vermilion flycatcher and summer tanager. The canyon's river and marshes draw winter waterfowl, shorebirds and songbirds. Great blue herons, snowy egrets, white-faced ibises and other birds live in the shallows. Common flickers and ladder-backed woodpeckers are once again utilizing snags that have been made accessible through saltcedar removal. More than 85 species of migrating birds have made stopovers, including merlin, osprey, and Swainson's hawk. The steep, inaccessible cliffs of the nearby Cady Mountains provide excellent feeding and nesting areas for a variety of birds of prey, including golden eagle and prairie falcon, and their activity in the canyon is increasing.

Afton Canyon is Site 198 in the California Wildlife Watching Guide.¹³ A listing of birds observed by the author and/or otherwise recorded in Afton Canyon and the adjacent Cady Mountains, as well as bird species recorded at the upstream Camp Cady Wildlife Area, is presented below (Table 1). Numbers of birds observed per these records and season of observation are also provided (Table 2). This list is intended to be updated as information becomes available.

⁸ Weinstein, M. 1978. Impact of Off-Road Vehicles on the Avifauna of Afton Canyon, California. Bureau of Land Management, Department of the Interior. Final Report #CA-060-CT7-2734.

⁹ Berry, K.H. 1980. A review of the effects of off-road vehicles on birds and other vertebrates. On file, U.S. Department of the Interior, Bureau of Land Management, California Desert District. Moreno Valley, California.

¹⁰ Bureau of Land Management. 2016a. Razor Open Area. Barstow Field Office. Barstow, CA.

¹¹ Bureau of Land Management. 2016b. Mojave Trails National Monument. Needles Field Office. Needles, CA.

¹² Bureau of Land Management. 2016c. BLM California Watchable Wildlife Sites. State Office. Sacramento, CA.

¹³ Clark, J.L. 1996. California wildlife viewing guide. Falcon Press. Billings and Helena, MT. Published in cooperation with Defenders of Wildlife. Washington, D.C.

Figure 5. Afton Canyon Year 2016 Photo-point.



View east, downstream, of western Afton Canyon, from the southern bank of the Mojave River 24 July 2016 (T. Egan); in an attempt to re-create a historic photo-point. Fremont cottonwood (*Populus fremontii*) and Gooding's black willow (*Salix nigra gooddingii*) are the dominant woodland vegetation, reaching upwards to 40 feet height; with saltcedar (*Tamarix ramosissima*) beginning to re-invade the riverine channel. The Union Pacific Railway's Afton West (No. 1) Trestle is situated in the topographic notch center of the photo; with the entrance to West Pyramid Canyon of the Cady Mountains on the right.

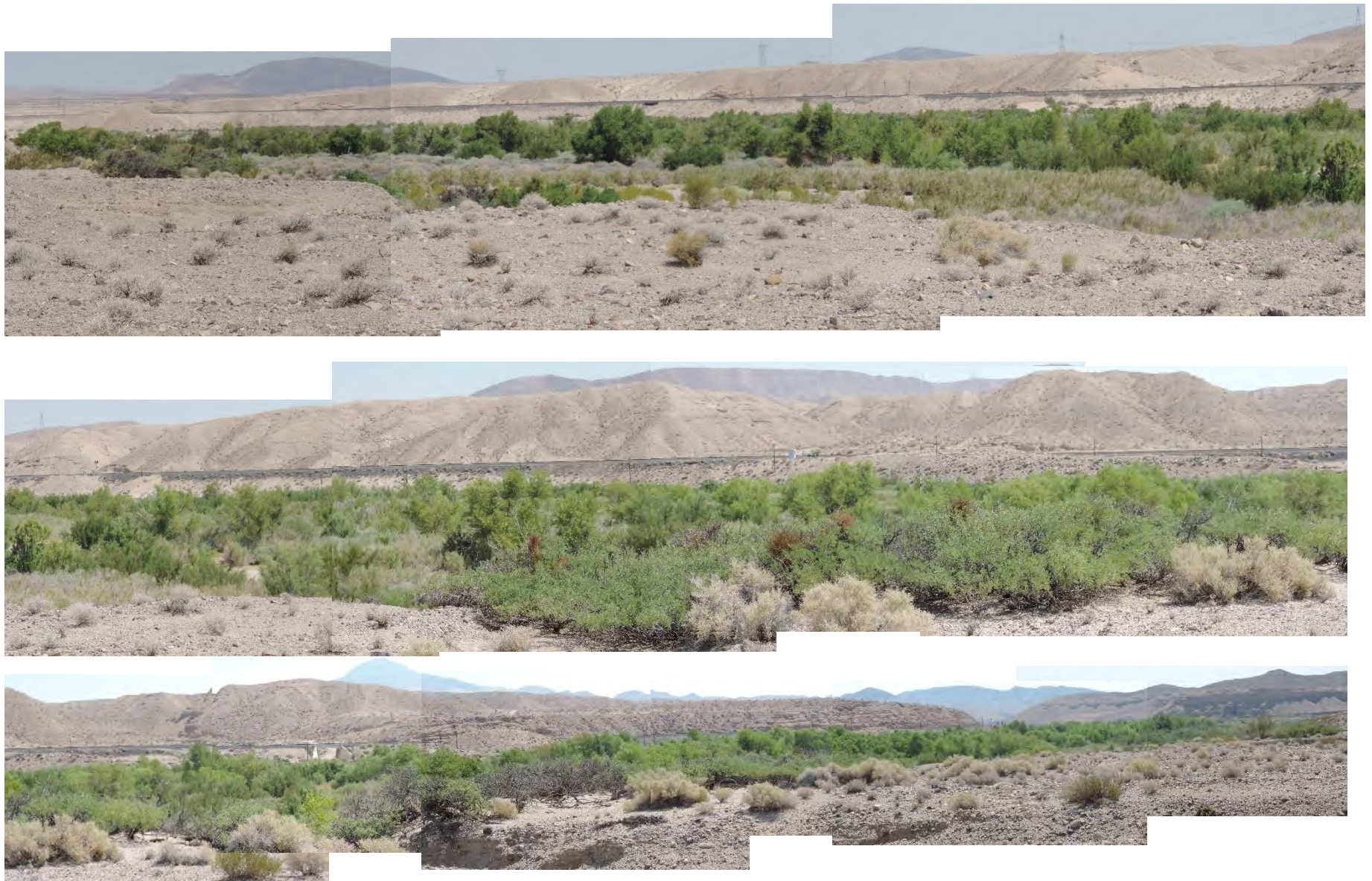


Figure 6. Panorama of western Afton Canyon, with Mojave River upstream (upper left) to downstream (lower right) 24 July 2016.



Figure 7. Lizard tail (*Anemopsis californica*) meadow in western Afton Canyon 24 July 2016. While this species is known from the canyon (Weinstein 1978), no lizard tail was noted in 1990. Several stolons were planted in treatment areas during the 1990-2000 restoration project.



Figure 8. Fremont cottonwood (*Populus fremontii*) pole planting, western Afton Canyon 24 July 2016 at 40 feet height. Species absent from canyon in 1990, with over 6,000 cottonwood poles planted between 1990-2000.



Figure 9. Screwbean mesquite (*Prosopis pubescens*) and saltgrass (*Distichlis spicata*) meadow in western Afton Canyon 24 July 2016. Screwbean mesquite absent from canyon in 1990, prior to riparian restoration work.



Figure 10. Gooding's black willow (*Salix nigra gooddingii*) and quailbush (*Atriplex lentiformis*)-arrow weed (*Pluchea sericea*) scrub in western Afton Canyon 24 July 2016. Only a handful of black willow occurred within the canyon in 1990, with over 4,000 poles subsequently planted.



Figure 11. Zebra-tail (*Callisaurus draconoides*) in western Afton Canyon 24 July 2016. Both Zebra-tail and the endemic Mojave fringe-toed lizard (*Uma scoparia*) rely on the sand substrate habitat surrounding honey mesquite (*Prosopis glandulosa*) groves in the drier, but still-hydrated, portions of the canyon. Honey mesquite groves, which support extensive migratory bird use, now noted as robust and expanding. These mesquite groves were noted as adversely affected (i.e., water stressed) by saltcedar (*Tamarix ramosissima*) growth and water use in 1990.



Figure 12. White-faced ibis (*Plegadis chihi*) at Betty Ford, Mojave River; downstream from western Afton Canyon 24 July 2016. Surface water now covers an estimated 50-60 feet river width span, with approximately 3-4 depth. Barren moist sand, with no flowing water or emergent vegetation, saltcedar-lined river banks and extensive off-road vehicle soil disturbance present in 1990.



Figure 13. Desert bighorn sheep (*Ovis canadensis nelsoni*) in western Afton Canyon 24 August 2016.



Figure 14. Saltcedar (*Tamarix ramosissima*) in central Afton Canyon 13 August 2016. Western Afton Canyon supported a similar saltcedar frequency/density prior to treatment. A renewed invasive weed control and riparian restoration effort in Afton Canyon is needed.

Table 1. Avian Species¹⁴ List & Records¹⁵ for Afton Canyon, California.

<u>Common Name</u>	<u>Scientific Name</u>	<u>Reference</u>
American coot	<i>Fulica americana</i>	Karalun, D. 2016
American kestrel	<i>Falco sparverius</i>	Weinstein, M. 1978; Otahal, C. 2016, Egan, T. 2016
American pipit	<i>Anthus rubescens</i>	McCreedy, C. 2016
American robin	<i>Turdus migratorius</i>	Egan, T. 1996; McCreedy, C. 2016
Ash-throated flycatcher	<i>Myiarchus cinerascens</i>	McCreedy, C. 2016
Bald eagle*	<i>Haliaeetus leucocephalus</i>	Egan, T. obs. 1994 (migratory flight)
Barn owl	<i>Tyto alba</i>	Rockey, W. 2014
Barn swallow	<i>Hirundo rustica</i>	Egan, T. 1996; McCreedy, C. 2016
Belted kingfisher	<i>Megasceryle alcyon</i>	Egan, T. 1995; McCreedy, C. 2016
Bewick's wren	<i>Thryomanes bewickii</i>	Duncan, S. 2013
Black-crowned night heron	<i>Nycticorax nycticorax</i>	Egan, T. obs. 1996
Black-headed grosbeak	<i>Pheucticus melanocephalus</i>	Egan, T. obs. 1996
Black phoebe	<i>Sayornis nigricans</i>	Egan, T. obs. 1993; Otahal, C. 2016
Black-and-white warbler	<i>Minotilta varia</i>	McCreedy, C. 2016
Black-headed grosbeak	<i>Pheucticus melanocephalus</i>	Egan, T. 1996; McCreedy, C. 2016
Black-throated gray warbler	<i>Dendroica nigrescens</i>	Cooper, D. 2015
Black-throated sparrow	<i>Amphispiza bilineata</i>	Deppe, B. 2016
Black-tailed gnatcatcher*	<i>Poliioptila melanura</i>	McCreedy, C. 2016
Blue grosbeak	<i>Passerina caerulea</i>	McCreedy, C. 2016
Blue-gray gnatcatcher	<i>Poliioptila caerulea</i>	Egan, T. obs. 1996; Schneider, K. 2012; McCreedy, C. 2016

¹⁴ Special status species (endangered, threatened, Bird of Conservation Concern, California Species of Special Concern & Watch List) as of August 2016, identified with an asterisk.

¹⁵ Records by author observation indicated by obs.; otherwise record denotes individual citation, including observations cited per eBird 2016 (refer to Literature Cited).

<u>Common Name</u>	<u>Scientific Name</u>	<u>Reference</u>
Blue-winged teal	<i>Anas discors</i>	Egan, T. obs. 1993, 2016
Brewer's blackbird	<i>Euphagus cyanocephalus</i>	Egan, T. obs. 1993, 2016
Brewer's sparrow*	<i>Spizella breweri</i>	McCreedy, C. 2016
Brown-headed cowbird	<i>Molothrus ater</i>	Egan, T. 1996; McCreedy, C. 2016
Bullock's oriole	<i>Icterus bullockii</i>	McCreedy, C. 2016
Burrowing owl*	<i>Athene cunicularia</i>	Egan, T. obs. 1994
Bushtit	<i>Psaltriparus minimus</i>	Egan, T. obs. 1994; Benson, T. 2010
Cactus wren	<i>Campylorhynchus brunneicapillus</i>	Egan, T. 1994; Satyan, N. 2015
California scrub-jay	<i>Apelocoma californica</i>	Benson, T. 2011
Calliope hummingbird	<i>Stellula calliope</i>	Sterling, J. 2002
Cassin's vireo	<i>Vireo cassinii</i>	McCreedy, C. 2016
Cedar waxwing	<i>Bombycilla cedrorum</i>	Weinstein, M. 1978; McCreedy, C. 2016
Chipping sparrow	<i>Spizella passerina</i>	McCreedy, C. 2016
Cinnamon teal	<i>Anas cyanoptera</i>	Otahal, C. 2016
Common flicker	<i>Colaptes auratus</i>	Weinstein, M. 1978; Egan 1995
Common raven	<i>Corvus corax</i>	Egan, T. obs. 1990
Common yellowthroat	<i>Geothlypis trichas</i>	Egan, T. obs. 1996; McCreedy, C. 2016
Cooper's hawk*	<i>Accipiter cooperii</i>	McCreedy, C. 2016
Costa's hummingbird*	<i>Calypte costae</i>	McCreedy, C. 2016
Dark-eyed junco	<i>Junco hyemalis</i>	Cooper, D. 2015
Dusky flycatcher	<i>Empidonax oberholseri</i>	McCreedy, C. 2016
Eurasian collared-dove	<i>Streptopelia decaocto</i>	McCreedy, C. 2016
Gadwall	<i>Anas strepera</i>	McCreedy, C. 2016
Gambel's quail	<i>Callipepla gambelii</i>	Remsen, V. 1975
Golden eagle*	<i>Aquila chrysaetos</i>	Egan, T. obs. 1994; Cooper, D. 2015

<u>Common Name</u>	<u>Scientific Name</u>	<u>Reference</u>
Gray flycatcher	<i>Empidonax wrightii</i>	McCreedy, C. 2016
Great blue heron	<i>Ardea herodias</i>	Egan, T. obs. 1993; McCreedy, C. 2016
Great horned owl	<i>Bubo virginianus</i>	Rockey, W. 2014
Greater roadrunner	<i>Geococcyx californianus</i>	McCreedy, C. 2016
Green heron	<i>Butorides virescens</i>	McCreedy, C. 2016
Hairy woodpecker	<i>Picoides villosus</i>	McCreedy, C. 2016
Hammond's flycatcher	<i>Empidonax hammondi</i>	McCreedy, C. 2016
Harris hawk*	<i>Parabuteo unicinctus</i>	Curry, M. 2011
Hepatic tanager*	<i>Piranga flava</i>	Garrett and Molina 1998
Hermit warbler	<i>Dendroica occidentalis</i>	Sterling, J. 2002
Hooded oriole	<i>Setophaga citrina</i>	Douglas, L. 2008
Horned lark	<i>Eremophila alpestris</i>	Egan, T. 1994; McCreedy, C. 2016
House finch	<i>Carpodacus mexicanus</i>	Weinstein, M. 1978; McCreedy, C. 2016
House wren	<i>Troglodytes aedon</i>	McCreedy, C. 2016
Indigo bunting	<i>Passerina cyanea</i>	McCreedy, C. 2016
Killdeer	<i>Charadrius vociferus</i>	Egan, T. obs. 1993; McCreedy, C. 2016
Lark sparrow	<i>Chondestes grammacus</i>	McCreedy, C. 2016
Lawrence's goldfinch*	<i>Carduelis lawrencei</i>	Cooper, D. 2015
Lazuli bunting	<i>Passerina amoena</i>	McCreedy, C. 2016
Le Conte's thrasher*	<i>Toxostoma lecontei</i>	Hope, E. 2016
Least sandpiper	<i>Calidris minutilla</i>	McCreedy, C. 2016
Lesser goldfinch	<i>Carduelis psaltria</i>	McCreedy, C. 2016
Lesser nighthawk	<i>Chordeiles acutipennis</i>	Egan, T. obs. 1996; McCreedy, C. 2016
Lincoln's sparrow	<i>Melospiza lincolnii</i>	McCreedy, C. 2016
Loggerhead shrike*	<i>Lanius ludovicianus</i>	McCreedy, C. 2016
Marsh wren	<i>Castrothorus palustris</i>	McCreedy, C. 2016
McGillivray's warbler	<i>Oporomis tolmiei</i>	McCreedy, C. 2016

<u>Common Name</u>	<u>Scientific Name</u>	<u>Reference</u>
Mallard	<i>Anas platyrhynchos</i>	Egan, T. obs. 1990; House, D. 2013
Mountain bluebird	<i>Sialia currucoides</i>	Benson, T. 2010
Mourning dove	<i>Zenaida macroura</i>	Weinstein, M. 1978; Egan, T. 1994, Egan, T. 2016; McCreeedy, C. 2016
Nashville warbler	<i>Vermivora ruficapilla</i>	McCreeedy, C. 2016
Northern flicker	<i>Colaptes auratus</i>	Egan, T. obs. 1996; Cooper, D 2015
Northern mockingbird	<i>Mimus polyglottos</i>	Egan, T. obs. 1996, 2016
Northern rough-winged swallow	<i>Stelgidopteryx serripennis</i>	Egan, T. obs. 1994; McCreeedy, C. 2016
Northern shrike	<i>Lanius excubitor</i>	Cardiff, S. 1978
Olive-sided flycatcher*	<i>Contopus cooperi</i>	Egan 1996; McCreeedy, C. 2016
Orange-crowned warbler	<i>Vermivora celata</i>	McCreeedy, C. 2016
Pacific-slope flycatcher	<i>Empidonax difficilis</i>	McCreeedy, C. 2016
Phainopepla	<i>Phainopepla nitens</i>	Egan, T. obs. 1996; McCreeedy, C. 2016
Pied-billed grebe	<i>Podilymbus podiceps</i>	Remsen, V. 1975; Egan, T. 1994
Pine siskin	<i>Carduelis pinus</i>	McCreeedy, C. 2016
Pinyon jay	<i>Gymnorhinus cyanocephalus</i>	Sterling, J. 2002
Prairie falcon*	<i>Falco mexicanus</i>	Egan, T. obs. 1994; McCreeedy, C. 2016
Purple finch	<i>Carpodacus purpureus</i>	Karalun, D. 2016
Red-tailed hawk	<i>Buteo jamaicensis</i>	Egan, T. obs. 1993, 2016
Red-winged blackbird	<i>Agelaius phoeniceus</i>	Egan, T. obs. 1996; McCreeedy, C. 2016
Rock pigeon	<i>Columba livia</i>	Duncan, S. 2013
Rock wren	<i>Salpinctes obsoletus</i>	Egan, T. obs. 1993; McCreeedy, C. 2016
Ruby-crowned kinglet	<i>Regulus calendula</i>	McCreeedy, C. 2016

<u>Common Name</u>	<u>Scientific Name</u>	<u>Reference</u>
Rufous hummingbird	<i>Selasphorus rufus</i>	McCreeedy, C. 2016
Sagebrush/Bell's sparrow*	<i>Artemisiospiza belli</i>	Benson, T. 2010
Savannah sparrow	<i>Passerculus sandwichensis</i>	McCreeedy, C. 2016
Say's phoebe	<i>Sayornis saya</i>	Weinstein, M. 1978
Sharp-shinned hawk*	<i>Accipiter striatus</i>	McCreeedy, C. 2016
Short-eared owl*	<i>Asio flammeus</i>	Lee, D. 2007
Snowy egret	<i>Egretta thula</i>	Egan, T. obs. 1993; McCreeedy, C. 2016
Solitary sandpiper	<i>Tringa solitaria</i>	McCreeedy, C. 2016
Solitary vireo	<i>Vireo solitarius</i>	McCreeedy, C. 2016
Song sparrow	<i>Melospiza melodia</i>	Cooper, D. 2015
Spotted sandpiper	<i>Actitis macularius</i>	McCreeedy, C. 2016
Spotted towhee	<i>Pipilo maculatus</i>	Rowley, J. 2015
Summer tanager*	<i>Piranga rubra</i>	Myers, S. 1998 (Camp Cady)
Townsend's warbler	<i>Dendroica townsendi</i>	McCreeedy, C. 2016
Turkey vulture	<i>Cathartes aura</i>	Egan, T. obs. 1993, 2016
Vaux's swift*	<i>Chaetura vauxi</i>	Sterling, J. 2002
Verdin	<i>Auripatus flaviceps</i>	Weinstein 1978; Egan 1994 obs.; McCreeedy, C. 2016
Virginia rail	<i>Rallus limicola</i>	Deppe, B. 2016
Vermillion flycatcher*	<i>Pyrocephalus rubinus</i>	BLM 1989; McCreeedy, C. 2016
Violet-green swallow	<i>Tachycineta thalassina</i>	Egan, T. 1996; Douglas, L. 2008
Warbling vireo	<i>Vireo gilvus</i>	McCreeedy, C. 2016
Western bluebird	<i>Sialia mexicana</i>	Egan, T. obs. 1996; Lee, D. 2007
Western kingbird	<i>Tyrannus verticalis</i>	Egan, T. obs. 1996
Western meadowlark	<i>Sturnella neglecta</i>	Weinstein 1978; Egan 1994, 2016; Karalun, D. 2016
Western sandpiper	<i>Calidris mauri</i>	Egan, T. obs. 1996

<u>Common Name</u>	<u>Scientific Name</u>	<u>Reference</u>
Western tanager	<i>Piranga ludoviciana</i>	Egan, T. obs. 1996; McCreedy, C. 2016
Western wood-pewee	<i>Contopus sordidulus</i>	Egan, T. 1996; McCreedy, C. 2016
White-crowned sparrow	<i>Zonotrichia leucophrys</i>	Weinstein 1978; Egan, T. 1996; McCreedy, C. 2016
White-faced ibis*	<i>Plegadis chibi</i>	Egan, T. obs. 1997, 2016
White-throated swift	<i>Aeronautes saxatalis</i>	Egan, T. obs. 1993
White-winged dove	<i>Zenaida asiatica</i>	McCreedy, C. 2016
Willow flycatcher*	<i>Empidonax traillii</i>	McCreedy, C. 2016
Wilson's warbler	<i>Cardellina pusilla</i>	Egan, T. obs. 1993; McCreedy, C. 2016
Yellow-breasted chat*	<i>Icteria virens</i>	Egan, T. obs. 1996, 2016; Myers, S. 1998
Yellow-headed blackbird	<i>Xanthocephalus xanthocephalus</i>	Egan, T. obs. 1996; McCreedy, C. 2016
Yellow-rumped warbler	<i>Dendroica coronata</i>	McCreedy, C. 2016
Yellow warbler	<i>Dendroica petechia</i>	BLM 1989 (Camp Cady by Kaufman et al. 1986); McCreedy, C. 2016

Table 2. Avian Species¹⁶ Records¹⁷ for Afton Canyon, California by Numbers & Season

<u>Common Name</u>	<u>Number</u>	<u>Season</u>	<u>Reference</u>
American coot (red-shielded)	1	April	Karalun, D. 2016
American kestrel	1	March	Weinstein, M. 1978; Otahal, C. 2016
America pipit	1	April	McCreedy, C. 2016
American robin	3	April	Egan, T. 1996; McCreedy, C. 2016
Ash-throated flycatcher	1	June	McCreedy, C. 2016
Bald eagle*	1	November	Egan, T. obs. 1994 (migratory flight)
Barn owl	1	March	Rockey, W. 2014
Barn swallow	1; 1	April; April	Egan, T. 1996; McCreedy, C. 2016
Belted kingfisher	1; 1	March; April	Egan, T. 1995; McCreedy, C. 2016
Bewick's wren	1	February	Duncan, S. 2013
Black-crowned night heron	1	February	Egan, T. obs. 1996
Black-headed grosbeak	1; 5	May; May	Egan, T. obs. 1996; McCreedy, C. 2016
Black phoebe	1; 1	May; May	Egan, T. obs. 1993; Otahal, C. 2016
Black-and-white warbler	1	May	McCreedy, C. 2016
Black-headed grosbeak	1; 5	April: May	Egan, T. 1996; McCreedy, C. 2016
Black-throated gray warbler	2	October	Cooper, D. 2015
Black-throated sparrow	1	March	Deppe, B. 2016
Black-tailed gnatcatcher	1	April	McCreedy, C. 2016
Blue grosbeak	1	June	McCreedy, C. 2016

¹⁶ Special status species as of August 2016 identified with an asterisk.

¹⁷ Records by observation only indicated by obs.; otherwise record denoted individual citation, including observations cited per Ebird 2016 (refer to References).

<u>Common Name</u>	<u>Number</u>	<u>Season</u>	<u>Reference</u>
Blue-gray gnatcatcher	1; 1; 1	April	Egan, T. obs. 1996; Schneider, K. 2012; McCreedy, C. 2016
Blue-winged teal	1; 1	May; July	Egan, T. obs. 1993, 2016
Brewer's blackbird	1	July	Egan, T. obs. 1993, 2016
Brewer's sparrow	1	April	McCreedy, C. 2016
Brown-headed cowbird	1	June	Egan, T. 1996; McCreedy, C. 2016
Bullock's oriole	1	May	McCreedy, C. 2016
Burrowing owl*	1	December	Egan, T. obs. 1994
Bushtit	4	January	Egan, T. obs. 1994; Benson, T. 2010
Cactus wren	1	November	Egan, T. 1994; Satyan, N. 2015
California/Woodhouse's scrub-jay	1	January	Benson, T. 2011
Calliope hummingbird	1	April	Sterling, J. 2002
Cassin's vireo	1	May	McCreedy, C. 2016
Cedar waxwing	1	May	Weinstein, M. 1978; McCreedy, C. 2016
Chipping sparrow	1	April	McCreedy, C. 2016
Cinnamon teal	6	March	Otahal, C. 2016
Common flicker	1	March	Weinstein, M. 1978; Egan 1995
Common raven	2	July	Egan, T. obs. 1990
Common yellowthroat	1; 1	June; June	Egan, T. obs. 1996; McCreedy, C. 2016
Cooper's hawk	1	April	McCreedy, C. 2016
Costa's hummingbird	2	April	McCreedy, C. 2016
Dark-eyed junco	1	October	Cooper, D. 2015
Dusky flycatcher	9	April	McCreedy, C. 2016
Eurasian collared-dove	3	May	McCreedy, C. 2016
Gadwall	2	April	McCreedy, C. 2016
Gambel's quail	3	December	Remsen, V. 1975

<u>Common Name</u>	<u>Number</u>	<u>Season</u>	<u>Reference</u>
Golden eagle*	1	October	Egan, T. obs. 1994; Cooper, D. 2015
Gray flycatcher	7	April	McCreedy, C. 2016
Great blue heron	1	June	Egan, T. obs. 1993; McCreedy, C. 2016
Great horned owl	1	March	Rockey, W. 2014
Greater roadrunner	1	June	McCreedy, C. 2016
Green heron	1	April	McCreedy, C. 2016
Hairy woodpecker	1	May	McCreedy, C. 2016
Hammond's flycatcher	1	May	McCreedy, C. 2016
Harris hawk	1	March	Curry, M. 2011
Hepatic tanager*			Garrett and Molina 1998
Hermit warbler	1	April	Sterling, J. 2002
Hooded oriole			Douglas, L. 2008
Horned lark	1	April	Egan, T. 1994; McCreedy, C. 2016
House finch	9	June	Weinstein, M. 1978; McCreedy, C. 2016
House wren	1	May	McCreedy, C. 2016
Indigo bunting	1	May	McCreedy, C. 2016
Killdeer	1; 5	May; May	Egan, T. obs. 1993; McCreedy, C. 2016
Lark sparrow	1	April	McCreedy, C. 2016
Lawrence's goldfinch	1	October	Cooper, D. 2015
Lazuli bunting	12	May	McCreedy, C. 2016
Le Conte's thrasher	2	May	Hope, E. 2016
Least sandpiper	2	April	McCreedy, C. 2016
Lesser goldfinch	1	May	McCreedy, C. 2016
Lesser nighthawk	2; 1	May; May	Egan, T. obs. 1996; McCreedy, C. 2016
Lincoln's sparrow	3	April	McCreedy, C. 2016
Loggerhead shrike*	1	June	McCreedy, C. 2016

<u>Common Name</u>	<u>Number</u>	<u>Season</u>	<u>Reference</u>
Marsh wren	1	April	McCreedy, C. 2016
McGillivray's warbler	4	May	McCreedy, C. 2016
Mallard	2; 1	March; May	Egan, T. obs. 1990; House, D. 2013
Mountain bluebird	9	January	Benson, T. 2010
Mourning dove	5	June	Weinstein, M. 1978; Egan, T. 1994; McCreedy, C. 2016
Nashville warbler	7	April	McCreedy, C. 2016
Northern flicker	1; 1	March; October	Egan, T. obs. 1996; Cooper, D. 2015
Northern mockingbird	1	July	Egan, T. obs. 1996, 2016
Northern rough-winged swallow	2; 1	April; June	Egan, T. obs. 1994; McCreedy, C. 2016
Northern shrike	1	January	Cardiff, S. 1978
Olive-sided flycatcher	1	June	Egan 1996; McCreedy, C. 2016
Orange-crowned warbler			McCreedy, C. 2016
Pacific-slope flycatcher	1	June	McCreedy, C. 2016
Phainopepla	2; 1	May; June	Egan, T. obs. 1996; McCreedy, C. 2016
Pied-billed grebe	1	December	Remsen, V. 1975; Egan, T. 1994
Pine siskin	1	May	McCreedy, C. 2016
Pinyon jay	25	April	Sterling, J. 2002
Prairie falcon	1; 1	March; April	Egan, T. obs. 1994; McCreedy, C. 2016
Purple finch	1	April	Karalun, D. 2016
Red-tailed hawk	1	July	Egan, T. obs. 1993, 2016
Red-winged blackbird	2; 8	May; June	Egan, T. obs. 1996; McCreedy, C. 2016
Rock pigeon	1	February	Duncan, S. 2013
Rock wren	2	March	Egan, T. obs. 1993; McCreedy, C. 2016

<u>Common Name</u>	<u>Number</u>	<u>Season</u>	<u>Reference</u>
Ruby-crowned kinglet	2	April	McCreedy, C. 2016
Rufous hummingbird	1	April	McCreedy, C. 2016
Sagebrush/Bell's sparrow	1	January	Benson, T. 2010
Savannah sparrow	4	April	McCreedy, C. 2016
Say's phoebe	1	July	Weinstein, M. 1978
Sharp-shinned hawk	1	April	McCreedy, C. 2016
Short-eared owl*	1	November	Lee, D. 2007
Snowy egret	1; 1	March; April	Egan, T. obs. 1993; McCreedy, C. 2016
Solitary sandpiper	1	April	McCreedy, C. 2016
Solitary vireo	2	April	McCreedy, C. 2016
Song sparrow	1	October	Cooper, D. 2015
Spotted sandpiper	1	May	McCreedy, C. 2016
Spotted towhee	1	February	Rowley, J. 2015
Summer tanager*			Myers, S. 1998 (Camp Cady)
Townsend's warbler	1	May	McCreedy, C. 2016
Turkey vulture	1; 1	March; July	Egan, T. obs. 1993, 2016
Vaux's swift*	20	April	Sterling, J. 2002
Verdin	13	June	Weinstein 1978; Egan 1994 obs.; McCreedy, C. 2016
Virginia rail	1	March	Deppe, B. 2016
Vermillion flycatcher*	1	April	BLM 1989; McCreedy, C. 2016
Violet-green swallow	1; 1	May; May	Egan, T. 1996; Douglas, L. 2008
Warbling vireo	2	May	McCreedy, C. 2016
Western bluebird	1	November	Egan, T. obs. 1996; Lee, D.2007
Western kingbird	1; 1	May; May	Egan, T. obs. 1996; McCreedy, C. 2016
Western meadowlark	1	July	Weinstein 1978; Egan 1994, 2016; Karalun, D. 2016

<u>Common Name</u>	<u>Number</u>	<u>Season</u>	<u>Reference</u>
Western sandpiper	1	February	Egan, T. obs. 1996
Western tanager	2; 1	April; May	Egan, T. obs. 1996; McCreedy, C. 2016
Western wood-pewee	1	May	McCreedy, C. 2016
White-crowned sparrow	3; 1	April; April	Weinstein 1978; Egan, T. 1996; McCreedy, C. 2016
White-faced ibis	2	July	Egan, T. obs. 1997, 2016
White-throated swift	10, 1	February, July	Egan, T. obs. 1993, 2016
White-winged dove	1	May	McCreedy, C. 2016
Willow flycatcher	1	May	McCreedy, C. 2016
Wilson's warbler	1; 2	May: May	Egan, T. obs. 1993; McCreedy, C. 2016
Yellow-breasted chat*	1	June	Egan, T. obs. 1996; Myers, S. 1998
Yellow-headed blackbird*	5	March	Egan, T. obs. 1996; McCreedy, C. 2016
Yellow-rumped warbler	1	May	McCreedy, C. 2016
Yellow warbler	1	May	BLM 1989 (Camp Cady, Kaufman et al. 1986); McCreedy, C. 2016

References

- Berry, K.H. 1980. A review of the effects of off-road vehicles on birds and other vertebrates. California Desert plan program. On file, U.S. Department of the Interior, Bureau of Land Management (BLM). California Desert District. Moreno Valley, California.
http://www.fs.fed.us/rm/pubs_int/int_gtr086/int_gtr086_451_467.pdf.
- Bureau of Land Management (BLM).1989. Management plan for Afton Canyon Natural Area and surrounding area. Barstow Field Office, Barstow CA.
<https://ia600500.us.archive.org/8/items/managementplanfo8564john/managementplanfo8564john.pdf>.
- _____. 1993. Rev. 1995, 1998. Riparian area management. Process for assessing proper functioning condition. Technical reference 1737-9. Bureau of Land Management Service Center, Denver, CO. <http://www.blm.gov/nstc/library/pdf/Final%20TR%201737-9.pdf>.
- _____. 2016a. Razor Open Area. Barstow Field Office. Needles, CA.
<http://www.blm.gov/ca/st/en/fo/barstow/razor.html>.
- _____. 2016b. Mojave Trails National Monument recreation opportunities. National Conservation Lands, California. Needles Field Office. Needles, CA.
http://www.blm.gov/ca/st/en/prog/nlcs/Mojave_Trails/recreation.html.
- _____. 2016c. BLM California Watchable Wildlife Sites. California State Office. Sacramento, CA.
<http://www.blm.gov/ca/st/en/prog/wildlife/watchable/areas/afton.html>.
- Clark, J.L. 1996. California Wildlife viewing guide. Falcon Press. Billings and Helena, MT. Published in cooperation with Defenders of Wildlife.
- Courtois, L.A. 1984. Temporal riparian desert systems – the Mojave River as an example. Paper presented at the California Riparian Systems Conference, Davis California. Univ. California Press, Davis, CA.
<http://publishing.cdlib.org/ucpressebooks/view?docId=ft1c6003wp&chunk.id=d0e84290&brand=eschol>.
- eBird. 2016. Hotspot: Afton Canyon, San Bernardino CA. Audubon and Cornell Lab of Ornithology. <http://ebird.org/ebird/hotspot/L444756>.
- Egan, T.B. 1999. Afton Canyon riparian restoration forth year status report. In: 1999 Proceedings of the Weed Science Society. Volume 51. http://www.cwss.org/uploaded/media_pdf/9280-130_1999.pdf.
- Garrett, K.L., and K.C. Molina. 1998. Hepatic tanager *Piranga flava*. Species account in the Bureau of Land Management (BLM) (2005) “Final Environmental Impact Report and Statement for the West Mojave Plan, a Habitat Conservation Plan and California Desert Conservation Area Plan Amendment”. BLM, California Desert District. District. Moreno Valley, California.
http://www.blm.gov/style/medialib//blm/ca/pdf/pdfs/cdd_pdfs.Par.c80a33aa.File.pdf/H_epta1.pdf.

- Kaufman, N.M., R.J. Bransfield, and N. Gilbert. 1986. Fish and wildlife coordination act report. Mojave River Forks Dam Water Conservation Project. San Bernardino County, California. Unpubl. Report prepared for the U.S. Army Corps of Engineers. Los Angeles, CA.
- Lines, G.C, and T.W. Bilhorn. 1996. Riparian vegetation and its water use during 1995 along the Mojave River, southern California. U.S. Geological Survey. Water-Resources Investigation Report 96-4241. Sacramento, CA. <http://pubs.usgs.gov/wri/1996/4241/report.pdf>.
- Lovich, J, and K. Meyer. 2002. The western pond (*Clemmys marmorata*) in the Mojave River, California USA: highly adapted survivor or tenuous relict. J. Zool. Lond. 256(2002) 537-545. http://sbsc.wr.usgs.gov/products/pdfs/mojave_river_pond_turtle.pdf.
- Lovich, J.E., Egan, T.B., & de Gouvenain, R.C. 1994. Tamarisk control on public lands in the desert of southern California: two case studies. 46th Annual California Weed Conference, California Weed Science Society: 166±177. Sacramento, CA.
- Myers, S. 1998a. Summer tanager *Piranga rubra*. Species account in the Bureau of Land Management (BLM) (2005) “Final Environmental Impact Report and Statement for the West Mojave Plan, a Habitat Conservation Plan and California Desert Conservation Area Plan Amendment”. BLM California Desert District. Moreno Valley, California. http://www.blm.gov/style/medialib//blm/ca/pdf/pdfs/cdd_pdfs.Par.f9b3df45.File.pdf/Suta1.pdf.
- _____. 1998b. Yellow-breasted chat *Icteria virens*. Species account in the Bureau of Land Management (BLM) (2005) “Final Environmental Impact Report and Statement for the West Mojave Plan, a Habitat Conservation Plan and California Desert Conservation Area Plan Amendment”. BLM, California Desert District. Moreno Valley, California. http://www.blm.gov/style/medialib//blm/ca/pdf/pdfs/cdd_pdfs.Par.644bff8d.File.pdf/Ybch1.pdf.
- Sistrunk, J. Union Pacific locomotive 8444 crosses the Mojave River on the way to Los Angeles to celebrate Union Station’s 50th birthday. Rail Pictures Net. <http://www.railpictures.net/showphotos.php?city=Afton&country=California,%20USA>.
- The White House. 2016. Presidential proclamation-establishment of the Mojave Trails National Monument. Washington D.C. <https://www.whitehouse.gov/the-press-office/2016/02/12/presidential-proclamation-establishment-mojave-trails-national-monument>.
- United States Geological Survey (USGS). 2016. USGS stream gauge 10263000 Mojave River at Afton California. Managed by Redlands Field Office. Redlands, CA. https://waterdata.usgs.gov/ca/nwis/uv?site_no=10263000.
- Webb, R.H., K.H. Berry, and D.E. Boyer. 2001. Changes in riparian vegetation in the southwestern United States: historical changes along the Mojave River, California. U.S. Geological Survey Open-file Report OF 01-245. <http://pubs.usgs.gov/of/2001/ofr01-245/index.html#pdf>.

Weinstein, M. 1978. Impact of Off-Road Vehicles on the Avifauna of Afton Canyon, California. Final Report #CA-060-CT7-2734. Bureau of Land Management (BLM), California Desert District. Moreno Valley, CA.

<https://ia801703.us.archive.org/11/items/impactoffroadvwein/impactoffroadvwein.pdf>.