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FISH AND WILDLIFE SERVICE

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Migratory Birds

on Pahranaagat National Wildlife Refuge, Nevada

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Pahranaagat National Wildlife Refuge (NWR)

Pahranaagat NWR was established on August 16, 1963, to provide habitat for migratory birds, especially waterfowl (Department of the Interior 1963), pursuant to the Migratory Bird Conservation Act (16 USC 715-715r). The Refuge is located on the Pacific Flyway and thousands of migratory birds, including waterfowl, shorebirds, songbirds, and raptors, stop here during spring and fall migrations (Migratory Bird Conservation Commission 1963). The Refuge encompasses approximately 5,380 acres of marshes, open water, grass meadows, and riparian forests which provide breeding habitat for approximately 90 bird species. In total, at least 260 bird species use the Refuge (M. Maxwell, pers. comm. 2007).

Migratory birds are protected by the Migratory Bird Treaty Act of 1918 (16 USC 703-712), which prohibits the killing, selling or otherwise harming of migratory birds, their nests, or their eggs except under the terms of a valid permit. Most native birds are protected under this act, including waterfowl, songbirds, and raptors, with the exception of upland gamebirds (50 CFR Section 10.13). The U.S. Fish and Wildlife Service has primary responsibility for managing migratory bird populations.

Pahranaagat NWR provides several types of wildlife habitat that are rare in the Mojave Desert, including lakes (640 acres of open water), riparian woodlands (100 acres), emergent wetlands at springs and around lake edges, wet meadows (700 acres), and alkaline wet meadows (350 acres). The Refuge encompasses a 10 mile-segment of the Pahranaagat Valley and adjacent uplands.

Fall duck migration to the Refuge begins in late August with the arrival of several hundred waterfowl including mallards, pintails, and green-winged teal. Peak waterfowl use usually occurs near the end of October with up to 10,000 birds. Numbers on the Refuge decrease in December as waterfowl move further south, leaving usually less than 1,000 for the remaining winter months. Up to nine species of geese and ducks remain on the Refuge to breed during the summer. Hunting occurs in the fall on the refuge south of the Refuge headquarters.

The riparian woodlands support a diversity of songbirds during the breeding season, in the winter, and during migration. Many neotropical migrant birds breed on the Refuge in the summer and winter in South and Central America. These species include bullock's oriole



(*Icterus bullockii*), western wood-pewee (*Contopus sordidulus*), yellow warbler (*Dendroica petechia*), violet-green swallow (*Tachycineta thalassina*), and common yellowthroat (*Geothlypis trichas*) (Floyd et al. 2007). Other neotropical migrant birds pass through the Refuge in migration, including Wilson's warbler (*Wilsonia pusilla*), western tanager (*Piranga ludoviciana*), orange-crowned warbler (*Vermivora celata*), and black-headed grosbeak (*Pheucticus malanocephalus*). Other songbird species reside in the Refuge all year round such as bushtit, marsh wren (*Cistothorus palustris*), northern mocking bird (*Mimus polyglottos*), and black phoebe (*Sayornis nigricans*).

Sensitive Bird Species on Pahrnagat NWR

The Refuge provides habitat for a variety of sensitive bird species. The American peregrine falcon (*Falco peregrinus anatum*), which was removed from the list of species protected under the Endangered Species Act (ESA) in August 25, 1999, may nest on the Refuge (M. Maxwell, pers. comm. 2007). The bald eagle (*Haliaeetus leucocephalus*), which was removed from the list of species protected under the ESA on August 8, 2007, forages and roosts on the Refuge in the winter.

The yellow-billed cuckoo (*Coccyzus americanus*) (Western U.S. Distinct Population Segment (DPS)), a candidate for listing under the ESA, has been detected several times in the Pahrnagat Valley, and most recently on the Refuge on July 7, 2006 in riparian woodland habitat (Johnson et al. 2007). The Service found that the Western DPS of the yellow-billed cuckoo warranted protection under the ESA but was precluded by higher priority listing actions (U.S. Fish and Wildlife Service 2001). Threats to this species include habitat loss, fragmentation and alteration of native riparian breeding habitat, the possible loss of wintering habitat, and pesticide use on breeding and wintering grounds (U.S. Fish and Wildlife Service 2001).

The Nevada Partners In Flight (PIF) Bird Conservation Plan identified bird species that are a conservation priority in each of the major habitat types found in the state (Neel 1999). The Nevada PIF working group is composed of biologists from multiple government agencies, universities, and non-profit organizations. Of the 50 species identified as a conservation priority, 37 may use Pahrnagat NWR at some point in the year. Priority species associated with lowland riparian habitat that breed on the Refuge include the southwestern willow flycatcher (*Empidonax traillii extimus*), ash-throated flycatcher (*Myiarchus cinerascens*), blue grosbeak (*Passerina caerulea*), yellow-breasted chat (*Icteria virens*), phainopepla (*Phainopepla nitens*), and Lucy's warbler (*Vermivora luciae*) (Floyd et al. 2007). Priority species associated with wetlands and lakes that breed on the Refuge include white-faced ibis (*Plegadis chihi*), black tern (*Chlidonias niger*), and Clark's grebe (*Aechmophorus clarkii*) (Floyd et al. 2007). In addition, approximately 2,000 sandhill cranes use the Refuge as a rest area during migration.

Importance of the Pahrnagat Valley to Migratory Birds

The Pahrnagat Valley provides year round surface water in the Mojave Desert, which typically receives around six inches of rain per year in the vicinity of the Refuge (Western Regional Climate Center 2007). North and south of the Pahrnagat Valley, the White River flows subsurface for many miles and little surface water is present. As such the Pahrnagat Valley is very important to birds migrating through the Mojave and Great Basin deserts. In addition, water and wetland habitats in Nevada support many more bird species than the surrounding Mojave Desert scrub vegetation (Floyd et al. 2007). Lowland riparian habitats support the greatest number of Nevada's PIF conservation priority species (Ammon 2004).

At the north end of the Pahrnagat Valley near the town of Hiko is Key Pittman Wildlife Management Area (WMA) managed by the Nevada Department of Wildlife. The WMA includes two small lakes which provide open water, riparian woodlands, and wetlands for many migratory birds. North of Pahrnagat NWR are several large springs on private land, Crystal and Ash springs, which provide the ancient White River channel (including the Pahrnagat Valley and Pahrnagat NWR) with surface flows. Thus open water, wetlands, or riparian habitat is present all along the Pahrnagat Valley over a stretch of 27 miles.

The Pahrnagat Valley has been designated as an Important Bird Area (IBA) by the Audubon Society (McIvor 2005). IBAs are areas identified as being critical to the survival of wild birds. In Nevada, IBAs were chosen based on 5 criteria: 1) sites important to species of concern in Nevada; 2) a site harboring an assemblage of species restricted to a unique or threatened natural community; 3) sites where significant congregations of birds occur; 4) sites supporting long-term avian research efforts; and 5) sites providing important, bird-specific educational opportunities (McIvor 2005).

The Pahrnagat Valley/White River has been designated as a Nevada Bird Habitat Conservation Area by the Nevada Steering Committee of the Intermountain West Joint Venture (Elpers 2002). The Intermountain West Joint Venture Nevada Steering Committee is composed of biologists from governmental agencies, universities, and conservation organizations. The goals of this committee are to identify, protect, restore, and enhance wetlands and other important habitats for waterfowl and other migratory birds. The Pahrnagat Valley/White River was chosen as one of the highest priority areas based on: 1) the importance of the area for priority birds and habitats, 2) the presence of significant threats, and 3) available conservation opportunities (Elpers 2002).

Threats to Migratory Birds

The causes of population declines in birds are numerous, but the loss, modification, degradation and fragmentation of habitat almost always plays a major role. Threats to habitats come primarily from intensified land-use practices in agricultural and forested regions and from other impacts associated with human population growth. In the southwest, riparian woodlands support the highest diversity of songbirds (Rich et al. 2004). One of the greatest threats to riparian woodlands is alteration of hydrologic regimes including, greatly increased water demands by

growing urban and suburban areas, construction of dams and loss or regular flooding, river channelization, invasion of exotic plants, and xerification (Rich et al. 2004).

Threats to the Pahranaagat Valley Complex IBA include over-exploitation of groundwater resources to satisfy the water needs of Las Vegas and invasive plants, such as saltcedar (*Tamarix ramosissima*), Russian olive (*Elaeagnus angustifolia*) and Russian knapweed (*Centaurea repens*) (McIvor 2005). Las Vegas is one of the fastest growing cities in the nation, with an annual growth rate of 5.5 percent and a population exceeding 1.8 million (Deacon et al. 2007). Local groundwater pumping in the Las Vegas Valley has produced up to 2 meters of land subsidence and a 91-meter decline in the water table in parts of the community (Deacon et al. 2007). Groundwater pumping led to the failure of major Las Vegas valley springs in about 1957, causing extinction of the endemic Las Vegas dace (*Rhinichthys deaconi*) (Deacon et al. 2007). These springs no longer produce water and do not have functioning riparian habitats. Since water, riparian habitat and wetlands on Pahranaagat NWR are fed mostly by flows from Crystal and Ash springs, if groundwater in the Colorado Flow System is over allocated, migratory bird habitat on the Refuge could be critically threatened (Deacon et al. 2007).

Restoration Efforts on Pahranaagat NWR

Management of this important desert wetland system has begun to focus on restoration efforts. This is vital given Pahranaagat NWR's importance to migratory birds and other species dependent on wetland and aquatic environments of the Refuge. Hydrology and wetland restoration projects have been initiated at the Refuge, and will allow U.S. Fish and Wildlife Service to fully recognize the importance of this unique wetland system to water dependent species, including birds. This understanding is critical since any alteration to its water sources would affect every aspect of the Refuge's ability to support life.



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