California Black Rail

(*Laterallus jamaicensis coturniculus*)

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Legal Status
Federal: None
State: Threatened

Global and State Conservation Status: G4T1S1: Global rank, G4 = Apparently Secure: Uncommon but not rare; some cause for long-term concern due to declines or other factors; T Rank, T1 = Same as state rank but related only to the status of the subspecies throughout its range; State rank, S1 = Critically Imperiled: Critically imperiled in the state because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the state.

Recovery Plan: None

Species Description and Life History

Description

The California black rail (*Laterallus jamaicensis coturniculus*) is a small (12 to 15 cm), secretive, marsh-associated species (Eddleman *et al*. 1994, Richmond et al. 2008). They are black to gray in color with a small black bill, sides and back speckled with white, and a nape of deep chestnut brown (CDFG 1999). Difficult to observe, rails are usually identified by their call.

Seasonal Patterns

Very little information is available on seasonal patterns, timing of reproduction, dispersal, or other activities. The breeding season begins as early as February with pair formation and extends through approximately early-to-mid June. Egg laying peaks around May 1 (Eddleman *et al*. 1994). The species is generally known as a medium-distance migrant that winters in Mexico and Central America; however, recently discovered inland populations in California are thought to be year-round residents. At these locations, seasonal movements including juvenile dispersal and adult relocation to other wetland breeding sites occur each year sometime during the non-breeding season between approximately August and February (Tecklin 1999, Richmond et al. 2008).

Reproduction

Black rails are monogamous birds. They build cup nests with a woven canopy in dead or new emergent vegetation over shallow water less than 3 cm in depth (Eddleman *et al*. 1994). They initiate egg-laying within a few days after nest construction is complete. Rails in California usually lay one single brood with an average clutch size of 6 eggs (range = 3 to 8) (Eddleman *et al*. 1994). The incubation period ranges from 17 to 20 days and both adults apparently incubate the eggs (Flores and Eddleman 1993); however, there is very limited data. After hatching, the semi-precocial young leave the nest within a day, but at least one parent continues to brood the young for several additional days (Eddleman *et al*. 1994). There is limited information on length of brooding period, timing of fledging, parental care, or reproductive success.

Home Range/Territory Size

There is no information available on home range or territory size of black rails.

Foraging Behavior and Diet

Very little information is available on the foraging behavior of the black rail. The species is assumed to be an opportunistic daytime feeder that forages exclusively within the wetland habitat, presumably on or near the ground at the edges of emergent vegetation. The diet consists of insects, small mollusks, amphipods, and other invertebrates, and seeds from bulrushes (*Scirpus* spp.) and cattails (*Typha* spp.) (Eddleman *et al* 1994).

Habitat Requirements and Ecology

California black rails inhabit saltwater, brackish, and freshwater marshes. A highly secretive and rarely observed bird, there appears to be a preference in coastal areas for tidal salt marshes dominated by dense pickleweed (*Salicornia* spp.) with an open structure below. This provides a dense canopy for protective cover while providing nesting habitat and accessibility below the canopy (Evens and Page 1983). Rails are susceptible to predation by herons, egrets, Northern Harriers, Short-eared Owls, and several mammalian predators. A dense canopy that provides optimal cover is essential for survival.

Away from coastal estuaries and salt marshes, black rails are restricted to breeding in freshwater marshes with stands of tule, cattail, bulrush, and sedge (*Carex* spp.) (Eddleman *et al*. 1994). These sites are very shallow (usually less than 3 cm) but require a perennial water source. A relatively narrow range of conditions is required for occupancy and successful breeding. Water depth is an important parameter for successful nest sites as rising water levels can prevent nesting or flood nests and reduce access to foraging habitat (Eddleman *et al*. 1994). Too little water will lead to abandonment of the site until the water source is reestablished. Although Black Rails are most commonly associated with three-square bulrush along the lower Colorado River, the

primary factors determining their presence are annual fluctuation in water levels and shallow water depth (< 3 cm) (Eddleman *et al.* 1994, Rosenberg *et al*. 1991, Conway *et al*. 2002). There is no information on minimum patch size for the California black rail in the Central Valley and Delta Region, but in the foothills of the central Sierra Nevada rails are in marshes ranging from 0.5 acres to 25 acres in size, with 32% of occupied sites in wetlands less than 0.75 acre (Tecklin 1999). Black rails occupy marshes with Virginia Rails and Soras (J. Sterling pers. obs.), but there is no information on interspecific interactions (Eddleman *et al*. 1994).

In general, factors influencing occupancy include size of wetland, cover density, wetland species composition, water levels, and food availability.

Species Distribution and Population Trends

Distribution

The California black rail is one of two subspecies of black rail that inhabit North America. The range of the California black rail extends throughout portions of California and Arizona. The "Eastern" black rail (*Laterallus jamaicensis jamaicensis*) is found along the eastern seaboard, along the Gulf Coast, and rarely at inland sites in the Midwest (Eddleman *et al.* 1994).

The historic range of the California black rail extended from the San Francisco Bay, throughout the Sacramento-San Joaquin Delta, along the coast to northern Baja California, other Southern California locales such as the Salton Sea, and along the lower Colorado River. Loss of tidal marsh habitat has extirpated populations from much of its coastal range, particularly in Southern California and much of the San Francisco Bay. The species persists in remaining tidal marshes in the northern San Francisco Bay estuary, Tomales Bay, Bolinas Lagoon, Sacramento-San Joaquin Delta, Morro Bay, the Salton Sea, and the Lower Colorado River (Manolis 1978, Evens et al. 1991, Eddleman *et al.* 1994). The species has also been found more recently at several inland freshwater sites in the Sierra Nevada foothills in Butte, Yuba, and Nevada Counties (Tecklin 1999, Aigner et al. 1995, Richmond et al. 2008). Additional detections have been made recently at the Cosumnes River Preserve in South Sacramento County and Bidwell Park in Chico, Butte County (Central Valley Bird Club Site Guides).

Population Trends

Declines in populations of the black rail in California are a result of habitat loss and degradation along with an increase in exotic predators such as black rats and red fox (Evens *et al.* 1991). However, because there were no estimates of historical population levels, the extent of population declines is not fully understood. Surveys for black rails in southern California and Arizona found fewer black rails in 2007 than did surveys of the same areas in 1973-74 and 1989, despite more intense surveys (Conway and Sulzman 2007). Evens *et al.* (1991) examined relative abundance of rails at various locations within the species' range and determined that more than 80% of the remaining population

is confined to the northern reaches of the San Francisco Bay estuary. They also determined that the species was subject to continuing and ongoing population decline due to habitat loss and/or degradation.

Until 1994, the black rail was unknown from the Sacramento Valley except for a single winter record at the CDFG's Gray Lodge Wildlife Area in Butte County. In 1994, a population of the rail was found occupying a freshwater marsh at the University of California's Sierra Field Station in Yuba County (Aigner *et al.* 1995). Further examination revealed that the species could be breeding at four separate freshwater marsh ponds within approximately 6 km of each other. As a result, the CDFG provided funding for a more regional survey effort that resulted in additional occurrences in Butte, Yuba, and Nevada Counties (Tecklin 1999). Since then, the University of California has continued with a study, the California Black Rail Study Project, that continues to locate additional subpopulations in their Sierra Nevada foothill study area and that is examining how each of these isolated subpopulations are functioning as a metapopulation.

As of 2005, this ongoing study included 168 wetland sites in their sample, with 54% of these occupied by black rails (The California Black Rail Project 2005). These populations, and presumably others that remain undetected in the region, are considered to be year-round residents. The California Black Rail Study Project study area currently includes only portions of Yuba and Butte Counties. Given the geographic extent of this metapopulation and the consistently high occupancy rate detected over the last 5 years, it is likely that additional subpopulations occur elsewhere in the Sacramento Valley and Sierra Nevada foothills.

Distribution and Population Trends in the Plan Area

Kimball (1974 in Manolis 1978) reports a black rail in Yolo County. The specific location is unclear, but is presumably in the Yolo Basin or vicinity.

There are no other historic or recent records of black rails in Yolo County. However, it is possible that they breed in freshwater marshes in the Yolo Bypass or that individuals from the breeding population in the Delta Region may occasionally disperse into freshwater marshes and flooded rice fields in the Yolo Bypass.

Threats to the Species and Other Conservation Issues

Throughout its range, the primary threat to California black rail is the loss and fragmentation of habitat from urbanization, flood control projects, agricultural practices, and hydrologic changes that affect water regimes. The most significant historic threat was the draining of tidal marshes, which may be responsible for over 90% the population declines of this species, and which is still occurring in some areas, albeit at a slower rate.

At inland sites, agricultural practices, livestock grazing, and urbanization may threaten individual subpopulations. Use of pesticides, including those used for mosquito control programs may also have unintended consequences for black rails. These isolated

subpopulations are also susceptible to metapopulation dynamics and stochastic variables (Evens *et al.* 1991). Other potential threats include increased predation by domestic cats and by native predators as a result of hydrologic and vegetation changes that increase susceptibility of predation; pollution and its affect on freshwater marshes; and collision with automobiles and utility lines.

Significant data gaps relating to many aspects of the ecology of the black rail exist. Data gaps include minimum patch size for successful breeding colonies, parameters of population sinks, sources of mortality, site fidelity and movement in winter, as well as winter diet and foraging ecology. Many wetland areas in the Sacramento Valley appear to be unoccupied, but apparently represent suitable habitat for black rail (Sterling pers. obs.). In addition, factors determining local population fluctuations need to be fully understood in order to guide effective management actions to increase and stabilize populations at local carrying capacity.

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