Black Rail, photo by ©Matt Victoria

Conservation Profile

Species Concerns
Small Population Surface Water Losses Wetland Modifications Climate Change (Droughts)

Conservation Status Lists	
USFWS[1]	BCC List (BCR 33, US)
AZGFD[2]	Tier 1B
DoD[3]	Yes
BLM[4]	No
PIF Watch List[5b]	Not covered
PIF Regional Concern[5a]	Not covered

Migratory Bird Treaty Act
Covered

PIF Breeding Population Size Estimates[6]	
Arizona	Minimum 62[10] ○
Global	52,000 (full species)
Percent in Arizona	Not given

PIF Population Goal[5b]
Not Covered

Trends in Arizona	
Historical (pre-BBS)	Unknown
BBS[7] (1968 – 2013)	Not given

PIF Urgency/Half-life (years)[5b]
Not covered

Monitoring Coverage in Arizona	
BBS[7]	Not adequate
AZ CBM	Covered (Marsh Bird Surveys)

Associated Breeding Birds
Ridgway's Rail, Virginia Rail, Sora, Marsh Wren, Common Yellowthroat

Breeding Habitat Use Profile

Habitats Used in Arizona
Primary: Wetlands Secondary: None

Key Habitat Parameters	
Plant Composition	Common threesquare, less frequent in deeper water emergent species such as California bulrush and cattails[8,9]; often near shoreline cottonwood, seepwillow, and arrowweed[10]
Plant Density and Size	dense, emergent vegetation with > 60% cover[8]
Microhabitat Features	Water < 1.2 inches deep[8]
Landscape	Marshes > 5 acres more suitable than smaller ones, as are marshes close to other occupied areas compared to isolated ones[8]

Elevation Range in Arizona
150 – 600 feet[9]

Density Estimate
Territory Size: approximately 1 acre Density: 1 bird/acre

Natural History Profile

Seasonal Distribution in Arizona	
Breeding	Late March – July[8,9]
Migration	Likely non-migratory in Arizona
Winter	Most of Arizona population believed to be year-round resident

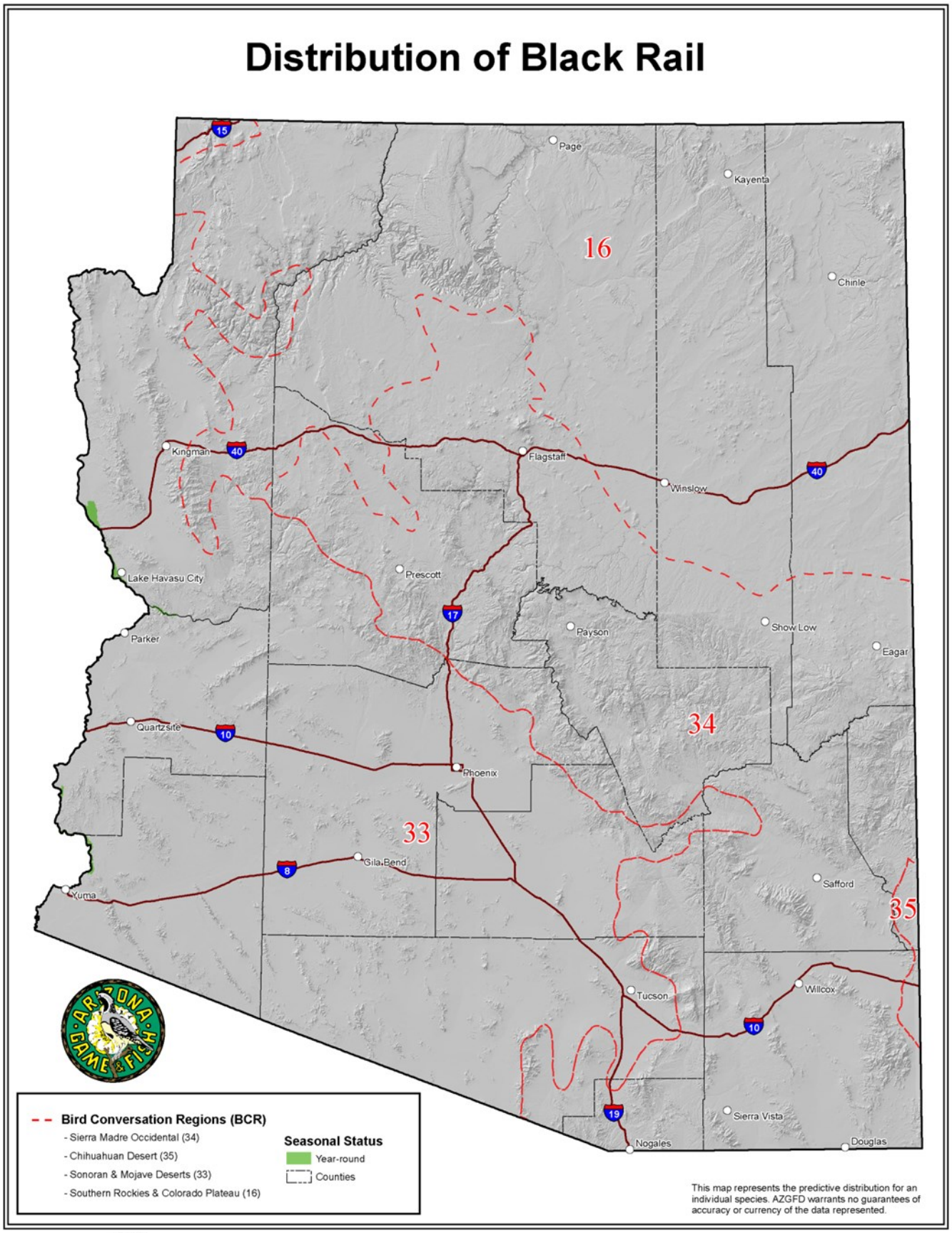
Nest and Nesting Habits	
Type of Nest	Cup with canopy[8]
Nest Substrate	Emergent vegetation
Nest Height	0 – 18 inches[8]

Food Habits	
Diet/Food	Small aquatic invertebrates; seeds[8]
Foraging Substrate	Shallow water, mud, shoreline

SPECIES ACCOUNT ● *BLACK RAIL Laterallus jamaicensis*

Confidence in Available Data: ● High ◑ Moderate ○ Low ^ Not provided

Last Update: April 2023


Distribution of Black Rail
Page
Kayenta
Chinle
16
Kingman
Flagstaff
Winslow
Lake Havasu City
Prescott
Parker
Payson
Show Low
Eagar
Quartzsite
34
Phoenix
33
Gila Bend
Yuma
Safford
35
Tucson
Willcox
Sierra Vista
Nogales
Douglas
Bird Conversation Regions (BCR)
- Sierra Madre Occidental (34)
- Chihuahuan Desert (35)
- Sonoran & Mojave Deserts (33)
- Southern Rockies & Colorado Plateau (16)
Seasonal Status
Year-round
Counties
This map represents the predictive distribution for an individual species. AZGFD warrants no guarantees of accuracy or currency of the data represented.

General Information

Distribution in Arizona

First detected below Imperial Dam in 1969, Black Rail populations in Arizona are the "California" subspecies (*Lateralis jamaicensis coturniculus*); this account addresses the "California" Black Rail. They are found primarily within the lower Colorado River Valley (Monson and Phillips 1981). Highest concentrations are typically around Mittry Lake and, to a lesser extent, the Bill Williams River (Conway et al. 2002). They are also found sparingly along the lower Colorado River from Cibola National Wildlife Refuge (NWR) to Yuma, and north of the Bill Williams River to Havasu National Wildlife Refuge at Topock Gorge (Corman 2005, Kahl 2013). Arizona populations of Black Rails are likely year-round residents (Eddleman et al. 1994).

Habitat Description

In Arizona, Black Rails occupy sections of marshes with very shallow (< 1.2 inches deep), stable water levels and dense, thin-stemmed emergent vegetation, especially common threesquare (Repking and Ohmart 1977, Flores and Eddleman 1995). However, common threesquare is most abundant in shallow water or saturated soil situations on gentle slopes, so the association between this emergent plant and the Black Rail may simply reflect that both have similar microhabitat requirements (Conway et al. 2002). Black Rails use deeper-water wetlands containing southern cattail and California bulrush much less frequently (Flores and Eddleman 1991, Conway et al. 2002). The species is often present at sites that have some shoreline tamarisk, but it is rarely found in areas dominated by it (Conway and Sulzman 2007). In central California, Black Rails increase when summer vegetation cover exceeds 60%, but only if sufficient water is available (Richmond et al. 2012).

Microhabitat Requirements

One study suggested that very shallow and stable water depth, proximity to places where different plant cover types come together, and emergent vegetation height best predict the habitat used by Black Rails in Arizona (Flores and Eddleman 1995). All Black Rail nests found in Arizona were located above water < 1 inch deep, along gently-sloping shorelines with dense, thin-stemmed emergent vegetation (Flores and Eddleman 1993, 1995). Nests are slightly raised, in clumps of cattails, saltgrass, and bulrush (Eddleman et al. 1994). Little is known about foraging microhabitats of Black Rails, although they are assumed to include shallow water areas, muddy patches, and dry shorelines of wetlands, where the birds peck and glean invertebrates and seeds (Eddleman et al. 1994).

Landscape Requirements

At Mittry Lake, Black Rails nested in parts of the wetland that were adjacent to shoreline vegetation, which likely reflects their preference for shallow water (Flores and Eddleman 1995). In central California, Black Rail occupancy dropped sharply in marshes < 5 acres, and it was also negatively associated with isolation of wetlands (Richmond et al. 2012).

Conservation Issues and Management Actions

Small Population

In comprehensive surveys conducted in 2000, surveyors detected 100 Black Rails along the lower Colorado River, 62 of which were on the Arizona side (Conway and Sulzman 2007). The majority of birds were in a 15 mile stretch between Laguna Dam and Martinez and Ferguson lakes, and most remaining Black Rails were along the Bill Williams River. Overall trends are difficult to distinguish because of variability of survey effort and apparent variation in population numbers. Mittry Lake has the largest and most consistently surveyed population. Numbers there have fluctuated, but results of recent Arizona Game and Fish Department marsh bird surveys are similar to findings from 1980 (Todd 1980), and higher than surveys in 1973/1974 (Repking 1977).

The Black Rail's extremely limited distribution in Arizona makes it particularly vulnerable to local threats such as water level fluctuations and wetland dredging. Restoration of wetlands in nearby locations would be beneficial to this species, as Black Rails appear to readily accept restored and artificial wetlands that meet habitat suitability criteria (USBR, pers. comm.) The Black Rail's high reproductive output and juvenile dispersal may enable relatively quick colonization of new sites that are within dispersal distance (Flores and Eddleman 1993).

Threats Assessment

This table is organized by Salafsky et al.'s (2008) standard lexicon for threats classifications. Threat level is based on expert opinion of Arizona avian biologists and reviewers. We considered the full lexicon but include only medium and high threats in this account.

Threat	Threat Level
Residential and Commercial Development • Housing and urban areas	Medium
Transportation and Service Corridors • Roads and railroads • Utility and service lines	Medium
Natural System Modifications • Fire and fire suppression • Dams and water management/use	High
Invasive and Problematic Species • Invasive non-native/alien animals	Medium
Climate Change • Ecosystem encroachment • Changes in precipitation and hydrological regimes	High

In the following section we provide more detail about threats, including recommended management actions. Threats with similar recommended actions are grouped.

Natural System Modifications:

- Fire and fire suppression
- Dams and water management/use

Habitat loss and degradation is the primary threat to Black Rails in the west (Evens et al. 1991). Habitat creation and restoration should focus on maintaining moist soils or shallow water areas (Latta et al. 1999) that do not experience deep flooding or drying during the nesting season. Periodic prescribed wetland fires conducted outside of the breeding season may help maintain Black Rail habitat by removing accumulated dead vegetation layers. This can also reduce chances of wildfires occurring during late winter and early spring, which may destroy appropriate nesting habitat for much of the breeding season.

Management of existing emergent marshes with Black Rails should emphasize maintaining stands of common threesquare in early successional stages. Restoration efforts that create diverse wetland vegetation that includes common threesquare should be implemented in areas near existing Black Rail populations (Conway and Sulzman 2007).

Stable and very shallow water levels during the nesting season are critical to Black Rails. The Colorado River's flow fluctuations preclude Black Rails from nesting in most wetlands supported directly by the river (Flores and Eddleman 1993), and only wetlands with controlled flows or permanent seeps usually support them (Evens et al. 1991). Wetlands and their vegetation are often at risk of being destroyed by water-saving measures, such as channel lining and infilling, which destroys the habitat types preferred by Black Rails (Evens et al. 1991).

Recommended Actions:

1. Minimize fluctuations in water level in wetlands managed for Black Rails, especially during the March – July nesting period (Flores and Eddleman 1995).
2. Maintain current suitable habitat and hydrology at appropriate locations within Imperial National Wildlife Refuge and at Mittry Lake (Latta et al. 1999).
3. Create suitable habitat near areas currently occupied by Black Rails, which should include common threesquare plantings and maintaining stable water levels during the nesting season.
4. Coordinate with the Lower Colorado River Multi-Species Conservation Plan to meet their goal of creating 130 acres of habitat for Black Rail.
5. Work with BLM and USFWS to use controlled burns to improve habitat for Black Rail and protect habitat from catastrophic wildfire.
6. Ensure delineation of Black Rail habitat includes not only vegetation cover but also water depths within wetlands, access to shoreline vegetation, and overhead coverage by emergent vegetation (Flores and Eddleman 1995).
7. Enhance existing and potential Black Rail nesting habitat with water management structures and ensure permission to maintain or manipulate water levels (Flores and Eddleman 1995).
8. Acquire and retain water rights and include Black Rails as a management priority in protected wetlands (Flores and Eddleman 1995).
9. Create wetland management areas in existing croplands adjacent to rivers or near other water sources.
10. Avoid dredging in existing or potential Black Rail habitat (Latta et al. 1999).
11. Avoid disturbing Black Rail habitat when developing or restoring habitat intended for other species.
12. Discourage efforts to line canals where seepage has created Black Rail habitat (Latta et al. 1999).
13. Coordinate with the Lower Colorado River Multi-Species Conservation Plan to identify areas for devel-

opment of habitat for Black Rail.
14. Include retention of shallow water habitats in wetland management planning (Latta et al. 1999).
15. Increase Black Rail population numbers to at least 100 – 200 pairs in Arizona and adjacent lands in California (Latta et al. 1999) through wetland restoration and availability of water for shallow wetlands.

Invasive and Problematic Species:

- Invasive non-native/alien animals

The introduction of American bullfrogs (*Lithobates catesbeianus*) to the lower Colorado River Valley may pose threats to local Black Rail populations. More concerning is the apparent recent establishment of a breeding population of non-native banded water snakes (*Nerodia faciata*) to the Mittry Lake area. This snake could easily access and thrive in Black Rail habitat and has the potential of preying on rail chicks.

Recommended Actions:

1. Determine whether banded water snakes are a threat to Black Rail populations (trap and collect snakes to evaluate stomach contents and determine prey species).
2. Design and implement eradication or control efforts as needed.

Climate Change:

- Ecosystem encroachment
- Changes in precipitation and hydrological regimes

Predictions for a warmer and drier climate for the Southwest may threaten local Black Rail populations that rely on steady flows, such as on the lower Bill Williams River.

Recommended Actions:

1. Plan for alternative water sources under drought conditions to maintain appropriate flows during the Black Rail breeding season. If possible, construct nearby ponds where wetland habitat and water levels can be maintained via ground water pumping (i.e., former agriculture fields).

Research and Monitoring Priorities

1. Implement the North American Marsh Bird Protocol annually (Conway and Sulzman 2007) to obtain estimates of Black Rail population trends.
2. Conduct a thorough survey of Black Rails along the lower Colorado River, including Mexico, and around the Salton Sea to better evaluate distribution, population numbers, and trends.
3. Develop wetland management strategies to provide shallow-water habitat (Eddleman et al. 1994).
4. Investigate details of Black Rail basic biology, especially population parameters and ecology during migration and winter (Eddleman et al. 1994).
5. Clarify the migratory status of Black Rail populations in Arizona (Latta et al. 1999).
6. Determine whether or which wetland contaminants affect Black Rails (Latta et al. 1999).

7. Determine the average concentration of selenium in Black Rail eggs to be able to assign risk.
8. Evaluate the magnitude of American bullfrog and introduced banded water snake predation on Black Rails.
9. Coordinate with Mexican biologists to evaluate the status and conservation needs of Black Rails near the Colorado River delta (Latta et al. 1999).

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