American Dipper, photo by ©Larry Lamsa

Conservation Profile

Species Concerns
Small Population Size
Surface Water Diversions
Water Quality
Invasive Species (crayfish)

Conservation Status Lists	
USFWS[1]	No
AZGFD[2]	Tier 1B
DoD[3]	No
BLM[4]	No
PIF Watch List[5b]	No
PIF Regional Concern[5a]	No

Migratory Bird Treaty Act
Covered

PIF Breeding Population Size Estimates[6]	
Arizona	Not given
Global	160,000 ◑
Percent in Arizona	Not given

PIF Population Goal[5b]
Maintain

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

PIF Urgency/Half-life (years)[5b]
> 50

Monitoring Coverage in Arizona	
BBS[7]	Not adequate
AZ CBM	Not covered

Associated Breeding Birds
Common Merganser, Spotted Sandpiper, Black Phoebe, Violet-green Swallow, MacGillivray's Warbler, Green-tailed Towhee, Lincoln's Sparrow

Breeding Habitat Use Profile

Habitats Used in Arizona
Primary: Montane Riparian Woodlands
Secondary: Lowland Riparian (Grand Canyon only)

Key Habitat Parameters	
Plant Density and Size	Little to no aquatic plants or algae; streamside vegetation is only important so far as it affects water quality and temperature[8]
Microhabitat Features	Montane streams < 50 feet wide, < 7 feet deep; cliffs or bridges are essential for nesting; boulders or rocks in channel for perching; stream substrate coarse gravel or rocks for aquatic insect productivity[8]
Landscape	High-elevation, cool, fast-moving, and often boulder-filled streams in narrow canyons, but also wider canyons if they have bridges; area requirements unknown[8]

Elevation Range in Arizona
1,850 – 3,600 feet Grand Canyon region; 5,500 – 9,200 feet remaining AZ[5]

Density Estimate
Territory Size: 0.5 – 1.3 linear stream miles[8]
Density: 2 – 7 birds/linear stream mile; likely lower in AZ[8]

Natural History Profile

Seasonal Distribution in Arizona	
Breeding	March – mid-July[9]
Migration	Some dispersal and elevational migration[8]
Winter	Some descend to lower elevations

Nest and Nesting Habits	
Type of Nest	Globular[8]
Nest Substrate	Overhanging cliff ledges, exposed root tangles, under overhanging banks, or under bridges[8,9]
Nest Height	3 – 10 feet above water; occasionally to 30 feet[8]

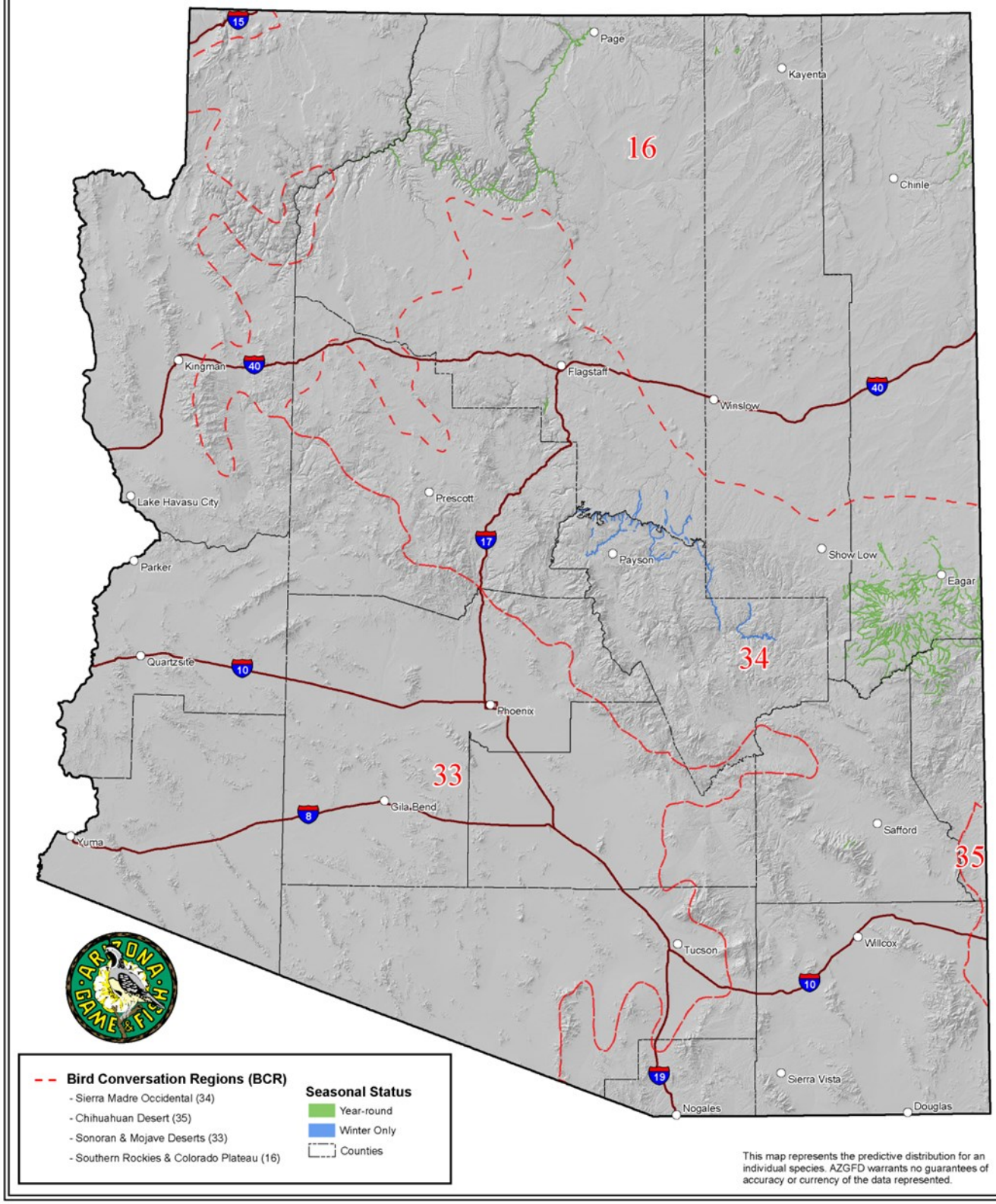
Food Habits	
Diet/Food	Aquatic insects and their larvae[8]
Foraging Substrate	Surface of submerged rocks and boulders; course gravel and cobble

SPECIES ACCOUNT ● *AMERICAN DIPPER Cinclus mexicanus*

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

Last Update: October 2023

Distribution of American Dipper



General Information

Distribution in Arizona

American Dippers occur in stream drainages of northern and eastern Arizona, widely scattered from the Pinaleño to the Chuska Mountains, and across to the Grand Canyon (Corman 2005). The largest known populations are in the White Mountains and in Oak Creek Canyon north of Sedona. Remote areas in the Grand Canyon could also have additional populations (Corman 2005). The species is a year-round resident in much of Arizona, but some individuals migrate to drainages and stream reaches that are not frozen during winter (Willson and Kingery 2011).

Habitat Description

American Dippers are most common in fast-moving, clear, unpolluted streams that have cascades and riffles (Willson and Kingery 2011). Streams with nesting American Dippers rarely exceed 50 feet in width or 7 feet in depth, and the stream bed substrate includes rocks, cobbles, and coarse gravel that support invertebrates (Willson and Kingery 2011). American Dippers generally avoid areas with aquatic or emergent vegetation. Stream-side riparian vegetation is not directly important to this species, although it may indirectly affect the stream's suitability for invertebrates by regulating water quality and temperature.

Microhabitat Requirements

American Dippers nest in cliffs or under bridges with horizontal ledges or large crevices (Willson and Kingery 2011). They also nest among exposed root tangles and under overhanging banks (Corman 2005) and behind waterfalls (Willson and Kingery 2011). Nest sites need to be close or adjacent to a stream that provides foraging areas. American Dippers construct nests above annual flood surge levels in areas that are inaccessible to nest predators. They prefer to perch on emerging rocks or flood debris located within the stream channel (Willson and Kingery 2011).

Landscape Requirements

High-elevation streams are more likely to have the necessary combination of fast-flowing clean water and rocks and cliffs. Bridges provide breeding habitat at relatively low elevations that have low channel gradients with good water quality and abundant stream invertebrates (Osborne 1999).

Conservation Issues and Management Actions

Small Population and Declining Populations

American Dippers are vulnerable to local extirpations in Arizona due to the limited number of small, isolated populations. Historical records indicate breeding distribution declines in Arizona (Corman 2005).

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	Details	Threat Level
Agriculture • Livestock farming and ranching	May increase erosion potential along stream edges, effectively decreasing water quality	Medium
Natural System Modifications • Fire and fire suppression • Dams and water management/use	Wildfire may cause excessive post-fire erosion/runoff and decrease water quality Creation of dams make habitat unusable, flooding out riffles and deepening water levels	High
Invasive and Problematic Species • Invasive non-native/alien animals	Crayfish may be significant competition for aquatic insects	High
Pollution • Household sewage and urban waste water • Agricultural and forestry effluents • Garbage and solid waste	Rural areas often depend on septic systems, which can impact stream quality if poorly managed and located near riparian habitat Garbage, toxic waste, and other materials seeping or actively being dumped into stream systems negatively impact stream quality	High
Climate Change • Ecosystem encroachment • Changes in temperature regimes • Changes in precipitation and hydrological regimes	Changes in overall climate patterns, precipitation, snowpack, etc. may have permanent impacts to habitat viability Droughts and increased temperatures may increase amount, size, and severity of wildfires, affecting watershed and stream health with subsequent erosion and flood events	Medium

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

Agriculture:
- Livestock farming and ranching

Recommended Actions:

1. Delineate currently used nesting and wintering habitat areas of American Dipper.
2. Implement conservation measures that protect the integrity of the stream environment and water quality in dipper-occupied areas, such as creating grazing exclosures and providing alternate water sources for livestock.
3. Examine potential for forest thinning efforts in key American Dipper watersheds to reduce threat of severe wildfires.

Invasive and Problematic Species:
- Invasive non-native/alien animals

Surveys conducted during the Arizona Breeding Bird Atlas (1993 – 2000) found no evidence of American Dippers nesting along most of the creeks and river headwaters draining the southern slope of the Mogollon Rim west of the White Mountain region (Corman 2005). This included drainages where dippers historically nested (Phillips et al. 1964). Some evidence suggests that the relatively recent widespread introduction of non-native crayfish in most of these smaller drainages may significantly reduce the aquatic invertebrate populations to levels that can no longer support breeding American Dipper populations (Corman 2005).

Recommended Actions:

1. Eradicate non-native, invasive crayfish to reduce impacts on aquatic insects and habitat damage.

Natural System Modifications:
- Fire and fire suppression
- Dams and water management/use

American Dippers need year-round access to clear, perennial streams, as they almost exclusively forage on aquatic invertebrates. Flooding, dewatering, or significant silting following wildfires cause nest and foraging site loss.

Recommended Actions:

1. Inventory water diversions in areas currently or historically occupied by American Dipper.
2. Replace diversions, including groundwater pumping, with modern infrastructure that allows them to be placed lower in the drainage, be more efficient, and retain minimum instream flows in critical reaches.
3. Restore instream flow in dewatered reaches or restore sections of drainages that experience scouring and/or runoff silting following wildfires.

Pollution:

- Household sewage and urban waste water
- Agricultural and forestry effluents
- Garbage and solid waste

Water quality has direct effects on habitat suitability for foraging, and thus nest success, of the American Dipper. Water quality can be compromised by industrial and agricultural pollution, bank erosion resulting from agriculture, mining, and clear-cutting, or by deforestation that reduces stream cover and may increase stream temperatures (Feck and Hall 2004). By destroying stream invertebrates, silting and acidification render streams unsuitable for American Dippers. Streams can also accumulate organochlorines, polychlorinated biphenyls (PCBs), and heavy metals from polluted waters.

Recommended Actions:

1. Promote management practices that protect riparian areas from unsustainable grazing and logging practices, as well as silting and pollution.
2. Encourage oversight of rural development to build septic systems that prevent risks of impact to or leakage into stream systems.

Climate Change:

- Ecosystem encroachment
- Changes in temperature regimes
- Changes in precipitation and hydrological regimes

American Dippers are associated with cool, montane, perennial streams that are sensitive to the effects of prolonged droughts or potentially to excessive high temperature events. This species has no alternate habitats for nesting and survival, and loss of instream flows and water quality will lead to population declines.

Recommended Actions:

1. Evaluate the vulnerability of streams and aquatic prey species in American Dipper habitat to the effects of prolonged droughts, high temperature extremes, and compounding effects of land uses.
2. Encourage instream flow protection measures for these streams, particularly during drought years.

Research and Monitoring Priorities

1. This species is particularly suited for a community (citizen) science project for better monitoring coverage and obtaining public support for stream conservation. It is easily identified and can be successfully monitored by birders and others.
2. Assess the suitability of American Dippers as an indicator species for water quality and stream health.
3. Determine effects of non-native crayfish populations on American Dippers due to presumed impacts to food supplies.

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