



Red-faced Warbler, photo by ©Bill Radke

Conservation Profile

Species Concerns

Increasing Fire Frequency and Intensity
 Certain Timber Harvesting Practices
 Climate Change (Habitat Loss)

Conservation Status Lists

USFWS ¹	BCC List (US, BCR 34)
AZGFD ²	Tier 1C
DoD ³	No
BLM ⁴	No
PIF Watch List ^{5b}	No
PIF Regional Concern ^{5a}	Stewardship Species BCR 34

Migratory Bird Treaty Act

Covered

PIF Breeding Population Size Estimates⁶

Arizona	180,000 ●
Global	350,000 ●
Percent in Arizona	51.43%

PIF Population Goal^{5b}

Maintain

Trends in Arizona

Historical (pre-BBS)	Range expanding northward ⁸
BBS ⁷ (1968 – 2013)	Not given

PIF Urgency/Half-life (years)^{5b}

Insufficient Data

Monitoring Coverage in Arizona

BBS ⁷	Not adequate
AZ CBM	Not covered

Associated Breeding Birds

Spotted Owl, Mexican Whip-poor-will, Rivoli's Hummingbird, Cordilleran Flycatcher, Hermit Thrush, Painted Redstart, Yellow-eyed Junco, Black-headed Grosbeak

Breeding Habitat Use Profile

Habitats Used in Arizona

Primary: Montane Riparian Woodlands
 Secondary: Mixed Conifer-Aspen Forest

Key Habitat Parameters

Plant Composition	Douglas fir, white fir, spruce, pine, and deciduous vegetation such as aspen and maple; fir and maple understorey ^{8,9}
Plant Density and Size	Well-developed overstorey and understorey layers; disappears from commercially thinned forests ⁹
Microhabitat Features	Steep slopes and cool, well-shaded forests with moist soils, scattered grass clumps, forbs, and forest floor debris for nesting. ^{8,9}
Landscape	Riparian areas within mixed conifer forests and deep, heavily forested canyons and cool, steep drainages ⁹

Elevation Range in Arizona

6,000 – 9,200 feet, locally to 5,350 feet⁸

Density Estimate

Territory Size: 1 – 3 acres⁹
 Density: No data

Natural History Profile

Seasonal Distribution in Arizona

Breeding	May – July ⁸
Migration	April – May; late July – mid-September ⁸
Winter	Typically absent, but two recent winter records

Nest and Nesting Habits

Type of Nest	Cup ⁹
Nest Substrate	Ground depression or rocky slopes ⁹
Nest Height	Ground

Food Habits

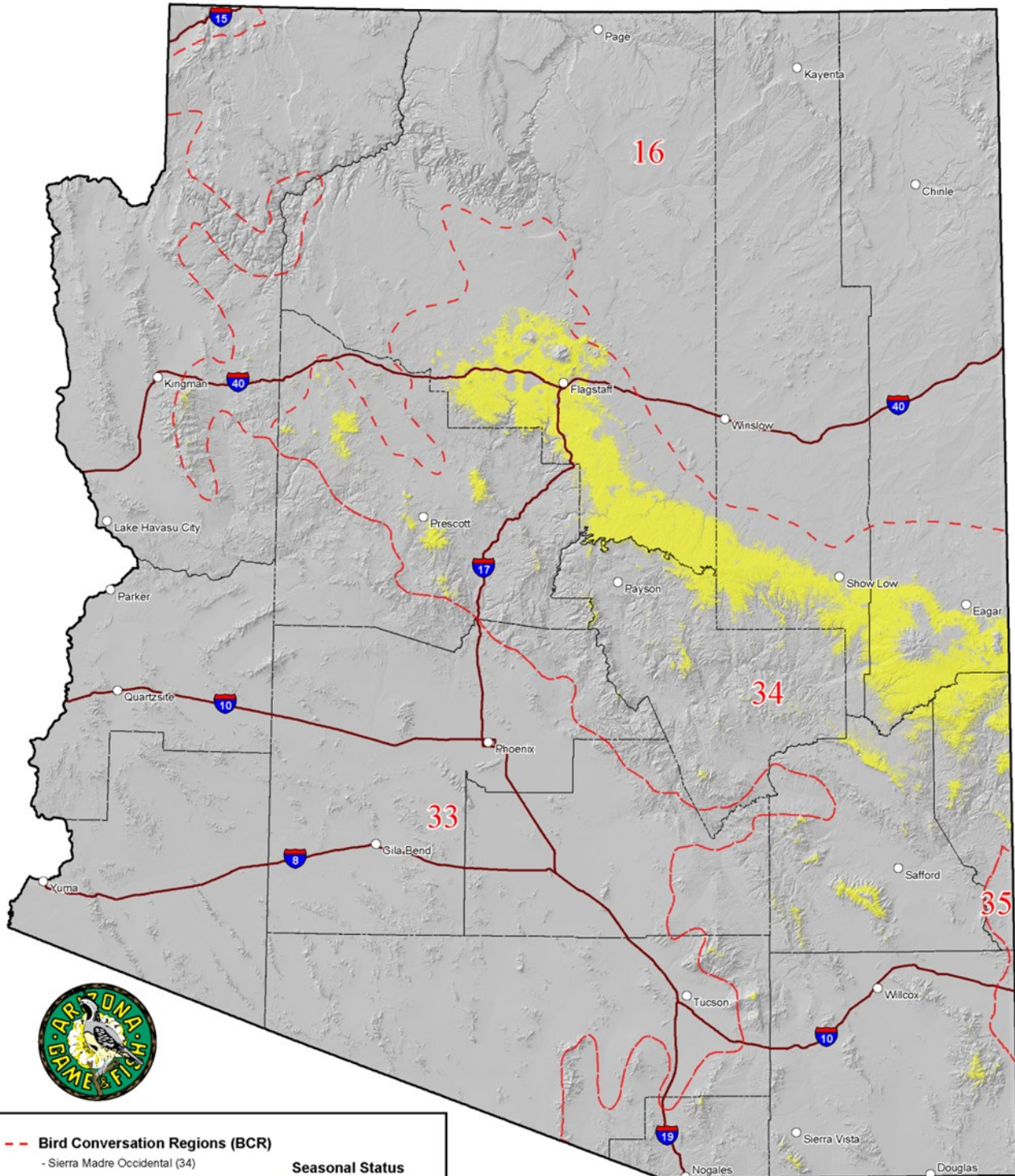
Diet/Food	Insects ⁹
Foraging Substrate	Fir and pine foliage and branches ⁹



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

Last Update: October 2023

Distribution of Red-faced Warbler



- Bird Conservation Regions (BCR)**
 - Sierra Madre Occidental (34)
 - Chihuahuan Desert (35)
 - Sonoran & Mojave Deserts (33)
 - Southern Rockies & Colorado Plateau (16)
- Seasonal Status**
 - Breeding Only
 - Counties

This map represents the predictive distribution for an individual species. AZGFD warrants no guarantees of accuracy or currency of the data represented.

SPECIES ACCOUNT ● RED-FACED WARBLER *Cardellina rubrifrons*



General Information

Distribution in Arizona

Red-faced Warblers breed most abundantly in higher canyon drainages of the sky island mountains in southeastern Arizona. Their nesting range extends north along the Mogollon Rim from the White Mountain region west to the San Francisco Mountains (Corman 2005). They also occur on several isolated higher mountain ranges westward including the Bradshaw, Mingus, and Hualapai mountains. Observations have accumulated northward to the Grand Canyon and Kaibab Plateau region, but most of these may be migrant over-shoots as nesting has not been confirmed in this area (Brown et al. 1987, Corman 2005, Gatlin 2013). They are typically absent in winter in the state, but one older and two recent records exist for southeastern Arizona (Phillips et al. 1964, T. Corman pers. comm.) Red-faced Warblers reach the northernmost edge of their global distribution in Arizona (Martin and Barber 1995).

Habitat Description

Red-faced Warblers in Arizona typically breed in cool, steeply sloping, heavily forested drainages and in adjacent mixed-conifer forests above 6,000 feet in elevation (Corman 2005). They most often use mixed-species stands of Douglas fir, white fir, and ponderosa pine; these frequently have aspen, maple, alder, and other deciduous trees and shrubs in the understory (Martin and Barber 1995, Corman 2005). Gambel oak also adds to the suitability of sites dominated by ponderosa pine (Corman 2005). In the Madrean pine-oak region, Red-faced Warblers occur in the upper pine-oak and mixed conifer zones, where they also prefer moist canyon areas. Migration habitat has not been studied in detail. However, in Arizona Red-faced Warblers are very seldom detected in desert washes and lowland riparian woodlands, suggesting they primarily use higher elevation, forested mountain landscapes during migration.

Microhabitat Requirements

Red-faced Warblers nest on the ground, typically low on a steep slope, bank, or among rock faces (Martin and Barber 1995). Nests are frequently well-concealed by overhanging vegetation, dry leaves, pine needles, or other forest debris at the base of a grass clump, log, rock, tree, or shrub (Bent 1953, Martin and Barber 1995). The nest site is usually in a fairly moist microhabitat environment, such as mesic canyons or near streams. Red-faced Warblers forage mostly in firs and pines, primarily within 60 feet of the ground (Franzreb and Franzreb 1983, Franzreb 1978), but also in deciduous trees, especially maples (Martin and Barber 1995).

Landscape Requirements

Higher elevation forested landscapes with mesic or wet canyons or drainages and the vegetation described above is a high priority for Red-faced Warbler conservation.



Conservation Issues and Management Actions

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
Residential and Commercial Development		Medium
<ul style="list-style-type: none"> Tourism and recreation areas 		
Agriculture		Medium
<ul style="list-style-type: none"> Livestock farming and ranching 	Grazing in montane riparian areas can cause disturbance or destruction of breeding habitat—but this occurs infrequently in southern Arizona.	
Transportation and Service Corridors		Medium
<ul style="list-style-type: none"> Roads and railroads 		
Biological Resource Use		High
<ul style="list-style-type: none"> Logging and wood harvesting 		
Human Intrusions and Disturbance		Medium
<ul style="list-style-type: none"> Recreational activities 		
Natural System Modifications		High
<ul style="list-style-type: none"> Fire and fire suppression 		
Climate Change		High
<ul style="list-style-type: none"> Ecosystem encroachment Changes in precipitation and hydrological regimes 		

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

Residential and Commercial Development:

- Tourism and recreation areas

Agriculture:

- Livestock farming and ranching

Transportation and Service Corridors:

- Roads and railroads

Human Intrusions and Disturbance:

- Recreational activities



Development of roads and recreation sites (e.g., campgrounds, picnic areas, parking lots) in montane riparian areas results in direct loss of breeding habitat loss Red-faced Warblers. This species requires high elevation, moist, deciduous/coniferous mixed forest to breed, a habitat type not particularly prevalent in Arizona. Human disturbance at the nest (e.g., picnicking, hiking, dog walking, and group gatherings) may change or impede nesting behavior that can result in nest abandonment, nestlings leaving the nest prematurely, or alerting predators (including domestic dogs) to the nest location (Martin and Barber 1995). These activities can also result in habitat changes such as severe erosion, social trails, and vegetation trampling, further negatively impacting nesting success.

Recommended Actions:

1. Discourage or restrict developing recreation areas (such as picnic areas and campgrounds) in montane riparian zones.
2. Where these recreation areas already exist, create outreach materials and provide public education about breeding birds, their habitat, and how to minimize disturbance (e.g., posters, pamphlets, docents at recreation sites).
3. Clearly mark trails and closed/restoration areas and use fences and natural barriers to minimize human disturbance in riparian areas.
4. Post signs requiring day hikers to stay on trails in riparian areas.
5. Create and/or enforce leash laws for dogs.
6. Regulate group size and number of concurrent users in riparian recreation sites (e.g., enforcing parking restrictions in established lots as well as on roadsides).
7. Exclude grazing in and adjacent to riparian areas.

Biological Resource Use:

- Logging and wood harvesting

Red-faced Warblers are negatively affected by clear-cutting and other timber harvesting practices in their breeding areas (Martin and Barber 1995). In a study of clear-cuts and selectively-logged forest plots, Red-faced Warblers were present only in untouched areas (Franzreb and Ohmart 1978, Szaro and Balda 1979). Treatments that remove foliage from ground level to 60 feet in height and over > 30% basal area may render previous warbler habitat unsuitable (Szaro and Balda 1979; Franzreb and Franzreb 1983). However, restoration also has the potential to improve Red-faced Warbler habitat if a buffer area of > 150 feet from the outer edge of drainages is created that incorporates: 1) light treatments that may open up the overstory to improve herbaceous and understory growth; 2) retention of snags and large downed logs; and 3) lopping and scattering of some slash to provide additional ground cover (Sitko and Hurteau 2010). Similarly, Scott and Gottfried (1983) suggest timber harvesting in southwestern mixed-conifer forests did not adversely affect bird density or species diversity, provided thinning removed < 30% of the stand basal area; this study was conducted on the Apache-Sitgreaves National Forest and showed no impact to Red-faced Warblers at that level of treatment (Sitko and Hurteau 2010).

Recommended Actions:

1. Maintain a no-timber harvesting buffer of 150 feet (or to the slope break of canyons) in areas occupied by breeding Red-faced Warblers and areas adjacent to montane riparian zones.



Natural System Modifications:

- Fire and fire suppression

Red-faced Warblers depend on higher elevation (> 5,500 feet), cool, wooded drainages or north-facing, forested slopes (often with Douglas fir) for nesting. When such drainages and immediately adjacent forests experience catastrophic wildfires, the environment typically becomes open, drier, and warmer. These drastically changed systems will no longer support breeding Red-faced Warbler populations.

Recommended Actions:

1. Thin forests and reduce understory loads on slopes and ridges above drainages to decrease chances of catastrophic and large-scale wildfires.

Climate Change:

- Ecosystem encroachment
- Changes in precipitation and hydrological regimes

As with other species that have the northernmost boundary of their range in Arizona, Red-faced Warblers may serve as a bellwether of the gradual effects of climate change. They occupy high-elevation, moist forests for which most climate models predict prolonged droughts and gradual losses. These species are expected to shift to more northerly latitudes and higher elevation habitats, if available.

Recommended Actions:

1. Develop and implement a standardized monitoring or inventory program that can show change in abundance and current breeding distribution to use Red-faced Warblers as a “watch list” species for monitoring effects of climate change

Research and Monitoring Priorities

1. Delineate Red-faced Warbler breeding areas for targeted conservation action.
2. Investigate and clarify area and landscape requirements and disturbance distances.
3. Develop a population assessment and monitoring protocol and program that addresses Red-faced Warbler responses to climate change and allows for trend estimation.
4. Clarify habitat use and needs of Red-faced Warblers in migration stopover sites.

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