

Brown-crested Flycatcher, photo by ©Dave Krueper

## Conservation Profile

Species Concerns	
Catastrophic Wildfires	
Unsustainable Livestock Grazing	
Conservation Status Lists	
USFWS <sup>1</sup>	No
AZGFD <sup>2</sup>	Tier 1C
DoD <sup>3</sup>	No
BLM <sup>4</sup>	No
PIF Watch List <sup>5b</sup>	No
PIF Regional Concern <sup>5a</sup>	No
Migratory Bird Treaty Act	
Covered	
PIF Breeding Population Size Estimates <sup>6</sup>	
Arizona	610,000
Global	14,000,000
Percent in Arizona	4.36%
PIF Population Goal <sup>5b</sup>	
Maintain	
Trends in Arizona	
Historical (pre-BBS)	Unknown
BBS <sup>7</sup> (1968 – 2013)	-3.3/year ●
PIF Urgency/Half-life (years) <sup>5b</sup>	
> 50	
Monitoring Coverage in Arizona	
BBS <sup>7</sup>	Adequate
AZ CBM	Covered
Associated Breeding Birds	
White-winged Dove, Western Screech-Owl, Yellow-billed Cuckoo, Black-chinned Hummingbird, Gila Woodpecker, Gilded Flicker, Purple Martin, Yellow Warbler, Yellow-breasted Chat, Summer Tanager, Hooded Oriole	

## Breeding Habitat Use Profile

Habitats Used in Arizona	
Primary: Lowland Riparian Woodlands	
Secondary: Sonoran Desert Upland	
Key Habitat Parameters	
Plant Composition	Saguaro and legume trees, or mature riparian forest with cottonwood, willow, sycamore, ash and mesquite <sup>8,9</sup>
Plant Density and Size	Dense saguaro stands, tall riparian trees in forest large enough for cavities <sup>8</sup>
Microhabitat Features	Gilded Flicker and Gila Woodpecker cavities for nesting; > 10 inches DBH, 10 – 50 feet tall; if saguaros, usually multi-armed <sup>8</sup> ; at least moderate densities of tall canopied trees for foraging
Landscape	Unstudied, although one pair found in large restoration site once mature trees with cavities become available <sup>8</sup>
Elevation Range in Arizona	
100 – 5,400 feet <sup>9</sup>	
Density Estimate	
Territory Size: 3 – 20 acres <sup>6</sup>	
Density: 20 – 80 pairs/100 acres in riparian, 2 – 5 pairs/100 acres in saguaro <sup>6</sup>	

## Natural History Profile

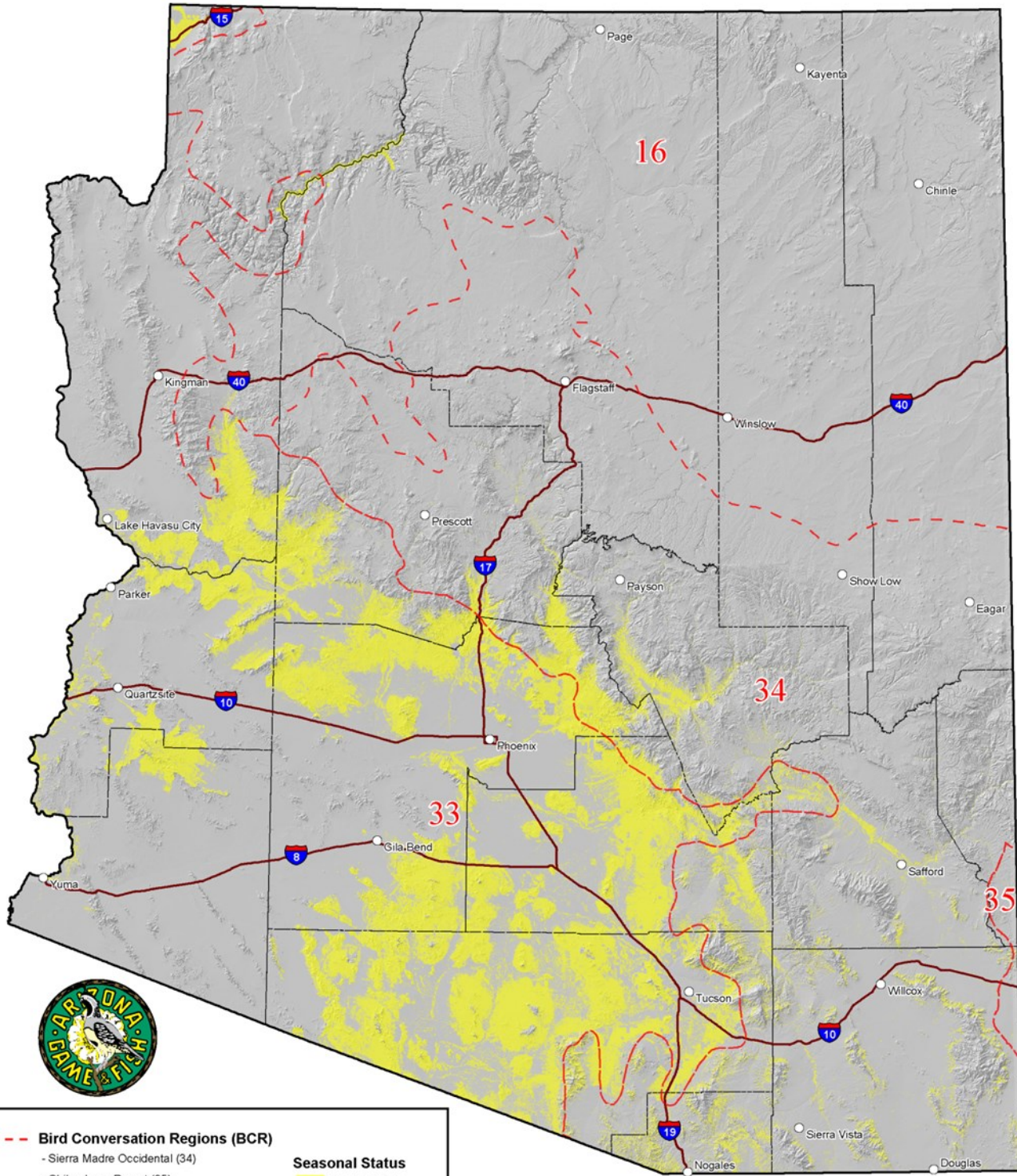
Seasonal Distribution in Arizona	
Breeding	Late April – mid-August <sup>9</sup>
Migration	Mid-April – May; August – September <sup>9</sup>
Winter	Absent
Nest and Nesting Habits	
Type of Nest	Cavity <sup>8</sup>
Nest Substrate	Saguaro or tall riparian tree <sup>8</sup>
Nest Height	8 – 55 feet <sup>8,9</sup>
Food Habits	
Diet/Food	Insects <sup>8</sup>
Foraging Substrate	Forest canopy; aerial forager <sup>8</sup>



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

Last Update: April 2023

# Distribution of Brown-crested Flycatcher



**-- 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 ● BROWN-CRESTED FLYCATCHER *Myiarchus tyrannulus*



## General Information

### Distribution in Arizona

Brown-crested Flycatchers are fairly widespread south of the Mogollon Rim, especially in the central regions of Arizona, where their favored habitat types are most frequent, and locally along the lower Colorado River (Wise-Gervais 2005). Isolated populations have also been found along the Virgin River and western Grand Canyon (Wise-Gervais 2005). They occur primarily from 100 – 5,400 feet in elevation (Wise-Gervais 2005). The species is migratory and winters exclusively in Central and South America (Cardiff and Dittmann 2000).

### Habitat Description

In Arizona, Brown-crested Flycatchers nest in two very different habitat types: Sonoran desertscrub with dense stands of tall, mature saguaros and leguminous trees; and mature riparian woodlands with tall cottonwood, willows, ash, and sycamores (Wise-Gervais 2005). The presence of large trees or saguaros with nesting cavities appears to be most important to the species (Cardiff and Dittmann 2000). Brown-crested Flycatchers require larger trees than the Ash-throated Flycatcher, its close relative. The species often co-occurs with Gilded Flicker and Gila Woodpecker, which are the primary excavators of the cavities used by Brown-crested Flycatchers (Cardiff and Dittmann 2000). In higher elevation riparian habitats with sycamores, they use natural cavities, as well as those excavated by Acorn Woodpeckers.

Saguaros are sparse and very locally distributed at low elevations (< 1,300 feet) of western and southwestern Arizona. In these areas, Brown-crested Flycatchers are mostly restricted to mature riparian woodland dominated by Fremont cottonwood, mesquite, and Goodding's willow. Mature riparian forest may also help avoid temperature stress on eggs or young in hot environments (Cardiff and Dittmann 2000).

### Microhabitat Requirements

For nesting Brown-crested Flycatchers require natural tree cavities or those excavated by Gilded Flicker, Gila Woodpecker, or Acorn Woodpecker (Cardiff and Dittmann 2000). Sizes of nest trees or saguaros have not been measured in detail. However, based on cavity requirements of woodpeckers, nest trees are likely > 10 inches DBH. In saguaros, they prefer cactuses that are > 23 feet tall and multi-armed (Moore 1995). On the lower Colorado River, nests are often located in willow snags 10 – 50 feet tall (Cardiff and Dittmann 2000). In hot environments, canopy cover from riparian overstory may play a role in maintaining thermal requirements of the nest. Brown-crested Flycatchers forage primarily in the upper and mid-story canopy layer of mature woodlands, where they catch flying insects on the wing (Cardiff and Dittmann 2000).

### Landscape Requirements

Area requirements and effects of landscape disturbances have not been sufficiently studied for the Brown-crested Flycatcher. However, one 74-acre restoration site at the Colorado River supported one breeding pair once tall tree snags with cavities became available (Cardiff and Dittmann 2000).



## 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	Threat Level
<b>Agriculture</b> <ul style="list-style-type: none"> <li>Livestock farming and ranching</li> </ul>	Medium
<b>Natural System Modifications</b> <ul style="list-style-type: none"> <li>Fire and fire suppression</li> <li>Dams and water management/use</li> </ul>	High
<b>Invasive and Problematic Species</b> <ul style="list-style-type: none"> <li>Invasive non-native/alien plants</li> </ul>	High
<b>Climate Change</b> <ul style="list-style-type: none"> <li>Ecosystem encroachment</li> <li>Changes in temperature regimes</li> <li>Changes in precipitation and hydrological regimes</li> </ul>	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

#### *Invasive and Problematic Species*

- Invasive non-native/alien plants

#### Natural System Modifications:

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

Loss of riparian gallery forests throughout the west from alterations of flood regimes and loss of surface water in lower elevation reaches of rivers and streams, as well as unsustainable livestock grazing and invasion of exotic trees, has affected Brown-crested Flycatcher populations. Catastrophic wildfires fueled by exotic invasive grasses and forbs in the Sonoran Desert and exotic grasses and tamarisk in riparian woodlands are an increasing concern as they often kill the tall native trees and saguaros this species relies upon. Unsustainable livestock grazing in riparian areas can greatly reduce cottonwood, willow, and other native tree recruitment. Brown-crested Flycatchers respond to restoration efforts, as demonstrated by the return of a breeding pair to a riparian restoration site at the Cibola National Wildlife Refuge after mature tree snags with cavities became available (Cardiff and Dittmann 2000), and a significant increase in Brown-



crested Flycatchers after removal of cattle on the upper San Pedro River (Krueper et al. 2003). Similarly, land uses that lead to the loss of saguaro landscapes are a concern for sustaining breeding habitat for this species (Cardiff and Dittmann 2000).

*Recommended Actions:*

1. Actively restore lowland riparian gallery forests and protect and restore mature saguaro stands. These are among the most effective conservation measures that can be implemented for this species.
2. Consider Brown-crested Flycatcher as an “umbrella species” for good habitat stewardship and habitat restoration in both riparian gallery forest and saguaro landscape conservation projects.
3. Consider the return of Brown-crested Flycatchers to conservation and restoration sites as a tangible project milestone.

**Climate Change:**

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

Climate change impacts breeding habitat and thermal requirements of Brown-crested Flycatcher nests. Prolonged droughts and excessive heat may increase mortality of both saguaros and mature riparian trees. Drought also leads to greater risk of mortality of mature trees and cactuses directly or indirectly through increased weed invasion and frequency of catastrophic fires, and may reduce availability of insects during the nesting season, decreasing nest success even if nest habitat is available.

*Recommended Actions:*

1. Strategically conserve Brown-crested Flycatcher strongholds. These may be delineated in conjunction with Gilded Flicker and Gila Woodpecker, as they likely overlap significantly.
2. Minimize land uses that compound the effects of prolonged droughts on cactus and riparian woodland landscapes.

**Research and Monitoring Priorities**

1. Conduct effectiveness monitoring of riparian and saguaro restoration to demonstrate success, refine restoration actions, and estimate effect sizes of projects on Brown-crested Flycatcher populations.
2. Use multi-species protocols, such as point counts or area searches, to monitor riparian birds to determine population trends.
3. Determine flying insect availability during drought years **and Brown-crested Flycatcher nest success** to better predict likely effects of climate change on flycatcher habitats.



## Literature Cited

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<sup>9</sup>Wise-Gervais, C. 2005. Brown-crested Flycatcher. *In*: Arizona Breeding Bird Atlas. Corman, T.E., and C. Wise-Gervais (eds.) University of New Mexico Press. Albuquerque, NM.

### Recommended Citation

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