



Swainson's Hawk, photo by ©Bill Radke

## Conservation Profile

Species Concerns	
Habitat Loss and Degradation Unsustainable Livestock Grazing Urban and Rural Development	
Conservation Status Lists	
USFWS <sup>1</sup>	BCC (BCR 16,34)
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>	BCR 34
Migratory Bird Treaty Act	
Covered	
PIF Breeding Population Size Estimates <sup>6</sup>	
Arizona	14,000 ●
Global	900,000 ●
Percent in Arizona	1.56%
PIF Population Goal <sup>5b</sup>	
Maintain	
Trends in Arizona	
Historical (pre-BBS)	Historic declines <sup>8</sup>
BBS <sup>7</sup> (1968 – 2013)	+0.9/year ○
PIF Urgency/Half-life (years) <sup>5b</sup>	
> 50	
Monitoring Coverage in Arizona	
BBS <sup>7</sup>	Not adequate
AZ CBM	Covered
Associated Breeding Birds	
Scaled Quail, Western Kingbird, Chihuahuan Raven, Horned Lark, Botteri's Sparrow, Cassin's Sparrow, Vesper Sparrow, Lark Sparrow, Chihuahuan Meadowlark	

## Breeding Habitat Use Profile

Habitats Used in Arizona	
Primary: Semi-desert Grasslands Secondary: Other grasslands	
Key Habitat Parameters	
Plant Composition	Grasslands; scattered small trees or tall shrubs of mesquite, acacia, yucca, juniper, oak, aspen; desertscrub tolerated as a minor component <sup>8,9</sup>
Plant Density and Size	Grass-dominated habitats may have sparse shrubs and widely scattered small trees; agricultural crops no taller than native grasslands for foraging <sup>8</sup>
Microhabitat Features	Isolated trees or small clumps for nesting, with dense vegetation around nest site; open grasslands for foraging
Landscape	Large grasslands and agricultural fields interspersed with native vegetation; nest sites surrounded by wide open foraging areas; area requirements unknown <sup>8</sup>
Elevation Range in Arizona	
1,900 – 9,200 feet <sup>9</sup>	
Density Estimate	
Home Range: 4 – 12 square miles <sup>8,10</sup> Density: 6 – 40 birds /40 square miles <sup>8</sup>	

## Natural History Profile

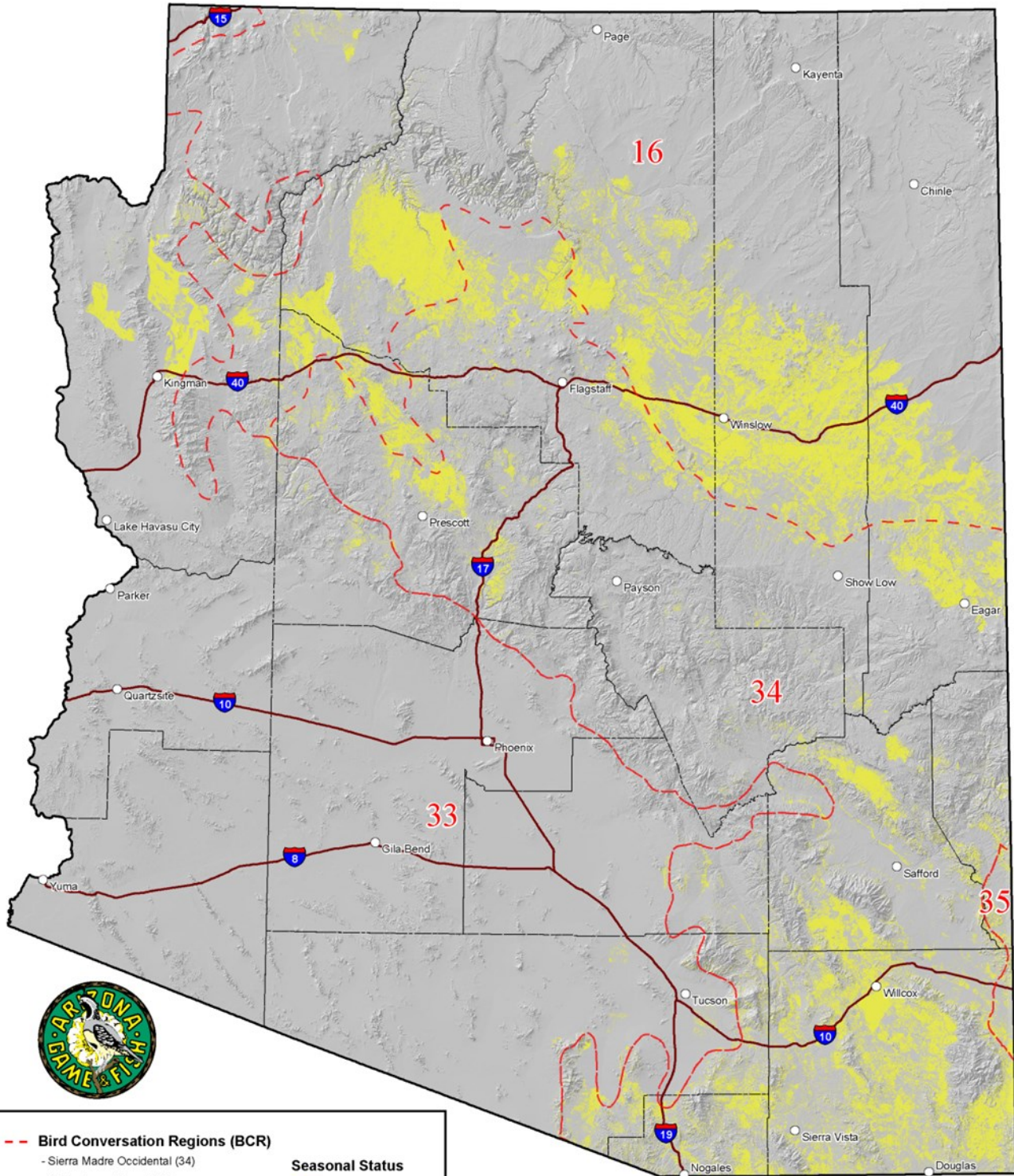
Seasonal Distribution in Arizona	
Breeding	April – August <sup>9</sup>
Migration	Mid-March – May; August – mid-October <sup>9</sup>
Winter	Typically absent November – February
Nest and Nesting Habits	
Type of Nest	Large stick nest <sup>8</sup>
Nest Substrate	Tree, tall shrub, windmill, other man-made structures <sup>8</sup>
Nest Height	6 – 20 feet <sup>8,9</sup>
Food Habits	
Diet/Food	Ground squirrels, pocket gophers, insects, other small vertebrates <sup>8</sup>
Foraging Substrate	Ground; flying insects captured in air



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

Last Update: October 2023

# Distribution of Swainson's Hawk



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

SPECIES ACCOUNT ● SWAINSON'S HAWK *Buteo swainsoni*



## General Information

### Distribution in Arizona

Swainson's Hawks are concentrated in southeastern Arizona, primarily in Cochise County, but they also occur locally west to the Altar Valley and north to the San Carlos Apache grasslands (Wise-Gervais 2005). They nest less commonly on the Colorado Plateau, with scattered populations occurring from the White Mountains west through the Little Colorado Valley, Chino Valley, Coconino Plateau, and the Hualapai Valley (Wise-Gervais 2005). Swainson's Hawks winter almost exclusively in South America (Bechard et al. 2010).

### Habitat Description

Swainson's Hawks use open grassland or agricultural fields with tall shrubs or trees along a riparian corridor for roosting, nesting, and perching (Bechard et al. 2010). Their territories may also include scrublands, but these are not preferred. Swainson's Hawks use grasslands and agricultural areas, including alfalfa and other hay fields, because of the large numbers of prey such as insects, ground squirrels, and pocket gophers found there. But agricultural lands with crops taller than native grasses are not used until after harvest (Bechard et al. 2010). In southeastern Arizona, nest density is higher in agricultural lands than in grasslands or desertscrub and there is apparently no difference in reproductive success among these vegetation types (Nishida et al. 2013).

### Microhabitat Requirements

Swainson's Hawks require isolated trees or small groves of trees within their preferred foraging habitats for nesting and roosting (Bechard et al. 2010). In natural areas, nests are most often constructed in mesquite, soap tree yucca, cottonwood, and willow trees. In agricultural areas, shelterbelt trees often provide nest sites (Bechard et al. 2010). Nest trees tend to be taller and have more vegetation surrounding them than do other trees in the area (Nishida et al. 2013). Foraging microhabitats are diverse within open grasslands and agricultural fields, but Swainson's Hawks depend on the microhabitats used by their prey species. They feed primarily on small mammals during the breeding season, although they eat large quantities of insects during migration and winter (Bechard et al. 2010).

### Landscape Requirements

Swainson's Hawks require large landscapes that primarily consist of open grasslands or cultivated areas, but also provide the critical element of isolated tall trees or tree groves (Dechant et al. 2003). One estimate of required landscape size included a radius of 3 – 5 miles of foraging habitat around the nest, although the objective of the study was not to determine patch size requirements (England 1995). Level terrain in the valley floors, rather than hilly areas, may also be more suitable for this species (Bosakowski et al. 1996), although this could also coincidentally be where large grasslands and agricultural areas are generally located. Area requirements, responses to fragmentation, and disturbance distance have not been sufficiently studied in this species.





## 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><i>Residential and Commercial Development</i></b> <ul style="list-style-type: none"> <li>• Housing and urban areas</li> <li>• Commercial and industrial areas</li> </ul>	High
<b><i>Agriculture</i></b> <ul style="list-style-type: none"> <li>• Livestock farming and ranching</li> </ul>	Medium
<b><i>Energy Production and Mining</i></b> <ul style="list-style-type: none"> <li>• Renewable energy</li> </ul>	Medium
<b><i>Human Intrusions and Disturbance</i></b> <ul style="list-style-type: none"> <li>• Recreational activities</li> <li>• Work and other activities</li> </ul>	Medium
<b><i>Natural System Modifications</i></b> <ul style="list-style-type: none"> <li>• Fire and fire suppression</li> <li>• Other ecosystem modifications</li> </ul>	High
<b><i>Climate Change</i></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>	High

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:**

- Housing and urban areas
- Commercial and industrial areas

#### **Human Intrusions and Disturbance:**

- Recreational activities

Conversion of native grasslands or agricultural hay fields to woody perennial crops (i.e., orchards, vineyards) or urban areas eliminates suitable Swainson's Hawk habitat (Bechard et al. 2010). Loss of nest trees in agricultural areas is also a concern, as these are a critical habitat requirement. Swainson's Hawks are generally tolerant of regular and predictable human activities around nest sites in agricultural and urban



landscapes (England 1995). However, nest success is often lower where human activity is high, and unpredictable disturbances at the nest often result in nest failure (England 1995, Bechard et al. 2010).

*Recommended Actions:*

1. Maintain hay fields and native grasslands; prevent conversion to urban development or crop replacement.
2. Delineate areas currently occupied by nesting Swainson's Hawks for effective conservation planning.
3. Develop landowner outreach that highlights the benefits, needs, and threats to Swainson's Hawks and recognizes good stewardship of owners of land with Swainson's Hawk nests.
4. Conduct outreach to city and county government agencies in charge of urban development to highlight conservation issues of Swainson's Hawk populations.

**Agriculture:**

- Livestock farming and ranching

**Natural System Modifications:**

- Fire and fire suppression
- Other ecosystem modifications

**Climate Change:**

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

Although the Swainson's Hawk makes abundant use of agricultural landscapes, habitat loss and degradation are the main concerns on their breeding grounds. Conversion of grasslands into scrubland, which can be the result of unsustainable livestock grazing or historical fire suppression, and urban development are major causes of loss of Swainson's Hawk breeding habitat (Glinski and Hall 1998, Latta et al. 1999, Bechard et al. 2010). More subtle changes, such as non-native plant invasion and other ground vegetation changes, may also play a role in availability of prey, including ground squirrels and pocket gophers.

*Recommended Actions:*

1. Conduct outreach to landowners that highlights the importance of isolated trees and groves to nesting Swainson's Hawks and shows benefits of this species as a natural predator to agricultural pests.
2. Develop a grassland conservation strategy for public and private lands that supports habitat for Swainson's Hawks and their prey species.
3. Create conservation easements and public lands protection mechanisms in areas that are important to Swainson's Hawk; develop and implement stewardship plans for these areas.
4. Develop measures to prevent disturbance and vegetation removal in the immediate vicinity of Swainson's Hawk nest trees (e.g., small livestock enclosures, temporary trail closures).
5. Reinstate natural fire regimes in native grasslands to maintain low shrub and high herbaceous cover.
6. Implement grazing practices that allow herbaceous vegetation to recover sufficiently and prevent shrub and weed invasion.



## Research and Monitoring Priorities

1. Determine area requirements and landscape characteristics of Swainson's Hawks by studying currently used successful habitat areas.
2. Determine characteristics of both native grasslands and agricultural fields that make them suitable as Swainson's Hawk foraging habitat.
3. Monitor prey populations to determine effects of gradual habitat change on habitat suitability for Swainson's Hawk.
4. Determine if artificial structures can be used by Swainson's Hawks in areas with sufficient foraging opportunities.
5. Develop and implement methods for better population assessment and monitoring coverage.
6. Establish spring and fall migration count sites to monitor numbers and determine peak passage periods at reported concentration areas.

## Literature Cited

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<sup>2</sup>Arizona Game and Fish Department. 2012. Arizona's State Wildlife Action Plan: 2012 – 2022. Arizona Game and Fish Department, Phoenix, AZ.

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<sup>10</sup>Dechant, J.A., M.F. Dinkins, D.H. Johnson, L. D. Igl, C.M. Goldade, and B.R. Euliss. 2003. Effects of management practices on grassland birds: Swainson's Hawk. Northern Prairie Wildlife Research Center, Jamestown, ND. Northern Prairie Wildlife Research Center Online.

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<sup>5a</sup>Partners in Flight. 2019. Avian Conservation Assessment Database, version 2019. Accessed on March 31, 2020.

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<sup>1</sup>U.S. Fish and Wildlife Service. 2008. Birds of Conservation Concern 2008. United States Department of Interior, Fish and Wildlife Service, Division of Migratory Bird Management, Arlington, VA. 85 pp.

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## Recommended Citation

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