



Savannah Sparrow, photo by ©Robert Shantz

Conservation Profile

Species Concerns	
Small Population Size	
Unsustainable Livestock Grazing	
Conifer Encroachment	
Climate Change (Drought)	
Conservation Status Lists	
USFWS ¹	No
AZGFD ²	No
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	1,100 ○
Global	170,000,000 ●
Percent in Arizona	.0006%
PIF Population Goal ^{5b}	
Maintain	
Trends in Arizona	
Historical (pre-BBS)	Unknown
BBS ⁷ (1968 – 2013)	-0.2% per year ● (Colorado Plateau)
PIF Urgency/Half-life (years) ^{5b}	
>50	
Monitoring Coverage in Arizona	
BBS ⁷	Not adequate
AZ CBM	Covered
Associated Breeding Birds	
Swainson's Hawk, Mountain Bluebird, Vesper Sparrow, Horned Lark, Chihuahuan and Western Meadowlarks	

Breeding Habitat Use Profile

Habitats Used in Arizona	
Primary: High-Elevation Grasslands (breeding)	
Secondary: Semi-desert Grasslands (winter)	
Key Habitat Parameters	
Plant Composition	Short grasses, forbs, and sedges; scattered low willows/other shrubs may be present ⁷
Plant Density and Size	Dense ground vegetation favored, esp. short grasses ¹³
Microhabitat Features	Relatively moist microhabitats with some forb component; substrates for perching ¹²
Landscape	Often near lakes, ponds, seeps surrounded by moist soils ¹² ; other landscape requirements unknown
Elevation Range in Arizona	
8,000 – 9,300 feet ⁷	
Density Estimate	
Territory Size: 1 – 3 acres ¹²	
Density: No data for Arizona	

Natural History Profile

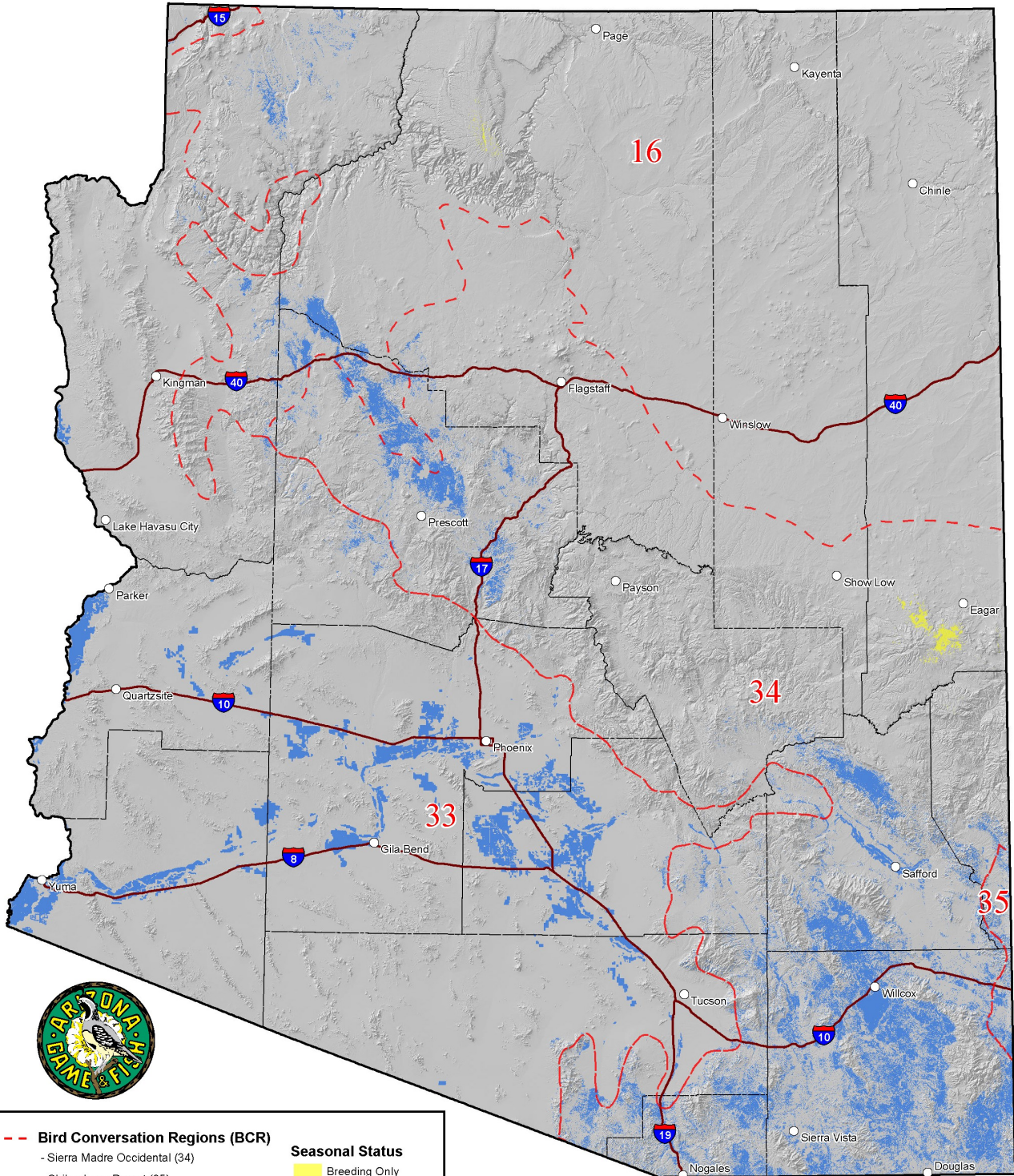
Seasonal Distribution in Arizona	
Breeding	May – July ⁷
Migration	March – April; August – October ⁷
Winter	September – March
Nest and Nesting Habits	
Type of Nest	Cup ¹²
Nest Substrate	Ground, concealed by grass & forbs ¹²
Nest Height	Ground ⁷
Food Habits	
Diet/Food	Invertebrates, seeds and fruits ¹²
Foraging Substrate	Ground ¹²



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

Last Update: October 2023

Distribution of Savannah Sparrow



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

In Arizona, Savannah Sparrows nest almost exclusively in the White Mountains region in the east-central section of the state. This includes north to near Green's Peak and south to the Big Lake and Luna Lake areas (Corman 2005). They were also reported possibly breeding in subalpine meadows of the Kaibab Plateau where they may nest sporadically, but have yet to be confirmed (Corman 2005). Some pairs may also nest periodically following winters with above normal precipitation near Mormon Lake, southeast of Flagstaff. Arizona is at the southern edge of the Savannah Sparrow's breeding range. Birds that breed farther north (and outside of Arizona) winter throughout southern and western Arizona (Wheelwright and Rising 1993).

Habitat Description

In Arizona, Savannah Sparrows are only known to nest in alpine and subalpine meadows and grasslands (Wheelwright and Rising 1993, Corman 2005). The key nesting requirements are grasslands with consistently moist soils and dense herbaceous cover (Wheelwright and Rising 1993). Wintering habitat types are more varied and include open grasslands, weedy landscapes, cultivated lands, and dry upland areas in the western and southern parts of the state. (Wheelwright and Rising 1993). In Arizona, Savannah Sparrows are more abundant during winter than in the breeding season, and additional data are needed on winter distribution, abundance, and habitat requirements.

Microhabitat Requirements

Savannah Sparrow nests are placed on the ground under the dense cover of a grass tuft, low-growing shrub, or clump of forbs (Wheelwright and Rising 1993). The key nest site requirement is dense overhead vegetation cover. Savannah Sparrows forage primarily on the ground for insects, seeds, and berries. Foraging sites are similar to nest sites in the breeding areas, while in winter they include a variety of herbaceous cover and shrub cover (Wheelwright and Rising 1993).

Landscape Requirements

For nesting, Savannah Sparrows avoid most areas with trees. However, grassland patches used for nesting may be small (Wheelwright and Rising 1993). Exact area requirements and disturbance distances have not been determined for Savannah Sparrows.



Conservation Issues and Management Actions

Small Population Size

Although Savannah Sparrows are abundant and widespread in North America, they are one of the most range restricted bird species in Arizona. Here, they only consistently nest in the subalpine zone of the White Mountains and are isolated by hundreds of miles from the nearest populations in Utah and northern New Mexico. This isolation makes the population vulnerable to local extirpation from catastrophic or gradual loss of breeding habitat.

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 <ul style="list-style-type: none"> Livestock farming and ranching 	Grazing can decrease plant cover, impact soils	Medium
Invasive and Problematic Species <ul style="list-style-type: none"> Problematic native species 	Conifer encroachment on grasslands and meadows	Medium
Climate Change <ul style="list-style-type: none"> Ecosystem encroachment Changes in precipitation and hydrological regimes (drought) 	Prolonged droughts can cause irregular breeding	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

Long-term livestock grazing can cause decreases in plant cover, increase in bare ground and erosion, and compaction of soil that makes the wet meadows favored by Savannah Sparrows less productive. Potential breeding habitat on the Kaibab Plateau may be limited by high grazing pressure, especially during droughts (Corman 2005). Livestock grazing also occurs on much of the land inhabited by Savannah Sparrows in the White Mountains and may present issues if managed unsustainably.

Recommended Actions:

- Evaluate current livestock use levels in areas occupied by Savannah Sparrow and in potentially suitable breeding habitat.
- Consult with Forest Service and University of Arizona Cooperative Extension experts to determine livestock use levels that maintain a dense herbaceous cover.



3. Determine livestock use thresholds that allow for subalpine grasslands to recover enough to persist in the long-term and through droughts.

Invasive and Problematic Species:

- Problematic native species

Conifer encroachment occurs in several subalpine grasslands and meadows in the southwest. For instance, in northern New Mexico encroachment was found to be rapid on steep, high-elevation slopes, suggesting that frequent fire previously maintained grassy communities (Coop and Givnish 2007). It is currently unclear how much conifer encroachment affects subalpine grasslands in Arizona.

Recommended Actions:

1. Determine whether conifer encroachment is a concern in subalpine grasslands that are currently occupied by, or potentially suitable for Savannah Sparrows.
2. Determine causes of encroachment and whether its related to fire suppression.
3. Develop plans to mitigate encroachment or restore subalpine grasslands where it is a significant concern.

Climate Change:

- Ecosystem encroachment
- Changes in precipitation and hydrological regimes (droughts)

In Arizona, Savannah Sparrows nest in small isolated populations at the southern edge of their range and in subalpine and moist alpine grasslands. Therefore they are uniquely susceptible to the most commonly predicted effects of warming temperatures, which are loss of snowpack, a contraction of alpine plant communities, and subsequent local extirpations of wildlife associated with these at the southern boundaries of their distributions. Specifically, prolonged droughts have already been suspected as the cause for irregular breeding by Savannah Sparrows on the Kaibab Plateau (Corman 2005).

Recommended Actions:

1. Use Savannah Sparrow as a “poster child” for discussing climate change with the public and the importance of land stewardship decisions that can mitigate for its effects on wildlife.
2. Assess Savannah Sparrow populations periodically to determine current population status including areas near the currently known breeding sites (multi-species protocols such as the Breeding Bird Survey are not suitable for such small, isolated populations).

Research and Monitoring Priorities

1. Delineate currently occupied and potentially suitable breeding habitat of Savannah Sparrow in Arizona, including areas where birds have occasionally nested or are suspected to nest and monitor spatial extent of high elevation grassland (esp. in light of droughts and climate change.)
2. Evaluate current land uses of these areas and determine whether measures are needed to protect herbaceous cover of grasslands.
3. Periodically assess Savannah Sparrow breeding population to determine population status.



Literature Cited

- ⁴Bureau of Land Management. 2017. Arizona Bureau of Land Management Sensitive Species List – March 2017.
- ²Arizona Game and Fish Department. 2012. Arizona's State Wildlife Action Plan: 2012 – 2022. Arizona Game and Fish Department, Phoenix, AZ.
- Coop, J.D. and T.J. Givnish. 2007. Spatial and temporal patterns of recent forest encroachment in montane grasslands of the Valles Caldera, New Mexico, USA. *Journal of Biogeography* 34:914 – 927
- ⁷Corman, T.E. 2005. Savannah Sparrow. *In: Arizona Breeding Bird Atlas*. Corman, T.E., and C. Wise-Gervais (eds.) University of New Mexico Press. Albuquerque, NM.
- ³Department of Defense. 2012. DoD PIF Mission-Sensitive Priority Bird Species. Fact Sheet #11. Department of Defense Partners in Flight Program.
- ^{5a}Partners in Flight. 2019. Avian Conservation Assessment Database, version 2019. Accessed on March 31, 2019.
- ⁶Partners in Flight. 2019. Population Estimates Database, version 2019. Accessed on March 31, 2019.
- ^{5b}Rosenberg, K.V., J.A. Kennedy, R. Dettmers, R.P. Ford, D. Reynolds, J.D. Alexander, C.J. Beardmore, P. J. Blancher, R.E. Bogart, G.S. Butcher, A.F. Camfield, A. Couturier, D.W. Demarest, W.E. Easton, J.J. Giocomo, R.H. Keller, A.E. Mini, A.O. Panjabi, D.N. Pashley, T.D. Rich, J.M. Ruth, H. Stabins, J. Stanton, T. Will. 2016. Partners in Flight Landbird Conservation Plan: 2016 Revision for Canada and Continental United States. Partners in Flight Science Committee.
- Salafsky, N., D. Salzer, A.J. Stattersfield, C. Hilton-Taylor, R. Neugarten, S.H.M. Butchart, B. Collen, N. Cox, L.L. Master, S. O'Connor, and D. Wilkie. 2008. A standard lexicon for biodiversity conservation: unified classifications of threats and actions. *Conservation Biology* 22(4): 897 – 911.
- ⁷Sauer, J. R., J. E. Hines, J. E. Fallon, K. L. Pardieck, D. J. Ziolkowski, Jr., and W. A. Link. 2012. The North American Breeding Bird Survey, Results and Analysis 1966 - 2011. Version 12.13.2011 USGS Patuxent Wildlife Research Center, Laurel, MD. Accessed March 1, 2013.
- ¹U.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.
- ¹²Wheelwright, N.T., and J.D. Rising. 2008. Savannah Sparrow (*Passerculus sandwichensis*), The Birds of North America Online (A. Poole, ed.) Ithaca: Cornell Lab of Ornithology.
- ¹³Wiens, J.A. 1969. An approach to the study of ecological relationships among grassland birds. *Ornithological Monographs* No. 8:1 – 93.

Recommended Citation

Arizona Bird Conservation Initiative and Sonoran Joint Venture. 2023. Savannah Sparrow (*Passerculus sandwichensis*) Species Account. Available at <http://sonoranjv.org/accounts/savannah-sparrow.pdf>

