Breeding Habitat Use Profile

Habitats Used in Arizona
- Primary: Lowland Riparian Woodland
- Secondary: Wetlands

Key Habitat Parameters
- **Plant Composition**: Cottonwood, willow or tamarisk in overstory; young trees, seepwillow, and cattails in understory.
- **Plant Density and Size**: High volume of riparian understory shrubs, grasses, and forbs.
- **Microhabitat Features**: Average foliage cover at nests 68% at 0 – 3.3 feet height, 13% at 6.6 – 10 feet; foraging microhabitats similar.
- **Landscape**: Continuous dense, riparian vegetation most suitable; occurs in small patches of suitable riparian shrub understory, but area requirements not studied.

Elevation Range in Arizona
- 90 – 5,000 feet (locally to 8,320)

Density Estimate
- **Territory Size**: 0.5 – 2 acres
- **Density**: 1 – 8 pairs/acre

Natural History Profile

Seasonal Distribution in Arizona
- **Breeding**: Mid-March – early August
- **Migration**: Late August – November; February – April; resident at low elevations
- **Winter**: November – March

Nest and Nesting Habits
- **Type of Nest**: Cup
- **Nest Substrate**: Ground or ground vegetation
- **Nest Height**: 0 – 13 feet

Food Habits
- **Diet/Food**: Insects; seeds
- **Foraging Substrate**: Ground and streamside vegetation

Conservation Profile

Species Concerns
- Habitat Loss and Degradation
- Unsustainable Livestock Grazing
- Surface Water Diversion

Conservation Status Lists
- USFWS: No
- AZGFD: No
- DoD: No
- BLM: No
- PIF Watch List: No
- PIF Regional Concern: No

Migratory Bird Treaty Act
- Covered

PIF Breeding Population Size Estimates
- Arizona: 130,000
- Global: 130,000,000
- Percent in Arizona: 0.10%

PIF Population Goal
- Maintain

Trends in Arizona
- **Historical (pre-BBS)**: Unknown
- **BBS (1968-2013)**: +2.78/year

PIF Urgency/Half-life (years)
- >50

Monitoring Coverage in Arizona
- BBS: Not adequate
- AZ CBM: Covered

Associated Breeding Birds
- Yellow-billed Cuckoo, Willow Flycatcher, Common Yellowthroat, Yellow Warbler, Yellow-breasted Chat, Abert’s Towhee, Summer Tanager, Blue Grosbeak

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

Publication Date: 2020
SPECIES ACCOUNT: SONG SPARROW, Melospiza melodia

Distribution of Song Sparrow

This map represents the predictive distribution for an individual species. A2010 warrants no guarantees of accuracy or currency of the data represented.
General Information

Distribution in Arizona

Song Sparrows occur in most major river drainages south of the Mogollon Rim, along the Colorado River from Yuma to the Coconino County line, and along the Virgin River (Shrout 2005). They are very sparse above the Mogollon Rim, with small, local populations in the White Mountains and nearby (Shrout 2005). Most Song Sparrows in Arizona nest at elevations ranging from 90 to 5,000 feet and locally to 8,320 feet (Shrout 2005). Song Sparrow distribution and abundance of breeding populations in Arizona have changed during the past hundred years due to human manipulation of water sources. Song Sparrows can be found throughout Arizona around river drainages, perennial waterways, canals, ponds, and marshes of southern and western Arizona with sufficient ground and understory vegetative cover. They winter locally throughout Arizona and include an influx of migrants from breeding populations north of the state (Arcese et al. 2002).

Habitat Description

Song Sparrows occur in a wide range of lowland riparian woodlands with dense herbaceous and shrub undergrowth (Arcese et al. 2002). In Arizona, they nest most commonly in cottonwood-willow and thickets, but they also use emergent vegetation of wetlands (Shrout 2005). Song Sparrow density increases with increasing woody riparian cover, suggesting they prefer multiple vegetation layers (White 2011). In arid environments, Song Sparrows generally nest in dense vegetation near water; they rarely use irrigated landscapes (Arcese et al. 2002). Wintering habitats in Arizona are similar to breeding, but they also include weedy fallow fields and woody thickets, often near irrigated lands or other water sources.

Microhabitat Requirements

Song Sparrows nest on the ground or low in riparian grasses, sedges, or shrubs with very dense overhead cover (Arcese et al. 2002). Riparian restoration areas may initially lack of sufficient ground vegetation to provide the required cover for nest sites and foraging, but once these are established Song Sparrows readily colonize restored areas (Larison et al. 2001, Krueper et al. 2003). They forage primarily on the ground inside dense woody riparian thickets, grasses and sedges, or at shallow water edges (Arcese et al. 2002).

Landscape Requirements

Song Sparrows may nest on islands as small as ¼ acre (Arcese et al. 2002), indicating very low area requirements for breeding. However, their breeding densities are significantly higher in contiguous shrub thickets than they are in scattered, open stands (Sanders and Edge 1998). It is unknown whether or not adjacent vegetation types matter for territory selection, but it is unlikely. Therefore, the primary landscape requirements of this species are the extent of dense riparian thickets and herbaceous cover within the riparian zone. Disturbance distances have not been 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.

<table>
<thead>
<tr>
<th>Threat</th>
<th>Threat Level</th>
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<tbody>
<tr>
<td><strong>Agriculture</strong></td>
<td></td>
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<tr>
<td>• Livestock farming and ranching</td>
<td>High</td>
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<tr>
<td><strong>Natural System Modifications</strong></td>
<td>Medium</td>
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<tr>
<td>• Fire and fire suppressions</td>
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<tr>
<td>• Dams and water management/use</td>
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<tr>
<td><strong>Climate Change</strong></td>
<td>High</td>
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<tr>
<td>• Ecosystem encroachment</td>
<td></td>
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<tr>
<td>• Changes in precipitation and hydrological regimes</td>
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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

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

Although Song Sparrows can be abundant in riparian areas, habitat loss and degradation lead to loss of local breeding populations. This is particularly true in the southwest, where dense riparian thickets are vulnerable to water diversions, groundwater pumping, and unsustainable livestock use. Invasive exotic vegetation such as grasses, forbs, and tamarisk fuel wildfires in riparian corridors, which often kill or set-back native trees and shrubs. Dropping water tables in some grazed areas, combined with stream banks becoming cut and incised, result in appropriate woody riparian vegetation and Song Sparrows declines. In some cases, minimal restoration effort, including removal of grazing and stopping channel incision by restoring the water table, appears to be sufficient to allow habitat to passively restore itself (Burnett and Harley 2003). Unsustainable livestock grazing reduces vegetation cover and increases nest predation (Arcese et al. 2002), but this effect is reversible. In one study along the upper San Pedro River, Song Sparrow abundance increased four-fold three years after riparian vegetation and ground cover was allowed to recover from livestock grazing (Krueper et al. 2003). Groundwater pumping and surface water diversions can lead to loss of riparian woody vegetation and ground cover because these plants usually need near-permanent access to water through their root systems.


**Recommended Actions:**

1. Promote agriculture, grazing, and recreation management, as well as comprehensive land use planning, that is compatible with Song Sparrow habitat requirements.
2. Manage habitat to incorporate structural habitat characteristics that reduce brood parasitism (such as increased herbaceous cover) by reducing grazing or otherwise altering habitat (Humple and Geupel 2004).
3. Use Song Sparrows as an indicator of management action because it both positively responds to riparian restoration and is sensitive to habitat degradation.
4. Restore riparian areas, particularly dense thickets of willows, cottonwoods, sedges and grasses.

**Climate Change:**

- Ecosystem encroachment
- Changes in precipitation and hydrological regimes

Prolonged droughts and excessive heat carry the risk of riparian vegetation loss, as most riparian plants need almost permanent root access to water. Riparian vegetation loss is directly related to declines in Song Sparrow breeding populations. For instance, Song Sparrows declined 16% annually along the lower Colorado River in Mexico during a severe drought in 2002-2007, during which the cover of Fremont cottonwood and Goodding’s willow decreased (Hinojosa-Huerta et al. 2013).

**Recommended Actions:**

1. Evaluate and then implement the best options for mitigating effects of prolonged drought on mature riparian vegetation, including shrub thickets and native ground cover.
2. Enhance existing wetland borders to provide dense riparian shrub stands that are suitable for Song Sparrows; larger patches are more suitable, but ¼ acre may be sufficient.
3. Delineate all riparian areas of Arizona with at least a ¼ acre mapping resolution to have a spatial reference with which riparian losses can be monitored and mitigated.

**Research and Monitoring Priorities**

1. Quantify to what degree Song Sparrow presence and abundance is related to other indicators of riparian functionality and use this as an easily-measurable indicator of riparian health.
2. Delineate all riparian areas of Arizona with at least a ¼ acre mapping resolution to have a spatial reference with which riparian losses can be monitored and mitigated.

**Literature Cited**


Arizona Game and Fish Department. 2012. Arizona’s State Wildlife Action Plan: 2012-2022. Arizona Game and Fish Department, Phoenix, AZ.


Recommended Citation