## **Southwestern willow flycatcher (*Empidonax traillii extimus*)**

Status

Endangered (60 FR 10695; February 27, 1995) with Designated Critical Habitat (78 FR 343; January 03, 2013).

Species Summary Table

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|  | Feeding | Breeding | Sheltering |
| Juvenile | Adult | Adult | Juvenile | Adult |
| Habitat | Tightly woven, open-cup nest | Within and above canopy, patch edges, openings, above water | Dense riparian vegetation near permanent or semi-permanent sources of water or saturated soil | Tightly woven, open-cup nest | Dense riparian vegetation near permanent or semi-permanent sources of water or saturated soil |
| Prey | Small-medium sized insects | Small-medium sized insects | Small-medium sized insects | N/A | N/A |
| Perches | 2-7 meters above the ground in dense riparian vegetation | 2-7 meters above the ground in dense riparian vegetation | Males establish breeding territories from favored tall perches 2-7 meters above the ground | 2-7 meters above the ground in dense riparian vegetation | 2-7 meters above the ground in dense riparian vegetation |
| Cover | In nest in ~50-100% tree or shrub canopy | Openings in territories, along patch edges, and above water near dense cover | ~50-100% tree or shrub canopy | In nest in ~50-100% tree or shrub canopy | ~50-100% tree or shrub canopy |
| Temperature | N/A | N/A | N/A | N/A | N/A |
| Lighting | N/A | N/A | N/A | N/A | N/A |
| Moisture | N/A | N/A | N/A | N/A | N/A |
| Sound | N/A | N/A | Prefer secluded areas with little human-related noise disturbance | N/A | N/A |
| Water | N/A | May hunt above water | Important for breeding territories  | N/A | N/A |
| Dispersal | N/A | 0.1 hectare -70 hectares | 0.1 hectare -70 hectares | N/A | N/A |
| Seasonal Activity | Fed by parents after hatching from late April to mid June | N/A | Migrate to southwestern United States in late April to mid June to breed | Migrate to wintering grounds approximately two weeks after their parents in early August | Migrate to breeding habitat late April to mid-June. Migrate to wintering grounds early August-September |

Life History

*Species Description and Ecology*

The southwestern willow flycatcher (SFWL) is a small songbird approximately 15 centimeters long with a grayish-green back and wings, whitish throat, and light grey-olive breast, and pale yellowish belly. They have two white wingbars with a dark upper mandible and a light yellowish lower mandible. SWFLs are distinguished from other flycatchers by its primary song, a sneezy "fitz-bew" (USFWS 2002).

SWFLs are neotropical migratory birds that winter in Central America and migrate north to breed in the United States (U.S.) and Canada during summer. Collectively, SWFL's spend the majority of their time in wintering grounds and migrating to and from wintering grounds, with only a small amount of time spent within the U.S. These birds typically arrive at breeding sites in Arizona from late April to mid-June. Males generally arrive before females and claim territories by constantly singing at favored, tall perches within the territory. SWFL's are strongly territorial and usually occupy the same breeding territories year after year. SWFLs begin their southward migration in early August through September. During their northward or southward migration, SWFLs will stop at food-rich stopover locations in order to replenish their energy reserves (USFWS 2002; USFWS 2013).

As the name implies, flycatchers predominantly consume flies (Diptera), and other small-medium sized insects including wasps and bees (Hymenoptera), beetles (Coleoptera), butterflies/moths and caterpillars (Lepidoptera), and spittlebugs (Homoptera). They are considered insect generalists and consume whatever insects are available along their migration routes, stopover locations, and breeding territories. They forage within and above the canopy, along patch edges, in openings within their territories, above water, and glean from tall trees as well as herbaceous ground cover (USFWS 2002).

*Reproduction*

From late April to mid-June, male SWFLs establish their breeding territories prior to the arrival of females. Females arrive approximately one to two weeks later; pairs establish and mating begins. Females build a tightly woven, open-cup nest, typically in tight forks of the substrate tree over the course of 4-7 days. Nests are typically placed 2-7 meters above the ground, but the nest placement can vary on the height of the nest plant, overall canopy height, and/or the height of the vegetation strata (USFWS 2002).

Female flycatchers lay an average of three eggs, which generally hatch in 12 days. Young SWFLs typically fledge 12 days after hatching, though fledglings remain dependent on parents for food for approximately 2 weeks. Only the female incubates the eggs, although both parents feed nestlings and fledglings. Fledglings likely leave the breeding areas a week or two after the adults in early August (USFWS 2002).

*Suitable Habitat*

Suitable breeding habitat for SWFL includes dense riparian vegetation near a permanent or semi-permanent water source or saturated soils throughout the Southwestern U.S. below 8,530 feet in elevation. Although breeding SWFLs are riparian obligates, non-riparian habitats and riparian habitat not suitable for breeding are important during migration. They are used by SWFLs as stopover locations which are important to their survival, health, and productivity. These stopover locations generally occur along major drainages in the southwest, and may include riparian habitats without an understory, non-riparian areas with high food concentrations, or within linear patches that are too small or short (USFWS 2013; USFWS 2014).

Primary Constituent Elements (PCEs) for SWFL habitat were identified as two distinct habitat elements, riparian vegetation structure and availability of prey populations. The PCEs that were identified in the 2013 Designation for SWFL include:

1. *Riparian vegetation.* Riparian habitat along a dynamic river or lakeside in a natural or manmade successional environment (for nesting, foraging, migration, dispersal, and shelter) that is comprised of trees and shrubs (that can include Gooddings willow, coyote willow, Geyer’s willow, arroyo willow, red willow, yewleaf willow, Pacific willow, boxelder, tamarisk, Russian olive, buttonbush, cottonwood, stinging nettle, alder, velvet ash, poison hemlock, blackberry, seep willow, oak, rose, sycamore, false indigo, Pacific poison ivy, grape, Virginia creeper, Siberian elm, and walnut) and some combination of:
2. Dense riparian vegetation with thickets of trees and shrubs that can range in height from 2-30 meters. Lower stature thickets are found at higher elevation riparian forest and tall-stature thickets are found at middle-and lower elevation riparian forests commonly associated with designated critical habitat
3. Areas of dense riparian foliage at least from the ground level up to approximately 4 meters above ground or dense foliage only at the shrub or tree level as a low, dense canopy
4. Sites for nesting that contain a dense (~50-100%) tree or shrub canopy
5. Dense patches of riparian forest that is interspersed with small openings of open water or marsh or areas with shorter and sparser vegetation that creates a variety of habitat that is not uniformly dense. Patch size may be as small as 0.1 hectare or as large as 70 hectare
6. *Insect prey populations*. A variety of insect prey populations found within or adjacent to riparian floodplains or moist environments, which can include: flying ants, wasps, and bees (Hymenoptera); dragonflies (Odonata); flies (Diptera); true bugs (Hemiptera); beetles (Coleoptera); butterflies, moths, and caterpillars (Lepidoptera); and spittlebugs (Homoptera).

Threats

The primary cause of the flycatcher's decline is the loss and modification of habitat due to water management and land use practices. These practices have impacted riparian ecosystems by lowering levels of flowing water and groundwater; interrupting natural hydrological events and cycles; physically modifying streams; directly removing riparian vegetation; and increasing the amount fire events. Specific actions or phenomena that represent the ongoing and increasing significant threats to flycatchers, their habitat, and recovery include ground water pumping and diversion, the introduction and spread of the tamarisk leaf beetle, urbanization, agriculture, and climate change (USFWS 2014).

Range and Survey History

SWFLs occur throughout Arizona along major waterways where dense riparian vegetation is present. They occur at various elevations, but typically stay below 8,530 feet. They have been documented along portions of the Colorado River, Salt River, Verde River, Bill Williams River, San Pedro River, Gila River, and San Francisco River.

Designated critical habitat was finalized in 2013 and established three Recovery Units within Arizona, including the Upper Colorado Recovery Unit, the Lower Colorado Recovery Unit, and the Gila Recovery Unit. The Upper Colorado Recovery Unit encompasses northeastern Arizona and a small portion of northern Arizona. There is no designated critical habitat within the Upper Colorado Recovery Unit in Arizona. The Lower Colorado Recovery Unit spans the entire midsection of the state from the Arizona-New Mexico Border over to the mainstem of the Colorado River within the Grand Canyon and its tributaries. This recovery unit also includes the western border of the state, following the Colorado River downstream to the Mexican Border. Critical habitat is designated within the Lower Colorado Recovery Unit along stream segments of the Little Colorado River, the west fork of the Little Colorado River, the Virgin River, the Big Sandy River, the Bill Williams River, the Santa Maria Rivers, and Alamo Lake. Lastly, the Gila Recovery Unit includes the Gila River Watershed from southeastern Arizona through central and southern Arizona towards the Colorado River. The Gila Recovery Unit includes designated habitat along segments of the Verde River, Salt River, Tonto Creek, Gila River, San Pedro River, San Francisco River, and Hassayampa River (USFWS 2013). The Recovery Units are divided into smaller sections classified as Management Units. Each Management Unit has detailed information pertaining to known breeding territories from historic and recent survey data (USFWS 2014). Surveys for this species are currently ongoing across federal and state agencies including the U.S. Fish and Wildlife Service, the U.S. Geological Survey, the U.S. Forest Service, the Bureau of Reclamation, and the Arizona Game and Fish Department, to name a few.

Identify if a survey has been completed within your project area, which Recovery Unit and Management Unit your project is located in, and where the nearest designated critical habitat is located in relation to your project to establish an environmental baseline (i.e. survey data, local status, etc) for SWFL within your projects vicinity. The following references and resources may assist in establishing an environmental baseline. Always obtain permission from the ADOT biologist prior to contacting outside agencies about an ADOT project.

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| --- |
| US Fish and Wildlife Service |
| Greg Beatty | Species Lead  |  | Greg\_Beatty@fws.gov |

Notes: 1Consultants are NOT to discuss potential effect findings with outside agencies.

2Red text is to be removed prior to placing this evaluation into a Biological Evaluation.

References

U.S. Fish and Wildlife Service (USFWS). 2002. Southwestern Willow Flycatcher Recovery Plan. Albuquerque, New Mexico.

 . 2013. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Southwestern Willow Flycatcher (*Empidonax traillii extimus*); Final Rule. *Federal Register* 78 (2): 344-534.

 . 2014. Southwestern Willow Flycatcher (*Empidonax traillii extimus*). "5-Year Review: Summary and Evaluation".