



Southwestern Willow Flycatcher Recovery Plan *Questions and Answers*

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Why is the southwestern willow flycatcher endangered and when was it added to the list of federally endangered species?

Changes to riparian ecosystems including reductions in water flow, alteration of hydrologic regimes, physical modifications to watersheds and streams, and removal of riparian vegetation have occurred as a result of dams and reservoirs, groundwater pumping, channelization of streams for flood control, livestock overgrazing, agriculture developments, and urbanization. These factors have contributed to a significant decline in flycatcher populations throughout its range. An increase in brood/nest parasitism by cowbirds and predation of flycatcher nests affects populations, especially those in smaller numbers and at more isolated locations. As a result of changes in land use and water management, native riparian woody vegetation has changed in many areas to more adaptable exotic vegetation such as salt cedar, Russian olive, and others. This change in vegetation has created and changed flycatcher habitat in many parts of its range. Modification and loss of wintering habitat and “stopover” habitat used by flycatchers to replenish energy reserves during migration, and the continued use of agri-chemicals and pesticides in Latin America are also contributing to the decline of flycatchers.

The Service listed the southwestern willow flycatcher as endangered on February 27, 1995.

Where and when are southwestern willow flycatchers found in the United States?

The historic breeding habitat of the southwestern willow flycatcher included riparian areas in southern California, southern Nevada, southern Utah, Arizona, New Mexico, western Texas, southwestern Colorado, and the extreme northwestern portion of Mexico.

Flycatchers migrate from Latin America to their breeding areas in North America arriving in early May. Flycatchers build nests, breed, incubate and hatch eggs through July, then fledge their juveniles through mid-August. They depart for their wintering grounds by mid-September.

The flycatcher’s current range is similar to its historical range, but the quality and quantity of habitat has been significantly reduced causing habitat to be less common and more isolated. Flycatchers occur from near sea-level to over 8500 feet in elevation, but are usually found in lower elevation riparian habitats. Throughout its range, the flycatcher’s current distribution follows that of its riparian habitat; relatively small, isolated, widely dispersed locales. Flycatchers winter in Mexico, Central America, and possibly northern South America.

What constitutes southwestern willow flycatcher breeding habitat?

The southwestern willow flycatcher breeds in patchy to dense riparian habitats along streams, reservoirs, or other wetlands. Common tree or shrub species include willow, seep willow, boxelder, stinging nettle, blackberry, cottonwood, arrowweed, tamarisk (salt cedar), and Russian olive. Habitat characteristics vary across the subspecies’ range. However, occupied sites usually consist of dense vegetation in the patch interior, or dense patches interspersed with openings, creating a mosaic that is not

uniformly dense. In almost all cases, slow-moving or still water, or saturated soil is present at or near breeding sites during non-drought years.

What is the purpose of a recovery plan?

After a species is listed, under the Act, a recovery plan is required unless such plans would not contribute to the conservation of the species. A recovery plan outlines specific tasks needed to recover a species to the point where protection under the Act is no longer necessary. Recovery Plans provide a blueprint for Federal, Tribal, State, and private cooperation in the conservation of threatened and endangered species and their ecosystems. The Plans establish goals and objectives to recover a species, describe site-specific management actions to achieve these goals, and estimate the time and costs associated with recovery efforts. Recovery plans are not regulatory documents and do not require non-Federal entities to undertake recovery actions.

What are the recovery goals for the southwestern willow flycatcher?

The Recovery Plan establishes criteria that should be met before the southwestern willow flycatcher could be considered for downlisting to threatened, and for eventual removal from the Federal list of threatened and endangered species.

To be considered threatened, one of two criteria need to be met. There should be at least 1,950 flycatcher territories (approximately 3,900 individuals) geographically distributed in the Plan's six Recovery Units that are maintained over a five-year period. A second criteria involves establishing fewer pairs (1,500 territories, approximately 3,000 individuals) geographically distributed throughout the Recovery Units for three years. However, unlike the first criteria, these habitats must be provided sufficient protection from threats through development and implementation of various types of conservation management agreements.

Currently there are 986 known territories.

To be considered for removal from the Federal list of threatened and endangered species, flycatcher populations and the habitat the species requires should be protected into the foreseeable future through the development and implementation of conservation management agreements. At least 1,950 territories of flycatchers (approximately 3,900 individuals) are required to be geographically distributed throughout each Recovery Unit. In addition, the amount of suitable breeding habitat within each Management Unit should be double that required to support the target number of flycatchers within each of the Units. The management agreements for all the territories and additional habitat must provide protection from threats to the flycatcher and create/secure sufficient habitat to assure maintenance of these populations and/or habitats over time, and demonstrate their effectiveness for a period of at least five years prior to delisting.

What is the focus of the southwestern willow flycatcher recovery plan?

Recovery efforts reflect the numerous, complex, and inter-related threats to the flycatcher. Habitat loss and degradation are the principle factors in the decline of the species and the Recovery Plan emphasizes ways to increase and improve breeding habitat by restoring, mimicking, and/or recreating natural processes that influence riparian ecosystems.

To address the threats to the flycatcher, the Recovery Plan recommends undertaking actions to maintain and restore flowing streams; restore natural flood cycles where possible; reduce impacts of domestic livestock, native ungulates, and feral horses and burros; improve population stability; secure long-term protection of breeding habitat; manage exotic plants; reduce brood parasitism by brown-headed cowbirds; and conduct research to refine management practices and knowledge of flycatcher and riparian habitat ecology.

How were the goals developed?

The Technical Subgroup (TSG) developed in-depth “Issue Papers” for each of the major issues involved in flycatcher recovery. Implementation Subgroup (ISG) feedback was incorporated into the issue papers. These finalized issue papers, together with a Tribal Working Group issue paper, form the basis of the goals and strategies in the Recovery Plan. The Subgroup and Issue Paper approach was used to incorporate the best possible science, and address the major complex, technical, and logistical challenges to flycatcher recovery.

How are the recovery goals to be met?

Recovery plans do not have the effect of law or regulation. They provide a blueprint for identifying actions that, if implemented, may further the recovery of a species. Application and implementation of the elements of the Flycatcher Recovery Plan will have to be customized to meet the condition of the habitat, regional threats to the flycatcher, local demands on natural resources, land ownership, state law, and water rights for each of the six Recovery Units (watersheds), each smaller Management Unit (river basin) and each identified river reach.

The Recovery Plan provides guidance for attaining habitat and population recovery goals, but the actual implementation of local efforts to meet those goals will rely upon the direction of each Recovery Unit’s ISG.

Individuals and groups called upon to implement recovery activities are diverse; land trusts, conservation organizations, irrigation districts, dam operators, power providers, city planners, ranchers, and Federal, Tribal, State and municipal agencies, to name a few. The recovery goals, together with local ISG-identified projects and priorities, will provide needed direction to these individuals and groups as well as private land owners and industry groups seeking approval of Habitat Conservation Plans (section 10) and federal agencies seeking reasonable and prudent alternatives for Endangered Species Act (section 7) compliance. [Reasonable and prudent alternatives are only devised if, in fact, there is a jeopardy opinion. A section 7 consultation does not automatically require alternatives.]

How have human-caused activities affected the southwestern willow flycatcher and their breeding habitat, and how adopting and implementing the recovery plan affect these activities?

12(a) River management for flood control, surface water supply, and power generation

Most major (and many minor) rivers that once supported flycatcher habitat have been altered by the construction of dams. The operation of dams can modify, reduce, destroy, or potentially increase riparian habitats both downstream and upstream of the dam site.

In seeking to secure and improve occupied, suitable, and potential breeding habitat, the Recovery Plan recognizes the primary importance of dam operations and its relationship to habitat for the flycatcher. Fully realizing that water supply, electrical generation, and flood control are essential to local communities, and due to varying and complex water rights, jurisdictional influences, state and federal laws and unique hydrological, physical, and biological influences for each river and stream, the Recovery Plan identifies dam management goals that could benefit riparian habitat, but leaves the specifics for attaining those operational goals to the respective ISGs and local river and dam managers.

Adding or utilizing operational flexibility, dam operators should allow occasionally complex flow regimes with a wide range of discharge levels, and flood or spike flows mimicking natural seasonal flow regimes that benefit native plants and discourage exotics (high, spike flows in winter and lower summer flows). Daily flow fluctuations for hydroelectric generation should be kept as gradual as possible to prevent bank erosion and loss of riparian habitat. Reservoir levels should be managed to establish and maintain lake-fringe and inflow habitat. Surplus flows should be used to increase and add water to marsh areas between levees and on flood plains.

12(b) Agriculture development, water diversion, and groundwater pumping

Agricultural development entails not only direct clearing of riparian vegetation, but also the re-engineering of floodplains (e.g. draining, protecting with levees), diversion of water for irrigation, groundwater pumping, and herbicide and pesticide application. These activities affect flycatchers and their habitat. Agricultural development can also increase the severity of cowbird parasitism.

In many river reaches, agricultural return flows sustain riparian habitat; however, natural functioning ecosystems would be more likely to sustain flycatcher populations over the long-term. With reductions in irrigated agriculture, additional water and land could be made available for restoration of flycatcher habitat. However, in the short-term, reductions in agricultural return flows can threaten some flycatcher populations. The obvious conclusion to the point-counterpoint issues surrounding agricultural development and water diversions is that many situations are unique and call for individualized evaluation, solutions, and timing, best arrived at by ISGs together with irrigators.

Many solutions for improving flycatcher habitat require increased availability of water in active channels or in near-channel areas. Because agriculture withdrawals from rivers and groundwater are much larger than any other economic sector, the agricultural community must be part of any long-term solution. The Plan calls agricultural interests in all major flycatcher watersheds to engage with agencies, municipalities, and other parties to take proactive measures to provide more water in rivers by managing groundwater more efficiently and using urban waste water and irrigation tail waters for habitat restoration.

12(c) Residential and urban development

Urbanization in or next to flycatcher habitat has a variety of inter-related direct and indirect effects which result in loss or inability to recover habitat. Development creates demands for domestic and industrial water use resulting in reservoir construction, groundwater pumping, and flood control structures that alter stream hydrology; it may also lead to the construction of more bridges and roads, more traffic, and increased sand and gravel mining, all of which are detrimental to riparian habitat and the species that depend on those habitats. Developments also result in an increase in predators such as cowbirds, domestic cats, and ravens.

The Recovery Plan encourages private landowners and municipalities to educate residents about the importance of protecting flycatcher habitat, developing riparian habitat buffers, promoting the use of native plants in landscaping and revegetation, reducing fire hazards, controlling domestic cats, and undertaking efforts to reduce cowbirds and other predators drawn to urban areas.

12(d) Recreation

In the warm and arid Southwest, recreation is often concentrated in riparian areas because of the shade, water, aesthetic values, and fishing, boating, swimming, hiking opportunities they provide. Consequences of these activities can include a reduction in vegetation due to trampling, clearing, wood cutting and soil compaction; bank erosion; increased incidence of fire; introduction of exotic plant species; increases in predators and scavengers such as ravens, grackles, domestic cats, and skunks; increased numbers of brood-parasitic cowbirds; and noise disturbance. As the human population grows, the effects of these activities may become considerable.

The Recovery Plan identifies measures land managers and recreationists can take to reduce the effects of recreational activities on flycatchers. Among these are locating trails, campsites, and heavy-use areas away from identified flycatcher habitat, and directing vehicles, boating, swimming, tubing, and fishing away from suitable and occupied habitat, especially during the breeding season. Banning fires in vulnerable habitat when fire danger is high and limiting or prohibiting fuelwood collecting in riparian areas is recommended. Recreation-related impacts can also be reduced by implementing techniques

ranging from complete restriction to some acceptable level of use.

12(e) Cowbird control

The southwestern willow flycatcher is vulnerable to nest parasitism by the brown-headed cowbird. Brown-headed cowbirds lay their eggs in the nests of other bird species. The “host species” then incubates the cowbird eggs and rears the young. Cowbird eggs hatch after a relatively short incubation period and the hatchlings develop quickly, often out competing the host’s own young for parental care. Cowbirds may also remove host eggs from the nest, functioning as predators. The range and population of brown-headed cowbirds have increased since European settlement in the United States due to expansion of suburban and agricultural areas, and habitat fragmentation. Brood parasitism has contributed to the flycatcher’s endangered status, and is an impediment to recovery of flycatchers and many other songbirds.

Efforts to reduce cowbird parasitism include increasing the amount and quality of riparian habitat. Increased quality and habitat patch size will allow for greater flycatcher populations, resulting in the dispersal of cowbird eggs over a greater number of flycatcher nests, thereby reducing the impacts to a particular population of flycatchers. Cowbird nest parasitism and predation tends to be concentrated along habitat edges; increasing the size of riparian patches with greater interior habitat is likely to reduce brood parasitism.

10(f) Livestock and wild ungulate grazing

Riparian ecosystems and flycatchers have evolved with herbivores. However, the amount of grazing is much greater than historical levels due to the reduction in some native species (beaver), intensive management of deer and elk, and introduction of non-native domestic livestock, wild horses and burros. Overgrazing in some western locations has been a significant factor in the modification and loss of riparian habitats. Overutilization of riparian vegetation by livestock, elk, and wild horses and burros can reduce the density of flycatcher habitat vegetation. Consumption of palatable broadleaf willows and cottonwood saplings and understory grasses and forbs alter riparian habitat structure and favor the colonization of unpalatable or grazing-tolerant exotic plant species. At a watershed level, overutilization of upland ranges contribute in changes to infiltration, water holding capacity of the watershed, and runoff patterns, thus increasing the volume of flood flows while decreasing their duration. As a result, groundwater levels may decline and surface flows may decrease or cease. The plan recognizes that proper grazing and wild ungulate management must be developed locally.

The plan calls for the management of livestock grazing to restore desired processes and increase habitat quality and quantity. For the conservation of flycatcher-occupied areas and restoration of riparian habitat, the Recovery Plan and a specific issue paper provide forage utilization and seasonal use guidelines for grazing during growing and non-growing seasons at various elevations.

10(g) Fire ecology and management

Fire is an imminent threat to occupied and potential flycatcher breeding habitat. Although fires occurred to some extent in some of these habitats historically, many native riparian plants are neither fire-adapted nor fire-regenerated. Today, lack of regular flood events in regulated rivers can result in an increased accumulation of fuels and an expansion of highly-flammable tamarisk and arrowweed. These factors, combined with high levels of recreation in riparian areas, have increased the frequency and size of fires. Fires in riparian areas are typically catastrophic, causing immediate and drastic changes in riparian plant density and species composition.

The Recovery Plan recommends the development of fire risk and fire management plans for flycatcher breeding sites and flycatcher-related riparian restoration areas. Fire suppression should occur

in habitat and adjacent buffer zones and efforts to reduce recreational fires have been recommended. The restoration of more natural flood flows would help to cleanse riparian areas of fuel buildup. Together with restoration of groundwater and base flows, flood flows would favor the development and restoration of less fire-prone native species over highly-flammable exotics.

10(h) Tribal lands management

The Tribal Working Group met with the TSG and submitted an Issue Paper identifying issues related to the recovery of the flycatcher on Tribal lands. The Recovery Plan calls upon the Service to provide technical assistance in developing watershed management plans. The Service will support Tribal efforts to improve occupied habitats by providing fencing, off-site livestock drinkers, technical assistance in developing fire plans and post-fire restoration plans, and habitat monitoring programs. We will also provide technical assistance and funding as available for conducting flycatcher surveys and monitoring occupied habitats.

How much will recovery cost, who bears those costs, and how will recovery efforts be funded?

Implementation costs associated with recovery of the southwestern willow flycatcher are scheduled to occur over the next thirty years at an estimated total cost of \$127.5 million. The implementation schedule in the Recovery Plan outlines actions, priorities, descriptions, duration, potential partners, and estimated costs for the southwestern willow flycatcher recovery program. These actions, when accomplished, should bring about the recovery of the flycatcher. The costs estimated are intended to assist in planning. The Recovery Plan does not obligate any involved agency and/or partner to expend the estimated funds. Although cooperation and collaboration with private landowners is an important tenant of the Recovery Plan, private landowners are also not obligated to expend any funds.

Recovery actions in the Plan are categorized into nine types (followed by their respective cost estimates):

1. Increase and improve occupied, suitable, and potential breeding habitat (\$80,252,000);
2. Increase metapopulation stability (\$24,411,000);
3. Improve demographic parameters (\$3,120,000);
4. Minimize threats to wintering and migration habitat (\$1,125,000);
5. Survey and monitor (\$4,190,000);
6. Conduct research (\$12,623,000);
7. Provide public education and outreach (\$225,000);
8. Assure implementation of laws, policies, and agreements that benefit the flycatcher (\$1,190,000); and
9. Track recovery progress (\$330,000).

What other species will benefit from the restoration of riparian habitat for the flycatcher?

Southwestern riparian habitats are by nature diverse and dynamic, providing a wide spectrum of habitats for many different species. There are a number of species that are currently listed as threatened or endangered, under the Act, as amended, which utilize the same habitats as the flycatcher (including 39 species of vertebrates). The disproportionately high level of threatened and endangered species indicates their riparian habitats have been degraded over a wide area. If riparian and aquatic ecosystems in the arid Southwest are restored to their natural, dynamic, heterogenous conditions, many imperiled species will benefit, as will recreationally and economically important species and habitats.