Willow Flycatcher

Empidonax traillii

REGULATORY STATUS

USFWS: Migratory Bird
USFS R2: No special status
USFS R4: No special status
Wyoming BLM: No special status
State of Wyoming: Protected Bird

CONSERVATION RANKS

USFWS: Bird of Conservation Concern
WGFD: NSS3 (Bb), Tier III
WYNDD: G5, S5
Wyoming Contribution: LOW
IUCN: Least Concern
PIF Continental Concern Score: 10

STATUS AND RANK COMMENTS

Willow Flycatcher (*Empidonax traillii*) has no additional regulatory status or conservation rank considerations beyond those listed above. Southwestern Willow Flycatcher (*E. t. extimus*) is designated as Endangered under the Endangered Species Act, but this subspecies is not found in Wyoming [1].

NATURAL HISTORY

Taxonomy:

There are 4 or 5 recognize subspecies of Willow Flycatcher [2, 3]. *E. t. adastus* and possibly *E. t. campestris* occur in Wyoming [4]; however, some authorities do not recognize the *campestris* subspecies and include those individuals with the *traillii* subspecies [2].

Description:

Identification of the *Empidonax* genus of flycatchers to species is not always possible in the field. In Wyoming, identification of Willow Flycatcher is possible based on vocalization. Willow Flycatcher is a small flycatcher, 13 to 17 cm long. Males, females, and juvenile birds are identical in appearance, and the plumage is the same year-round [2, 5]. Willow Flycatcher differs from other *Empidonax* flycatchers by having plumage that is browner overall and an eye-ring that is very reduced or absent [5]. The species' lower mandible is dull yellow, and the upper mandible is black. The feet are brownish-black to black [6]. The most definitive way to identify Willow Flycatcher is by song. Willow Flycatcher's song is a "FITZ-bew", with the accent on the first syllable. Other vocalizations include a "brit," "creet," and "whit" [2, 5]. The species is most easily confused with other *Empidonax* flycatchers, and the *Contopus* flycatchers. There are seven other species of *Empidonax* flycatchers that can be found in Wyoming, and all but the Alder Flycatcher (*E. alnorum*) have a well-defined eye-ring. Alder Flycatcher, a spring and fall migrant through Wyoming, is distinguishable by song only. *Contopus* flycatchers (Western Wood-pewee

C. sordidulus, and Olive-sided Flycatcher *C. cooperi*) are slightly larger (16–19 cm long), with wings that extend to about halfway down the tail, and have a noticeably peaked crest on the head [2, 5].

Distribution & Range:
Willow Flycatcher is broadly distributed across North America during the breeding season. The species is found across Wyoming in appropriate habitat, but the highest breeding concentrations occur in portions of Grand Teton National Park [4, 7]. In Wyoming, the two subspecies normally found in the state are the *campestris* subspecies, generally found in eastern regions of the state, and the *adastus* subspecies, generally found across the western regions of the state [2, 6]. Willow Flycatcher migrates to Central and South America for the winter [2].

Habitat:
In Wyoming, the Willow Flycatcher is a riparian obligate, using Willow (*Salix* spp.) or Alder (*Alnus* spp.) thickets along river bottoms, especially those by open stands of Cottonwood (*Populus* spp.) [8]. Typical habitat occurs in beaver meadows, borders of forest clearings, brushy lowlands, mountain parks, and along watercourses up to 2,500 m in elevation. In areas outside of Wyoming, it uses mesic riparian sites, xeric uplands, dry upland sites, and riparian forests [2]. The highest concentrations of Willow Flycatcher in Wyoming occur in Grand Teton National Park around Jenny and Jackson Lakes [4, 7]. The species uses similar habitats during migration [2].

Phenology:
Willow Flycatcher arrives in Wyoming during the last week of May and the first week of June [4]. Nest phenology in Wyoming has not been studied. Nest building in Colorado occurs in early to mid-June, and can take from 36 hours to 10 days or longer [2]. Incubation lasts 13 to 15 days. Fledging occurs at 13 to 16 days of age. Young are dependent on the adults for another two weeks after which they disperse from the breeding area [2]. Fall migration out of Wyoming occurs from mid-August to early September [4].

Diet:
The primary diet of Willow Flycatcher consists of insects from a wide variety of orders. Dominant insects consumed vary by habitat and region. Fruits such as blackberries and raspberries (*Rubus* spp.) and dogwood (*Cornus* spp.) are occasionally eaten in the fall [2].

CONSERVATION CONCERNS

Abundance:
Continental: WIDESPREAD
Wyoming: COMMON
Willow Flycatcher has a statewide abundance rank of COMMON and also appears to be common within suitable environments in the occupied area [9]. In 2013, Partners in Flight estimated the Wyoming population to be around 110,000 individuals, or about 1.20% of the global population [10]; however, this abundance estimate is based primarily on Breeding Bird Survey (BBS) data and should be viewed with caution due to the relatively low detection rate of this species in the state. From 1968–2015, annual Wyoming BBS detections of Willow Flycatcher ranged from 0 to 67 (average = 21), with 23 recorded in 2015 [11]. Annual detections of Willow Flycatcher ranged from 0 to 10 during surveys for the Integrated Monitoring in Bird Conservation Regions (IMBCR) program between 2009–2015 [12].

Population Trends:
Historic: MODERATE DECLINE
Recent: STABLE
Wyoming trend data from the North American BBS indicate that Willow Flycatcher declined by 1.18% annually from 1968–2013 and 2.34% annually from 2003–2013; however, neither state estimate was statistically significant [13]. Survey-wide BBS trend data indicate that Willow Flycatcher numbers experienced statistically significant annual declines of 1.46% from 1966–2013 and 0.99% from 2003–2013 [13].

Intrinsic Vulnerability:
LOW VULNERABILITY
Willow Flycatcher is not particularly vulnerable, because its life history characteristics are not very restrictive. However, in Wyoming, the species is largely restricted to riparian corridors for breeding [4, 8]. The species is susceptible to Brown-headed Cowbird (*Molothrus ater*) nest parasitism [14, 15].

Extrinsic Stressors:
SLIGHTLY STRESSED
Though the population of Willow Flycatcher in Wyoming appears stable, there are various threats to the species and its habitat making it slightly vulnerable. Threats to Willow Flycatcher habitat include cattle grazing, elk browsing, and human alterations of the habitat. Cattle grazing causes soil compaction and gullying that dries out the habitat, the grazing of shrubs affects the quality and quantity of shrub cover and can also cause nest destruction [2, 16]. Excessive browsing by elk has been shown to cause habitat degradation [17-19]. Riparian habitat is also subject to damming, dredging, channelization, urbanization, and de-watering, all of which degrade or destroy the habitat, making it unsuitable for the species [2]. Tamarisk (*Tamarix* spp.) invasion can result in lower breeding bird densities and territory productivity [2, 20]. Research performed on the Willow Flycatcher may cause injury or death through banding and marking operations [2].

KEY ACTIVITIES IN WYOMING
Willow Flycatcher is classified as a Species of Greatest Conservation Need (SGCN) by the Wyoming Game and Fish Department (WGFD), and as a Level II Priority Bird Species requiring monitoring in the Wyoming Bird Conservation Plan [21]. Current statewide activities for monitoring annual detections and population trends for Willow Flycatcher in Wyoming include the BBS program conducted on 108 established routes since 1968 [13], and the multi-agency IMBCR program initiated in 2009 [12]. There are currently no research projects designed specifically for Willow Flycatcher in Wyoming.

ECOLOGICAL INFORMATION NEEDS
Most current knowledge of Willow Flycatcher biology is known from studies of the endangered extimus subspecies. Habitat preferences of Willow Flycatcher in Wyoming are not well known. Nest phenology in Wyoming is not known. Knowledge pertaining to the impacts of human activities on Willow Flycatcher in Wyoming are unknown [2].

MANAGEMENT IN WYOMING
This section authored solely by WGFD; Zachary J. Walker. Willow Flycatcher is classified as a SGCN in Wyoming due to restricted habitat, nest parasitism, and habitat fragmentation and

degradation. Large scale monitoring programs, such as BBS and IMBCR, have proved effective in monitoring population trends for this species. These programs should be continued and are valuable for monitoring a wide range of species within the state. If warranted, species specific monitoring could occur for Willow Flycatcher to address specific population questions. Additional research for this species should focus on addressing information needs including nest phenology and impacts of human activities on breeding. Deciduous shrub communities (> 5 acres) within riparian zones and meadows should be maintained that are suitable for Willow Flycatcher nesting.

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Figure 1: Adult male Willow Flycatcher in California. (Photo courtesy of Michael T. Wickens)

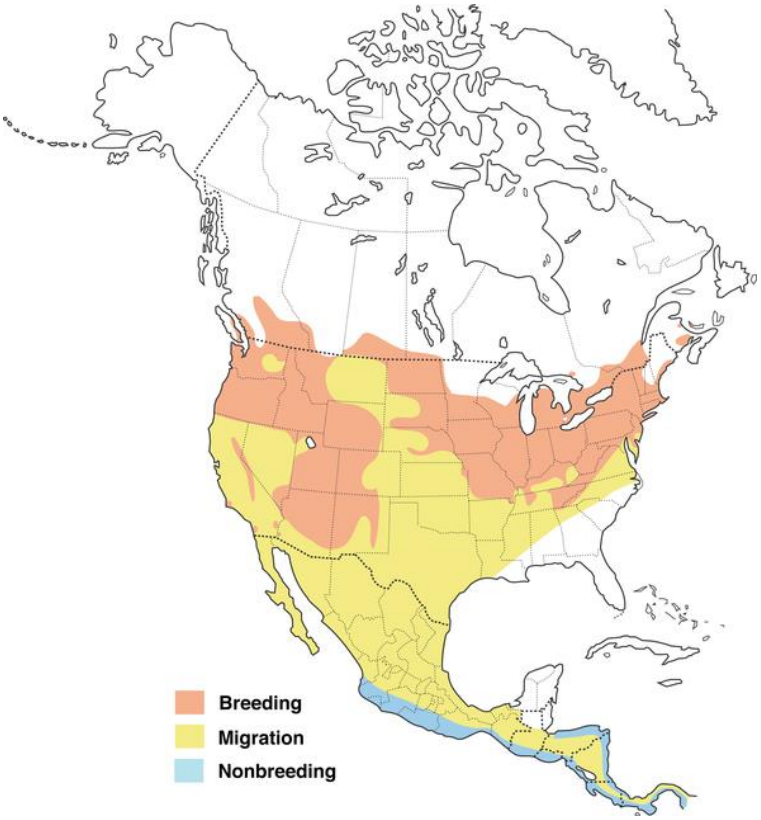

Figure 2: North American range of *Empidonax traillii*. (Map courtesy of Birds of North America, http://bna.birds.cornell.edu/bna, maintained by the Cornell Lab of Ornithology)

Figure 3: Willow Flycatcher habitat along the McCloud River, California. (Photo courtesy of Michael T. Wickens)

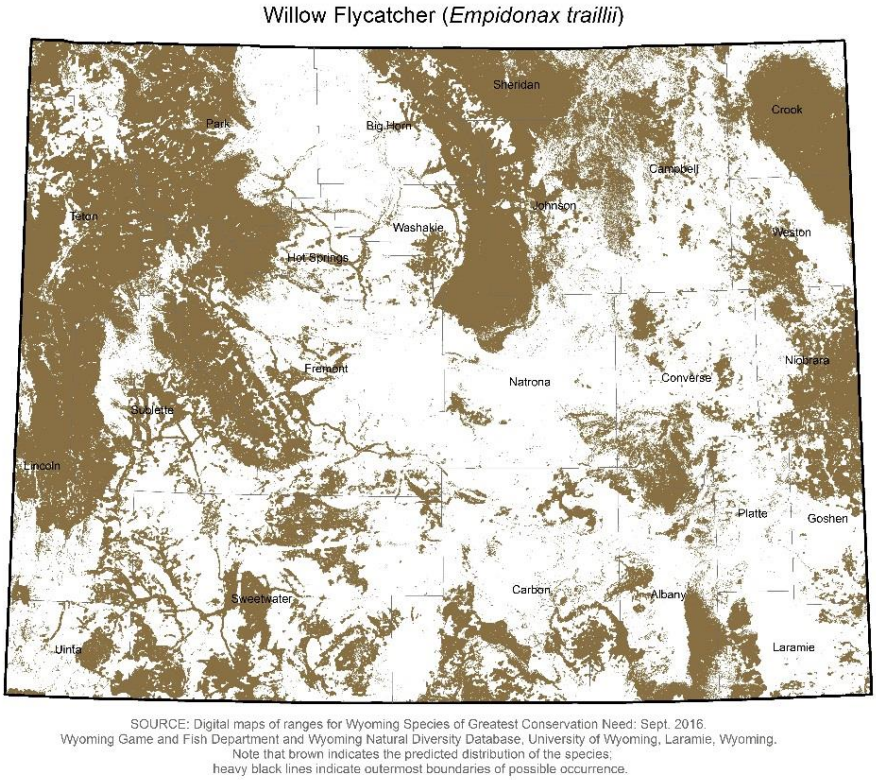

Figure 4: Range and predicted distribution of *Empidonax traillii* in Wyoming.

Figure 5: Top: Willow Flycatcher nest in Willow (*Salix* spp.), McCloud River, California, 2006. Bottom: Willow Flycatcher nest with one host egg (lower right), one Brown-headed Cowbird egg (lower left), and one host young, approximately 1 day old. (Photos courtesy of Michael T. Wickens)