

oped by the USFWS and the Colorado Plateau Research Center to standardize survey and monitoring methods which will give added credibility to research efforts. These are based upon established techniques utilized by various State and Federal agencies and coordinated through Partners-in-Flight programs in Arizona and New Mexico, non-governmental organizations and individuals associated with conservation efforts for neo-tropical migratory birds.

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Willow Flycatchers on the Western Edge of the Great Basin

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Two subspecies of Willow Flycatcher are found within the Sierra Nevada Range. It is believed that *Empidonax traillii brewsteri* breed from Fresno County north, from the coast to the Sierra Nevada crest; it primarily occurred throughout the river systems of the central portion of California. *Empidonax traillii adastus* breed east of the Sierra/Cascade axis from Oregon into Modoc County and possibly into northern Inyo County. This

subspecies, range extends across the Great Basin eastward into Utah (Browning 1993). Both subspecies are listed by the state of California as endangered. Within the Sierra Nevada small populations of *E. t. adastus* appear to persist as demographically unstable remnants within Perazzo Meadows in the Truckee River drainage, Warner Valley on the Lassen National Forest, and the Red Lakes area in the Carson River drainage. Due to the lack of survey information the status of this subspecies across the Great Basin is not well understood.

Habitat for *E. t. adastus* has been described as predominantly montane meadows containing well established willow communities and which are seasonally saturated with water at least during early summer (Sanders and Flett 1989, Harris et al. 1987). Willow thickets interspersed with open spaces are utilized while large contiguous willow thickets are avoided. For nesting, dense foliar cover is required within the first six feet of shrub structure. Nests are typically placed within deciduous riparian shrubs such as willow and alder.

Similar to the Southwestern Willow Flycatcher, habitat degradation is a key factor contributing to the absence of these birds within areas they once occupied. Cattle grazing and trampling within willow stands can cause highlining of individual plants, creating an umbrella shaped appearance and loss of nesting habitat. Also parallel to the southwestern subspecies, cowbird nest parasitism has contributed significantly to Willow Flycatcher declines. An exception to this occurs within the higher elevations of the Sierra where the nesting cycles of the two species do not overlap (Sanders and Flett 1989).

Currently, graduate work is being conducted by Helen Bombay of California State University at Sacramento, to assess habitat selection and reproductive success of *E. t. adastus* within the Sierra Nevada. Surveys conducted by biologists with the U.S. Forest Service and California Department of Fish and Game are planned for occupied and potential habitat areas. These efforts need to be expanded across the Great Basin to more completely understand the current status of *E. t. adastus*.

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