

RECLAMATION

Managing Water in the West

Southwestern Willow Flycatcher Habitat Reconnaissance

Upper Rio Grande from the Colorado State Line to Cochiti
Reservoir, New Mexico



U.S. Department of the Interior
Bureau of Reclamation
Fisheries and Wildlife Resources
Denver, Colorado

March 2009

Mission Statements

The mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and honor our trust responsibilities to Indian Tribes and our commitments to island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

Southwestern Willow Flycatcher Habitat Reconnaissance

**Upper Rio Grande from the Colorado State Line to Cochiti
Reservoir, New Mexico**

prepared for

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Bureau of Reclamation
Fisheries and Wildlife Resources
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Introduction

In the fall of 2008, the Bureau of Reclamation conducted Southwestern Willow Flycatcher (*Empidonax trailli extimus*, hereafter SWFL) habitat reconnaissance within the mainstem of the Rio Grande from the New Mexico/Colorado State Line downstream to Cochiti Pueblo. The objective of this reconnaissance based survey was to quantify SWFL habitat suitability in a portion of the Rio Grande that has been subject to inconsistent, or non-existent, SWFL presence/absence survey efforts. Approximately 127 miles (205 km) of the Rio Grande were evaluated at elevations ranging from 7200 ft (2200m) to 5200 ft (1600m) (Map 1). A classification system was developed to rank the quality of riparian habitat based on SWFL habitat suitability. The habitat reconnaissance surveys were conducted by experienced SWFL biologists with many years of experience.

Much of the Rio Grande within this reach is confined by steep canyons with high gradient flows and limited riparian vegetation. Land ownership is varied, including Tribal, private, Forest Service, National Park Service, and Bureau of Land Management (BLM). All Tribal Lands were excluded from the study area (Map1).

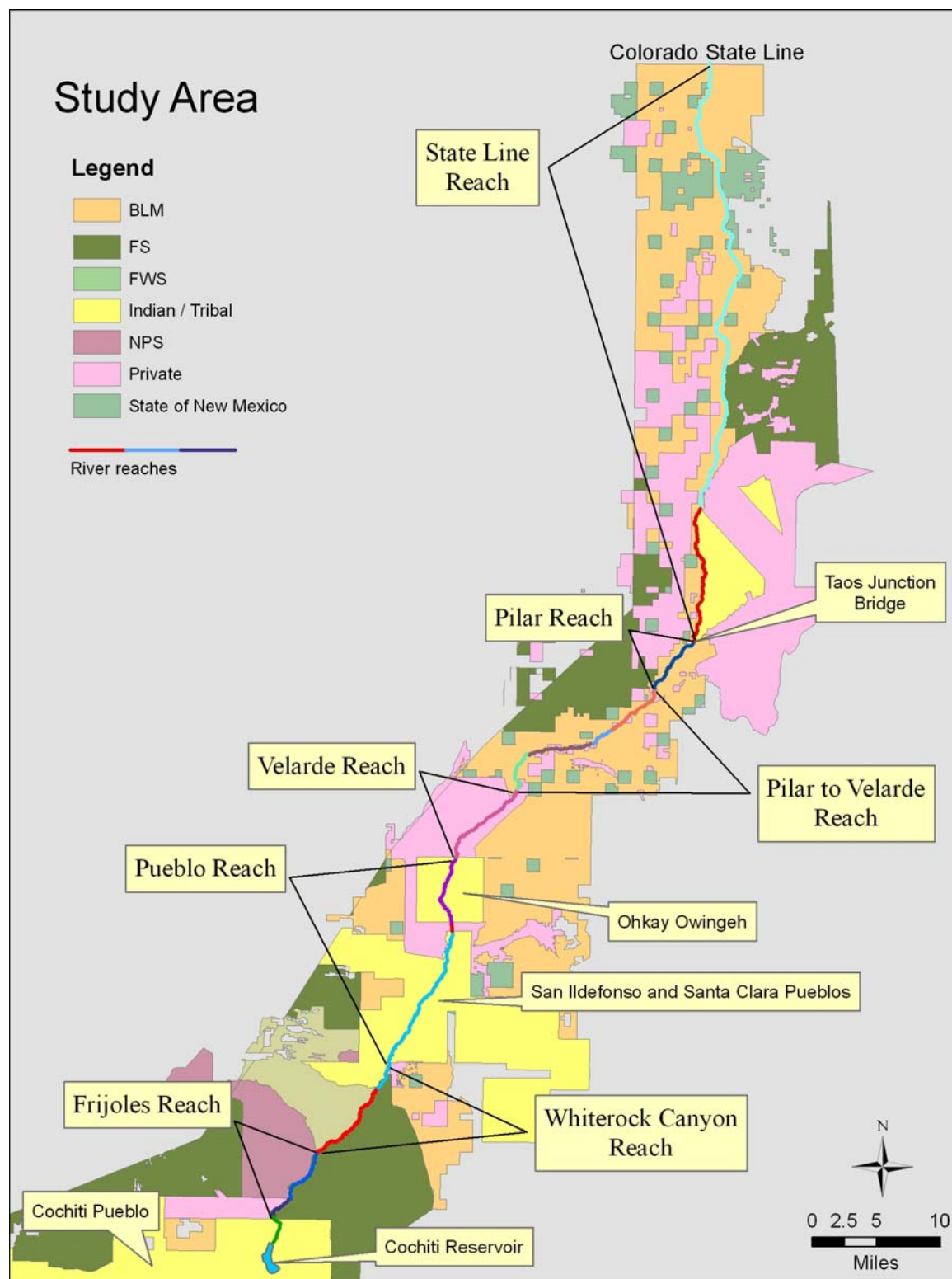
Methods

The riparian zone within the study area was assessed by utilizing vehicles, kayaks, natural overlooks, bridges, and on foot. Field maps were generated prior to the reconnaissance effort and gridded in UTM's to accurately determine field locations utilizing GPS units. Habitat classifications were recorded directly onto the field maps and later transferred to ArcGIS for quantification. To the extent that access and time allowed, all areas within the study area, with the exception of Tribal lands, were assessed. Photographs representative of the site and habitat were also taken at select locations. Although the classification system incorporates patch size (i.e. area), only the linear extent of the respective riparian patches were recorded.

Classification System

Habitat Survey Ratings – All habitats were assessed on their potential for providing SWFL breeding habitat. Classifications were developed in broad consideration of typical “high elevation habitats”. Therefore, patches of vegetation >2m in height and 5 to 10 m in width would be considered potential habitat. High elevation habitat is typically monotypic with no distinct overstory or understory (USFWS 2002). Generally, patches >3m in height and >10m in width are considered potential habitat. The following are the six different habitat classifications used for this assessment.

- **Class 0 (Unsuitable)** = Woody vegetation is absent or very sparse (i.e. bare ground or herbaceous vegetation).
- **Class 1 (Unsuitable)** = Vegetation lacks height (<2m) and or patch width (<5m) (i.e. patch lacks height and/or width).
- **Class 2 (Unsuitable)** = Vegetation lacks height (<2m) however, patch width is greater than 5m (i.e. patch height is limiting factor).
- **Class 3 (Marginal)** = Vegetation height greater than 2m and patch width 5 to 10m (i.e. height and width of patch is marginal, at best).



Map 1. Study Area

- **Class 4 (Suitable)** = Vegetation height greater than 3m and patch width greater than 10m (i.e. all necessary habitat characteristics are present).
- **Class 5 (Highly Suitable)** = Structurally diverse vegetation, height greater than 3m and patch width greater than 10m (i.e. all necessary habitat characteristics are present, and patch resembles other occupied sites).

Results

Of the 127 river miles within the study area, 89 river miles were evaluated; 20 river miles were within Tribal property, and a total of 18 river miles were not evaluated due to access. The 18 unevaluated river miles were comprised of six river segments all within the State Line Reach. In most instances, habitat immediately upstream and downstream of the unevaluated segments was classified as Class 0. Therefore, it is unlikely that suitable SWFL habitat exists within the unsurveyed sections.

The extent of habitat classes found within the evaluated 89 miles is summarized in Table 1. The length of each habitat patch was quantified respective to each bank of the Rio Grande (i.e. 89 river miles equals 178 miles of riparian area).

Table 1. Extent of each habitat class within the study area.

| Class | Length (miles) | % of Total |
|---------------|-----------------------|-------------------|
| Class 0 | 98.0 | 55.0% |
| Class 1 | 43.9 | 24.7% |
| Class 2 | 15.3 | 8.5% |
| Class 3 | 11.1 | 6.2% |
| Class 4 | 8.3 | 4.7% |
| Class 5 | 1.7 | 1.0% |
| TOTALS | 178 | 100% |

Classes 0, 1 and 2 of unsuitable habitat accounted for 88.2% of the total, while Class 3 marginal habitat accounted for 6.2%. Suitable habitat found in Class 4 comprised 4.7% and Class 5 highly suitable habitat comprised 1% of the total.

See the Attachment for habitat maps of the entire study area. A brief description and summary of the Study Area by reach is as follows:

State Line Reach - *Colorado State Line downstream to Taos Junction Bridge* (Maps N1 through N9) – The Rio Grande flows through a narrow, confined canyon with high gradient flows. Much of the Rio Grande within this reach has received a “National Wild and Scenic River” designation. The geomorphology of the Rio Grande within this reach is not conducive to the establishment and development of riparian vegetation. With the exception of several Class 3 patches [approximately 1.25 miles in total length] found in the upper portion of this reach (Maps N1 and N2), and two small patches of Class 4 habitat (0.25 miles total - Maps N5 and N9), no suitable habitat was identified within the remaining 103 miles of riparian zones.

Pilar Reach - *Taos Junction Bridge downstream to Pilar* (Maps N9 and N10) – The Rio Grande floodplain broadens slightly within this reach compared to the State Line Reach. Patches of marginal and suitable habitat do exist at the confluences of side drainages, point bars, and islands within this reach. SWFL presence/absence surveys have been conducted by Hawks Aloft, Inc. and Reclamation over the past several years. Most of this reach is administered by the BLM Taos Field Office. This is an area of high recreational use and encompasses the Orilla Verde Recreation Area. The BLM has initiated a riparian restoration project within this reach and Reclamation Technical Service Center (TSC) personnel have assisted them in the development and monitoring of the project for the past four years. A small number of SWFL territories and pairs have been found within this reach. This reach is approximately six miles in length, with 12 miles of riparian zones that were evaluated. Several patches of Class 3 and Class 4 habitat exist within this reach; however, the majority of the riparian areas were classified as unsuitable (Classes 0, 1, and 2).

Pilar to Velarde Reach (Maps N10 through N12) – This 16 mile reach is also fairly confined with very limited riparian vegetation. No patches of marginally suitable or suitable habitat were identified. The entire reach included only Class 0, 1 and 2 habitat. This is also a reach of relatively high recreational use.

Velarde Reach - *Velarde downstream to Ohkay Owingeh* (Maps N13 and N14) – This entire 8 mile reach is highly developed, primarily for agricultural use. Several water diversion structures have been constructed to provide irrigation. Although the historic floodplain broadens significantly compared to both upstream reaches, much of the Rio Grande is bermed to limit flooding of adjacent agricultural areas. Riparian vegetation is generally confined to relatively narrow bands adjacent the Rio Grande. In 2002, this entire reach was surveyed for SWFLs via kayak by Reclamation TSC. Due to land use and ownership issues, land access to sites is difficult. Three suitable sites within this reach have been surveyed annually by Reclamation TSC since 1995 and breeding SWFLs were present through 2000. Since then, only one unpaired male was found in 2004.

One patch of Class 5 habitat was identified, which is one of the sites surveyed annually by Reclamation. Several other patches of Class 3 and Class 4 habitat exist and could potentially support SWFLs.

Pueblo Reach - *Ohkay Owingeh and San Ildefonso and Santa Clara Pueblos* – This 20 mile river reach was not evaluated as part of this study. However, suitable SWFL habitat within Ohkay Owingeh is present, but generally confined to several backwater areas. The habitat within Ohkay Owingeh does support a population of breeding SWFLs. The area is surveyed annually by the Pueblo (Dave Morgan, pers. comm.). Habitat within the San Ildefonso and Santa Clara Reservations is far more limited than within Ohkay Owingeh.

Whiterock Canyon Reach - *San Ildefonso Pueblo downstream to Frijoles Canyon* (Maps N17 to N19) – The Rio Grande within this 10 mile reach of Whiterock Canyon is very confined with a high gradient channel which is not conducive to the establishment or development of SWFL habitat. No patches greater than Class 2 were identified within this reach; no marginally suitable or suitable habitat exists.

Frijoles Reach - *Frijoles Canyon downstream to Cochiti Pueblo* (Maps N19 and N20) –

Within this 10 mile reach the Rio Grande floodplain again broadens and several islands and backwater areas have formed, particularly near the confluence of adjacent drainages. Suitable SWFL habitat does exist within this reach. During the 2005 SWFL breeding season, SWCA personnel detected a SWFL pair – though breeding could not be confirmed – and twelve migrant flycatchers within this reach. In 2008, Reclamation TSC again surveyed this reach and detected ten migrants, and a probable late-migrant. This reach, by far, has the greatest potential within the study area for supporting a breeding population of SWFLs. Several Class 3 and Class 4 patches were identified, as well as three patches of Class 5.

Discussion

All Class 4 and Class 5 habitat patches (10 miles) were found within the Pilar, Velarde, or Frijoles Reaches. SWFL presence/absence surveys were conducted within all Class 5 habitats in 2008. All Class 4 areas were also surveyed in 2008, with the exception of approximately 1.6 miles, all within the Velarde Reach where access is difficult. Approximately one-half (47%) of all Class 3 patches of marginally suitable habitat were also surveyed in 2008. The unsurveyed Class 3 habitat is comprised of isolated patches scattered throughout the State Line and Velarde Reaches. Although it is possible that SWFLs may occupy these isolated Class 3 patches, it is highly unlikely that any significant numbers or stable populations would be found.

Without a doubt, the most suitable and expansive SWFL habitat found within the study area lies within the Frijoles Reach. This reach is dominated by young to mid-age Goodding's willow (*Salix gooddingii*) with a coyote willow (*Salix exigua*) understory. Most of the suitable habitat is either flooded or subject to flooding during high spring flows. Although only limited flycatcher use has been documented, it is likely that this reach will become occupied by SWFLs in the near future. The only limited factor affecting the establishment of SWFLs within this reach is the absence of a large source population in proximity to the habitat. The nearest known SWFL populations are approximately 30 miles upstream within Ohkay Owingeh and 70 miles downstream within the Pueblo of Isleta.

Recommendations

To the extent that funding is available and access obtained, the following presence/absence surveys should be conducted. Priorities were based on the availability of suitable habitat and the likelihood of detecting SWFLs.

Priority 1: Continue presence/absence survey efforts within historically occupied habitat found in the Pilar and Velarde Reaches. Surveys should be conducted annually.

Priority 2: Continue presence/absence surveys within the Frijoles Reach. Surveys should be conducted annually.

Priority 3: Presence/absence surveys should be conducted within previously unsurveyed Class 3 and Class 4 habitats found in the Velarde Reach. Habitat suitability should be further evaluated to determine whether annual surveys are warranted.

Recommendations

Priority 4: Conduct presence/absence surveys within Class 3 habitat found in the State Line Reach. Habitat suitability should be further evaluated to determine whether annual surveys are warranted.

Literature Cited

U.S. Fish and Wildlife Service. 2002. Southwestern Willow Flycatcher Recovery Plan. Albuquerque, New Mexico. I-ix + 210 pp., Appendices A-O.

Attachment

Habitat Maps of Study Area

