San Luis Valley Regional Habitat Conservation Plan

October 2012

Prepared for:

Rio Grande Water Conservation District
10900 Highway 160 East
Alamosa, CO 81101

Prepared by:

ERO Resources Corporation
1842 Clarkson Street
Denver, CO 80218

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ACRONYMS AND ABBREVIATIONS USED IN THIS DOCUMENT

BLM	Bureau of Land Management
CCP	Comprehensive Conservation Plan (for National Wildlife Refuges)
CPW	Colorado Parks and Wildlife
CFR	Code of Federal Regulations
CNHP	Colorado Natural Heritage Program
Cuckoo	Yellow-billed cuckoo, western U.S. distinct population segment (*Coccyzus americanus*)
CRS	Colorado Revised Statutes
CWCD	Conejos Water Conservancy District
District	Rio Grande Water Conservation District
DNR	State of Colorado Department of Natural Resources
DWR	State of Colorado Division of Water Resources
ERO	ERO Resources Corporation
ESA	Endangered Species Act
Flycatcher	Southwestern willow flycatcher (*Empidonax traillii extimus*)
FR	Federal Register
GIS	Geographic Information System
GOCO	Great Outdoors Colorado trust fund
HCP	Habitat Conservation Plan
HQI	Habitat Quality Index
ITP	Incidental Take Permit
LPP	Land Protection Plan
NEPA	National Environmental Policy Act
NRCS	Natural Resources Conservation Service
NWR	National Wildlife Refuge
Permit	Incidental Take Permit
Permittees	Alamosa, Rio Grande, Conejos, Costilla, Mineral, and Saguache Counties, the State of Colorado Department of Natural Resources; and the municipalities of Alamosa, Monte Vista, Del Norte, and South Fork; the holders of the incidental take permit(s) supported by the HCP
PFW	Partners for Fish and Wildlife
Recovery Plan	Southwestern Willow Flycatcher Recovery Plan
RiGHT	Rio Grande Headwaters Land Trust
Service	U.S. Fish and Wildlife Service
State	State of Colorado
SWA	State Wildlife Area
U.S.	United States
USC	United States Code
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service
USGS	U.S. Geological Survey
Valley	San Luis Valley

1.0 PROJECT DESCRIPTION AND BACKGROUND

1.1 Introduction

The San Luis Valley (Valley) is a large intermountain basin in southern Colorado (Figure 1). The riparian communities[1] along the Rio Grande, Conejos River, and smaller tributaries in the Valley provide habitat for two bird species, one of which is listed and the other a candidate for listing under the Endangered Species Act (ESA). Species addressed in this document (covered species) include the endangered southwestern willow flycatcher (flycatcher) and the candidate yellow-billed cuckoo, western U.S. distinct population segment (cuckoo), which generally occur in various types of woody riparian vegetation containing dense willow thickets adjacent to wet meadow habitat.

The Rio Grande Water Conservation District (District), working with the U.S. Fish and Wildlife Service (Service) and other partners, has developed a regional Habitat Conservation Plan (HCP) for the San Luis Valley. The HCP provides for the long-term protection and conservation of the covered species while allowing for the continuation of ongoing and routine agriculture, community infrastructure, and riparian conservation and restoration activities (covered activities). The District and the State of Colorado (State) applied for, and received, grants from the Service's Cooperative Endangered Species Conservation Fund in 2004, 2005, and 2009 to complete the HCP and associated National Environmental Policy Act (NEPA) documentation.

The HCP focuses conservation on about 250 stream miles of riparian habitat, and provides coverage for agriculture and infrastructure activities on more than 4,000 square miles (2.9 million acres) of land in the Valley. This area encompasses the entire Colorado portion of the flycatcher recovery area, designated as the San Luis Valley Management Unit in the Final Southwestern Willow Flycatcher Recovery Plan (Recovery Plan) (Service 2002a). The District is administering the HCP on behalf of the six counties[2] that comprise the San Luis Valley floor (Alamosa, Conejos, Costilla, Rio Grande, Mineral and Saguache) (the Counties) and the four cities and towns (Alamosa, Monte Vista, Del Norte, and South Fork) that contain riparian habitat (municipalities)[3] in cooperation with the State of Colorado Department of Natural Resources (DNR) and its associated divisions, such as Colorado Parks and Wildlife (CPW) and Division of Water Resources (DWR). The DWR administers water rights, issues water well permits, represents Colorado in interstate water compact proceedings, monitors streamflow and water use, approves construction and repair of dams and performs dam safety inspections, issues licenses for well drillers and assures the safe and proper construction of water wells. The CPW manages State Parks and Natural Areas and the State's 960 wildlife species. CPW also manages more than

[1] Riparian habitat is generally defined as the plant communities that are found near streams and other bodies of water. In the Valley, the riparian habitat is characterized by clusters of cottonwood and willow trees; and shrubs surrounded by open water, wet meadows, and wetland areas (see Section 2.2).

[2] While there are nine counties within the watershed basin, only the six on the valley floor are parties to this HCP.

[3] Other incorporated towns in the Valley do not contain habitat for the covered species, are not Applicants, and are not included in this HCP.

15 State Wildlife Areas (SWA)within the Valley, conducts research to improve wildlife management activities, provides technical assistance to private and other public landowners concerning wildlife and habitat management, and develops programs to protect and recover threatened and endangered species.

The District developed this HCP as part of the application package for incidental take permits (ITPs or permits) under Section 10 of the Endangered Species Act (ESA) (16 USC § 1539). The Counties, the State, and municipalities are the permit recipients (Permittees; previously referred to as Applicants). The permits address the incidental take of the covered species resulting from the ongoing conduct of the covered agricultural, infrastructure, and conservation activities by non-Federal entities within the San Luis Valley of southern Colorado. The HCP provides measures: 1) to minimize and mitigate, to the maximum extent practicable, the impacts of the covered activities on covered species and the habitat they use or occupy; and 2) to ensure that any incidental take of covered species will not appreciably reduce the likelihood of the survival and recovery of the species in the wild (50 Code of Federal Regulations (CFR) 17.22). The District, acting as the administrative body for the Counties and municipalities, and in conjunction with the Counties, Cities, and State, will implement this HCP, as required by Section 10 of the ESA.

This HCP was developed following the guidelines of the Endangered Species Habitat Conservation Planning Handbook (Service and National Marine Fisheries Service (NMFS) 1996) and the Final Addendum to this handbook (65 Federal Register (FR) 35242), commonly referred to as the "Five-Point Policy." The Five-Point Policy addresses: 1) biological goals and objectives; 2) adaptive management; 3) compliance monitoring and effectiveness monitoring; 4) permit duration; and 5) enhanced public participation. While this HCP is not a recovery plan for the covered species, it is intended to be consistent with the guidance and principles of the Southwestern Willow Flycatcher Recovery Plan (Service 2002a).

1.2 Purpose and Need

Need for the HCP

This HCP will serve as a conservation plan to support the issuance of incidental take permits by the Service to the Counties, State, and participating municipalities for covered species pursuant to Section 10(a)(1)(B) of the ESA. Section 9 of the ESA prohibits the unauthorized "take"[4] of a listed species, including significant alteration of habitat that may result in the "take" of individuals under the definition of "harm." One ESA-listed bird species (the flycatcher) and one candidate species (the cuckoo), are known to inhabit riparian habitat areas that occur throughout the Valley. Without an incidental take permit, individuals may be subject to civil or criminal penalties under the ESA if they are conducting activities that may take a listed species.

In the Valley, a variety of routine agricultural, infrastructure, and restoration activities (the covered activities) have the potential to take the covered species or their habitat. These covered activities are conducted on non-Federal public and private lands throughout the Valley by the Counties, State agencies, local municipalities, quasi-municipal corporations (A public entity created by law to deliver limited public services, including water conservancy districts, and other

[4] The term "take" under the ESA means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect; or attempt to engage in such conduct (16 USC § 1531(18)).

special districts), utilities, and private landowners. Without a regional HCP, these landowners and entities would be required to obtain ESA coverage on a case-by-case basis if they wanted to continue to conduct activities that may result in the take of covered species. Such individual and piecemeal ESA compliance can be both costly and time-consuming.

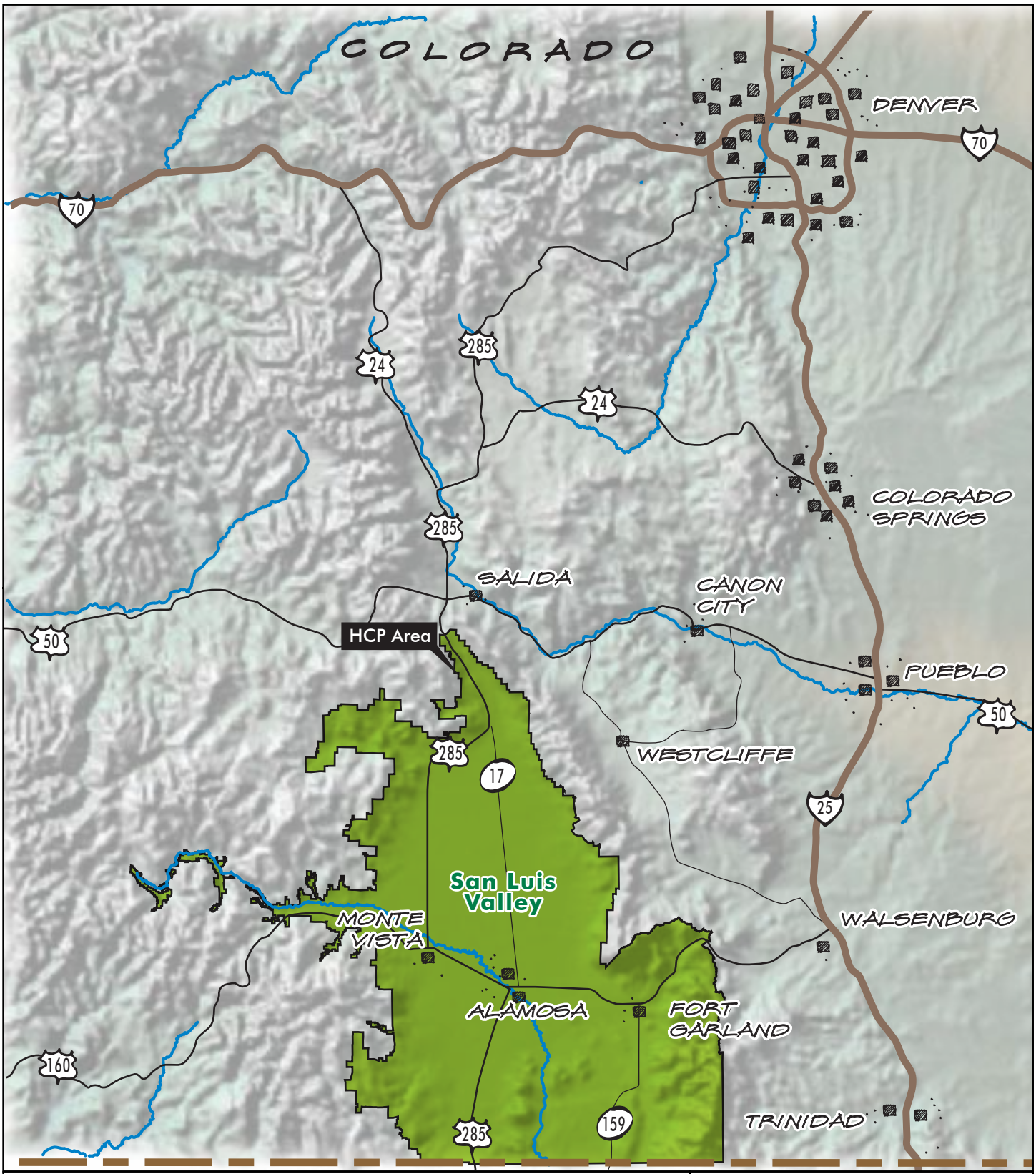
As an alternative to case-by-case ESA compliance, entities may seek a Section 10 permit through a regional HCP. This regional HCP for the Valley provides coverage for routine activities in a manner that mitigates impacts to the covered species while promoting the conservation of high quality riparian habitat. In the Valley, a single HCP is a more efficient and effective way to provide comprehensive ESA coverage for covered activities, while also taking a regional approach to mitigation and overall habitat conservation. This regional HCP documents the commitments of the Valley communities to develop and implement an integrated, regional approach for ESA coverage and covered species conservation.

Purpose of the HCP

The ultimate purpose of this HCP is to support the issuance of ITPs under Section 10 of the ESA. To achieve this purpose, this HCP must satisfy the issuance criteria for incidental take coverage that are outlined in Section 10(a)(2)(B) of the ESA. More specifically, the purposes of this HCP also include the following:

- Provide ESA coverage and regulatory assurances for a variety of agricultural, infrastructure, and restoration activities that are critical to the Valley's economy;
- Provide ESA coverage for Counties, State DNR agencies (including CPW and the DWR), municipalities, quasi-municipal corporations, and all private landowners in the Valley when they conduct the covered activities;
- Provide ESA coverage and regulatory assurances for activities related to the delivery, storage, and administration of water resources in the Valley;
- Provide for a long-term conservation strategy for the covered species and their habitat that emphasizes the protection and enhancement of high quality habitat; and
- Provide a cost-effective approach to integrating covered species protection, ESA compliance, and habitat conservation in a rural setting.

The anticipated impacts of this HCP are described in detail in Section 3.0, while the Permittees' commitments to minimize and mitigate those impacts are described in Section 5.0.



San Luis Valley HCP

Figure 1
HCP Location

0 10 20 Miles

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File: FIG1_Location.pdf
April 2011

ERO
ERO Resources Corp.

1.3 HCP Scope

Covered Species

This HCP covers one species listed under the ESA as endangered, and a candidate for listing that is found in similar habitat. The covered species are the endangered southwestern willow flycatcher, and candidate yellow-billed cuckoo, western U.S. distinct population segment. Detailed information about these species and their habitat requirements is found in Section 2.1.

Geographic Area Covered

This HCP covers the entire San Luis Valley floor in southern Colorado, within the confines of Alamosa, Conejos, Costilla, Rio Grande, Mineral and Saguache counties. The HCP boundary follows the U.S. Forest Service Boundary in most places, or county lines.[5] Incorporated cities and towns are excluded from HCP coverage, with the exception of Alamosa, Monte Vista, Del Norte, and South Fork.[6] This area is referred to as the "HCP plan area" or "plan area." The plan area is about 2.9 million acres, and includes about 250 miles of streams.

Time Period Covered

The ITPs are for 30 years, extending from the date a permit is issued. The rationale for a 30-year permit term is described below in Section 1.9.

Activities Covered

The Permittees, District members, State of Colorado Department of Natural Resources (DNR) agencies, quasi-municipal corporations including water conservancy districts, private landowners, and others may use this HCP for ESA compliance to conduct a specified set of "covered activities" that have the potential to result in the incidental take of the covered species or their habitat. The covered activities include routine agriculture, community infrastructure, and resource management and restoration activities – summarized here and described in detail in Section 3.0.

Routine Agriculture

Routine agriculture includes common agricultural and irrigation management activities conducted by farmers, ranchers, State land managers, and water managers as part of the Valley's longstanding agricultural economy:

- Grazing
- Fence construction and maintenance
- Ditch clearing and maintenance
- Water facility maintenance
- New small-scale water facility construction

[5] The Forest Service boundary was chosen because it is a locatable property boundary that demarcates the limit of lower-elevation lands with mixed ownership (private, State, and BLM).

[6] With the exception of the permitted municipalities, no habitat for the covered species exists within any incorporated municipal boundaries in the Valley. The permitted municipalities of Alamosa, Monte Vista, Del Norte, and South Fork have portions of the Rio Grande riparian corridor within their municipal boundaries, and/or have public infrastructure interests related to the Rio Grande corridor.

- Water management and administration[7]

Community Infrastructure

Community infrastructure includes common activities and facilities conducted or maintained by public and private entities to support the health, safety, economic capacity, mobility, and overall livability of the Valley:

- Vegetation removal from floodways
- Levee construction and maintenance
- Sediment removal
- Infrastructure construction
- Infrastructure maintenance
- Road and bridge maintenance

Riparian Conservation and Restoration

Riparian conservation and restoration includes common activities conducted by public and private entities to improve the structure, function, and value of riparian habitat in the Valley:

- Channel shaping and stabilization
- Habitat creation and restoration
- Weed management
- Wetland creation and management

Specific covered activities and their anticipated impacts are described below in Section 3.0. Many of these activities have been conducted by residents of the Valley for more than a century, and are very important to the ongoing agricultural economy and overall economic sustainability in the Valley. In addition, some of these activities are important to satisfy the legal requirements of the interstate Rio Grande Compact (described in Section 2.3) (Congressionally approved in 1939) and the State system of water rights administration, which has been in effect for more than a century.

Activities Not Covered by this HCP

Development

Development-related activities are not covered by this HCP. Development-related activities include the grading or clearing of riparian habitat areas for the purposes of residential, commercial, or industrial development, as well as the development of golf courses, parks, and other public facilities that may require clearing of riparian vegetation. Unlike the other covered activities that generally have individually minor, temporary impacts dispersed among thousands of acres of habitat, development activities typically result in significant, permanent, and both direct and indirect impacts to localized habitat areas. Providing incidental take coverage for development activities would change the character of this HCP and the magnitude of habitat

[7] Activities needed to ensure Rio Grande Compact administration and sustain the State system of water administration (surface water storage and diversions, ground water pumping, water distribution, and water depletions). The District, other Permittees, and/or water managers whose activities are covered by the HCP do not waive any argument that such activities cannot be regulated by, and are not subject to, the Endangered Species Act and its enacting rules and regulations.

mitigation that would be required. Therefore, incidental take coverage for development is not included in this HCP.

Landowners and local units of government are encouraged to avoid and minimize impacts to riparian habitat areas. If development does occur in riparian habitat areas, the landowners and units of government are liable for their direct activities that result in take of the covered species under the ESA.

Large-Scale Water Projects or Impoundments

This HCP does not provide incidental take coverage for the new construction of water projects such as large dams, water storage, major diversions, pipelines, or other activities that are beyond what could be considered typical and routine for existing infrastructure in the Valley. Large-scale projects are defined as water impoundments or structures that result in impoundments with greater than 0.1 acres of riparian impacts per project, greater than 20 acres of surface area, or dams that are greater than 10 feet high.[8] Small dams that meet these criteria for livestock watering, erosion control, groundwater recharge, or small excavations or impoundments that meet these criteria and are necessary for typical and routine agricultural management are covered.

Any future large-scale water projects could result in much greater impacts to riparian habitat and the covered species than those covered by this HCP. Such projects would need to pursue their own clearances under the ESA, in addition to potential NEPA requirements. No such projects are currently planned or expected.

Sanitation or Industrial Water Impoundments

This HCP does not provide incidental take coverage for the new construction of water impoundments for the purposes of private or municipal sanitation or industrial uses. These include water and sewage treatment, waste disposal, waste ponds associated with confined animal feeding operations, and industrial water storage or cooling ponds. Such projects would need to pursue their own clearances under the ESA, in addition to potential NEPA requirements.

Highway Construction

This HCP does not provide incidental take coverage for the new construction of any highways or bypasses that could result in adverse impacts to riparian habitat. Such projects would need to pursue their own clearances under the ESA, in addition to potential NEPA requirements. No such projects are identified in the San Luis Valley 2030 Regional Transportation Plan (SLVRPC 2004). Additionally, the Colorado Department of Transportation was not an Applicant to be covered under this HCP.

Activities related to the maintenance and operation of existing highways and bridges by counties or other local units of government are covered by this HCP (provided they are not otherwise subject to Section 404 wetland permitting requirements). These activities are described in Section 3.3.

[8] Thresholds for large-scale water projects are based upon a combination of Section 404 wetland permitting guidance and the maximum size of dams to be considered jurisdictional dams by the Colorado State Engineer (CDWR 2007).

Federal Activities

Activities conducted, funded, or authorized by Federal agencies are not covered by this HCP, consistent with Section 10 of the ESA. This includes activities on Federal lands (such as BLM, NPS, or National Wildlife Refuges), conducted or funded by Federal agencies (such as Natural Resources Conservation Service (NRCS) programs) or those requiring a wetlands permit under Section 404 Clean Water Act (authorized by the U.S. Army Corps of Engineers). Any such activities require their own consultation and compliance under Section 7 of the ESA. As described in Section 5.2, portions of Federal/non-Federal partnerships may contribute to HCP mitigation, while the management and conservation of riparian habitat on Federal lands in the Valley remains an important part of this HCP (see Sections 1.8 and 5.4).

1.4 Goals and Objectives of the HCP

Goals and objectives are statements that articulate the ultimate purpose, philosophy, and outcomes of the planning process. The District and other Permittees developed the following goals and objectives for the HCP planning and implementation process.[9]

Goal 1. Incidental Take Coverage

This HCP provides incidental take coverage for landowners and local units of government, including quasi-municipal corporations, in a manner that allows them to continue to conduct routine agricultural, infrastructure, and conservation activities unencumbered by concerns about ESA liability.

Objectives

- Obtain ITPs for the covered activities with permit terms of 30 years.
- Administer this HCP on behalf of the State, local units of government, including quasi-municipal corporations, and private landowners in a manner that allows landowners to conduct lawful, routine activities in full compliance with the ESA.
- Uphold the HCP commitments, requirements, and assurances that satisfy the ITP issuance criteria as outlined in this HCP and the Implementing Agreement.
- Mitigate the impacts of the covered activities with on-the-ground habitat conservation, restoration, and monitoring to ensure that the area and quality of mitigation habitat is greater than what is impacted by the covered activities.
- Monitor the mitigation lands to ensure that standards for habitat quality are upheld, and use adaptive management to correct habitat losses on mitigation lands.
- Collaborate with the Permittees and outside partners to implement this HCP in a cost-effective manner that is not a financial burden on local communities.

Goal 2. Species Conservation

This HCP protects the nesting, breeding, and foraging habitat for the covered species, and contributes to the long-term recovery of those species.

[9] These goals and objectives are intended to articulate the intended outcomes of HCP implementation, and are not specific resource management or biological goals that would typically be found in a habitat management plan.

Objectives

- Protect and manage core habitat (see definitions under Section 2.2) that is known to support the covered species habitat on Federal and State lands.
- Emphasize the conservation and management of buffer habitat areas on private lands to augment and enhance the viability of core conservation areas and provide additional habitat opportunities.
- Coordinate with Federal and State agencies to track covered species populations and trends through surveys and standardized reporting.
- Work with landowners and conservation organizations to demonstrate the effectiveness of voluntary conservation efforts, beyond what is required for mitigation.

Goal 3. Riparian Habitat Conservation

This HCP provides a framework for and contributes to the long-term conservation and management of functional riparian habitat in the Valley, beyond what is necessary to meet mitigation requirements.

Objectives

- Work with landowners, conservation organizations, and local governments to support the conservation, education, and enhancement efforts that protect core habitat and buffer habitat areas in a manner that continues to benefit the covered species, private landowners, and community.
- Seek funding and implementation partnerships that leverage HCP implementation and other conservation achievements in a manner that allows the community to raise additional funding for conservation.
- Provide municipalities and counties in the Valley the background and rationale to integrate riparian habitat protection into land use and development decisions in a manner that benefits the community by improving the effectiveness of HCP mitigation efforts.
- Work with the Bureau of Land Management (BLM) and the Rio Grande Natural Area Commission to facilitate the implementation of the Rio Grande Natural Area in a manner that complements this HCP and provides long-term benefits to riparian habitat and the community.

Goal 4. Landowner and Community Outreach

The HCP education and outreach efforts provide landowners with the tools and information they need to manage and protect riparian habitat on private lands while also meeting economic and land management needs.

Objectives

- Continue to work with local governments and community leaders to support HCP implementation and foster an understanding of the community benefits of riparian habitat conservation.
- Provide landowners with information about their HCP coverage in a manner that does not require commitments or obligations of any individual landowners.

- Work with key landowners and community leaders to identify and maintain private mitigation lands on a proactive and voluntary basis.
- Connect landowners with information, resources, and partners to minimize impacts to riparian habitat while providing incentives for voluntary conservation, restoration, and enhancement efforts that are compatible with agricultural production.

Goal 5. Interagency Coordination

The District and other Permittees work closely with other Federal, State, and local agencies to protect and enhance core habitat and buffer habitat areas, and provide additional resources to riparian habitat conservation.

Objectives

- Coordinate with experts from various agencies to ensure that habitat quality monitoring is efficient and effective for HCP implementation and covered species conservation.
- Work with the Service and BLM to ensure that core habitat on Federal lands is protected and managed for the benefit of the covered species.
- Collaborate with the NRCS and other Federal and State agencies to partner on conservation and restoration efforts, and to continue to provide resources and incentives for individual landowners.
- Work with the Colorado Parks and Wildlife (CPW), other Permittees, and partners to protect and enhance core riparian habitat within State Wildlife Areas (SWA).

1.5 Benefits to the Covered Species

Implementation of this HCP will benefit the covered species by providing a comprehensive regional conservation approach for riparian habitat in the Valley. In general, the mitigation approach outlined in this HCP will compensate for temporary impacts to low quality, marginal habitat with the conservation, management, and enhancement of high quality habitat. This HCP also is designed to complement and benefit additional voluntary habitat conservation efforts, beyond what is required to mitigate the impacts of the covered activities. Outreach and education efforts will encourage private landowners to reduce impacts to the species on private lands, and encourage long-term conservation of habitat.

By mitigating impacts with the conservation/enhancement of higher quality habitat, supporting ongoing habitat conservation, and encouraging landowner stewardship, this HCP will benefit the covered species and contribute to their long-term survival and recovery in the wild.

1.6 Benefits to the Communities

This HCP benefits landowners and communities in the Valley by allowing the covered activities to continue with a greater degree of regulatory certainty, and eliminating the need for the costly and inefficient pursuit of ESA compliance on a case-by-case basis. In addition, this HCP provides the District, the State, local jurisdictions, including quasi-municipal corporations, conservation organizations, and private landowners a framework to coordinate ongoing riparian conservation efforts. This allows the historically progressive conservation community to focus its voluntary conservation efforts in areas with direct benefit to the covered species while

maintaining and bolstering their cooperative working relationships with private landowners, local governments, and Federal and State agencies. Finally, this HCP provides ESA coverage for the covered activities while allowing water managers to maintain the State's legal obligations under the Rio Grande Compact and the State system of water rights administration.

1.7 Description of Permittees and Beneficiaries

Permittees

The recipients of ITPs pursuant to this HCP are:

- Rio Grande Water Conservation District
- State of Colorado, Department of Natural Resources
- Alamosa County
- Conejos County
- Costilla County
- Rio Grande County
- Mineral County
- Saguache County
- City of Alamosa
- City of Monte Vista
- Town of Del Norte
- Town of South Fork

The State of Colorado Department of Natural Resources (DNR) seeks ITP coverage for the activities of Colorado Parks and Wildlife, Division of Water Resources, and other DNR divisions[10] as they conduct the covered activities. The Counties and municipalities seek coverage for their activities and the activities of their citizens. While each entity shares the responsibility of implementing and enforcing the provisions contained within this HCP, the Rio Grande Water Conservation District will play a central role in coordinating HCP administration. The responsibilities of the Counties and individual communities in implementing this HCP are described in Section 5.0.

Role of the Rio Grande Water Conservation District

The District is a Permittee and will coordinate HCP implementation on behalf of the other Permittees.

The District was created in 1967 to represent the San Luis Valley in litigation concerning the interstate Rio Grande Compact (Compact), and continued to play a central role in managing the Rio Grande watershed to meet Compact obligations. The District was established for the express purpose of safeguarding the waters of the Rio Grande, and its tributaries, to which Colorado is equitably entitled by the Compact, Colorado Revised Statutes (CRS) § 37-66-101 et seq. The District is a political subdivision of the State and includes within its boundaries cities, towns, water conservancy districts, water user associations, and irrigation companies in the Valley. It is managed and controlled by a Board of Directors, each of whom is appointed by county

[10] Other DNR agencies that may conduct the covered activities include the Colorado State Land Board, while other divisions typically do not conduct the covered activities.

commissioners to represent Alamosa, Conejos, Rio Grande, Saguache, and Mineral Counties, and is funded by levying taxes on real property within its boundaries. [11] The Board gives direction to a General Manager who oversees the District's employees and ongoing activities. The District represents a majority of the Valley's citizens, including farmers, irrigators, ranchers, and residents of the cities and towns across most of the Valley.

The District has a history of leadership on a number of informational, educational, and environmental initiatives that have benefited the Valley and helped to manage its scarce resources, especially water. For example, the District proposed Federal legislation to create the Great Sand Dunes National Park and Preserve and the Baca National Wildlife Refuge (NWR), and to establish the Rio Grande Natural Area to protect the riparian corridor of the Rio Grande. The District also has helped with ongoing development of the Rio Grande Decision Support System (a data-driven ground water and surface water model to help the State Engineer better understand and administer the water system of the Valley). The District is working to establish ground water management subdistricts Valley-wide that are designed to generate revenue to calculate and replace injurious depletions resulting from well pumping within the subdistricts to surface streams, and to ensure the aquifer system in the Valley is maintained in a sustainable condition. The District has provided research and litigation support for the State Engineer, who promulgated rules limiting new uses of water from the confined aquifer of the Valley.

As part of its charge of safeguarding the waters of the Rio Grande to help Colorado meet its Compact obligations, the District helped develop the Closed Basin Project, which primarily provides supplemental water to the Rio Grande system to ensure that Colorado sends its legally obligated portion of Rio Grande water to the state line for the benefit of New Mexico, Texas, and Mexico. However, secondarily, the Closed Basin Project provides water to enhance wildlife in the Alamosa NWR and Blanca Wildlife Habitat Area. The District cooperatively administers the Closed Basin Project with the U.S. Bureau of Reclamation (Reclamation).

The District is the logical entity to administer this HCP on behalf of the jurisdictions and residents within the Valley. The District's boundaries roughly coincide with the HCP boundary, and the District Board includes members appointed by the elected commissioners of four of the six counties supporting this HCP. As a regional entity, the role of the District will be to facilitate the administration and implementation of this HCP. The District may pursue intergovernmental agreements with the DNR and Counties if needed to ensure that responsibility for implementing the terms and conditions of the ITPs are shared among the local entities that have regulatory authority over covered areas.

Beneficiaries

The beneficiaries of this HCP are the State DNR agencies (primarily CPW and DWR), individual landowners, counties, municipalities, quasi-municipal corporations including water conservancy districts, and other entities within the Valley that will have better regulatory assurances as they conduct the covered activities that could affect the covered species and their habitat.

[11] Costilla County, which lies in the southeastern part of the San Luis Valley and is known to contain flycatcher habitat, is an ITP recipient and has authorized the District to represent it in this process.

1.8 Federal Activities

Under Section 7 of the ESA, Federal agencies are required to consult with the Service to ensure that any action authorized, funded, or carried out by a Federal agency is "not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species" (ESA Section 7(a)(2)). Non-federal entities or landowners are subject to this Section 7 consultation when activities they conduct are permitted, approved, or funded by a Federal agency. Examples of activities that may create this type of "Federal nexus" and therefore may require a Section 7 consultation are activities requiring Clean Water Act 404 permits, NRCS assistance programs, Federal grazing permits, or U.S. Department of Transportation funding.

Federal Land Management

Several of the core, protected habitat areas (and many of the known flycatcher territories) in the Valley are on Federal lands managed by the Service and the BLM. While Federal agencies are not ITP holders, they are important partners in the conservation and recovery of the covered species in the Valley, and are responsible for managing and protecting covered species and their habitat through section 7 of the ESA, agency policies, and management plans. To this end, this HCP seeks to coordinate with Federal agencies to implement habitat management and conservation practices on Federal lands that are consistent with this HCP. In addition, this HCP proposes to involve representatives from appropriate Federal agencies in the HCP Steering Committee.

While the Federal agencies are critical partners in the overall conservation of the covered species and their habitat in the Valley, the Permittees are not responsible for mitigating habitat losses on Federal lands. The Federal agencies will be responsible for ensuring their management activities meet the long-term conservation needs of the covered species.

1.9 Rationale for 30-year Permit Term

The Permittees received an Incidental Take Permits with 30-year permit terms to cover typical and routine agricultural, infrastructure, and conservation activities. The rationale for a 30-year permit term includes the following:

1. **Long-term Agricultural Activities –** Many of the covered activities, particularly those related to agriculture (e.g., water management, ditch clearing, fence maintenance, and livestock grazing) have occurred in the Valley for well over 100 years. The town of San Luis was established in 1842 and quickly developed a network of ditches ("acequias") and associated farming and grazing lands. The San Luis People's Ditch was constructed in 1852 and conveys the first adjudicated water right in Colorado (San Luis Valley Heritage 2010). The farming communities were established in Conejos County in the 1870s, while Alamosa was established in 1878 (SLVMA 2010). As described in Section 2.4, agriculture remains the economic base of the Valley. While the Valley's economy continues to grow and diversify, and as regional water supplies become increasingly scarce, the covered activities related to agriculture and water management are expected to remain a critical component of the Valley's culture and economy well beyond the 30-year permit term.

2. **Effective Implementation –** A 30-year permit term will allow for three full rounds of long-term (10-year) monitoring to track habitat and species trends (see Section 6.1). This time period is necessary to allow the HCP and its adaptive management commitments to function properly, and to develop a full understanding of the long-term effects of the covered activities and the response of habitat to the impacts of covered activities, conservation and mitigation, and changed circumstances.
3. **Hedge against Uncertainty –** Over the next 30 years, it is reasonable to expect small fluctuations in economic and habitat conditions in the Valley. The regional economy will continue to grow and diversify, water will become increasingly valuable, and agricultural practices will continue to change and evolve. These changes will be based on a myriad of factors, including local economic and hydrological conditions, climate patterns, agricultural practices, and global commodity markets. Given these changes and uncertainties, a 30-year permit term is long enough to provide Permittees and beneficiaries with a period of certainty, related to ESA compliance for the covered species, in which they can make long-term economic and infrastructure decisions, yet short enough to hedge against longer-term habitat and economic unknowns.
4. **Conservation Initiatives –** A 30-year permit term is long enough to allow separate but related conservation efforts (such as the Rio Grande Initiative and the Rio Grande Natural Area) to be fully implemented and mature within a stable ESA framework that is provided by the HCP.

For these reasons, the HCP and associated permits have 30-year terms.

1.10 Public Involvement

The development of this HCP has been a public and open process. During the early stages of the HCP development, the District followed a varied approach to public involvement that included a public scoping meeting, stakeholder consultation meetings, discussions and meetings with individual stakeholders and organizations, distribution of a project newsletter, and the development of a project web page. These efforts have been widely publicized in local newspapers, the agendas of individual organizations, and through the local word-of-mouth networks. Participation in these meetings has generally been strong, and residents of the entire Valley have had the opportunity to attend multiple public involvement meetings, beginning unofficially with critical habitat public scoping and the Section 6 Grant application process, and continuing officially with the public scoping period beginning January 13, 2005.

Public Scoping

The public involvement process began in November 2003 with informal discussions with Federal and State agencies and stakeholder groups, as well as the development of the Federal Section 6 Grant application. The formal public scoping process was initiated in January 2005. Public comments and concerns were solicited through public notice in the Federal Register (70 FR 1457), and a press release that was sent to the *Alamosa Valley Courier* and *The Pueblo Chieftain* (an out-of-Valley paper with local distribution). A public scoping meeting was held on January 13, 2005 at the Alamosa County Services Center. This meeting was sponsored by the Service to meet NEPA requirements. Simultaneously, the information and feedback gathered at this meeting and through the comment period was considered in the development of this HCP.

Stakeholder Consultations

District representatives met with a number of individual stakeholder groups in the Valley to ensure that they were informed about the HCP process and the activities intended to be covered by this HCP, and to solicit feedback and questions about the HCP. These meetings included multi-stakeholder forums, presentations to group meetings, and individual consultations. Stakeholder groups included resource management agencies, land trusts, environmental organizations, river restoration organizations, agricultural organizations, and local jurisdictions. The following organizations were represented at the various stakeholder meetings:

- Alamosa Mosquito Control District
- Alamosa River Restoration Project
- Audubon Society
- Bureau of Land Management
- San Luis Valley Cattleman's Association
- Colorado Department of Transportation
- Colorado Division of Water Resources
- Conejos Water Conservancy District
- Colorado Division of Wildlife
- Ducks Unlimited
- Environmental Defense
- Local and State Farm Bureaus
- Land Rights Council
- Natural Resources Conservation Service
- Rio Grande Headwaters Land Trust
- Rio Grande Water Conservation District
- Rocky Mountain Bird Observatory
- San Luis Valley Association of Conservation Districts
- San Luis Valley County Commissioners Association
- San Luis Valley Ecosystem Council
- San Luis Valley GIS/GPS Authority
- San Luis Valley Water Conservancy District
- San Luis Valley Wetland Focus Area Committee
- The Nature Conservancy
- The Trust for Public Land
- U.S. Fish and Wildlife Service

Other Outreach Methods

Several other methods have been used to keep the public and stakeholders informed and solicit feedback about the HCP process. On several occasions, District representatives met or talked with individuals from the organizations listed above, as well as local government staff and private individuals. The purpose of these discussions has been to explain particular elements of the HCP process, solicit feedback on sections of the HCP, and/or gather specific information about a certain topic area. A formal consultation was initiated with interested tribal governments per Executive Order 13175, Secretarial Order 3206, and the Department of the Interior Policy on Consultation with Indian Tribes. No responses were received from tribal governments.

Background information and project updates, along with information on the draft and final HCP, have been posted to the project website at www.slvhcp.com.

Draft HCP and EA Review

The release of the draft HCP and Environmental Assessment (EA) was published in the *Federal Register* on July 25, 2012, announcing a 60-day public review and comment period. The Service received six responses regarding the draft HCP and EA. Four of these were letters expressing support for the HCP and one stated no comment but none of these provided specific comments on the draft documents. The sixth letter received from the San Luis Valley Ecosystem Council included more specific comments and questions. The comments did not identify any significant

new environmental impacts not previously addressed in the draft EA. Responses to these comments are provided in the *Finding of No Significant Impact* (FONSI). In addition, the District hosted a public presentation and discussion on August 13, 2012, at the Alamosa County Administration Building.

2.0 HCP SETTING

The San Luis Valley is a high mountain desert valley in south-central Colorado. The Valley is about 125 miles long and 65 miles wide, and is between the Sangre de Cristo Mountains to the east and the San Juan Mountains to the west, extending into the upper Rio Grande headwaters area of Mineral County. Most of the Valley is relatively flat, at an elevation of about 7,500 feet above sea level, while the upper portions within the HCP plan area in Mineral County reach about 9,000 feet. This arid Valley receives an average of 7 inches of precipitation a year, most of which is in the form of mid-summer rain. The growing season averages 90 days (Service 2003).

2.1 Covered Species

Southwestern Willow Flycatcher

Listing Status and History

The southwestern willow flycatcher (*Empidonax traillii extimus*) was listed as endangered on March 29, 1995 (Service 1995). Critical habitat was initially designated on July 22, 1997 (Service 1997a), and corrected on August 20, 1997 (to clarify the lateral extent of the designation) (Service 1997b). Critical habitat units were initially designated in Arizona, California, and New Mexico. Areas in Colorado, Nevada, Texas, and Utah were not designated because of the limited range of the bird in those States.

On May 11, 2001, the Tenth Circuit Court of Appeals revisited the critical habitat ruling and instructed the Service to issue a new critical habitat designation. On October 12, 2004, the Service published a proposal to designate critical habitat for the flycatcher in California, Arizona, Nevada, Utah, Colorado, and New Mexico (69 FR 60706). On October 19, 2005, the Service issued its final critical habitat designation, which excluded the Valley from critical habitat (70 FR 60968-60970). In response to a lawsuit, the Service agreed to reconsider the critical habitat designation by July 31, 2011, with a final rule to be published by July 2012. [12]

The flycatcher also is listed as endangered by the State.

Description

The flycatcher is a riparian obligate species, about 5¾ inches long, with a light olive-green back and wings, a whitish throat, a lighter olive-green breast, a pale yellowish belly, two indistinct wing bars, a faint eye-ring, and a beak that is dark on the upper mandible and lighter on the lower mandible, becoming dark at the tip. The flycatcher is confirmed by its wheezy "fitz bew" or "fit-za-bew," song during nesting season. Flycatchers winter in southern Mexico, Central America, and probably northern South America (Stiles and Skutch 1989; Ridgely and Gwynn 1989; Howell and Webb 1995; Unitt 1997; Koronkiewicz et al. 1998; Unitt 1999). Recent

[12] In 2008, the Service initiated a five-year review of the flycatcher and 27 other listed species in the southwestern United States to assess the best available scientific and commercial data and to ensure that the classification status is accurate (73 FR 14995).

genetic analysis of wintering birds (Paxton et al. 2008) suggests that the four subspecies occupy finite areas of the wintering grounds, but with overlapping ranges. The southwestern willow flycatcher (*E.t. extimus*) appears to be largely restricted to the center of the winter range (in the vicinity of Costa Rica).

There are four currently recognized subspecies of *E. traillii* distributed throughout North America as summer residents (AOU 1998; Phillips 1948; Unitt 1987; Browning 1993). *E.t. extimus* (Aldrich 1951; Unitt 1987) can be distinguished from the other three subspecies, *E.t. brewsteri, E.t. adastus*, and *E.t. traillii*, through its morphology, song type, habitat use, structure and placement of nests (Aldrich 1953; Gorski 1969; Sogge et al. 2010), eggs (Walkinshaw 1966), ecological separation (Barlow and McGillivray 1983), and genetics (Seutin and Simon 1988; Winker 1994). The taxonomic status of *E.t. extimus* has been critically reviewed and confirmed multiple times based on morphological, genetic, and song data (Unitt 1987; Browning 1993; Paxton 2000; Sedgwick 2001). Although the overall subspecies' ranges are distinct, Sedgwick (2001) and Paxton (2008) noted interbreeding/gradation zones in the boundary area between *E.t. extimus* and *E.t. adastus*. The Valley is within this interbreeding/gradation zone.

According to recent research, within the probable range of *E.t. extimus* in Colorado, flycatchers appear to be very localized and uncommon. Breeding flycatchers within the probable range of *E.t. extimus* have only been confirmed on tributaries of the San Juan River and within the Valley (Owen and Sogge 1997; Sogge et al. 2001). However, considerable potential flycatcher habitat remains to be surveyed, and undiscovered breeding populations may exist.

Flycatcher Breeding Biology

Most flycatchers arrive at their breeding areas from early May to early June and depart in late July and August after nesting (Service 2002a). Male flycatchers generally arrive first at a breeding site, followed by females a week or two later. Male flycatchers are highly territorial, and establish territories by singing and interacting aggressively with other flycatchers after arrival at a breeding site (Service 2002a).

Female flycatchers build an open cup-shaped nest about 3.15 inches high and 3.15 inches wide of grass, leaves, fibers, feathers, animal hair, and coarser materials in a fork of branches (Bent 1940). Nest height can range from 1.6 to 60 feet above the ground. Flycatchers lay three or four eggs, and the young fledge about 25 days after the last egg is laid.

Flycatchers are insectivores, feeding on a wide variety of insects including wasps; bees; flies; beetles; butterflies; moths; caterpillars; flying insects; Hymenoptera, Diptera, and Hemiptera (true bugs); and spittlebugs (Beal 1912; McCabe 1991; Drost et al. 1997; Durst et al. 2008). Flycatchers glean prey from foliage, or catch them on the ground (Service 2002a).

Genetic studies conducted by Paxton (2000) indicate that the northern boundary for the southwestern willow flycatcher is generally consistent with that proposed by Unitt (1987) and Browning (1993), and described in the Recovery Plan (Service 2002a).

Within Colorado, the past and current status of the flycatcher is unclear (Service 1995; Service 2002b). Genetic studies have recently evaluated the genetic composition of flycatchers including those captured in the Valley (Paxton et al. 2008).

Early genetic studies of flycatchers from throughout their range suggest that considerable genetic diversity exists within the *extimus* subspecies and within local breeding sites (Owen and Sogge 1997), and that flycatchers sampled on the Alamosa NWR and BLM's McIntire Springs belong to the endangered *extimus* subspecies (Busch et al. 2000). However, studies on vocal identities of flycatchers found that pure forms of *E.t. extimus* apparently do not occur in Colorado, and that the southernmost populations in Colorado are acoustically similar to more northerly populations known to be *adastus*, suggesting moderate introgression between *extimus* and *adastus* (Sedgewick 2001). More recent genetic studies could not identify a distinct genetic boundary line between the two subspecies and suggest that the boundary between the two subspecies should be thought of as a region of genetic overlap (Paxton et al. 2008; Paxton 2000). The Valley is within the region of genetic overlap.

Flycatcher Breeding Habitat

In general, flycatchers breed in tall dense riparian habitat with low gradient streams, wetlands, or saturated soils usually nearby, at least early in the breeding season (Bent 1940; Stafford and Valentine 1985; Harris et al. 1987; Spencer et al. 1996). The Service has reported that "occupied sites always have dense vegetation in the patch interior. These dense patches are often interspersed with small openings, open water, or shorter, sparser vegetation, creating a mosaic that is not uniformly dense (Service 2002a, p. 11; Appendix D). In most cases, this dense vegetation occurs within the first 10 to 13 feet (3 to 4 meters) above ground. The canopy density at nests generally ranges from 75 to 90 percent. Thin strands of dense vegetation are generally not suitable; and patch size, arrangement of patches, and open areas appear to influence whether an area is occupied.

Breeding habitat at high elevation sites (greater than 6,200 feet) is characterized by one distinct vegetation layer and no over or understory layer. However, most breeding habitat contains dense branching and twig structure within the lower 6.5 feet (2 meters). In addition, proximity to water is important to flycatchers, with breeding territories often near slow-moving or standing water, a marsh, and/or saturated soils. The average canopy heights range from 10 to 23 feet (3 to 7 meters) (Sogge et al. 1997a).

Site Fidelity, Movement, and Territory Size

Banding studies over several years have shown that most flycatchers return to their former breeding sites; however, they regularly move among sites within and between years (Service 2002a). From 1997 to 2000, 66 to 78 percent of flycatchers known to have survived from one breeding season to the next returned to the same breeding site (Id.). From studies at Roosevelt Reservoir in Arizona, site fidelity, where a site is defined as all patches within a specified area, is higher than patch fidelity — site fidelity ranges up to 92 percent depending on the method of calculation, while patch fidelity ranges up to 54 percent (Newell et al. 2005; Koronkiewicz. 2002).

Flycatchers that move to new sites more commonly move within-drainages than between-drainages (Kenwood and Paxton 2001; Newell et al. 2005). Individual movements of banded flycatchers have been recorded over distances of up to 160 miles from the original banding site (McKernan and Braden 2001; Newell et al. 2005).

Depending on the vegetation type, quality of the habitat, nesting stage, and population density, territory size can range from 0.25 to 5.7 acres (Service 2002a; Sogge et al. 1997b). Home range data for the flycatcher have been collected from radio-tracking studies at Roosevelt Reservoir in

recent years (Cardinal 2005; Cardinal and Paxton 2004, 2005). Information from 23 flycatchers that were tracked using radio telemetry indicates a wide variation range of movement among individuals and before, during, and after nesting. Prior to nesting, home ranges were generally small, with a mean of about 1.4 acres (Cardinal 2005). During nesting, the mean home range was slightly less than 1 acre (Id.). Territories are often unevenly distributed within a habitat patch and tend to be clumped together. Some biologists consider flycatchers semicolonial nesters (Service 2002a). Cardinal (2005) summarized territory and home range sizes from several studies of other flycatcher subspecies, which range from less than 1 acre to more than 4 acres. At a landscape scale, Hatten and Paradzick (2003) report that dense patches of vegetation within an 11.1-acre (4.5 hectare (ha)) neighborhood provide refuge, foraging, and dispersal habitat for juvenile and adult flycatchers. This includes surrounding meadow and upland habitat.

The home range and territory size has not been determined for the flycatcher; however, studies conducted on SWAs in 2007 showed that territory size may be small and immediately adjacent to or overlap other territories (WEST 2007). Based on the above information, this HCP conservatively assumes that the average territory size for breeding flycatchers in the Valley is 1 acre nested within a larger breeding neighborhood of approximately 11 acres that overlaps and is shared with other breeding flycatchers.

Local Habitat Conditions

The flycatcher Recovery Plan notes that most high elevation (greater than 6,230 feet/1,900 meters) sites are found in habitat dominated by native trees and shrubs, are dominated by a single species of willow, and generally consist of less vertically structured and narrower habitat patches (Service 2002a, p. 12). Four habitat types have been identified as appropriate for breeding flycatcher pairs throughout their range: (1) monotypic high-elevation willow, (2) monotypic exotic, (3) native broadleaf dominated, and (4) mixed native/exotic. Along the Rio Grande in the northern portion of the Valley, two of these habitat types have been identified: (1) native broadleaf dominated and (2) monotypic high-elevation willow (WEST 2007). The native broadleaf dominated habitat type is composed of a single species of willow, or a mixture of broadleaf trees and shrubs such as narrowleaf cottonwood and sandbar willow. This habitat type exhibits heights ranging from 10 to 13 feet (3 to 4 meters) and contains a distinct overstory with an easily identifiable subcanopy layer and a dense mixed understory (Id.). Measurement of habitat characteristics at flycatcher detection locations along the Rio Grande (WEST 2007) found that flycatchers were associated with:

- Irregularly shaped contiguous stands of woody vegetation (combination shape).
- Areas dominated by woody riparian species.
- Areas with structured habitat containing both a canopy and subcanopy.
- Areas with greater than 60 percent new cover (current year's growth).
- Areas within close proximity (100 feet) of persistent water.

Habitat characteristics along the southern portion of the Rio Grande and Conejos River may vary slightly from the northern Rio Grande. The Environmental Assessment for the Lillpop Ranch addition to the Alamosa NWR (Service 2002b) describes the habitat on the Alamosa NWR as monotypic stands of sandbar willow and peachleaf willow with little narrowleaf cottonwood overstory bordering the Rio Grande. These willow stands typically range from 10 to 40 feet (3 to 12 meters) in width. Local agency biologists (Stone, pers. comm. 2005; Lucero, pers. comm. 2005) who are familiar with occupied flycatcher habitat conditions in the Valley have observed

the following habitat patterns that vary from the guidance in the Recovery Plan, yet are important for nesting success and site fidelity for flycatchers in the Valley:

- Slow moving or standing water that is close or immediately adjacent to nesting habitat.
- Short emergent wetlands that are flooded through mid-July.
- Tall grasses and sedges adjacent to nesting habitat provide important foraging habitat.
- Narrow [approximately 25-33 ft (8-10m)] strips of woody vegetation along ditches within the floodplain, if adjacent to a water source, or wet meadows that provide foraging habitat.
- A complex of narrow strips of woody vegetation and larger patches of woody vegetation interspersed with wet meadow and tall grass foraging habitat.

Overall, vegetation characteristics of occupied flycatcher habitat across the Valley consists of smaller sized native vegetation patches, both in patch width and height, than the overall habitat conditions described in the Recovery Plan. Additionally, the adjacent foraging habitat (such as standing water, wet meadows, and tall grasses) appears to have a greater influence on site use in the Valley than the Recovery Plan suggests. This juxtaposition of willow patches to foraging habitat may explain the occurrence and reoccurrence of territories at sites that otherwise provide marginal habitat structure (Lucero, pers. comm. 2005). These observations suggest that a diverse riparian structure, and the surface water infrastructure that supports that structure (such as natural stream channels and irrigation canals/ditches), are important components of flycatcher habitat in the Valley.

Abundance within the San Luis Valley

According to the Recovery Plan (Service 2002a), territory is the unit of measure. Flycatchers are a territorial species, where males select and defend exclusive breeding territories in which they attempt to attract a mate and breed. Because it can be difficult to determine whether a particular male is paired with a female, the Service selected "territory" as the unit of measure for recovery goals (rather than "pairs"), recognizing that generally one territory equates to two flycatchers (one male and one female). This HCP uses this definition of territory to maintain consistency with the Recovery Plan and U.S. Geological Survey (USGS) reporting. Based on regional survey data through 2003 compiled by the USGS, Durst et al. (2005a) estimated the Valley flycatcher population at 73 territories (the Recovery Plan set a goal of 50 territories for the San Luis Valley Management Unit). Subsequent surveys in 2004, 2005, 2007, 2009, and 2010 (BLM 2005, 2009, West 2007, 2010) did not include all known occupied sites for flycatchers. Data from 2004 (Durst et al. 2005b) identified six sites with 57 territories in the plan area. The Service, CPW, U.S. Forest Service (USFS), and BLM conducted surveys at a variety of locations in the Valley from 2002 to 2004. The survey results from 2004 indicate 84 individual flycatchers were observed in the Valley; however, caution should be used when interpreting these results since not all locations were surveyed every year. Flycatchers have been consistently observed at McIntire -Simpson (BLM), Alamosa NWR, Higel SWA, and Rio Grande, SWA. Willow flycatchers have also been occasionally detected at La Garita (BLM) and Hot Creek and Sego Springs SWAs. Additionally, surveys conducted on a private ranch along the Rio Grande in 2010 yielded a single flycatcher detection (WEST 2010). No flycatchers have been observed during numerous surveys conducted on USFS land. The general locations of known flycatcher detections are shown in Figure 2.

Survey data from 2005 suggest that the number of flycatcher territories on SWA lands and the McIntire/Simpson properties are consistent with the 2003 results. Surveys conducted in 2005 identified 28 probable and six possible territories on the Rio Grande/Shriver-Wright SWA, while no territories were identified at the Hot Creek or Sego Springs SWAs (Hawks Aloft 2005). Surveys were not conducted at the Alamosa NWR in 2005. Surveys conducted on the Rio Grande and Higel SWAs in 2007 identified 14 flycatcher territories. This number is less than reported from previous surveys (Hawks Aloft 2003, 2004, 2005), but may be a reflection of slightly different survey goals and methods. The 2007 survey focused on specific sampling areas to correlate flycatcher detections with vegetation characteristics, and followed strict criteria to avoid double counting. Thus, the total survey area and number of territories recorded may not be as extensive as previous surveys (WEST 2007).

Yellow-billed Cuckoo

Status and History

In 1998, a petition was filed with the Service to list the western subspecies of yellow-billed cuckoo (*Coccyzus americanus occidentalis*) as a threatened subspecies or a distinct population segment. In 2001, the Service noted that listing was warranted as a distinct vertebrate population segment west of the Continental Divide, but precluded the listing due to higher priority listing actions (66 FR 38611, July 25, 2001). As of the writing of this HCP, *C.a. occidentalis* was not Federally protected, but was considered a species of special concern by the State.

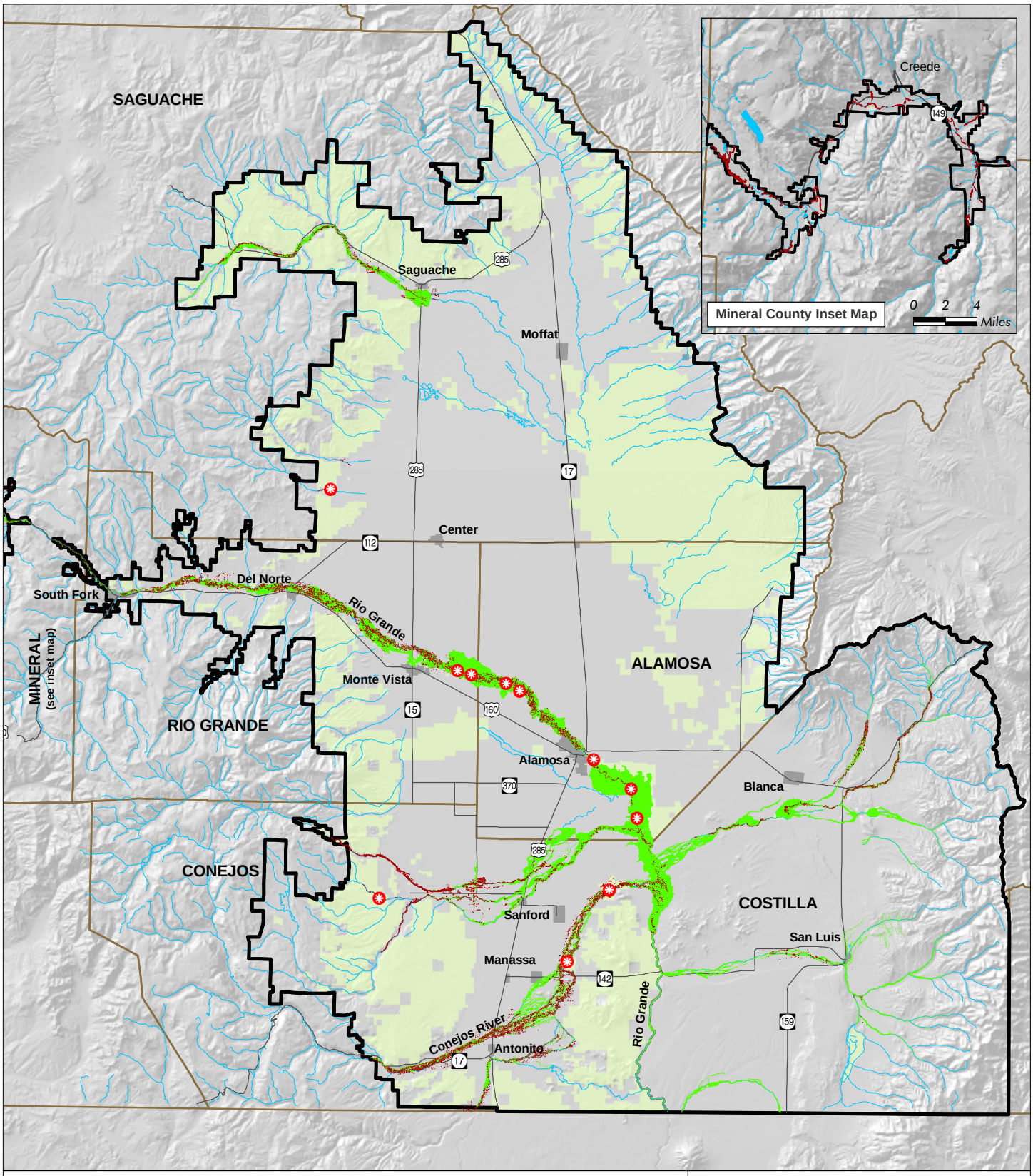
Description

The cuckoo is a medium-sized bird about 12 inches (30 cm) in length, and weighs about 2 ounces (60 grams). The species has a slender, long-tailed profile, with a stout and slightly down-curved bill, which is blue-black with yellow on the basal half of the lower mandible (bill). The plumage is grayish-brown above and white below, with rufus primary flight feathers. The tail feathers are boldly patterned with black and white below. The legs are short and bluish-gray, and adults have a narrow, yellow eye ring. Juveniles resemble adults, except the tail patterning is less distinct, and the lower bill may have little or no yellow. Males and females differ slightly, as males tend to have a slightly larger bill (Hughes 1999).

Breeding Biology

Cuckoos are very secretive birds and have unique reproductive characteristics involving a very rapid breeding cycle. Onset of breeding is apparently correlated with an abundant food supply, often coinciding with an outbreak of caterpillars or cicadas, and the average time required for egg laying to fledging is 17 days (Hughes 1999). Generally, cuckoos arrive at their breeding grounds late in the season, and both adults quickly build a stick nest in a tree or large shrub (Hughes 1999). Territory size averages 50-60 acres (20 -24 hectares) (NatureServe 2012). Cuckoos also have been known to participate in communal nesting behavior and are sometimes assisted by apparently unrelated helper males that can supply the young with up to 40 percent of their food (Hughes 1999).

In general, the cuckoo nests in a variety of habitats including open woodlands, parks, and riparian woodlands (AOU 1998). The western subspecies (*C.a. occidentalis*) of cuckoo has a more restricted habitat requirement than its eastern counterpart (Ehrlich et al. 1992). The western subspecies is restricted to cottonwood and willow woodlands with a dense understory and large blocks of riparian habitat (Carter 1998; Franzreb and Laymon 1993). The cuckoo diet



San Luis Valley HCP

- Known Flycatcher/Cuckoo Detections
- Woody Riparian Habitat
- 100-year Floodplain
- State and Federal Lands
- HCP Boundary

0 6 12 Miles

N

Figure 2
Known Flycatcher and Cuckoo Detections

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consists of mostly caterpillars, cicadas, grasshoppers, and other potential crop-destroying insects. As a result, cuckoos may exhibit irruptive behavior by moving into areas where cicada outbreaks are underway to capitalize on the available food source (Laymon 2001).

The historical distribution of the western subspecies was widespread and locally common in California and Arizona. The cuckoo was locally common in a few river reaches in New Mexico; common very locally in Oregon and Washington; generally local and uncommon in scattered drainages of the arid and semiarid portions of western Colorado, western Wyoming, Idaho, Nevada, and Utah; and, probably uncommon and very local in British Columbia (Service 2001).

The loss, degradation, and fragmentation of riparian habitat have been identified as the primary factors causing cuckoo declines in the western U.S. (Carter 1998; Service 2001). Estimates of riparian habitat losses were 90 to 95 percent for Arizona, 90 percent for New Mexico, 90 to 99 percent for California, and more than 70 percent nationwide (Service 2001). In Colorado, riparian habitats cover approximately 3 percent of the land area (Kittel et al. 1999), but estimates of riparian habitat loss are unavailable.

Local Conditions

There have been few confirmations of cuckoos nesting in western Colorado, and the species was probably never common and is now rare (66 FR No. 143; Carter 1998). Historical records from the Western Slope indicate that the cuckoo was found in cottonwoods along the Yampa and Uncompahgre rivers (Carter 1998). Colorado breeding bird atlas observations of cuckoos were based solely on the birds' behavior and a single confirmed nest (Carter 1998). The National Park Service conducted cuckoo surveys in southwestern Colorado from 1988 to 1995 and found none. In addition, Park Service staff conducted surveys of the Mancos River six times over the course of 12 years and found none. There had been a few sightings of cuckoos along the Colorado River near Grand Junction, but no confirmed nesting sites (Service 2001).

Cuckoos were only recently recorded in the Valley, and little is known about the specific habitat affinities or productivity of the few individuals observed along the Conejos River. Surveys to detect cuckoos on publicly owned lands in the Valley have been very limited. Cuckoos have only been documented in the Valley three times prior to 2004; one near Del Norte and two separate observations in 1980 near Monte Vista and the Great Sand Dunes. This species was observed along the Rio Grande near Del Norte in 2008 and 2011 (Ireland, pers. comm. 2010, 2011), and was observed consistently on the Conejos River with as many as four individual cuckoos detected in 2005 (Figure 2) (Lucero and Cariveau 2004). Detections of cuckoos along the Conejos River occur in mature cottonwood forests with a tall, dense, willow understory with pools of standing stagnant water (Lucero and Cariveau 2004). Breeding (active nests) in the Valley has never been confirmed, but the behavior and frequency of sightings indicate the birds are nesting (Lucero and Cariveau 2004). As of the writing of this HCP, the population trends/estimates and distribution were unknown. Cuckoos are usually found at elevations less than 6,600 feet (2,011 meters) (Service 2001), although the entire Valley is above 7,000 feet and cuckoos found near Del Norte are at about 7,900 feet.

2.2 Riparian Vegetation Communities

The San Luis Valley consists of a wide variety of vegetation communities and habitat types. The general vegetation communities are shown in Figure 3. The vegetation communities that are of primary interest in this HCP are the riparian and wetland areas found along the major streams, irrigation canals, and ditches on the Valley floor. Most of the documented habitat for the flycatcher and cuckoo occurs in dense willow patches along the Rio Grande and Conejos River; however, many smaller rivers and streams (such as Alamosa, Trinchera, and creeks on the Baca NWR) have not been surveyed.

Riparian Habitat

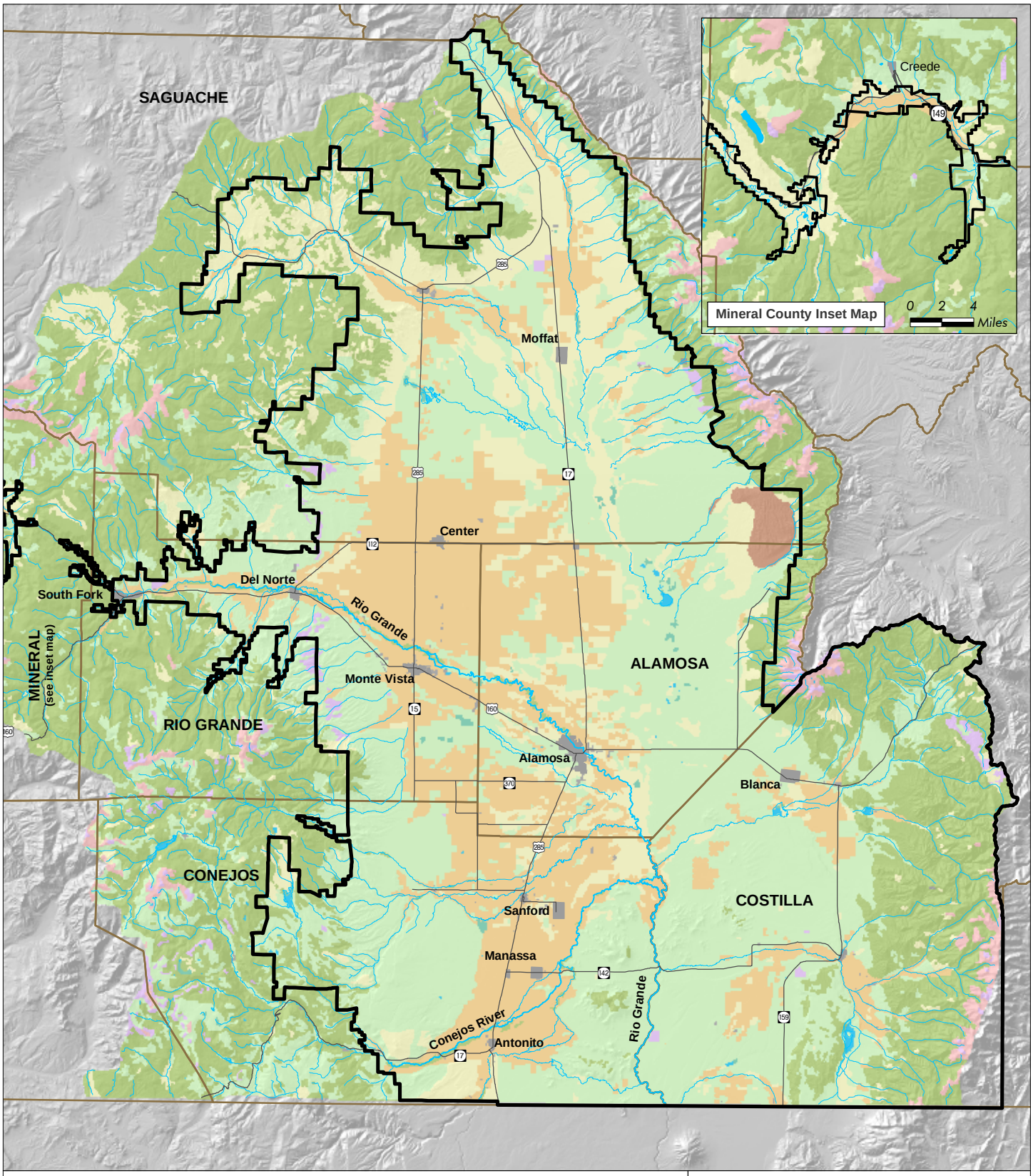
Riparian habitat in the Valley generally consists of a mosaic of woody trees and shrubs, wetlands, grasslands, and open water. The woody canopy includes stands of sandbar willow, peachleaf willow, crack willow, and broadleaf and narrowleaf cottonwood. In some areas, riparian vegetation is dominated by monotypic stands of either willow or cottonwood, while other areas support mixed stands of trees and shrubs (Stone, pers. comm. 2005; Lucero, pers. comm. 2005; Service 2003).

In addition to woody trees and shrubs, the riparian corridors in the Valley typically include wetlands and open water that are associated with irrigation and old oxbows, as well as wet meadows and grasslands that are often supported by irrigation and used for pasture. These ancillary habitat areas are generally found within the 100-year floodplain of major streams and rivers.

This HCP does not address all wetland and riparian habitat types in the Valley. Outside of the woody riparian habitat areas that are the focus of this HCP, numerous areas throughout the Valley (such as the Monte Vista NWR and the wetlands in the Closed Basin) are renowned for their diverse open water, emergent wetland, and wet meadow habitat types. These areas, however, do not typically provide habitat for the covered species.

Other Vegetation Communities

In addition to riparian areas, the central Valley floor generally consists of irrigated cropland. Outside of those areas, the remainder of the Valley floor consists of rangeland and scrubland vegetated by native and introduced grasses, sedge and juncus species, greasewood, and rabbitbrush. The rim of the Valley supports scrubland dominated by sagebrush. The lower slopes of the surrounding mountains are vegetated by piñon-juniper communities, transitioning to pine, fir, and spruce forests at higher elevations.



San Luis Valley HCP

- Cropland and Pasture
- Rangeland
- Shrub and Brush
- Mixed Forest Land
- Sand Dunes
- Tundra
- Urban or Built Up
- Wetlands
- Lakes and Reservoirs
- Other
- HCP Boundary

0 6 12 Miles

N

Figure 3
Land Cover

File: 2445 - Fig3_land_cover.mxd (WH)
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Riparian Habitat Types

For the purposes of this HCP, riparian habitat in the Valley falls into three general categories (Figure 4):

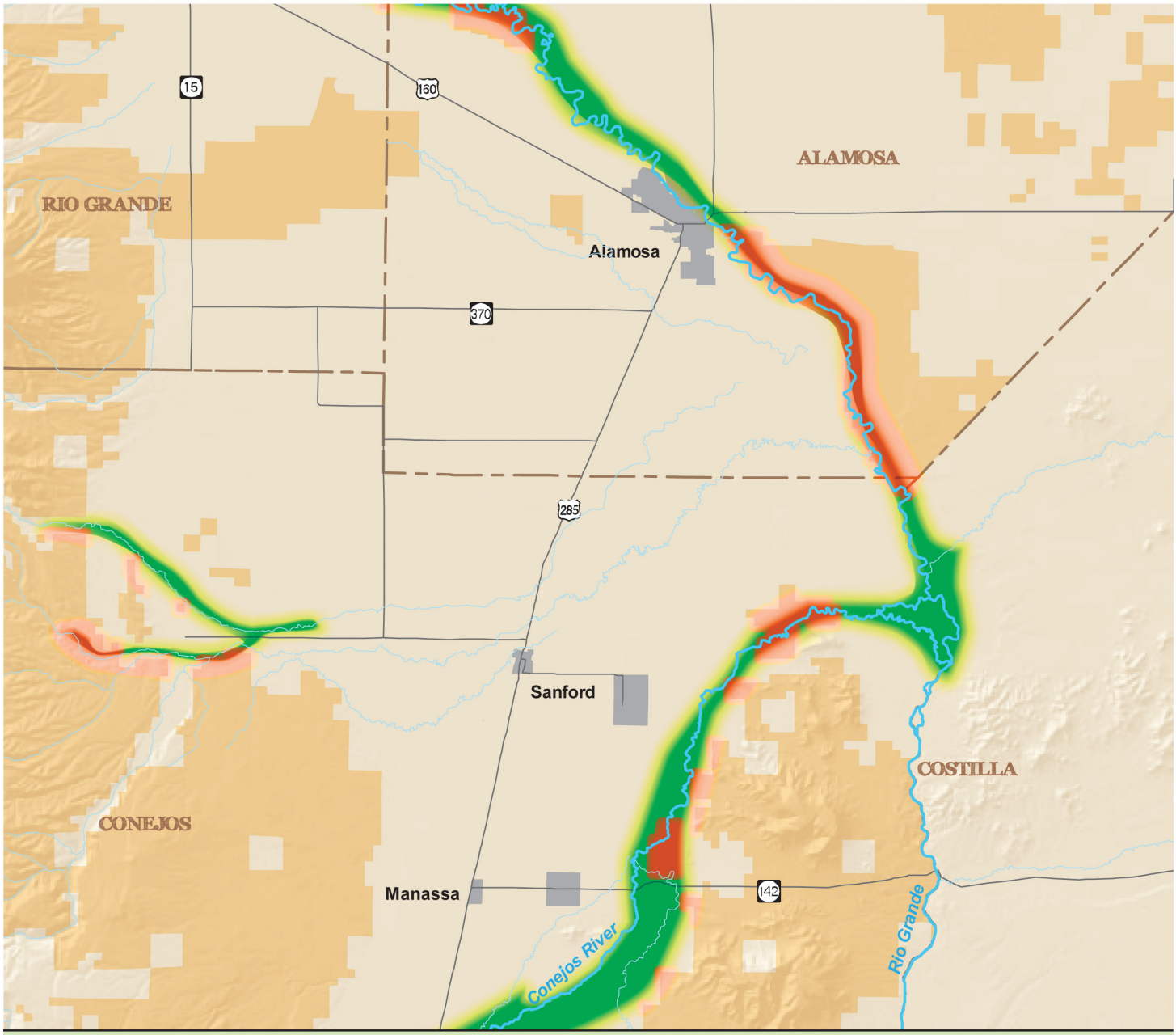
- Core habitat areas
- Buffer habitat areas
- Marginal habitat areas

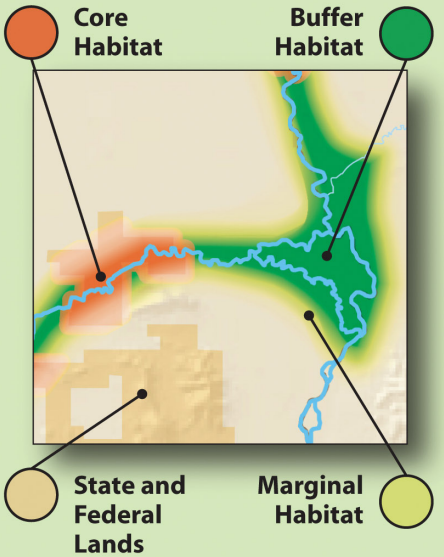
These categories take into account land ownership and management, habitat quality, connectivity and continuity, and the known presence or absence of the covered species. These habitat types are used to explain the on-the-ground relationships between the covered activities and their impacts, typical habitat management practices, land ownership, and the value of various areas to the covered species. Given the conceptual nature of these categories, the distinctions between them are not always clear, have not been mapped, and are not quantified.

Core Habitat Areas

These areas are protected from development, are managed to support or enhance wildlife habitat, and are known to support the covered species. Because of the combination of these factors, core habitat areas are considered the foundation for the conservation of covered species habitat in the Valley. Core habitat in the Valley is on the Alamosa NWR, the BLM's McIntire-Simpson property, and several SWAs.

Relationship to Recovery Plan Definitions – Core habitat areas in the Valley generally correspond with "occupied suitable habitat," as defined in the Recovery Plan. Occupied suitable habitat is a riparian area with all the components needed to provide conditions suitable for breeding flycatchers, in which flycatchers are currently breeding or have established territories. In general, suitable breeding conditions are dense, mesic riparian shrub and tree communities 0.25 acre (0.1 hectare) or greater in size within floodplains large enough to accommodate riparian patches at least 33 feet (10 meters) wide (Service 2002a). Occupancy is confirmed by field surveys. These distinctions illustrate the range of habitat variability throughout the Valley that can still support the covered species. Because of this variability, these areas can provide a comparative baseline for nearby habitat areas that include similar habitat quality and components, but are not specifically managed to support or enhance wildlife habitat (e.g., secondary habitat areas).





Core and Buffer Habitat Concept
Riparian habitat is generally categorized as:

Core habitat – State and federal lands known to support the covered species
Buffer habitat – Private lands with potential to support the covered species
Marginal habitat – Narrow, isolated, or edge areas that are not likely to support the covered species

These concepts are generally used to describe habitat in the San Luis Valley, and to focus implementation to support and improve the overall quality and connectivity of riparian habitat.

Figure 4. Core and Buffer Habitat Concept

Core Habitat Examples in the San Luis Valley – [13]

Higel and Rio Grande/Shriver-Wright SWAs

Core habitat in the SWAs along the Rio Grande above Alamosa are characterized by a dense mosaic of thick willow stands, mature cottonwoods, and mixed vegetation.

Alamosa National Wildlife Refuge

Core habitat on the Alamosa NWR generally consists of smaller patches of willow surrounded by extensive wetlands.

BLM McIntire-Simpson Property

Core habitat on the McIntire-Simpson property along the Conejos River consists of scattered patches of willows and cottonwoods interspersed with wet meadows.

[13] Select habitat photos courtesy of Rio de la Vista and Aaron Thompson, BLM.

Buffer Habitat Areas

These areas contain general habitat structure and quality components that are similar to core habitat areas, are adjacent to or nearby core habitat areas, and provide an important buffer between core habitat areas and more intensively managed areas. Buffer habitat areas are privately owned, are not exclusively managed to support or enhance wildlife habitat, and may not be subject to any conservation or habitat management measures. Many of these areas are believed to provide potential habitat for the covered species, but have not been surveyed to confirm the presence or absence of the species.

Buffer Habitat Examples in the San Luis Valley –

Rio Grande between Monte Vista and Alamosa

This portion of the Rio Grande corridor is characterized by a mosaic of mature cottonwood stands with dense patches of willow along oxbows and side channels. Several large landholdings in this area are already protected by conservation easements, while many others are not.

Conejos River

The high water table and numerous side channels and oxbows in this area support many scattered patches of cottonwood with many long, continuous patches of willow. Currently, very few protected properties are along this corridor.

Sangre de Cristo Creek

This corridor between Fort Garland and La Veta Pass is characterized by dense, monotypic stands of small to mid-sized willow in the narrow creek bottom.

These areas have been, and continue to be, the focus of extensive private conservation efforts in the Valley. As of October 2011, more than 1,600 acres of riparian habitat, most of which has the potential to support the covered species, has been protected by conservation easements on private lands.

Relationship to Recovery Plan Definitions – Buffer habitat areas in the Valley generally correspond with two habitat types defined in the Recovery Plan: "Unoccupied suitable habitat" and "potentially suitable habitat." Unoccupied suitable habitat appears to have physical, hydrological, and vegetation characteristics within the range of those found at occupied sites, but does not currently support breeding or territorial flycatchers. These areas, which occur primarily on private lands, have not been surveyed for flycatchers and, therefore, are assumed to be unoccupied. Potentially suitable habitat does not currently have all of the components needed to provide conditions suitable for nesting flycatchers (as described above), but which could – if managed accordingly – develop those components over time (Service 2002a).

Marginal Habitat Areas

These areas are narrow, isolated, or edge habitat areas (such as ditches and outer edges of pasture) that may occasionally provide some aspect of habitat for the individual birds (i.e., migration, dispersal, and post-fledging); but do not provide high quality, sustainable habitat. Most of the covered activities occur in these areas, which define the interface between higher quality riparian habitat (i.e., secondary habitat areas) and human use areas.

Relationship to Recovery Plan Definitions – Marginal habitat areas in the Valley generally correspond with two habitat types defined in the Recovery Plan: "restorable potential habitat" and "unsuitable habitat." Restorable potential habitat are those areas that could have the appropriate hydrological and ecological characteristics to develop into suitable habitat if not for one or more major stressors (i.e., hydrological changes, mowing, grazing, and fire). Unsuitable habitat are those riparian and upland areas that are found where physical and hydrological conditions could not support the dense riparian shrub and tree vegetation used by breeding flycatchers and do not have the potential for developing into suitable habitat, even with extensive management (Service 2002a).

Marginal Habitat Examples in the San Luis Valley –

Irrigation ditches

Typical marginal habitat along irrigation ditches consist of broken, linear patches of early-successional willows and occasional cottonwoods from about 5 to 15 feet wide. These patches are typically trimmed or fully removed periodically (every 5 to 10 years) as part of standard ditch maintenance.

Roadside drainages

Narrow depressions along county roads and highways typically collect surface water during the growing season and support narrow (3- to 10-foot-wide) linear patches of willows. These patches may be trimmed or removed periodically as part of standard road maintenance.

Edges of pastures

In some areas, riparian habitat lies directly adjacent to pastures used for livestock grazing. These willow and/or cottonwood patches are often isolated patches, or are the outer edges of large, interior patches, which are subject to the impacts of livestock (including browsing and trampling of existing branches and new growth).

Riparian Habitat Mapping

For the purposes of this HCP, the existing woody willow and cottonwood components of riparian habitat was mapped along key drainages. Native woody riparian vegetation represents suitable nesting substrate for flycatchers and cuckoos. Mapping the native woody riparian vegetation serves as an index to the overall riparian habitat that includes the associated wet meadow, slow-moving water, and herbaceous understory that are important components of the covered species' habitat. In 2005, Agro Engineering, Inc. developed baseline riparian habitat mapping specifically for this HCP. In 2008 and 2009, ERO Resources Corporation (ERO) expanded this mapping to include additional drainages, and updated the mapping to be consistent with 2009 aerial imagery. In 2011, riparian habitat in Mineral County was added.

The riparian habitat mapping is focused exclusively on the woody willow and cottonwood areas along streams and rivers that are known to have the greatest potential to support nesting habitat for the covered species, and are the primary interest of this HCP. The mapping does not include the adjacent wetland or open water components of the 100-year floodplain that provide foraging habitat for the covered species. For this reason, the woody riparian mapping is intended to be an indicator for the primary habitat needs of the covered species and is the quantitative baseline for this HCP. The woody riparian habitat mapping provides the basis for all of the habitat acreages, most of the impact estimates, and all of the mitigation credits described in this HCP.

The 100-year floodplain is intended to provide a frame of reference for the habitat mapping. While most of the woody riparian habitat is within the 100-year floodplain, a relatively small proportion of the designated floodplain areas contain sufficient nesting habitat for the covered species. Both the woody riparian mapping and the 100-year floodplain mapping are shown on Figure 5.

The baseline riparian habitat mapping was based on aerial photography taken between 2002 and 2004 (some areas were mapped with 1998 imagery). Ten survey plots were randomly selected to broadly verify the accuracy of this mapping. The original baseline mapping included the Rio Grande, Conejos River, Saguache Creek, Sangre de Cristo Creek, and Rio San Antonio. In 2008, this mapping was expanded to also include smaller creeks and streams in Costilla and Conejos counties, such as Culebra Creek, Ute Creek, La Jara Creek, and the Alamosa River.

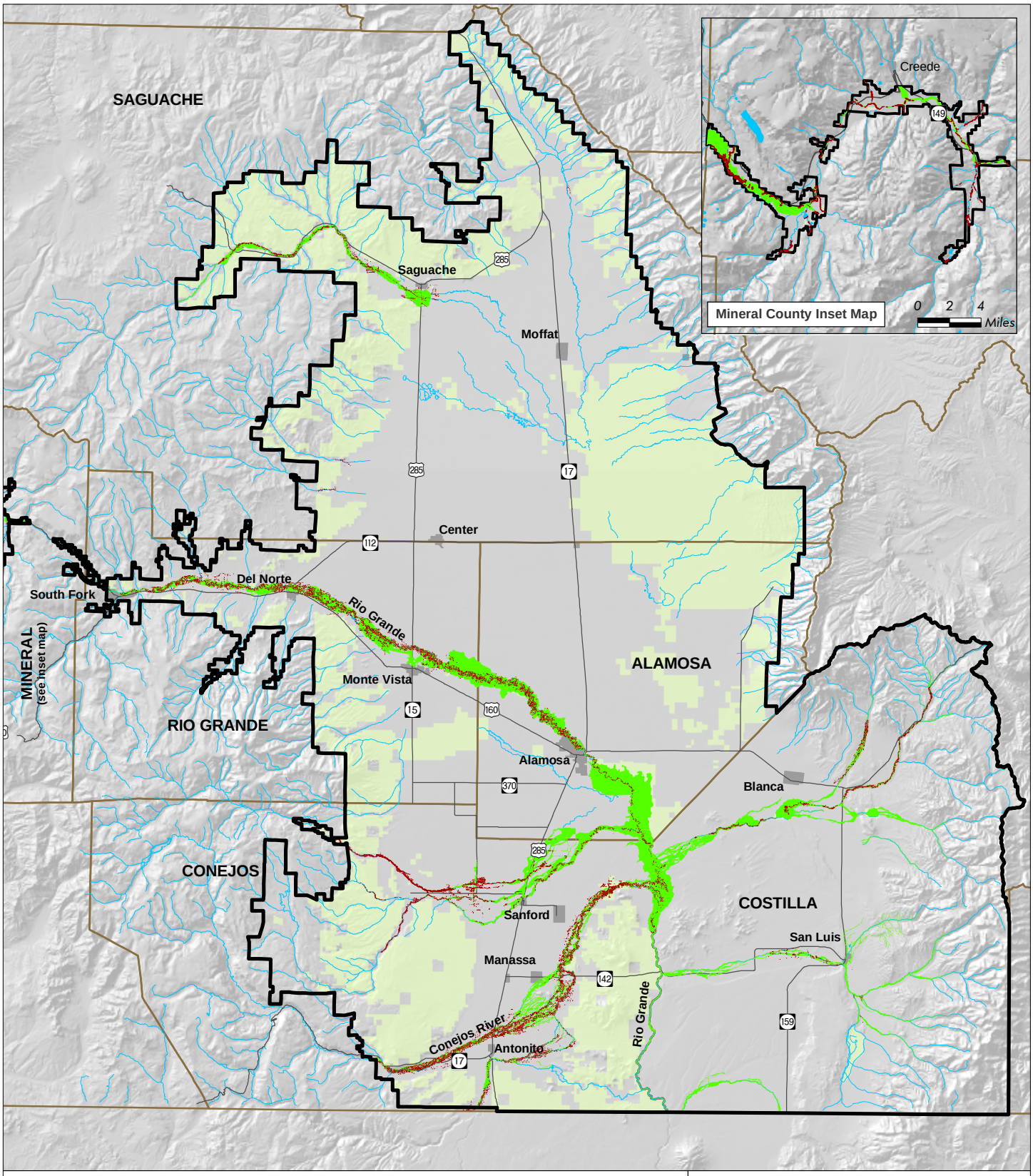
In late 2009, the riparian mapping was updated with 2009 aerial imagery to reconcile any changes in habitat that may have occurred since the previous mapping (based on 1998-2004 imagery). This repeat mapping resulted in a 0.6 percent increase in habitat, most of which was attributed to mapping errors (omitting several peripheral patches) rather than actual habitat changes. Besides ensuring the accuracy of the riparian mapping data, this exercise also demonstrated the overall stability of the riparian system and its resilience to drought and the ongoing impacts of the covered activities.

Riparian habitat mapping, along with the 100-year floodplain, are shown in Figure 2 and are quantified in Table 1.

Table 1. Riparian habitat mapping elements.

Map Element	Area (acres)
HCP plan area	2,904,639
100-year floodplain	101,247
Riparian Habitat Mapping	
Total riparian mapping	15,128
Willow-dominated habitat	5,109 (34%)
Cottonwood-dominated habitat	10,019 (66%)
Riparian Habitat Mapping by County	
Alamosa County	1,811
Conejos County	6,461
Costilla County	1,679
Rio Grande County	3,963
Mineral County	487
Saguache County	727
Total	15,128

The riparian habitat mapping is intended to be an indicator of the general riparian system, and is not intended to specifically define the limits of what is and what is not habitat, and should not be used for site-specific regulatory purposes. As described in Section 6.0, this mapping will be updated every 10 years to identify landscape-scale changes and trends, revisit impact assumptions, and subsequent mitigation requirements.



San Luis Valley HCP

- Woody Riparian Habitat
- State and Federal Lands
- 100-year Floodplain
- HCP Boundary

0 6 12 Miles

N

Figure 5
Riparian Habitat

File: 2445 - Fig5_Riparian_Hab.mxd (WH)
October 2012

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2.3 Water Resources and Administration

Surface Water

The headwaters of the Rio Grande, the Conejos River, the Alamosa River, and other drainages begin as small streams in the San Juan Mountains, flowing east to the Valley floor where they join the mainstem Rio Grande as it flows south into New Mexico. In addition to the natural streams and rivers, more than 600 miles of mapped ditches and canals in the Valley have been developed over the last century to support irrigated agriculture (Figure 6). While these diversions have altered the location and extent of native riparian habitat, and have resulted in a historic loss of wetlands in the Valley, the current irrigation infrastructure now provides surface and ground water flows that help sustain the current mosaic of riparian habitat. For example, the development of an extensive network of canals and irrigation agriculture has created irrigation-induced wetlands where none previously existed (CNHP 2004).

Ground Water

The subsurface geology of the Rio Grande Basin, which lies beneath the Valley, is a series of saturated sedimentary and volcanic rock layers. These layers comprise aquifers from which numerous wells draw water. Water continues to recharge the aquifers by percolation from surface streams, leakage through canals, and recharge from the mountains surrounding the Valley.

This complex aquifer system includes a shallow unconfined aquifer and a series of deeper, confined aquifers that are interconnected and hydrologically connected with the surface water system. The unconfined aquifer is the uppermost water-saturated layer of sand and gravel, down to a depth of about 100 feet across most of the Valley. Below the unconfined aquifer are a number of clay layers underlain by deeper water-bearing layers of sand, gravel, and fractured volcanic rocks that make up the confined aquifer. Water flows naturally from some wells drilled into the confined aquifer due to natural artesian pressure.

One unique feature of the Valley is the Closed Basin. This large area in the northern part of the Valley drains about 2,900 square miles and is separated from the rest of the Valley, at least in part, by a hydraulic divide; thus, the surface streams in the Closed Basin are not directly tributary to the rest of the Rio Grande Basin, and much of the water that flows into the basin is lost through evapotranspiration and evaporation.

The allocation of waters in the Rio Grande Basin is governed by the State system of water rights administration that has been in place for more than a century, and additionally by the Rio Grande Compact on the Rio Grande and Conejos River.

Rio Grande Compact

The Rio Grande Compact is a formal interstate agreement between Colorado, New Mexico, and Texas that dictates the amount of water that must pass annually from Colorado to downstream States on the Rio Grande. The Compact was ratified by all three States in 1938 and enacted as a Federal statute by Congress in 1939. Under the Compact, Colorado has an annual obligation to deliver water on a percentage basis, roughly 24 to 60 percent of the flow in the Rio Grande and 0 to 70 percent of the flow in the Conejos River system. The Colorado Division of Water Resources is responsible for administering the Rio Grande and Conejos River systems to ensure

Colorado's compliance with the Compact (Vandiver 2005). An inherent premise of the Compact is that the river channels between the Valley in Colorado and El Paso, Texas will remain free flowing and without major obstruction to carry water throughout the reaches of the Rio Grande Basin system (Id.). If water channels were allowed to deteriorate, Colorado would have great difficulty meeting its Compact obligations, which would subject the State to litigation from New Mexico and Texas. This would destroy the interstate comity that the Compact provides and would subject Colorado and its water users to great financial and legal liability, as well as losses of water supply.

State System of Water Rights Administration

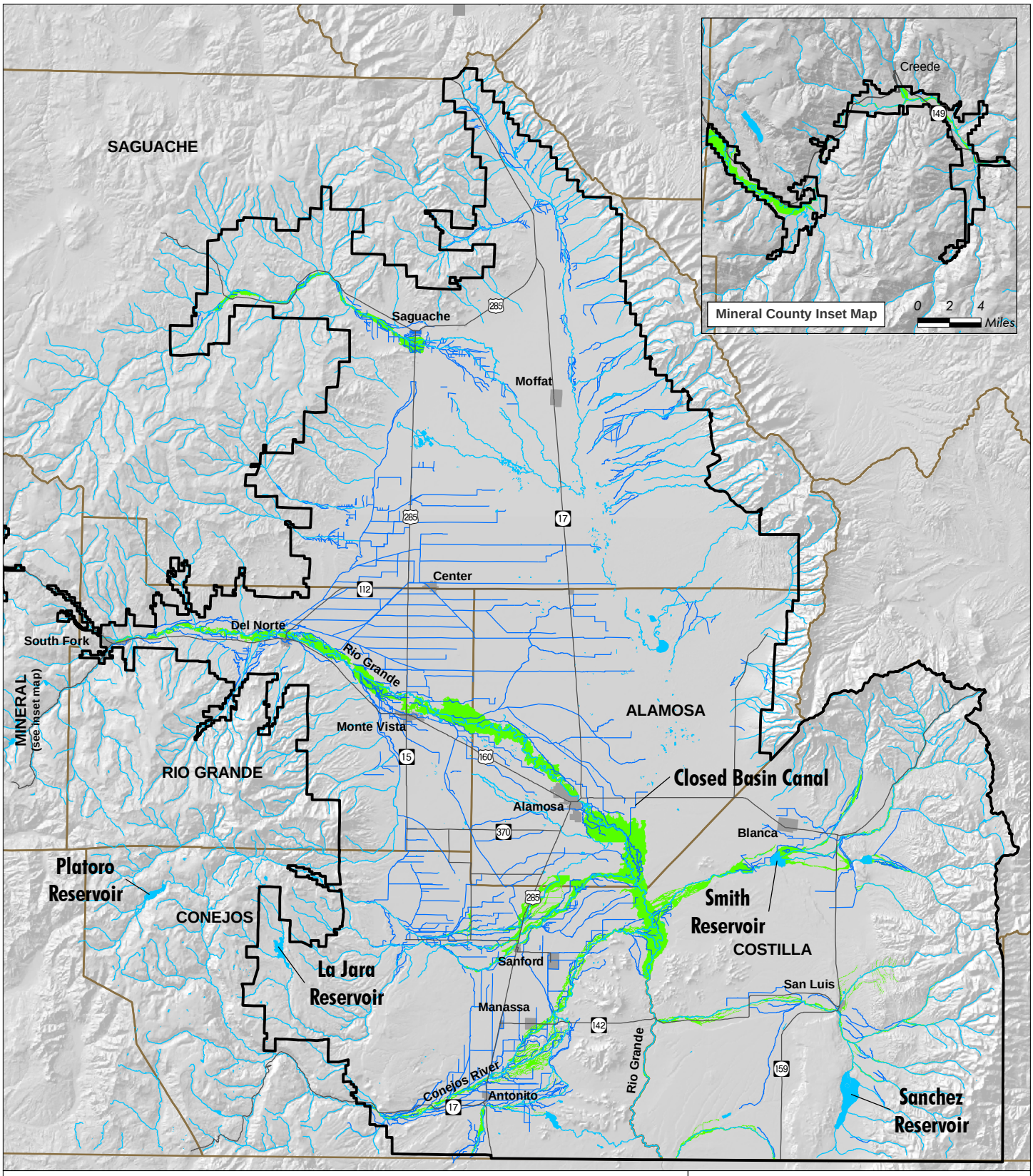
Water rights administration in the Valley is based on Colorado's Doctrine of Prior Appropriation where the available water is allocated and delivered to the calling priorities. This system of "first in time, first in right" has been in place for more than 100 years. The surface streams in the Valley are overappropriated and there is no opportunity for new appropriations because the Compact and decreed water rights in place have legal entitlement to all of the water in the system. In practice, the State Engineer typically curtails surface water rights and supplements these water deliveries with Closed Basin Project water to satisfy Colorado's Compact delivery obligations. Because of the overappropriated nature of water in the Valley, the Colorado Division of Water Resources, the State, and the Division Engineer require flexibility to administer and deliver water throughout the year to meet the simultaneous needs of decreed water right users and Colorado's Compact obligations.

Closed Basin Project

The Closed Basin Division of the San Luis Valley Project was authorized by Congress on October 20, 1972. In 1980, the Bureau of Reclamation began construction on the Closed Basin Project. Designed to pump water out of the Closed Basin, the Project discharges water from numerous wells in the unconfined aquifer into a conveyance channel that delivers water to the Rio Grande. The total ultimate production capacity of the Closed Basin Project was estimated to be about 117,000 acre-feet per year. However, actual production to date has averaged 24,000 acre-feet per year. This low average is partly due to production curtailment in years when the water was not needed to help satisfy Compact deliveries, and the biofouling of many of the wells in the Project. Basin water users agree that a more realistic goal would be a production rate of 65,000 acre-feet per year. By law, the Closed Basin Project deliveries are categorized into three types of uses:

- First, to assist Colorado in meeting its Compact obligations to New Mexico and Texas (an average of 60,000 acre-feet per year over any 10-year period).
- Second, to enhance wildlife in the Alamosa NWR and Blanca Wildlife Habitat Area (5,300 acre-feet per year).
- Third, to make any unused water available at a charge for general use by Conejos River and Rio Grande water users after priority one and two uses have been satisfied.

The District currently shares duties with Reclamation in administering and maintaining the Closed Basin Project and its features. The District holds the water rights for the Closed Basin Project.



San Luis Valley HCP

- River or Stream
- Ditch/Canal
- 100-year Floodplain
- HCP Boundary

0 6 12 Miles

N

Figure 6
Water Resources

File: 2445 - Fig6_water_resources.mxd (WH)
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Platoro Dam and Reservoir

Platoro Dam and Reservoir, located high on the Conejos River, is another feature of the San Luis Valley Project that was built to control floodwater, and provide supplemental water to irrigate about 73,890 acres of land in the Conejos Water Conservancy District (CWCD), which is 40 miles away from Platoro Dam and Reservoir and within the HCP plan area. Platoro Dam and Reservoir was completed in 1951. The dam was built and owned by Reclamation, and for many years was operated and maintained by the CWCD. In 1989, Congress authorized the transfer of the reservoir to the CWCD. In 1991, the responsibilities for operation and maintenance of all of the facilities and regulation of joint use space (conservation and flood control) below 10,027.57 feet were transferred from Reclamation to the CWCD (Reclamation 2005).[14] Pursuant to an agreement with Reclamation, CWCD paid for its share of the construction costs, and assumed the maintenance and operation of the dam and reservoir. Because this reservoir was built after the Compact was signed, it is referred to as a "post-compact reservoir," and is subject to special restrictions under the Compact. The U.S. Army Corps of Engineers retains exclusive authority over Platoro Reservoir for flood control purposes and directs the CWCD in the operation of Platoro Reservoir for such purposes.

Other Significant Reservoirs

Besides Platoro Reservoir, which is described above, other significant reservoirs in the HCP plan area include Sanchez Reservoir (south of San Luis), La Jara Reservoir (west of La Jara), and Smith Reservoir (south of Blanca).

2.4 Socioeconomic Setting

History and Demographics

The San Luis Valley was the first area of Colorado to be settled by European descendants. When the Valley and all of the territory drained by the Rio Grande was claimed by the King of Spain in 1598, very little was known about the area. Although a few exploration parties did venture into the Valley between 1598 and 1680, most of the Spaniards' settlement activity took place in New Mexico, which became a Spanish colony in 1609, and a part of Mexico in 1821.

Plans to colonize the Valley began in the 1840s with the dedication of several Mexican land grants in what is now Colorado. The Sangre de Cristo Grant, which coincides with present-day Costilla County, contained more than one million acres. In 1848, New Mexico and the San Luis Valley became part of the United States. As part of the settlement of the Sangre de Cristo Grant, the Town of San Luis was established by Hispanic settlers from New Mexico in 1851, and is now the oldest town in Colorado.

In general, community dynamics of the Valley consist of a mix of ethnic and cultural groups who have settled in the area over the last 150 years. Descendants of many of the original Hispanic settlers are generally concentrated in the southern half of the Valley, along with the descendants of Mormon settlers in the towns of Manassa, Sanford, and Romeo. The northern half of the Valley is generally dominated by Anglo farming communities.

[14] Section 2302 (b) of the Reclamation Projects Authorization and Adjustment Act of 1992, Public Law 102-575, provides that "title to the Platoro Dam and Reservoir and all associated facilities shall remain with the United States…"

Economics

While local government is the largest employer in the Valley, agriculture is the dominant industry. The Valley produces a variety of crops including potatoes, barley, oats, alfalfa, wheat, and legumes. Alamosa, Rio Grande, and Saguache counties have among the highest value of crop sales in the State. Livestock grazing also is prominent in the Valley. Most of the crop production in the Valley is dependent on irrigation provided by the complex network of surface water diversions, ground water wells, ditches, and canals described in Section 2.3.

The Valley is one of the most economically depressed regions in Colorado (Table 2). According to the Bureau of Economic Analysis, the average per capita personal income for the Valley is estimated at $28,030, compared to a statewide average of $41,344. The population and economic indicators of the region lag most other regions in the State. The average poverty rate in 2009 was well above the State average, and Costilla County was almost double the State average. Unemployment in 2011 is also above the statewide average.

Table 2. Socioeconomic and demographic statistics in the San Luis Valley.

	Alamosa	Conejos	Costilla	Mineral	Rio Grande	Saguache	SLV Average	State of Colorado
Population (2010)	15,445	8,256	3,524	712	11,982	6,108	–	5,011,390
Minority population* (2000)	50%	58%	69%	5%	45%	44%	45%	30%
Poverty rate (2009)	28%	20%	25%	4%	18%	27%	20%	13%
Unemployment (2011)	9.6%	12.5%	15.9%	6.8%	10.7%	13.9%	11.6%	9.7%
Per capita personal income (2008)**	$30,650	$24,180	$29,095	$31,017	$33,742	$19,496	$28,030	$41,344

* As defined by Council on Environmental Quality's (CEQ) Environmental Justice Guidance (CEQ 1997).

** Colorado LMI Gateway. 2011. http://lmigateway.coworkforce.com/lmigateway/default.asp.

Sources: Colorado Demography Office. http://dola.colorado.gov/demog/Demog.cfm; Colorado Economic and Demographic Information System http://www.dola.state.co.us/is/cedishom.htm.

2.5 Land Ownership and Management

The San Luis Valley consists of a mix of land uses and ownership. The different land ownership types and management arrangements are shown on Figure 7. Private lands comprise about 69 percent of the Valley. While most of the central Valley floor is privately owned, the outer areas, especially the northeast and southwest corners, are a mix of Federal- and State-owned lands.

Table 3. Existing habitat totals by land ownership type.

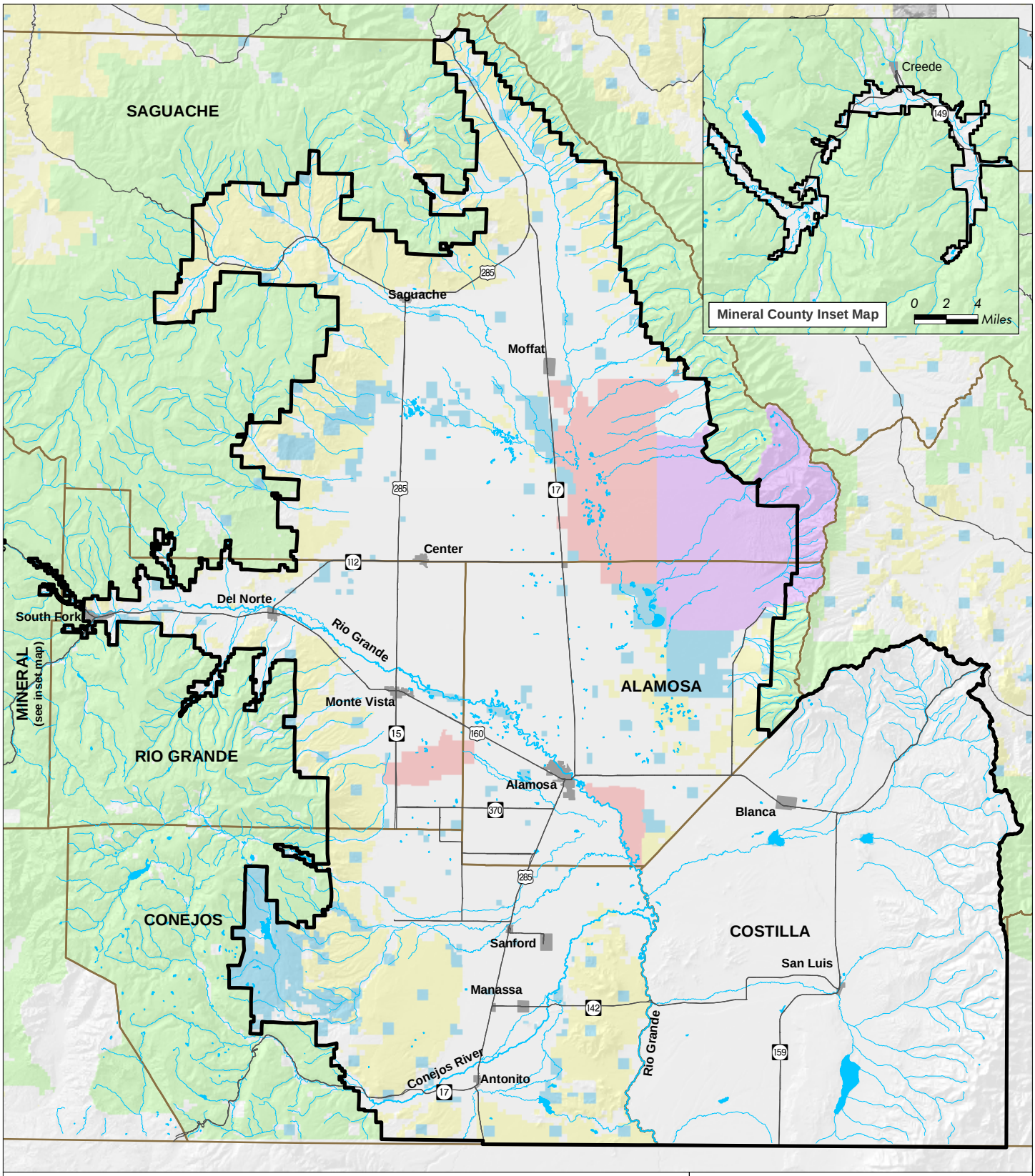
Area	Total in HCP Plan Area (acres)	Riparian Habitat (acres)	Percent of Total Riparian Habitat
HCP Area			
Total acres in plan area	2,904,639	15,128	100%
Federal Lands			
National Wildlife Refuge	119,421	111	0.7%
National Park	108,087	–	0%
BLM Land	510,481	232	1.5%
National Forest	325	–	0%
Subtotal	*752,292*	*363*	*2.3%*
State Lands			
State Wildlife Area	24,511	680	4.5%
State Trust Land Stewardship Trust Lands	142,174 25,681	69 –	0.5% 0%
Subtotal	*142,435*	*749*	*5 %*
Private Lands			
Private/Municipal Land	1,998,469	14,016	93%

Federal Land Management

U.S. Fish and Wildlife Service

The Service manages three wildlife refuges in the Valley: Alamosa NWR, Monte Vista NWR, and Baca NWR. The purpose of all three refuges is to support migratory birds, but all are managed for long-term habitat health.

Alamosa NWR — The Alamosa NWR is east and south of the City of Alamosa, along the eastern banks of the Rio Grande. This refuge contains known habitat for the flycatcher and potential habitat for the cuckoo. A Comprehensive Conservation Plan (CCP) was completed for the Alamosa and Monte Vista NWRs in 2003. The CCP directs the Service to provide "dense multilayered native riparian vegetation" for the flycatcher and other species, and to protect sufficient habitat for the flycatcher (Service 2003).



San Luis Valley HCP

- Bureau of Land Management
- US Forest Service
- National Park Sevice
- US Fish and Wildlife Service
- State of Colorado
- Private
- HCP Boundary

0 6 12 Miles

N

Figure 7
Land Ownership

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October 2012

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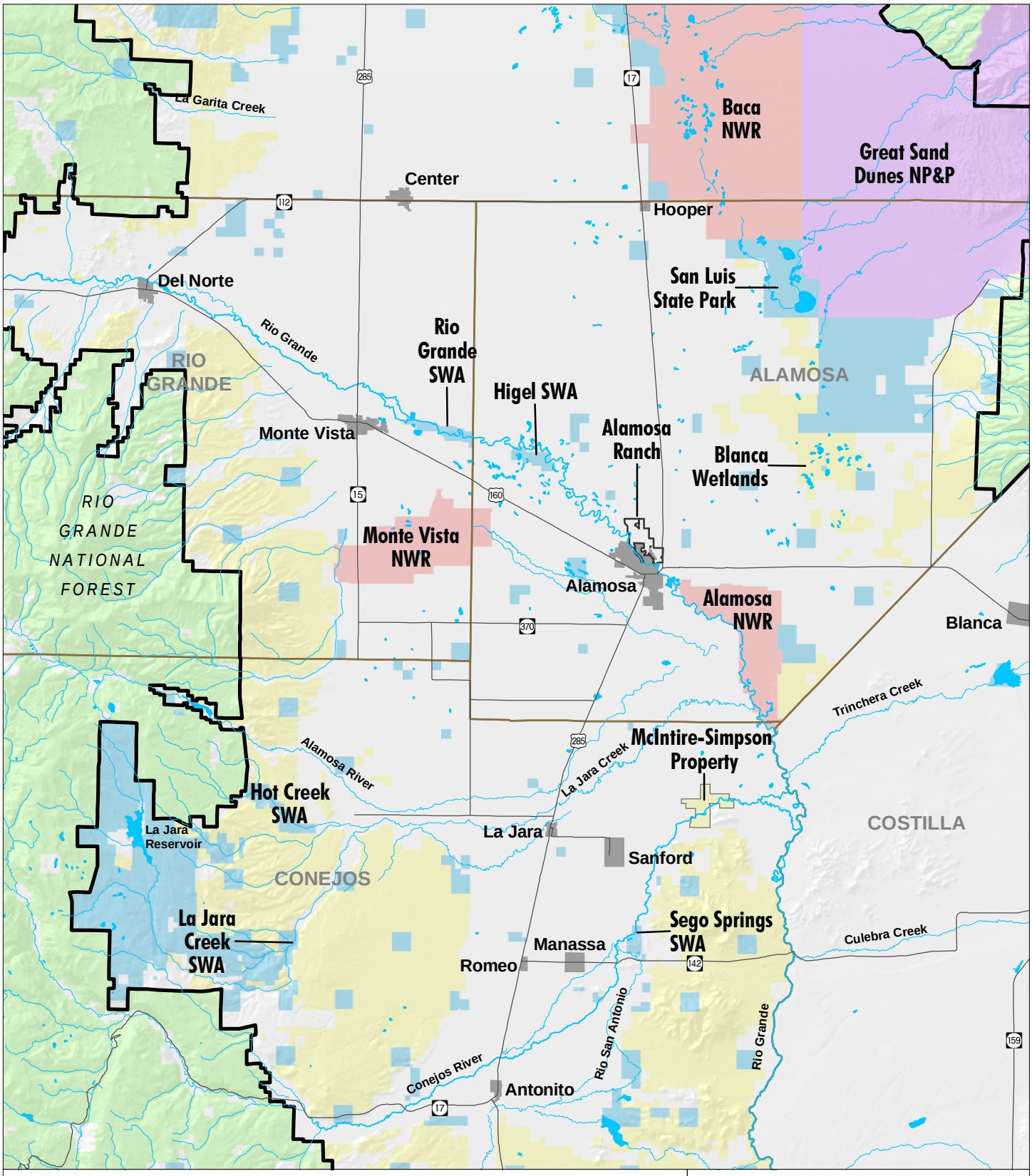

San Luis Valley HCP

- Bureau of Land Management
- US Forest Service
- National Park Sevice
- US Fish and Wildlife Service
- State of Colorado
- Private
- HCP Boundary

0 3.5 7 Miles

N

Figure 8
Land Ownership Detail

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October 2012

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Monte Vista NWR — The Monte Vista NWR is about 8 miles south of Monte Vista, on the western edge of the Valley. The refuge consists of a mix of wetland habitats, upland grassland and shrubland, and cultivated cropland, with a few small clusters of woody riparian vegetation along ditches and canals. There are no significant patches of riparian habitat that would likely support nesting flycatchers or cuckoos. The refuge is managed primarily for migratory bird habitat (Service 2003).

Baca NWR — The Baca NWR was authorized by Congress in 2000 with the Great Sand Dunes National Park and Preserve Act, and officially established in 2003 after the Secretary of the Interior deemed there were sufficient lands to manage as a refuge. The Baca NWR is in the northeastern portion of the Valley, along the base on the Sangre de Cristo Mountains, immediately north of the Great Sand Dunes National Park and Preserve. The Baca NWR contains a diversity of habitat types, including semidesert shrublands and grasslands, irrigated meadows, wetlands, and riparian areas. Several stream corridors along the lower slopes of the mountains in the northeast corner of the refuge, including Willow Creek, Cottonwood Creek, and Deadman Creek, support cottonwood and willow habitat components. Woody riparian vegetation on the Baca NWR is currently limited, and it is unknown at this time if it supports flycatchers or cuckoos. Long-term Baca NWR management will focus on resource assessments and maintenance of pre-acquisition management regimes until a CCP for the refuge is in place (Service 2005).

Bureau of Land Management

The BLM manages about 510,000 acres of land in the Valley. A large portion of this BLM land is in Conejos County, while the remainder is generally clustered along the lower mountain slopes on the western and northern portions of the Valley, and the area to the south of Great Sand Dunes National Park and Preserve.

The BLM's McIntire-Simpson property along the Conejos River is known to support flycatcher and cuckoo breeding habitat. Additionally, migrant flycatchers have been observed in the spring on BLM lands along La Garita Creek, northwest of Center. While the BLM has been very involved in monitoring flycatcher activity on the McIntire-Simpson property, the agency does not currently have specific management plans for either of these areas. The BLM is currently developing land use plans for the McIntire-Simpson property with specific management guidelines for flycatchers, and is preparing a statewide biological assessment in compliance with the Section 7 obligations for flycatchers and cuckoos (Lucero, pers. comm. 2005).

National Park Service

The National Park Service manages the Great Sand Dunes National Park and Preserve, which is in the northeast portion of the Valley along the base of the Sangre de Cristo Mountains. Originally designated as a National Monument in 1932, the park was expanded to about 85,000 acres and designated a National Park (43,000 acres) and National Preserve (42,000 acres) in 2004. The Great Sand Dunes National Park and Preserve is not believed to provide habitat for the flycatcher or cuckoo.

U.S. Forest Service

Most of the higher elevation forests surrounding the Valley are managed by Rio Grande National Forest, and are outside of the HCP boundary. Extensive survey efforts on national forest lands have not located any flycatchers (Hawks Aloft 2002, 2003, 2004; Ghormley 2011).

U.S. Bureau of Reclamation

Reclamation manages land and facilities related to the San Luis Valley Project. These facilities include the Closed Basin facilities to the east of Alamosa.

State Land Management

State Wildlife Areas

Colorado Parks and Wildlife (CPW) manages several SWAs in the Valley. The following SWAs may provide (or have the potential to provide) suitable habitat for the covered species:

- Del Norte SWA (west of Del Norte)
- Rio Grande/Shriver-Wright SWA (east of Monte Vista along the Rio Grande)
- Higel SWA (west of Alamosa along the Rio Grande)
- Sego Springs SWA (along the Conejos River near Manassa)
- Hot Creek SWA (west of La Jara)
- La Jara SWA (west of La Jara)
- La Jara Reservoir SWA (west of La Jara)
- Smith Reservoir SWA (south of Blanca)

Management of SWAs varies by parcel. Management activities on SWAs may include grazing, haying, fence construction, and water management. These activities may result in the incidental take of the covered species or their habitat, and also can be used as management tools to improve riparian habitat conditions. The Rio Grande and Higel SWAs are actively managed for wetland and riparian habitat enhancement. Other areas have little or no active habitat management. None of the SWAs in the Valley have management plans that specifically address habitat for the covered species.

Several other SWAs in the Valley, including Russell Lakes SWA, San Luis Lakes SWA, Mountain Home Reservoir SWA, and Sanchez Reservoir SWA, are not believed to provide breeding habitat for the flycatcher or cuckoo.

Other State Lands

In addition to the SWAs mentioned above, the State owns an additional 142,000 acres of land within the Valley. This includes San Luis Lakes State Park, which is adjacent to the Great Sand Dunes National Park and Preserve, and is managed by CPW, which owns the water storage rights on the San Luis Lake for all natural waters. The District and CPW jointly and separately own the storage rights for water elevations above those levels, in part, for the purposes of storing Closed Basin Project water.

The Colorado State Land Board manages other State lands in the Valley. These lands are typically leased for agricultural or other uses that are consistent with adjoining lands[15] and are not considered to be managed for conservation purposes, unless they are enrolled in the State's Stewardship Trust program. Most of the Stewardship Trust lands in the Valley are on the Medano-Zapata Ranch south of the Great Sand Dunes National Park and Preserve, and in the

[15] Covered activities conducted on State Land Board lands by the State or by private lessees will receive the same incidental take coverage under the HCP as other private or State lands.

area south of La Jara Reservoir in Conejos County. None of the Stewardship Trust parcels are believed to contain high quality habitat for the covered species.

Local Government-Owned Land

Individual jurisdictions own and manage several small portions of land within the Valley. These include town and city parks, golf courses, open space, and other public facilities. For the purposes of this HCP, these areas are treated the same as privately owned lands.

Alamosa Ranch

In 1997, the City of Alamosa acquired the 1,300-acre North Thomas Ranch along the northern edge of the Rio Grande. The primary reason for the purchase was to acquire the water rights associated with the ranch, now known as the Alamosa Ranch. Most of the ranch is leased for agricultural uses, primarily livestock grazing. One large portion of the ranch adjacent to the Rio Grande (Excelsior Tract 5) contains extensive woody riparian habitat, while a second area (Independent Tract 5) contains constructed ponds and wetlands with the potential for woody riparian habitat development/restoration.

In 2008, the City initiated a public planning study to identify long-term land use options and recommendations. A draft report was completed in early 2009, and recommended that both of the tracts that contain existing or potential woody riparian habitat be preserved as natural areas, recognizing their context within the greater Rio Grande riparian corridor (City of Alamosa 2009).

Conservation Easements

About 32,000 acres of private lands in the HCP plan area have conservation easements that protect the property or portions thereof from development. Existing conservation easements held by Federal agencies and private land trusts are described below in Section 2.7.

2.6 Existing Local Land Use Policies

Colorado law delegates the authority and responsibility to regulate land use to counties and municipalities. This authority and responsibility includes a requirement that counties prepare and adopt master plans or comprehensive plans, requires subdivision regulations, and requires zoning and other planning tools. All of the counties in the Valley have general guidance and/or development stipulations that are used to limit development in wildlife habitat areas on a case-by-case basis. Proposed land use policies associated with the implementation of this HCP are described in Section 5.7.

General Floodplain Restrictions

Floodplains have been designated along the Rio Grande, Conejos River, and other major streams. While specific floodplain development requirements vary by county, they typically require additional oversight and approval criteria for development projects. While these policies do not eliminate development in the floodplain, they do have the potential to reduce the frequency and magnitude of riparian habitat impacts within the designated floodplain.

2.7 Existing Conservation Efforts

The communities of the Valley have a history of proactive and collaborative conservation dating back to the establishment of the Great Sand Dunes National Monument in 1932. These efforts

have led to the establishment of the Alamosa and Monte Vista NWRs, local habitat protection efforts, numerous private conservation programs, and the acquisition of the Baca Ranch to allow the creation of the Baca NWR and Great Sand Dunes National Park and Preserve. The legacy of these ongoing efforts is found in the existing mosaic of protected lands that sustain the covered species in the Valley, and can be enhanced through the HCP's strategic and collaborative conservation approach.

This section describes the many conservation efforts underway in the Valley that will continue to protect and enhance wetland and riparian habitat, and will contribute to the conservation and enhancement of habitat for the covered species.

Conservation Programs and Initiatives

Colorado Wetlands Program and Wetlands Initiative

The Colorado Wetlands Program was launched by the Colorado Division of Wildlife (now CPW) in 1997 to foster cooperation among wetland protection interests and achieve wetlands conservation through voluntary, incentive-based means that include willing-to-participate landowners and local communities.

As part of the Wetlands Program, the Colorado Wetlands Initiative is an endeavor to protect wetlands and wetland-dependent wildlife through the use of voluntary, incentive-based mechanisms. The Wetlands Initiative is a partnership and a cooperative venture among Ducks Unlimited, The Nature Conservancy (TNC), Partners for Fish and Wildlife, Great Outdoors Colorado, the Colorado Division of Parks and Outdoor Recreation, and the CPW (CDOW 2005).

Within the Valley, the Wetlands Initiative has contributed to five conservation projects that help protect habitat for the covered species. These projects have been supported by North American Wetlands Conservation Act grants, as well as contributions from project partners. Wetlands Initiative projects that have contributed to riparian habitat protection include efforts to protect the L Cross Ranch in Saguache County, as well as habitat restoration and mapping on the Alamosa NWR, Higel SWA, and Rio Grande/Shriver-Wright SWA.

San Luis Valley Wetlands Focus Area Committee

The San Luis Valley Wetlands Focus Area Committee (WFAC) was originally formed as an advisory group to the CDOW in 1990. When the CDOW created its statewide Wetlands Program and Wetlands Initiative, the local committee developed into a Valley-wide forum for wetlands and riparian conservation and restoration. The group includes several local conservation organizations; the Federal, State, and local land management and wildlife agencies; water and soil conservation districts; and numerous local farmers, ranchers, and interested citizens.

The WFAC collaboratively raises funds to implement voluntary, incentive-based wetlands and riparian conservation and restoration projects. It provides a forum for interested parties to meet, share ideas and research efforts, avoid duplication, and optimize collaboration. Since a large extent of the Valley's water and wetlands are components of private agricultural operations, the WFAC works closely with private landowners to enhance and sustain wetlands and riparian areas.

Rio Grande Initiative

In 2006, the WFAC and the Rio Grande Headwaters Land Trust (RiGHT) began a focused effort to protect and restore (through conservation easements or other means) riparian and wetland habitat on private lands along the Rio Grande. The Rio Grande Initiative is a partnership between RiGHT, Ducks Unlimited, TNC, the Colorado Cattleman's Agricultural Land Trust (CCALT), and others. The goal of the Rio Grande Initiative has been to work with individual landowners to voluntarily protect land and habitat along the Rio Grande corridor. (See the *Conservation Easements* section below for more details).

Since its initiation, the Rio Grande Initiative partners have raised more than $10 million in Federal, State, and private funding and have protected over 18 properties and 13,600 acres of land along the Rio Grande (not including lands in Mineral County). Notable conservation successes have included the River Valley Ranch I (585 acres near the Rio Grande/Shriver-Wright SWA), the 1,025-acre Gilmore Ranch near Alamosa, and the 3,200-acre Cross Arrow Ranch at the confluence of the Rio Grande and Conejos River (adjacent to the BLM's McIntire-Simpson property) (Butler 2010).

Rio Grande Natural Area

On October 12, 1996, the Rio Grande Natural Area Act was signed into law (P.L. 109-337; 16 United States Code (USC) 460). This act established the Rio Grande Natural Area along a 33-mile stretch of the Rio Grande from the southern boundary of the Alamosa NWR to the New Mexico state line, extending ¼ mile on either side of the river. The purpose of the Natural Area is to conserve, restore, and protect the natural, historic, cultural, scientific, scenic, wildlife, and recreational resources along the Rio Grande. The newly established Natural Area includes about 10,000 acres of both Federal (BLM) and private land. Implementation of the Rio Grande Natural Area Act will include the following elements.

Rio Grande Natural Area Commission – A commission composed of nine members will prepare a management plan for non-federal lands within the Natural Area. The commission will include representatives of the following:

- BLM Colorado State Director
- Alamosa NWR manager
- Colorado Division of Wildlife
- Colorado Division of Water Resources
- Rio Grande Water Conservation District
- Four members of the public

Natural Area Management Plans – The BLM and the Commission will prepare two management plans, one for BLM land and one for private lands. The Natural Area Act provides that the management plans will include the following:

- Consideration of other Federal, State, and local plans.
- Measures that encourage county governments (Costilla and Conejos counties) to adopt and implement land use policies that are consistent with the management of the Natural Area.

- Measures to encourage and assist private landowners in the Natural Area with the implementation of the management plan.
- A list of property that should be preserved, restored, managed, developed, maintained, or acquired to further the purposes of the natural area.
- Policies for resource management to protect the resources and natural values of the Natural Area.
- A provision that the management plan that is prepared for private land in the Natural Area will be valid only to the extent that the private landowner agrees in writing to be bound by the management plan.

The Rio Grande Natural Area planning and implementation process will provide an additional framework for riparian habitat conservation and management along the Rio Grande, including the high quality habitat areas south of the Alamosa NWR.

Saguache Creek Corridor Project

The Saguache Creek corridor is defined by a narrow, but unbroken chain of irrigated agricultural lands stretching west from Saguache, bordered on both sides by sagebrush-covered BLM uplands, and the forested mountaintops of the Rio Grande National Forest. The Great Outdoors Colorado Trust Fund (GOCO) awarded $3.7 million to the Saguache Creek Corridor Project, which will allow the CCALT to assist willing landowners in the perpetual protection of agricultural, wildlife, and scenic values in the corridor through below market value purchases of conservation easements. CCALT envisions purchasing easements on 17 ranches, permanently protecting 18,400 acres (GOCO 2004).

All of the proposed conservation easement ranches include stretches of Saguache Creek or its primary tributaries. These areas contain significant patches of willow, which could potentially provide habitat for the flycatcher and cuckoo. CCALT currently has about 3,800 acres of land under conservation easements in this area, divided among four properties.

Conservation Easements

As of October 2011, over 32,000 acres of land and 1,762 acres of riparian habitat in the HCP area protected by conservation easements (see Tables 4 and 5 and Figure 9). Conservation easements are restrictions that landowners voluntarily place on their properties to protect environmental resources and restrict future development. Easements are generally sold at a reduced rate or donated to a qualified conservation organization (i.e., land trust), or Federal or local government entity, and are usually granted in perpetuity. These transactions are often supported financially through State and Federal programs, as well as private conservation organizations and donors.

Conservation easements allow continued private ownership and use of the land, subject to the specific parameters of the easement, and are granted for lands that contain specified conservation values and will be managed to maintain those values. However, the easement terms and management requirements vary between properties, and are arranged on a case-by-case basis. Of the numerous conservation easements throughout the Valley, several include potential habitat for the covered species.

Conservation easements within the Valley that have the potential to support the covered species are generally described below, are listed in Table 4, and are illustrated in Figure 9. The specific locations of these easements are withheld to protect the privacy of the landowners.

Rio Grande Headwaters Land Trust

RiGHT focuses on the protection of agricultural land and water resources, and is the only locally based land trust that operates in the Valley. Priority areas include the Rio Grande corridor and the Rock Creek corridor to the west of the Monte Vista NWR. RiGHT has been the lead entity in the Rio Grande Initiative, and holds easements on about 8,100 acres of land along the Rio Grande corridor.

Ducks Unlimited

Ducks Unlimited currently holds easements on eight properties totaling about 4,000 acres along the Rio Grande corridor. Ducks Unlimited is focusing on the Rio Grande corridor to protect its important wetland and riparian habitat, and is a partner in the Rio Grande Initiative.

The Nature Conservancy

In addition to their large Medano-Zapata Ranch (100,000 acres) adjacent to the Great Sand Dunes National Park and Preserve, and their Mishak Lakes preserve, TNC has several conservation easements throughout the Valley. Along the Rio Grande corridor, TNC holds an easement on about 1,000 acres of the Gilmore Ranch near Alamosa. Along the west side of the Valley, TNC has two easements covering a total of about 6,000 acres, including riparian habitat along La Garita Creek and Carnero Creek. Along the east side of the Valley, TNC also has a small easement of about 100 acres that includes riparian habitat along Cottonwood Creek near Crestone.

Colorado Cattleman's Agricultural Land Trust

CCALT currently has conservation easements on several properties along Saguache Creek (part of the Saguache Creek Corridor Project), totaling about 4,100 acres, including riparian habitat. Riparian habitat was considered to be one of the primary conservation values for these easements (West, pers. comm. 2005). As part of the Rio Grande Initiative, CCALT holds a 1,600-acre easement in Rio Grande County.

Colorado Open Lands

In 2004, Colorado Open Lands acquired an 80,000-acre conservation easement on the Forbes Trinchera Ranch along the western slopes of the Sangre de Cristo Mountains in the southeastern part of the Valley. While most of this easement covers the forested highlands of the property, it also includes riparian habitat within the HCP plan area along Sangre de Cristo Creek, Trinchera Creek, and smaller tributaries.

Rocky Mountain Elk Foundation

Rocky Mountain Elk Foundation has a 1,000-acre easement that is bisected by the Alamosa River on the western edge of the plan area. They also hold an easement on about 13,000 acres of the Taylor Ranch east of San Luis in Costilla County.

Natural Resources Conservation Service

The NRCS has several existing and numerous potential conservation easements on a variety of properties providing riparian habitat in the Valley. The terms and conditions attached to these easements contain prohibitions to any activity that alters or diminishes the value of the wildlife

habitat including haying or mowing; altering grassland, woodland, or wildlife habitat; harvesting wood products; creating new or altering existing water control structures; installing buildings or structures; and harvesting crops or grazing. Most of these easements and potential easements are along the Rio Grande between Del Norte and the Conejos River confluence. The existing conservation easements cover about 2,200 acres of land in the plan area, including a 1,300-acre easement straddling Alamosa and Conejos counties.

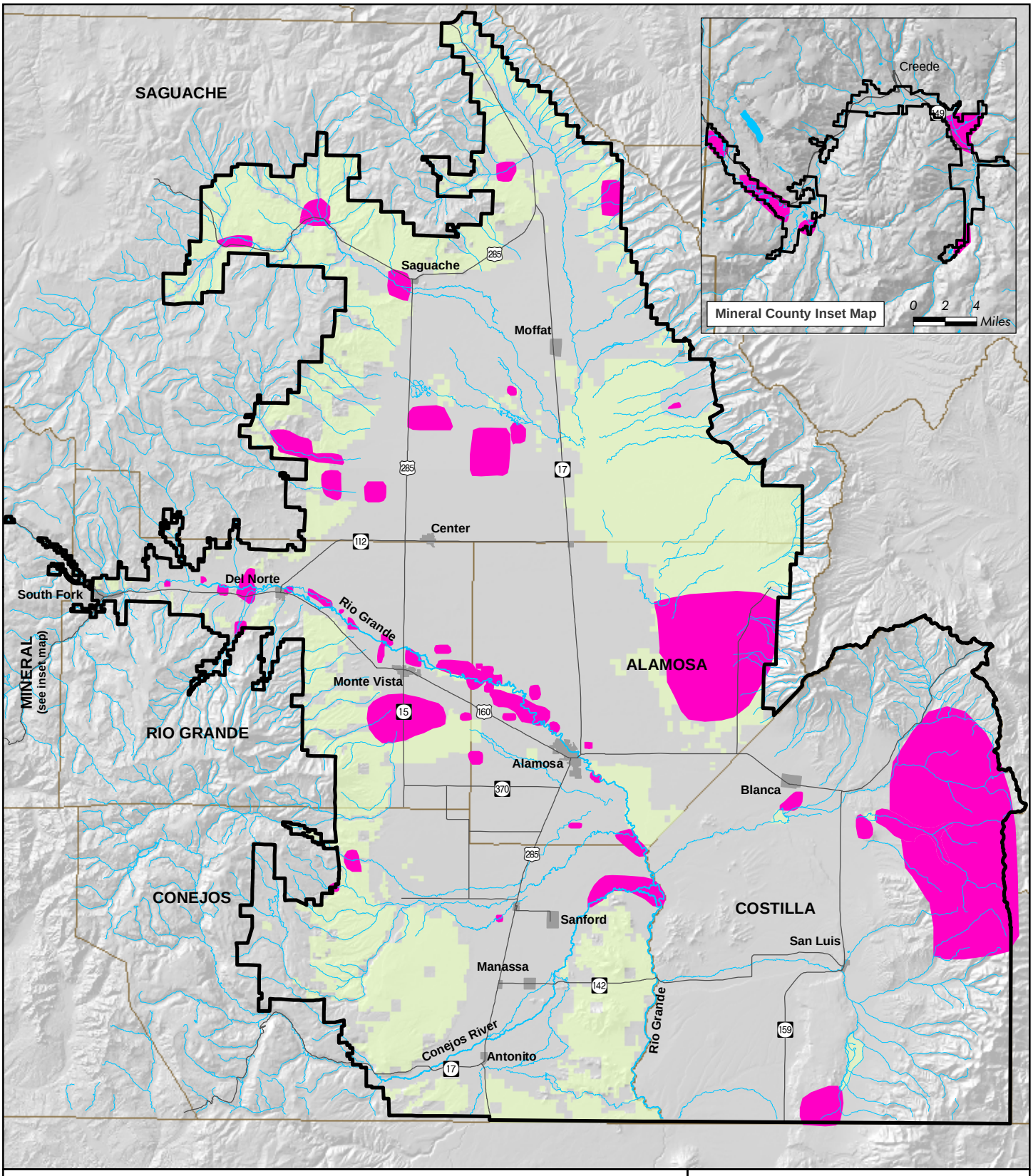
Table 4. Existing conservation easements by county (October 2011).

Easement Holder*	Number of Easements	Total Easement Area (acres)	Riparian Habitat Under Easement** (acres)
ALAMOSA COUNTY			
DU	4	3,407	324
RiGHT	1	134	–
TNC	1	804	128
NRCS	3	1,025	22
CONEJOS COUNTY			
RiGHT	1	3,341	243
DU	1	439	116
RMEF	1	1,097	35
NRCS	2	764	10
COSTILLA COUNTY			
RiGHT	1	694	5
COL	1	3,790***	–
Mineral County			
RiGHT	3	2,719	78
TNC		1,760	27
RIO GRANDE COUNTY			
RiGHT	11	2,195	291
DU	2	849	121
CCALT	1	1,474	83
NRCS	3	448	109
SAGUACHE COUNTY			
TNC	5	2,945	26
CCALT	5	4,122	145
TOTAL	42	**32,007**	**1,763**

* CCALT = Colorado Cattleman's Agricultural Land Trust; COL = Colorado Open Lands; DU = Ducks Unlimited; NRCS = Natural Resources Conservation Service; RiGHT = Rio Grande Headwaters Land Trust; RMEF = Rocky Mountain Elk Foundation; TNC = The Nature Conservancy.

** Riparian acres are within the HCP plan area only; riparian habitat data is limited to areas described in Section 2.1.

*** Limited to acres below 8,500 feet only. The total COL easement is over 80,000 acres.



San Luis Valley HCP

HCP Boundary

State and Federal Lands

Conservation Easement with Existing or Potential Habitat

Note: Easement boundaries are generalized to respect the privacy of landowners.

0 6 12 Miles

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Figure 9
Existing Conservation Easements

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October 2012

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Table 5. Existing conservation easements by drainage (October 2011).

Drainage	Total Easement Area (acres)	Riparian Habitat Under Easement* (acres)
Rio Grande	15,133	1,183
Conejos River	439	116
Rio Grande/Conejos River	3,341	243
Saguache Creek	4,122	145
Carnero Creek	1,407	26
Alamosa River	1,097	35
La Garita Creek	1,538	< 1
Others	4,930	14
TOTAL	**32,007**	**1,762**

* Riparian acres are within the HCP plan area only; riparian habitat data is limited to areas described in Section 2.1.

Other Easements

In addition to the easements listed in Table 4 and described above, numerous conservation easements are on upland, wetland, and/or agricultural lands in the Valley. These easements are held by RiGHT, Colorado Open Lands, CCALT, the Trust for Public Land, and American Farmland Trust. While these easements may not directly contribute to woody riparian habitat conservation, they are an important part of the overall private land conservation context.

Riparian and Wetlands Restoration Efforts

Rio Grande Headwaters Restoration Project

The primary purposes of the Rio Grande Headwaters Restoration Project (Restoration Project) are to analyze and develop a restoration master plan for the Rio Grande from the upstream corporate limit of the Town of South Fork, Colorado to the Alamosa-Conejos county line. The study assesses and presents a plan to enhance the adequacy of the Rio Grande to fulfill the following historical functions:

- Maintain the channel capacity and overbank capacity
- Protect the channel and floodplain from damage by flooding
- Maintain the riparian habitat
- Deliver the Compact commitments
- Access the river for water diversion

The Restoration Project plan takes a comprehensive approach to the river's functions, and provides a variety of recommendations including structural projects such as levee and geomorphic improvements, and non-structural projects such as riparian buffers, grazing management, land use planning, and floodplain management. While this effort will not directly lead to the protection or enhancement of riparian habitat, the implementation of this project will provide an ecological and administrative framework for long-term habitat conservation and enhancement (SLVWCD 2001).

Alamosa River Restoration Project

The Alamosa River Watershed Project was established in 1995 by the NRCS and the Alamosa-La Jara Conservancy District to address environmental and restoration issues along the Alamosa

River. As part of this effort, the Alamosa River Restoration Project has been working to restore the river, which was channelized in the 1970s. Restoration efforts include streambank stabilization, boulder placement, vegetation plantings, fencing of the riparian area, and other measures that will restore riparian habitat in the long term. The Alamosa River Restoration Project has dedicated funds of $5 million to restore and enhance the Alamosa River, and is part of a greater effort to restore the entire Alamosa River watershed (CWCB 2005).

Conejos River Restoration Efforts

The Conejos Water Conservancy District is currently working with the NRCS and individual landowners on an informal effort to implement bank stabilization and restoration along the Conejos River. The elements of these projects range from structural bank and streambed improvements to revegetation, and have been partially funded by the District and CDOW (Robbins, pers. comm. 2005).

Partners for Fish and Wildlife

The Service's Partners for Fish and Wildlife program (PFW) has supported habitat protection and enhancement efforts, including conservation easements and management contracts, on numerous properties in the Valley. The PFW program uses Federal money to help private landowners restore, enhance, and conserve important wildlife habitat. A major focus of this program in the Valley is on conservation of riparian habitats, primarily in areas to the north of Alamosa. The Service enters into contracts with landowners to provide financial assistance in exchange for specified conservation measures such as excluding grazing and fencing riparian areas. The lengths of the contracts vary from a few years to perpetual easements; most contracts are for 10 years.

Within the Valley, PFW easements or contracts cover over 2,000 acres of land along the Rio Grande, Conejos River, and Alamosa River. Most of these projects are within the 100-year floodplain, and most include riparian habitat areas. These projects are typically coupled with habitat restoration efforts including riparian fencing, deferred grazing, willow plantings, and water control structures.

3.0 COVERED ACTIVITIES AND IMPACTS

The San Luis Valley Regional HCP provides ESA coverage for a specific set of historical, existing, and ongoing agricultural and infrastructure activities. These covered activities and their impacts are described in detail below. Related activities that do not impact habitat for the covered species are described below under *Related Activities with No Impacts*. The impacts of the covered activities are summarized in Section 4.0, and are mitigated through the measures described in Section 5.0.

3.1 Methods and Definitions

Methods

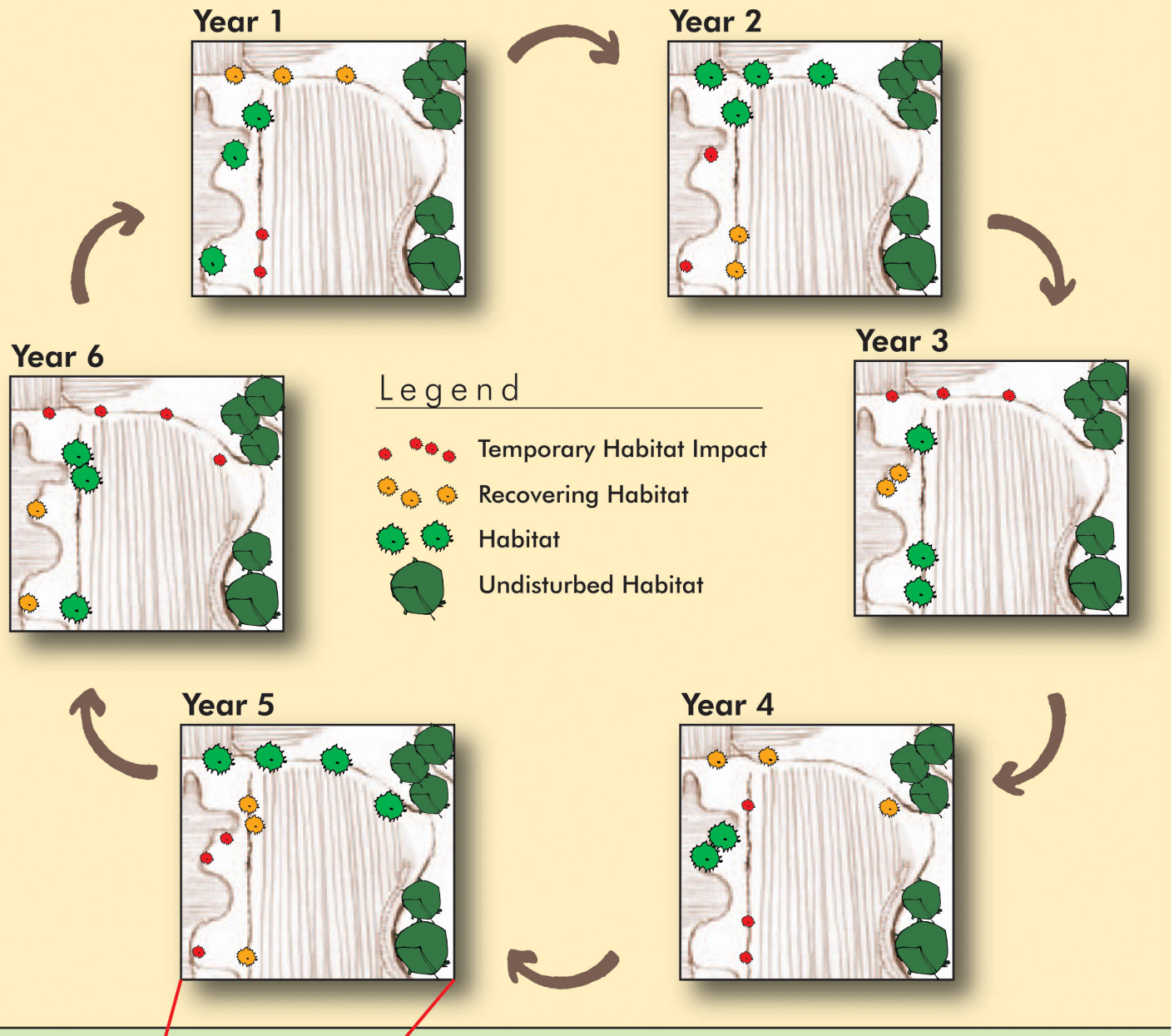
The temporary and permanent impacts that will occur in the future[16] as a result of the covered activities were quantified using GIS datasets, previous documentation and reports, general industry trends, and anecdotal information about typical management practices. Whenever possible, quantitative data (e.g., length of ditches and canals, acres of pasture, length of existing floodway) were used to develop impact estimates. Specific calculation methods and assumptions for each activity are described below and in Appendix A. Considering the size of the HCP plan area and the widely dispersed nature of the covered activities, parcel-specific impact analysis is not feasible and was not conducted.

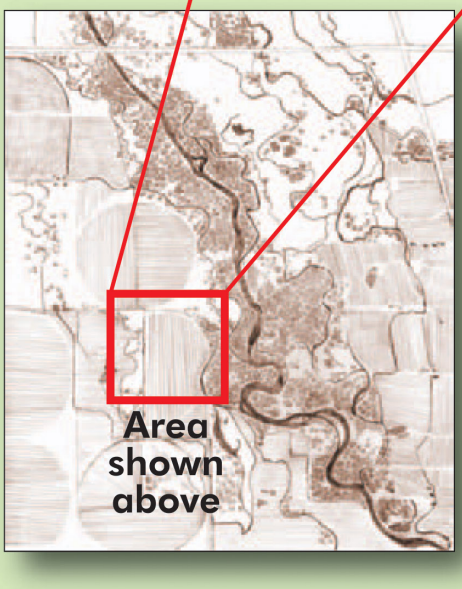
A selection of geographic data that was used for the impact assumptions and analysis is shown on Figure 11. These data include the 100-year floodplain, ditches and canals, diversions, wells and gages, pasture, and priority river restoration projects, and are primarily based on the Colorado Decision Support System database (CDSS 2011). For each activity, a range of estimated impacts was calculated to account for variables and uncertainty. This HCP will mitigate impacts at the high end of the range to ensure that impacts are not underestimated, and will re-evaluate the covered activities, impact assumptions, and overall habitat trend every 10 years (see Section 6.2).

Rotating Matrix Concept

A key dynamic influencing this HCP is the "rotating matrix" of impacts that result from most of the covered activities. The localized, small, individual impacts of each activity are scattered among hundreds of landowners and thousands of acres of habitat each year. In subsequent years, vegetation in impacted areas regenerates as other localized areas are impacted. In addition, some new habitat areas develop due to expansion and succession (Figure 10). On balance, the vast majority of the habitat remains intact and undisturbed. This pattern of impacts and regeneration has been in place for over 100 years, and will continue to occur beyond the duration of this HCP. For these reasons, many of the covered activities result in temporary impacts, and do not accumulate over time.

[16] The HCP quantifies impacts that are expected to occur beyond the current environmental baseline conditions. This HCP does not address impacts to riparian habitat that have occurred in the past.

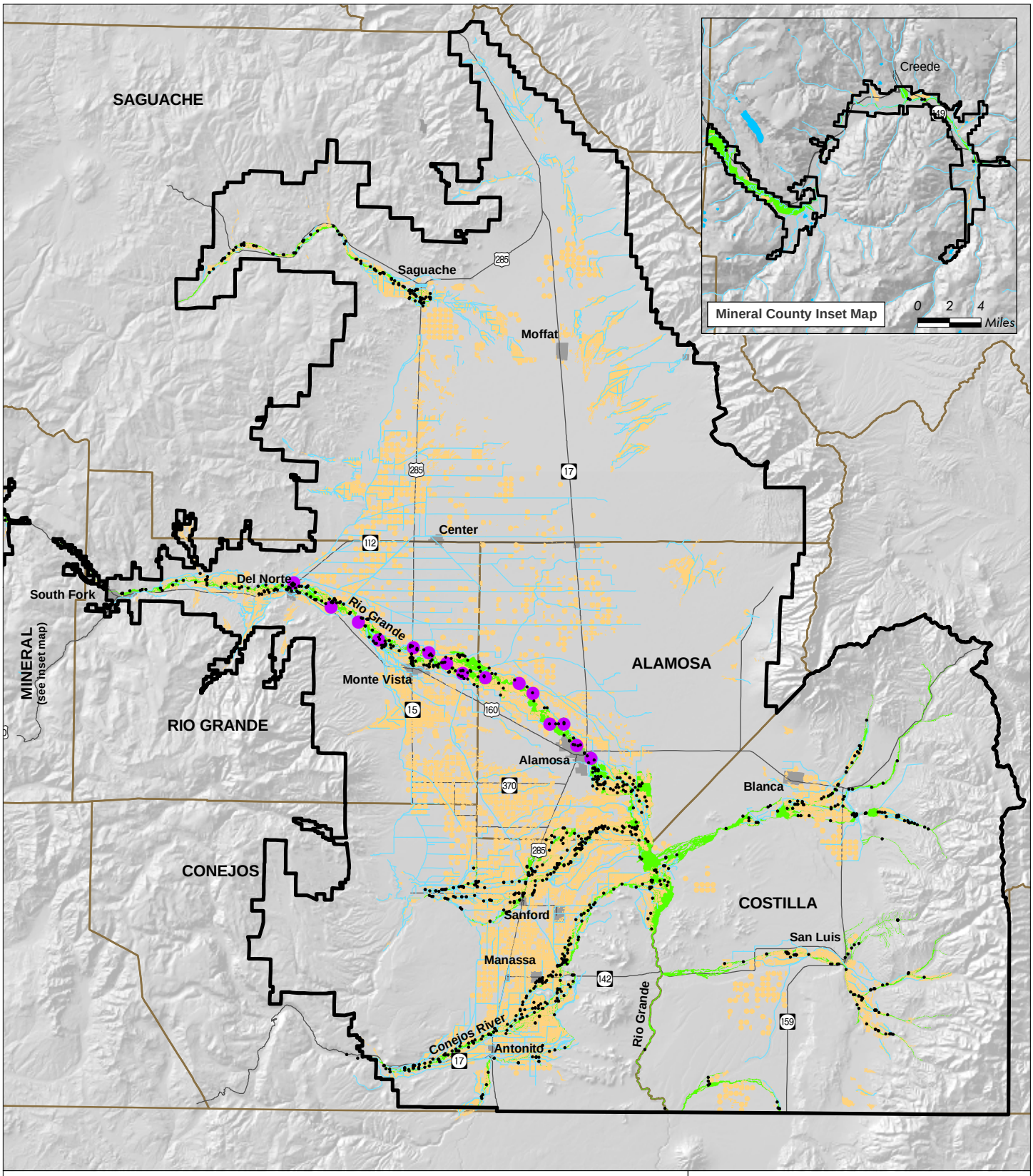




Rotating Matrix Concept

A key dynamic influencing the effects of the covered activities is their "rotating matrix" of localized, small, individual impacts of each activity that are scattered among hundreds of landowners and thousands of acres of habitat each year. In subsequent years, vegetation in impacted areas regenerates as other localized areas are impacted. This pattern of impacts and regeneration has taken place for generations, has shaped the present state of habitat in the Valley, and will continue into the future.

Figure 10. Rotating Matrix Concept



San Luis Valley HCP

- High Priority Restoration Projects
- HCP Boundary
- Diversion, Well or Gage
- Ditch/Canal
- 100-year Floodplain
- Pasture Areas

0 6 12 Miles

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Figure 11
Impact Analysis Data

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Impact Definitions

Temporary, permanent, and negligible impacts are defined as follows:

- **Temporary impacts –** Cutting, trampling, or removal of localized areas of riparian vegetation for a short period of time (not exceeding one growing season) in a manner that allows vegetation to regenerate. Temporary impacts are randomly dispersed over time and space throughout the Valley as part of the "rotating matrix" of impacts from the covered activities. This HCP quantifies and mitigates the total area of estimated temporary impacts at any given time.
- **Permanent impacts –** Permanent removal of riparian vegetation due to the construction or placement of a new facility or piece of equipment (such as wells, gages, culverts, or diversions). This HCP quantifies and mitigates the estimated area of permanent facilities (up to 0.5 acres for any particular project), and will track and mitigate both estimated and actual permanent impacts over time.
- **Negligible impacts –** Impacts that are: a) exceedingly small (less than 0.1 acre); or b) are known to be small and sporadic but are impossible to measure and quantify; are temporary; and cannot be reasonably expected to result in a significant alteration of habitat or adversely affect the covered species.

3.2 Routine Agriculture

Grazing

Background

While this activity applies mainly to cattle, it addresses the grazing of any livestock, including but not limited to cattle, horses, sheep, goats, bison, llamas, or other domesticated ungulates on irrigated and non-irrigated pasture and rangeland. Depending on their location, timing, and management, domesticated ungulates can be used as a tool to sustain riparian habitat, or can result in impacts to habitat. Detrimental impacts typically result from animals directly browsing on willows and cottonwood seedlings, or restricting riparian growth through trampling. In order to improve or maintain areas for grazing, farmers and ranchers also physically remove willow stands through cutting, pulling, grading, or prescribed fire. Many farmers and ranchers also promote willow growth in riparian areas to provide cover and calving areas.

Numerous ranches in the Valley raise cattle within or adjacent to riparian habitat areas. Typically, cattle are moved to public land allotments during the summer months (June to October), and then spend the remainder of the year on the irrigated meadows in the Valley. In some cases, cattle are allowed to congregate in riparian areas in the fall and winter because of the availability of forage, cover, and water. In the spring, young calves are often reared in the shade of the riparian canopy. Many ranchers try to promote willow growth in the riparian areas while using grazing and mowing to minimize willow growth in pastures and hayfields. Since most of the early season grazing within and adjacent to riparian areas occurs in wet meadows dominated by native Baltic rush, rotational grazing techniques are less effective than they typically would be in upland pastures (Willet, pers. comm. 2005). While excessive grazing can result in the introduction of weeds, grazing is commonly used as an effective management tool to control the proliferation of weeds.

It is assumed for this HCP that riparian areas where grazing has historically occurred have already been impacted and will persist in their present state unless grazing is removed from the area, or is increased.[17] However, future expansions of riparian grazing could result in additional habitat impacts. Continuation of current baseline practices will not impact any additional habitat of the covered species, but will continue to prevent the regeneration of habitat in previously impacted areas. It is important to note that future declines in riparian grazing, coupled with voluntary conservation measures, such as riparian fencing programs, present an opportunity to improve riparian habitat conditions on private lands in the Valley.

Livestock grazing near riparian habitat

Since the late 1990s, cattle inventories across the U.S. have been falling slightly (less than 2 percent annually). In Colorado, these declines were exacerbated by several years of drought that began in 2002. Cattle inventories in the Valley dropped by 39 percent between 1997 and 2002, reaching their lowest level in 2004. Since 2004, inventories have grown slightly, but are still at only 60 percent of 1997 levels (NASS 2011). On a national scale, beef production is expected to drop slightly before increasing between 2010 and 2020, with annual rates of change between -2.7 and 2.8 percent. These changes are based largely on current economic conditions, energy and feed prices, international markets, and trade policies (USDA-ERS 2010). It is assumed that future cattle inventories in the Valley will follow national projections, unless drought or other local conditions dictate otherwise. In order to account for uncertainty and local deviations from national trends, the HCP impacts will assume expansions of up to 3 percent.

General Effects

Livestock grazing can benefit or impact riparian habitat depending on the location, timing, and overall management of the animals. The New Mexico Cooperative Extension Service (Baker et al. 2001) identified several benefits of well-managed riparian grazing, including strengthened plant vigor, increased nutritional quality of autumn/winter forage, improved species composition, and increased vegetative cover. Repeated extensive summer grazing is generally considered to negatively impact riparian areas; however, winter grazing can be compatible with riparian habitat needs (Baker et al. 2001).

The Recovery Plan (Service 2002a) identified livestock grazing as a potential stressor to flycatcher habitat. The Recovery Plan also describes a riparian grazing system that is compatible with a large population of flycatchers on the South Fork of the Kern River in California; an area very similar to the Valley with a low gradient, broad floodplain with perennial streamflow and a high water table, where roughly 70 percent of the flycatcher population occurs in grazed habitat. While the effects of grazing vary over the entire range of the flycatcher (Service 2002a) and the specific impacts in the Valley vary widely by parcel, riparian grazing can result in excessive use of herbaceous and woody vegetation (overgrazing) that prevents the regeneration of cottonwoods

[17] In accordance with the definition of baseline in the HCP Handbook (Service and NMFS 1996), previous grazing impacts are part of the current baseline conditions and are not quantified as impacts in this HCP.

and willows. Other impacts include the reduction or elimination of willow stands, alteration of vegetation structure, streambank destabilization, erosion, and water quality impacts.

Grazing has the potential to directly impact flycatcher territories, through loss or alteration of willow habitat and a reduction in new growth. These impacts could delay or prevent the regeneration of potential breeding habitat for flycatchers and cuckoos. However, in some cases, removal of willows could benefit old, decadent stands by setting back succession and promoting regeneration. Livestock can also disturb or destroy exposed nests or knock eggs or fledglings out of nests.

Impacts

The range of potential riparian impacts due to grazing was developed by quantifying the amount of riparian habitat that is exposed to grazing, and then estimating the extent to which grazing is anticipated to expand over the next 30 years. It is assumed for this HCP that riparian areas where grazing has historically occurred have already been impacted and will persist in their present state unless grazing is removed from the area, or is increased.

Riparian habitat that is exposed to livestock grazing was quantified using GIS by overlaying woody riparian habitat with pasture areas that currently support or have the potential to support grazing. (State and Federal lands were subtracted from the total area.) For this analysis, the area of overlap (1,978 acres) is the riparian habitat potentially exposed to future increases in grazing. This number was multiplied by the projected long-term changes in livestock inventories (0 to 3 percent) to determine acres of new impact resulting from expanded grazing.

This impact analysis is based on the following assumptions:

- Pasture areas, based on land cover mapping for the CDSS, is an indicator of potential grazing lands that contain or are adjacent to riparian habitat
- Livestock grazing also occurs in additional dryland areas that are not adjacent to riparian habitat and do not have the potential to result in riparian impacts
- Pasture lands that contain or are adjacent to riparian habitat have previously been impacted by grazing
- Existing impacted areas will persist in their current, baseline state (unless fenced) and will not result in additional negative habitat impacts
- Future livestock numbers in the Valley will follow national market projections
- Impacts to riparian vegetation that is exposed to grazing will be temporary and will allow for short-term, localized regeneration of habitat

Estimated Impacts:

- Impact type – Temporary
- Range of Impacts – 0 to 59 acres/year

Fence Construction and Maintenance

Background

Fences are constructed for a variety of land management purposes. In cases where new fences cross or otherwise intersect willow stands, the willows are often removed by cutting or other

Recently cleared fence line with new willow growth

methods to provide enough room for fence installation. Over time, willow stands sometimes grow along or completely cover existing fences, which need to be periodically maintained to keep them functioning properly. In these cases, the willows may be removed to provide room for fence maintenance. Most fence installation and repair that requires willow removal is conducted in the fall and winter when fields are dry and accessible. Willows typically recover within three years following fence construction or maintenance activities (Willet, pers. comm. 2005). The complete removal of willows for fence construction and maintenance does occur, but it is very infrequent and uncommon.

General Effects

Elimination of willows along existing and new fence lines would result in the temporary loss of native riparian vegetation, and has the potential to directly impact riparian habitat by decreasing shrub density and fragmenting habitat patches. After fence work is completed, adjacent vegetation would regenerate within a few years of the disturbance. Considering the relative infrequency and small area of these impacts, the overall effect of fence maintenance on the covered species and their habitat is expected to be negligible.

Impacts

Potential impacts of fence construction and maintenance on woody riparian habitat was not quantified for this HCP. No inventory of fences, many of which date from the early 1900s, exists within the Valley, and fence maintenance and construction occurs on an informal, ad hoc basis and is very infrequent for any given segment of fence. However, localized, short-term habitat impacts can and do occur. Therefore, the potential impacts of fence construction and maintenance are assumed to be negligible, and are mitigated within a 10-acre contingency pool for agricultural activities with negligible impacts.

Ditch Clearing and Maintenance

Background

The existing system of irrigation canals and ditches in the Valley has evolved for over a century into its current form. Besides serving as a critical component of the Valley's agricultural economy, these canals and ditches have contributed to the current ground water and surface water system that supports the existing mosaic of riparian habitat. In order to ensure the delivery of water supplies and maintain the structural integrity of the ditches, ditch managers and water users periodically clear willows from their canals and ditches.

There are about 606 miles of major ditches and canals in the San Luis Valley. About 335 miles of these ditches and canals are within the 100-year floodplain that contains most of the woody riparian habitat. In addition to these major ditches and canals, numerous lateral ditches serve individual fields. These lateral ditches are small and support only narrow linear bands of native woody vegetation, if any. For the purposes of this HCP, it is assumed that the smaller lateral ditches do not support a significant amount of riparian habitat that is suitable for the covered

species. Therefore, the impact analysis focuses on the 335 miles of larger ditches and canals within or adjacent to the riparian corridors of the Valley.

Depending on the size of the ditch and the amount of growth, most ditch clearing occurs every 5 to 10 years. Some ditch segments are cleared more frequently, while others may not require clearing for 15 to 20 years (if at all). Clearing methods may include burning, cutting, or excavating the vegetation from the main ditch channel. This may be done by hand or with light equipment (small tractors with front-end loaders or blades) for smaller ditches, while larger or more difficult ditches and canals may require heavy equipment such as backhoes and track-excavators. Many of the larger ditches and canals have adjacent access roads for ditch clearing and other maintenance purposes.

Most ditch maintenance is conducted in the early spring, between winter and the start of the irrigation season (April 1), when the ground is no longer frozen and the ditches are dry. Larger projects may be conducted in the winter, as weather conditions permit. While emergency ditch maintenance may also be necessary if a ditch fails during the irrigation season (April 1 – November 1), work during this timeframe is not intended or preferred.

General Effects

Ditch clearing and maintenance activities typically include the removal of all willows along ditches every 5 to 10 years through burning, grubbing, and excavation. Potential direct impacts to the covered species may occur within the ditch itself and adjacent areas (for equipment access).

Impacts

The range of potential impacts due to the clearing and maintenance of ditches and canals was determined based on a range of typical ditch clearing frequencies (5 to 10 years), typical clearing widths (8 to 20 feet from the ditch edge), and the amount of riparian habitat adjacent to ditches that is likely to be impacted in a given year. Potential habitat that could be impacted includes all canals and ditches within the 100-year floodplain, and/or mapped riparian habitat.[18] A total of 1,767,487 feet (335 miles) of mapped canals and ditches exist within the floodplain/habitat area.

A core assumption of the HCP coverage is that the clearing of ditches occurs every 5 to 10 years, and it is randomly distributed throughout the Valley. Therefore, only a few ditches are cleared in any given year, while the others maintain their current state. The range of impacts (in habitat acres) was derived by dividing the total length of ditches by 5 (high frequency in years) and 10 (low frequency in years). The impact area was determined by multiplying the length of ditches by 20 feet (high clearing width) and 8 feet (low clearing width).

This impact analysis is based on the following assumptions:

- All of the potential habitat impacts occur within the 100-year floodplain, or within mapped riparian habitat areas (which are a small subset of the floodplain area)
- All canals and ditches within the 100-year floodplain or riparian mapping are assumed to support or potentially support riparian vegetation

[18] Although most of the floodplain areas do not support habitat for the covered species, the floodplain was used as a conservative measure to be inclusive of any potential habitat. While there are 335 miles of ditches and canals within the floodplain, only 55 miles of those intersect mapped riparian habitat.

- The majority of the riparian habitat along ditches that is suitable for the covered species is associated with larger ditches and canals; the amount of suitable habitat along smaller lateral ditches is inconsequential and is not quantified
- Clearing widths (8 to 20 feet from the edge of the ditch) are used to estimate the typical range of impacts and are not intended to limit the lateral extent of incidental take coverage.
- Woody riparian habitat along ditches and canals generally provides marginal habitat for the covered species, and many areas could be considered non-habitat based on U.S. Fish and Wildlife Service definitions (Service 2002a). However, all areas were considered to be potential habitat for the purposes of this analysis.
- Habitat impacts outside of the floodplain and other mapped riparian vegetation areas are negligible

Estimated Impacts:

- Impact type – Temporary
- Range of Impacts – 33 to 162 acres/year

Water Facility Maintenance and Operations

Background

Water management facilities, including water wells, stream gages, and diversions, are important components of the Valley's irrigation infrastructure. These facilities require periodic maintenance and monitoring, which may entail anything from cutting back willows to provide adequate access to removing overgrown willows and cottonwoods that may compromise the function of the facility. The ongoing maintenance of these facilities includes both minor and major maintenance activities (Vandiver 2005; 2011).

- **Water Wells –** More than 7,700 water wells in the Valley are used to pump ground water for irrigation and other purposes. About 676 wells are located within riparian habitat or the 100-year floodplain. Minor maintenance for ground water wells includes the maintenance or replacement of pumps, which is expected to occur once every 5 to 10 years per well. Major maintenance activities for ground water wells (every 15-20 years) include re-drilling the well to a greater depth, replacing the well casing, or other measures. Typical equipment used for major well maintenance includes a drill rig, backhoe, water truck, tanks, pickups and trailers. Well maintenance is conducted outside of the irrigation season (April 1 – November 1), unless emergency work is necessary due to a failed well or pump.

Stream gage

- **Stream Gages –** About 54 stream gages are used by the State Engineer's office to monitor flows, with about 28 being located within riparian habitat or the 100-year floodplain. Gauging stations are accessed by existing roads approximately every two weeks to

perform routine maintenance and check satellite-monitoring equipment. Minor native vegetation removal with hand tools (e.g., brush cutters or string trimmer) may occur to clear the gage inlet and equipment. Major maintenance activities for gages include the replacement or reconfiguration of gages (every 20-25 years). Work on stream gages typically occurs in the fall when the water is at its lowest levels.

- **Diversions –** Currently, 457 diversion structures are located within or adjacent to riparian habitat areas or the 100-year floodplain. These facilities require ongoing minor maintenance and occasional major maintenance or replacement. Minor maintenance is generally focused on existing structures that are readily accessible from roads, and would not result in habitat impacts. Minor maintenance may require vegetation removal with hand tools (e.g., brush cutters or string trimmer). Major maintenance or replacement of diversions is expected to occur about every 20 to 25 years (resulting in about 20 structures per year). Major maintenance would require excavators, draglines, trucks, and attendant vehicles.

The installation of new water facilities, including headgates and gages is covered under *New Water Facility Construction* below. Federal activities, including those conducted by the NRCS, U.S. Army Corps of Engineers (Corps), or Bureau of Reclamation, or those requiring a Section 404 wetlands permit are not covered under this HCP.

General Effects

Impacts may result from the temporary disturbance of habitat areas adjacent to existing water management facilities. Maintenance activities and access could result in the disturbance or elimination of small areas of riparian habitat. Given the extremely low level of habitat impacts that are expected to occur with each of these minor maintenance activities, and the infrequent amount of maintenance per well, gage, or diversion, the habitat impacts of minor maintenance activities are small.

Impacts

Potential impacts from water facility maintenance and operations was estimated as described below based on the number of wells, gages, and diversions that are within the 100-year floodplain and/or riparian habitat. Because minor maintenance activities would have negligible impacts to habitat, the range of potential impacts in a given year was estimated based on the frequency of major disturbances to these sites under typical conditions.

- **Minor Monitoring and Maintenance –** Minor maintenance of water wells is expected to occur about once every 5 to 10 years, per well. Minor stream gage monitoring and maintenance occurs about twice each month. Minor monitoring and maintenance of diversions typically occurs annually on hardened structures and does not result in habitat impacts. Given the extremely low level of habitat disturbance that occurs with each of these activities, the overall

Headgate

habitat impacts of minor maintenance activities would be negligible.

- **Major Maintenance –** Major maintenance activities for groundwater wells is expected to occur about every 15 to 20 years per well, while major water gage maintenance is expected to occur about every 20 to 25 years per site. With an estimated 676 wells and 28 gages in riparian habitat areas, major well maintenance is expected to occur 45 times per year, while major gage maintenance is expected to occur about 1.4 times each year.

Of the 457 diversions within the potential habitat area (floodplain), major maintenance or replacement is expected to occur once every 20 to 25 years, averaging about 23 per year.

In total, major maintenance is expected to occur at about 69 sites per year (45 wells, 1.4 gages, and 23 diversions). The typical disturbance footprint for these major maintenance activities ranges from 200 to 10,000 square feet.

This impact analysis is based on the following assumptions:

- Impacts from minor maintenance activities, including gage maintenance and pump repair or replacement will be negligible
- Major maintenance to wells will occur once every 15-20 years for each well
- Major maintenance to gages will occur once every 5 years for each gage
- Major maintenance or replacement of diversions will occur once every 20-25 years
- Impacts of major maintenance will range from 200 to 10,000 square feet
- Installation or repair and maintenance of some individual wells, gages or diversions may require other Federal permitting, such as Section 404 wetlands permits, and thus would not be covered by the HCP. However, maintenance and repair of all wells, gages, and diversions are considered to be private actions covered by the HCP for the purposes of this analysis.

Estimated Impacts:

- Impact type – Temporary
- Range of Impacts – 0.3 to 15.9 acres/year

New Water Facility Construction

Background

As water management needs and opportunities change, new facilities (such as headgates and monitoring equipment) are periodically added to the system. The installation of these facilities, depending on their size and location, may entail new disturbance to an area and the elimination of some riparian habitat. In most cases, this construction would occur in the fall when the ditch system is not being used and the river is at its lowest level. Equipment needs vary depending on the size of the structure. Major projects require large excavators, trucks, cement trucks, and attendant vehicles, while smaller projects can be completed with smaller equipment (tractors and backhoes) but would still require some disturbance in the immediate project area.

The Rio Grande Headwaters Restoration Project (SLVWCD 2001) provides recommendations for about 30 different projects with the goal of improving the sustainability and efficiency of the Rio Grande through Alamosa and Rio Grande counties (Gibson, pers. comm. 2005). General

locations of the 15 high-priority projects are shown on Figure 11. An additional 25 projects are assumed to be constructed over the next 30 years, and all of these potential projects are assumed to occur within riparian habitat areas.

Small impoundments, including livestock water tanks, erosion control dams, groundwater recharge pits, and other agriculture and water management-related facilities are covered if the total impoundment area has less than 20 acres in surface area, the dam is less than 10 feet high, and the total riparian/wetland habitat impact is less than 0.5 acre.[19] This HCP does not cover the construction of major, regionally significant water projects such as dams, water storage, major diversions, pipelines, or other activities that are beyond what is considered typical and routine.

General Effects

Construction of new water facilities could result in the permanent elimination of small areas of riparian habitat, and short-term elimination of habitat in temporary construction impact areas. Clearing riparian vegetation to construct small agricultural water impoundments is infrequent, and the resulting impoundment is likely to stimulate riparian vegetation growth over the long-term. For these reasons, the impacts of small impoundment construction would be negligible.

Impacts

Potential impacts of new water facility construction within riparian habitat areas were estimated based on the recommendations of the Rio Grande Restoration Project report (SLVWCD 2001) and consultations with local experts. Based on those sources, a total of about 40 new facilities are anticipated, resulting in about 1.3 projects per year. The impacts from each project are expected to range between 500 and 8,000 square feet. These permanent impacts are estimated to be up to 0.2 acres per year, and will be tracked and mitigated on an on-going basis during HCP implementation. The impacts of small impoundment development will be negligible, and are mitigated within a 10-acre contingency pool for agricultural activities with negligible impacts.

This impact analysis is based on the following assumptions:

- Rio Grande Restoration projects (28) will be implemented periodically over the next 30 years
- An additional six facilities will be constructed on the Conejos River in the next 30 years
- An additional six facilities will be constructed on other streams and tributaries in the next 30 years
- Impacts of facility construction will range from 500 to 8,000 square feet.
- Impacts from small impoundment development are infrequent, and any vegetation clearing will be offset by additional habitat development associated with the new impoundment.
- This analysis does not include, nor does this HCP cover, the construction of large dams or water projects that would have major riparian impacts.
- Many individual restoration projects may require other Federal permitting, such as Section 404 wetlands permits, and thus would not be covered or mitigated by the HCP.

[19] These thresholds are based on Section 404 wetland permitting guidance and the State's definition of "non-jurisdictional" dams (CDWR 2007).

However, for purposes of this analysis, all foreseeable restoration projects are considered to be eligible for HCP coverage.

Estimated Impacts:

- Impact type – Permanent
- Range of Impacts – 0.02 to 0.24 acres/year

Water Diversions, Reservoir Operations, and Flow Management

Background

The ITPs will provide ESA coverage for non-federal reservoir operations, water diversions, ground water pumping, and the management of water resources in compliance with the State system of water rights administration (in effect for over a century) and the Rio Grande Compact (signed and ratified in 1938–1939). While diversions and depletions of surface or ground water may periodically dry out habitat in some locations, the redistribution of water through irrigation systems also creates habitat in other locations. The Compact and State system of water rights are both administered on a strict schedule and, by their nature, serve to ensure that the water budget will be maintained over the life of the permits, thereby helping to sustain the habitat.

Water users also pump ground water wells for irrigation purposes, as regulated by the State system of water rights administration and the requirements of the Compact. Water is stored in Platoro Reservoir to be released for a variety of beneficial purposes, including helping Colorado meet its Compact obligations.

The District and other Permittees presume, and do not waive any argument to the contrary, that these activities (Compact administration and State law water administration activities) cannot be regulated by, and are not subject to, the ESA and its enacting rules and regulations. The Recovery Plan (Service 2002a) suggests that recovery will be operated within State water law. The purpose of this HCP is to address and permit the potential incidental take of species listed under the ESA, regardless of regulatory precedent, and to identify reasonable and proactive measures to mitigate the incidental take of those species, per the requirements of the final HCP and Implementing Agreement.

General Effects

Much of the existing mosaic of willow and riparian habitat in the Valley is dependent on the complex system of water management, delivery, and use. As some habitat areas are lost, others are gained. Water diversions and flow management could result in the short-term elimination of habitat due to drying or abandonment of some ditches and streams, or inundation of others. However, these changes in water diversions also have the potential to create or support new habitat areas. Throughout this ever-changing system, the net impact of these activities on riparian habitat is expected to be negligible.

Impacts

The potential impacts of water management activities on riparian habitat are considered to be negligible and were not quantified for this HCP. While the management of water delivery systems may result in short-term localized habitat impacts and longer-term habitat changes, these changes are not expected to result in measurable impacts to habitat. These potential impacts are mitigated within a 10-acre contingency pool for this and other agricultural activities with

negligible impacts. Long-term trends and changes to habitat will be tracked as part of the HCP monitoring and adaptive management program (see Section 6.0).

Alamosa floodway

3.3 Community Infrastructure

Vegetation Removal from the Floodway

Background

The City of Alamosa has an existing system of levees along about 3.5 miles of the Rio Grande to prevent urban flooding during high runoff periods. In order to effectively convey river flow through this system and prevent flooding, the City needs to periodically clear vegetation from the floodway area. In the future, other municipalities such as Monte Vista, Del Norte, and South Fork also may need to take similar measures to prevent flooding and maintain the capacity of existing and future flood-control structures.

The Alamosa Floodway and riparian habitat mapping are shown in Figure 12. There are currently about 46 acres of willow habitat within the floodway, which extends along the Rio Grande for 3.5 miles. In average years, the City clears between 7 and 10 acres of willows per year, while in some years the city has cleared up to 20 acres at one time.

To allow for typical and routine clearing, incidental take coverage through this HCP is limited to the clearing of 4 acres of native riparian vegetation *within any lineal mile of river*. This standard is intended to encourage routine, smaller-scale clearing (which reduces the need for large-scale emergency clearing), and to set a standard for other communities if levee systems are developed in the future. Clearing beyond the 4 acre/mile threshold could result from a lack of planning or emergency flood conditions, and would be accounted for as part of the contingency mitigation. For the City of Alamosa, this standard amounts to coverage for up to 14 acres of clearing in (4 acres x 3.5 miles of floodway) in any given year. Coverage applies to units of government (or their designated representatives), and is not extended to individual property owners.

General Effects

The elimination of habitat patches typically occurs through cutting and mowing. Excavation and chemical control also could potentially be used. These activities have the potential to directly impact individual birds, and may result in indirect impacts from the removal of potential habitat.

Impacts

Potential impacts of vegetation removal from the floodway was based on the 4 acre/mile threshold that is sufficient to cover typical clearing activities in Alamosa. Additional impacts resulting from clearing beyond the 4 acre/mile threshold or additional coverage for clearing future levees in other communities (Monte Vista, Del Norte, and South Fork) will be within the 6-acre contingency for infrastructure activities with uncertain or negligible impacts (see Section 3.4 below).

The calculation of impacts is based on the following assumptions:

- Covered impacts within the City of Alamosa will range between 4 and 14 acres per year.

- Covered impacts to clear potential future levees in Monte Vista, Del Norte, and South Fork would vary depending on the size and location of the levees (if constructed).
- Clearing beyond the 4 acre/mile threshold (resulting from lack of planning or emergency flood conditions) may be mitigated separately after it has occurred.

Estimated Impacts:

- Impact type – Temporary
- Range of Impacts – 4 to 14 acres/year

Levee Improvement and Maintenance

Background

Future improvements or upgrades to the existing levee system in Alamosa or proposed new levees in Monte Vista, Del Norte, and South Fork may require the removal of willows and other native riparian vegetation in those areas. These improvements could entail grading, excavation, and the placement of riprap, gabions, boulders, and other hard structures on stream channels. Native riparian vegetation would likely re-colonize impacted areas surrounding the structures after they are installed.

The coverage is limited to units of government (or their designated representatives). The construction of new levees, or other large-scale projects with a Federal nexus (including Corps funding or Section 404 wetlands permitting) will need to obtain ESA clearances through a separate Section 7 process, and will not be covered by this HCP.

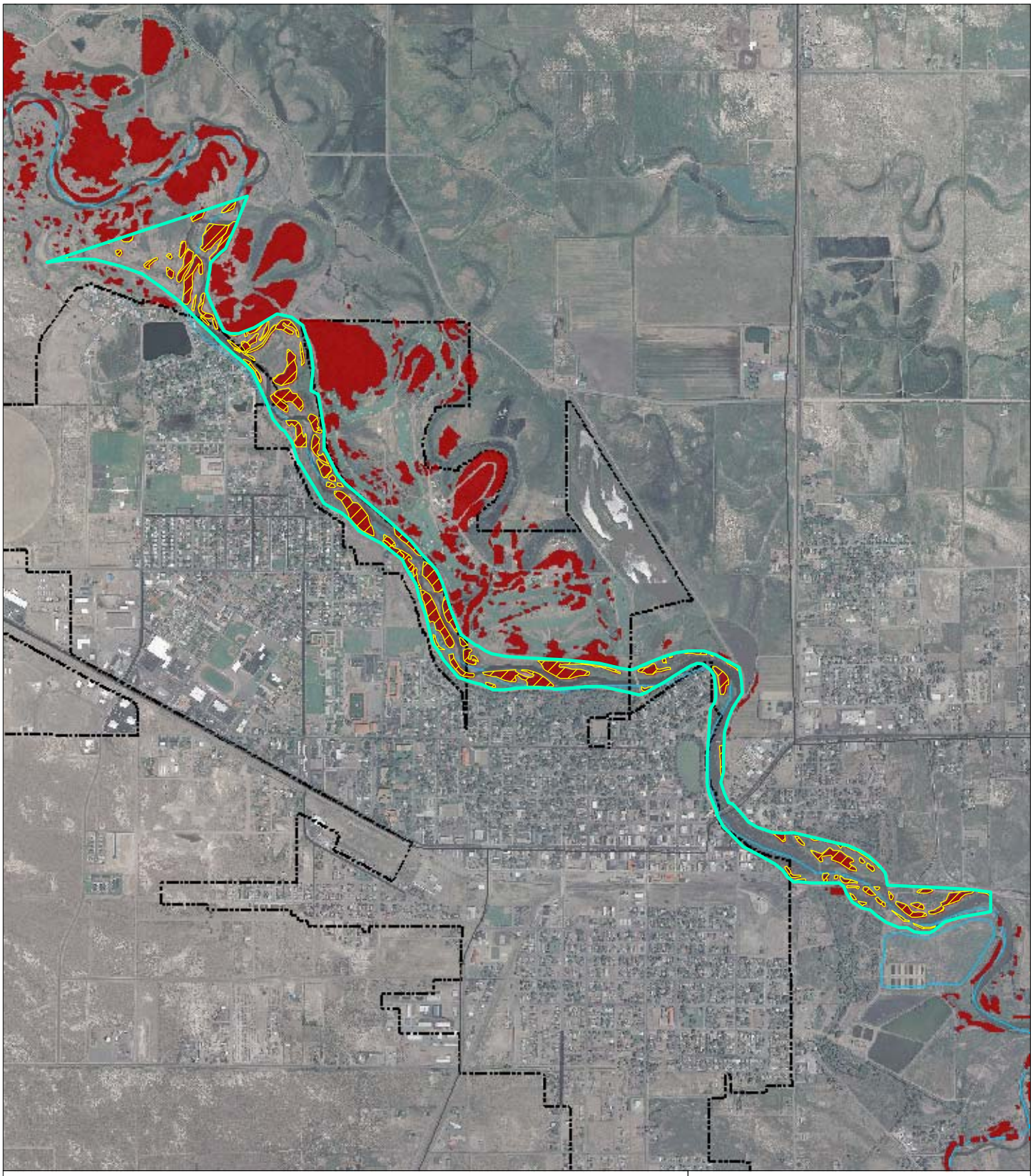
General Effects

The impacts of levee construction and maintenance include the temporary elimination of habitat, with the potential for direct impacts to individual birds.

Impacts

Potential impacts from future levee improvements and maintenance activities were estimated by calculating length of existing and proposed levees (53,797 feet/10.2 miles), the proportion of those levees that are adjacent to riparian habitat (about 25 percent), and then applying a range of impact footprints to the proportion of levees that are adjacent to habitat. Impact footprint estimates (200 square feet/year to 10,000 square feet every three years) were based on input with the Public Works Director for the City of Alamosa (Koskelin 2005). The range of potential habitat impacts was derived by multiplying the annual footprint impact by the average percentage of area containing riparian habitat.
The calculation of potential impacts was based on the following assumptions:

- Levees that are adjacent to riparian habitat will have the same relative frequency of maintenance as other sections of levees.
- Minor levee repairs will amount to about 200 square feet of impact per year.
- Major levee repairs will amount to about 10,000 square feet of impact every three years (or 3,333 sq. ft./year).



San Luis Valley HCP

Alamosa Floodway

City of Alamosa

Woody Riparian Habitat Within Floodway (59.85 ac)

Woody Riparian Habitat

Image Source: USDA NAIP 2009

0 1,100 2,200 feet

N

Figure 12
Alamosa Floodway

File: 2445 - Fig10_alamosa floodway.mxd (WH)
October 2012

ERO Resources Corp.

- Potential maintenance of proposed levees at Monte Vista and Del Norte would be similar to the maintenance frequency and magnitude in Alamosa.
- New levee construction would require separate ESA clearances.

Estimated Impacts:

- Impact type – Temporary
- Range of Impacts – 0 to 0.02 acres/year

Sediment Removal and Spoils Disposal

Background

Sediment deposition within the Rio Grande floodplain in general, and the Alamosa floodway system in particular, has contributed to a loss of flood capacity and stability through the system. Similar situations exist along the Alamosa River. In order to manage these systems and prevent flooding, local governments need to periodically remove sediment from the river channel and floodways with heavy equipment. Equipment access and sediment removal would likely disturb some riparian habitat areas.

General Effects

These activities may result in a temporary disturbance to some habitat areas. In addition, sediment removal indirectly eliminates the long-term potential for development of riparian habitat. However, these activities are conducted on an infrequent, ad hoc basis.

Impacts

The impacts of sediment removal and disposal are expected to be negligible, and are covered within a 6-acre contingency pool for uncertain impacts.

Infrastructure Construction

Background

The construction of new types of public infrastructure, including roads and bridges, water and sewer lines, and other infrastructure that may cross through or run alongside riparian habitat areas, where a certain amount of habitat would be permanently eliminated. Coverage is limited to the Permittees and their authorized agents or contractors. Activities conducted by non-Permittee entities or private infrastructure providers are not covered by this HCP. This HCP does not cover activities requiring a Section 404 wetlands permit.

General Effects

Infrastructure construction activities have the potential to result in the elimination of potential habitat areas and directly impact individual birds.

Impacts

While no specific infrastructure projects are planned, it is estimated that the impacts of four projects each year will range between 1,000 and 10,000 square feet per year. This theoretical measure is to ensure coverage for yet unforeseen projects such as road realignments, new bridges, new water/sewer lines, or others that may occur in the next 30 years. Infrastructure construction impacts would be permanent, and would be tracked and mitigated on a continual basis during HCP implementation.

The calculation of potential impacts was based on the following assumptions:

- Most new infrastructure construction will occur in previously disturbed corridors and will not significantly impact riparian habitat.
- Major infrastructure construction within riparian habitat will occur at 4 sites per year, each impacting between 1,000 and 10,000 square feet of habitat.

County road adjacent to willows

Estimated Impacts:

- Impact type – Permanent
- Range of Impacts – 0 to 0.9 acres/year

Infrastructure Maintenance

Background

Coverage for the ongoing maintenance of public infrastructure in the Valley includes activities such as maintenance and repair of roads and bridges, water and sewer lines, and other infrastructure. Maintenance of these infrastructure items may require the removal of native riparian vegetation in some areas to provide access to the work site or to ensure safety. Coverage is limited to the Permittees and their authorized agents or contractors. Activities conducted by non-Permittee entities or private infrastructure providers, and activities requiring a Section 404 wetlands permit, are not covered by this HCP.

County road and bridge repairs may require occasional clearing of small areas of native riparian vegetation. The eventual maintenance of a City of Alamosa sewer line that crosses the Rio Grande will likely require some vegetation clearing; however, such maintenance is anticipated to be infrequent (Koskelin 2005).

General Effects

Various infrastructure maintenance activities may result in the temporary removal of habitat, and could potentially disturb or directly impact individual birds.

Impacts

The impacts of infrastructure maintenance activities were not quantified, are expected to be negligible, and are covered within a 6-acre contingency pool for uncertain impacts.

3.4 Riparian Conservation and Restoration

Habitat Creation, Restoration, and Protection

Background

Habitat creation, restoration, and protection efforts include several tools to promote the establishment of riparian habitat and to protect existing habitat. These tools include fencing to manage livestock; planting or transplanting willows, cottonwoods, and grasses in the restoration area; periodically removing dead and falling trees; and managing grazing within riparian areas once they are reestablished. River restoration work, including channel shaping and stabilization,

Excavation for stream restoration

and the installation of instream structures, generally requires separate wetland permitting and ESA clearances, and therefore would not be covered by this HCP.

Note that habitat restoration efforts on Federal lands are not covered by this HCP, while restoration projects conducted or funded by Federal agencies (such as NRCS) on non-federal lands are generally subject to Section 7 permitting requirements of the lead agency and, therefore, would not be eligible for incidental take coverage under this HCP. (See the *Implementation* section for a description of how mitigation credits for restoration projects resulting from Federal/non-federal partnerships would be addressed.) In the unlikely event that river restoration efforts were not subject to separate ESA permitting, those projects would be covered by this HCP.

General Effects

These activities would result in isolated habitat impacts due to site preparation and excavation, as well as periodic removal of created habitat if needed to re-configure a restoration site. Overall, these activities are expected to result in long-term benefits to riparian habitat and the covered species.

Impacts

The impacts of habitat creation, restoration, and protection efforts are expected to be negligible, and will be mitigated within the 2-acre mitigation pool for conservation and restoration activities.

Weed Management

Background

The proliferation of invasive plant species is both a biological and economic threat in the Valley and throughout the West. Weed management is a key component of any agricultural or land stewardship operation. One invasive species in particular, salt cedar (*Tamarix ramosissima*), has overtaken much of the native riparian habitat throughout the southwestern United States. Salt cedar has yet to gain a foothold in the Valley, but any occurrence will have to be promptly eradicated both for the benefit of riparian habitat and in compliance with the Colorado Noxious Weed Act (Title 35, Article 5.5). Weed management tools typically include mechanical control (mowing, cutting, or targeted grazing), prescribed fire, or biological control (release of natural predators). Herbicide use is not covered by this HCP, but is covered through a separate regulatory process. [20]

General Effects

Weed management may result in the disturbance to individuals or territories, and have the potential to impact non-target vegetation (and potentially the covered species), although these impacts would be minimal. Weed management activities would result in long-term habitat benefits by promoting and protecting native riparian communities.

[20] The use of herbicides is regulated by the State of Colorado and the Environmental Protection Agency through NPDES Pesticide General Permit process; effects of those herbicides on ESA-listed species are to be covered separately through a Section 7 consultation (in process) and are not included in this HCP.

Impacts

The overall impacts of weed management on the covered species and their habitat is expected to be negligible, and are mitigated within the 2-acre contingency pool for conservation and restoration activities.

Wetland Creation and Management

Background

Several organizations and landowners have worked to create and enhance wetland habitat in the Valley. These projects are conducted for a variety of purposes, but are primarily for wildlife habitat enhancement, and may include open water, emergent wetlands, and wet meadow areas. Willow plantings and cottonwood removal are often components of these wetland projects, which complement riparian areas as part of the overall mosaic of habitat types in the Valley. However, in some cases, willows can overtake other habitat types in a project area and need to be removed to maintain the primary habitat goals of the project area. Methods for removing willows in these areas include, but are not limited to, cutting, excavating, and burning.

General Effects

The removal of willows to support wetland management goals would result in the short-term elimination of potential habitat for the covered species, and could result in the direct take of individual birds. However, the removal of riparian habitat for wetland enhancement purposes is expected to be extremely infrequent. The long-term benefits include the maintenance of an overall mosaic of habitat types that will support a healthy riparian ecosystem.

Impacts

The overall impact of wetland creation and management activities on the covered species and their habitat is expected to be negligible. The potential for such impacts will be mitigated within the 2-acre contingency pool for conservation and restoration activities.

3.5 Impact Contingencies

Many of the covered activities and their impacts occur on an ad hoc basis and are randomly dispersed throughout the Valley from year to year. Where possible, these activities and their impacts to riparian habitat are described and quantified to support the mitigation commitments for this HCP. However, several of the covered activities result in impacts that are exceedingly small, and/or are impossible to quantify in a defensible manner. Nonetheless, these activities with negligible impacts, however small or isolated, still have the potential to result in habitat impacts (take) and should be covered and mitigated by this HCP. In these instances, an additional "contingency pool" will be mitigated to account for activities with such negligible impacts.

Routine Agriculture

Routine agricultural activities that are impossible to quantify, yet still have the potential to result in negligible habitat impacts include fence construction and maintenance, small impoundment construction, water diversions, reservoir operations, and flow management. These activities, and their general effects, are described above in Section 3.2. To account for uncertainties with these activities and their impacts, an additional 10 acres of temporary impacts will be accounted for and mitigated by this HCP.

Community Infrastructure

Routine community infrastructure activities that are impossible to quantify but could still result in negligible habitat impacts include sediment removal and spoils disposal and infrastructure maintenance. The general effects of these covered activities are described above in Section 3.3. To account for uncertainties with the impacts of these community infrastructure activities, an additional six (6) acres of temporary impacts will be accounted for and mitigated by this HCP.

Riparian Conservation and Restoration

All of the riparian conservation and restoration activities covered by this HCP have potential impacts that that are exceedingly low, impossible to quantify, yet still have the potential to result in take of the covered species or their habitat. These activities, including habitat creation, restoration and protection, weed management, and wetland creation and management; and their general effects, are described above in Section 3.4. To account for uncertainties with these activities and their impacts, an additional two (2) acres of temporary impacts will be accounted for and mitigated by this HCP.

Total Contingency Impacts

The total contingency impact acres are as follows:

Routine agriculture	10 acres
Community infrastructure	6 acres
Riparian conservation and restoration	2 acres
Total	**18 acres**

3.6 Related Activities with No Impacts

This HCP provides regulatory coverage for the covered activities, and establishes a framework to mitigate for the impacts of those activities on riparian habitat in the Valley. In addition to the covered activities, there are several additional and related activities that could be construed to result in the incidental take of the covered species and their habitat, but do not result in take because 1) they occur in non-habitat areas, and/or 2) potential habitat impacts are negligible and infrequent.

- Haying, mowing, and crop production on established agricultural fields
- Prescribed fire within or along the edges of established fields
- Removal of nuisance beavers (in accordance with CPW regulations)
- Wildlife surveys
- Residential activities in the immediate vicinity of urban or semi-urban settings

These activities are described below, and are not discussed further in this HCP.

Haying, Mowing, and Crop Production

Established agricultural land that is used for haying, mowing, crop production, and other standard practices does not support riparian habitat. Therefore, impacts to riparian habitat from these uses will be negligible to nonexistent.

This category includes several agricultural activities that are common in the Valley. Haying may include the cultivation, irrigation, cutting, and bailing of pasture and native grasses. Mowing includes the cutting of native or introduced pasture grasses for a variety of purposes, including

weed control and livestock management. Crop production includes a variety of activities such as preparing fields, planting crops, cultivating crops, and installing, operating, and maintaining irrigation equipment.

These activities typically occur on lands that are dedicated to agricultural uses. The removal of existing native riparian vegetation to establish new cropland or pasture is not a frequent occurrence and is not expected to be an issue with HCP implementation. Such vegetation clearing to establish new fields is not covered by this HCP.

Prescribed Fire

Prescribed fire is occasionally used by land and resource managers for a variety of agricultural and resource management purposes. Fire may be used to clear willows from the edges of fields, roads, and ditches for the purposes of agricultural use and water management. Fire also may be used for noxious weed management or ecological restoration purposes. However, the use of fire as an agricultural management tool is becoming increasingly uncommon, and is being replaced by mechanical tools.

Prescribed fire may result in the short-term elimination of willows, particularly along field edges that are not considered habitat for the covered species. This activity is not likely to directly impact the interior dense willows used for nesting habitat or cover. In some cases, fire may benefit old, decadent willow stands by stimulating early successional processes and promoting regeneration and foliage density. Considering the small extent of fire impacts when it is used, and the sporadic and decreasing frequency of its use, the impacts of prescribed fire on the covered species and their habitat is anticipated to be negligible.

Nuisance Beaver Removal

While aquatic mammals such as beaver and muskrat can contribute to the diversity and viability or riparian systems, they can become problematic by damming streams, canals, and ditches and can undermine the integrity of diversion and flood-control structures. The removal of these animals and their structures (i.e., beaver dams) from an area may change the local hydrology and dry out previously inundated areas, although those changes are within the range of variation that is natural in the riparian system. Hunting, trapping, or other methods of removing or managing aquatic mammals is under the jurisdiction of the CPW.

Wildlife Surveys

Professional biologists and amateur naturalists may periodically disturb riparian habitat areas while they are conducting scientific or census surveys for wildlife. These surveys may include, but are not limited to bird census surveys and trapping or observational surveys for other wildlife species. The potential impacts of survey activities on the covered species and their habitat do not result in incidental take and are not needed to be covered by this HCP. Surveys for flycatchers or other listed species are covered separately under Section 10 (A)(1)(a) permits.

Residential Activities

Some activities that are similar to those covered by this HCP (and described above) may occur on residential lots within the municipal boundaries of incorporated towns and other urban or semi-urban settings. These activities may include maintenance and replacement of existing landscaping, livestock grazing or browsing within small-lot or backyard enclosures, or removing vegetation for other landscape maintenance purposes on residential lots that are less than one

acre in size, with less than 0.25 acre of vegetation removed or impacted. These activities occur within developed urban or semi-urban settings that do not support suitable habitat for the covered species, are fragmented from riparian habitat along principal creeks and streams, and are not likely to result in impacts to the covered species.

Activities that are otherwise covered by this HCP, including ditch clearing, water facility maintenance, infrastructure maintenance, and others remain covered when they occur within municipal boundaries or urban settings. Large-scale riparian vegetation removal (greater than 0.25 acres) on larger, semi-urban or rural residential lots could impact the covered species and is not covered by this HCP. Development related activities of any kind are not covered by this HCP.

4.0 SUMMARY OF IMPACTS

This HCP addresses the permanent and temporary impacts resulting from conducting a defined set of covered activities during the 30-year permit term. The covered activities, impact calculation methods and assumptions, and definitions for permanent, temporary, and negligible impacts are described in Section 3.0.

All impacts are presented in terms of riparian habitat. Considering the lack of information about known or suspected occurrences of the flycatcher or other covered species on private lands, this HCP does not attempt to quantify take in terms of individual territories or birds. Instead, all impacts and take are quantified by habitat.[21] The relationship of habitat impacts with potential flycatcher territories is discussed below in Section 4.5.

4.1 Summary of Estimated Impacts

Each of the covered activities was analyzed to determine and quantify, where possible, the impact each activity would have on the covered species and their habitat during the life of this HCP. The impact analysis is described in detail in Section 3.0 and in Appendix A. In general, most of the covered activities will result in temporary impacts to small areas of habitat as part of the Valley's historic "rotating matrix" of localized impacts. However, individual, localized impacts still have the potential to result in the take of individual birds or their nesting habitat.

The anticipated average annual and total impacts of the covered activities are summarized in Table 6. As described below, most of the impacts are anticipated to be small or negligible, when measured on an individual basis. The Permittees' commitments to further reduce these already insignificant impacts are described in Section 5.0.

Table 6. Summary of impacts.

Covered Activity Type	Annual Temporary Impacts (acres/year)	Permanent Impacts (acres/year)	Maximum Permanent Impacts over 30 years (acres)
Routine Agriculture	33 - 247	0 – 0.24	7.2
Community Infrastructure	4 - 21	0 – 0.9	27
Conservation and Restoration	0 – 2	*None*	*None*
Maximum Total Impact	270	1.1	34.2
Percent of Habitat[*]	1.8%	0.01%	0.2%

[*] Based on 15,128 acres or willow/cottonwood riparian habitat on State and private lands mapped for this HCP.

The impacts of the covered activities summarized in this section are the average estimated impacts to riparian habitat in any given year during the 30-year term of this HCP. Other important notes and assumptions include:

[21] This approach is supported by the HCP Handbook, which states that proposed incidental take levels can be expressed "in terms of habitat acres…to be affected generally or because of a specified activity, in cases where the specific number of individuals is unknown or indeterminable" (Service and NMFS 1996).

- Due to the temporary, rotating nature of these impacts and subsequent regeneration of impacted areas, most of the estimated annual impacts of the covered activities will be temporary and will not accumulate over multiple years (i.e., the temporary impacts are not additive over the life of the HCP).
- While the impact analysis found a range of potential temporary impacts in any given year (between 37 and 270 acres), the Permittees will mitigate at the high end of the range.
- The total impact from the covered activities to be mitigated = [total temporary impacts (maximum rotating impacts in any given year)] + [total permanent impacts (footprint of constructed facilities)]: 270 + 34.2 = 304.2 acres over 30-year permit term.
- Many of the impacts are believed to occur to habitat patches that are too small to support the covered species (0.25 acre for the flycatcher); those impacts are still counted and mitigated by this HCP.

4.2 Routine Agriculture

Routine agricultural activities and the irrigation practices that support those activities have been conducted in the Valley for more than a century and have resulted in a pattern of land use and the rotating matrix of impacts and regeneration that is consistent with the conservation of the covered species and their habitat. This riparian habitat is dependent on a complex and interrelated system of surface water, ground water, and irrigation systems that sustain and promote the ecological functions and values of riparian habitat within the Valley. Routine agriculture activities and their anticipated impacts are shown in Table 7.

Table 7. Anticipated impacts of routine agriculture.

Covered Activity	Type of Impact ○ = Temporary ● = Permanent	Range of Anticipated Annual Impacts (acres/year)	Maximum Percent of Total Habitat
Routine Agriculture			
Upland and riparian grazing	○	0 – 59	0.4%
Fence construction and maintenance	○	*Negligible*	–
Ditch clearing and maintenance	○	33 – 162	1.1%
Water facility maintenance/operations	○	0.3 – 15.9	0.1%
New water facility construction	●	0 – 0.24	< 0.01%
Water diversions, reservoir operations, and flow management	○	*Negligible*	–
Contingency	○	*< 10*	0.03%
Subtotal Temporary Impacts	○	*33 – 247*	*1.7%*
Subtotal Permanent Impacts	●	0 – 0.24	< 0.01%

Routine agriculture activities in the Valley, not including new water facility construction, may temporarily impact up to 248 acres (or about 1.6 percent) of the riparian habitat each year. Most of these temporary impacts would come from riparian grazing, ditch clearing, and maintenance. These impacts would occur on a revolving basis and would be focused primarily in marginal habitat and along the outer edges of some buffer habitat areas (see riparian habitat descriptions in

Chapter 2). The construction of new water facilities is anticipated to impact up to 0.24 acre of riparian habitat each year, which would amount to about 7.2 acres during the 30-year life of this HCP.

4.3 Community Infrastructure

Local governments, public utilities, quasi-municipal corporations, and other entities undertake the following infrastructure activities to provide public services. These services support the health, safety, economic welfare, and overall livability of the communities in the Valley and are consistent with the long-term conservation of the covered species and their habitat. These activities, and their anticipated impacts, are shown in Table 8.

Table 8. Anticipated impacts of community infrastructure.

Covered Activity	Type of Impact ○ = Temporary ● = Permanent	Range of Anticipated Annual Impacts (acres/year)	Maximum Percent of Total Habitat
Community Infrastructure			
Vegetation removal from floodway	○	4 – 14	0.07%
Levee construction/maintenance	○	0 – 0.02	< 0.01%
Sediment removal and spoils disposal	○	*Negligible*	–
Infrastructure construction	●	0 – 0.9	0.03%
Infrastructure maintenance	○	*Negligible*	–
Contingency	○	*< 6*	0.01%
Subtotal Temporary Impacts	○	*4 – 21*	0.1%
Subtotal Permanent Impacts	●	*0 – 0.9*	*0.03%*

Community infrastructure activities are anticipated to temporarily impact up to 21 acres (or 0.1 percent) of riparian habitat each year, scattered across the HCP permit area. The largest of these impacts would be the removal of vegetation from floodways (up to 4 acres per lineal mile of river). Infrastructure construction activities are anticipated to permanently impact up to 0.9 acres of riparian habitat each year, or 27 acres of habitat during the 30-year life of this HCP. Coverage is limited to 0.5 acres for any given project.

4.4 Riparian Conservation and Restoration

The conservation and restoration activities listed in Table 9 are ongoing and/or foreseeable projects in the Valley that will provide a net conservation benefit to the covered species by contributing to the recovery of those species.

Table 9. Anticipated impacts of conservation and restoration.

Covered Activity	Type of Impact ○ = Temporary ● = Permanent	Range of Anticipated Annual Impacts (acres/year)	Maximum Percent of Total Habitat
Conservation and Restoration			
Habitat creation/restoration/protection	○	*Negligible*	–
Weed management	○	*Negligible*	–
Wetland creation/management	○	*Negligible*	–
Contingency	○	*< 2*	0.01%
Subtotal Temporary Impacts	○	0 – 2	0.01%
Subtotal Permanent Impacts	–	–	–

Conservation and restoration activities in the Valley are anticipated to result in up to 2 acres of temporary impacts to riparian habitat each year. In the long term, these activities will benefit the covered species by improving the extent, diversity, and overall conservation of native riparian habitat in the Valley. While these activities are covered under this HCP, the habitat benefits that will stem from their implementation will complement the mitigation and minimization commitments of this HCP by promoting the ongoing conservation and enhancement of riparian habitat in the Valley.

4.5 Relationship of Habitat Impacts to Potential Flycatcher Territories

Flycatcher surveys that have been conducted on State and Federal lands in the Valley have documented up to about 73 territories in recent years. The recovery goal for the San Luis Valley Management Unit, as documented in the Southwestern Willow Flycatcher Recovery Plan, is 50 territories (Service 2002a). Private lands in the Valley have not been surveyed, and are not anticipated to be surveyed in the future. Since 92 percent of the woody riparian habitat in the Valley is on private lands (see Table 3), it is reasonable to assume that many of those lands support numerous additional flycatcher territories.

Pursuant to the HCP Handbook (Service and NMFS 1996), all of the potential incidental take calculations and subsequent mitigation credits are expressed in habitat acres, rather than actual territories that are unknown. Based on this guidance, all of the impacts, mitigation, and other commitments described in this HCP are expressed in habitat acres. However, per the Service's request, the following general habitat assumptions can be used to describe the *potential* impacts of the covered activities on flycatcher territories:

- Each territory requires about 1.2 acres of woody riparian habitat (Service 2002a, p. 22).

- In order to sustain this type of habitat, twice (2x) the habitat that is needed at any one time should be available in order to offset the periodic recycling by flooding and regrowth (Service 2002a, p. 80).

Based on these general assumptions, the covered activities are anticipated to impact up to 304.2 acres of habitat, which is theoretically enough to support up to 123 flycatcher territories (if all of the potential habitat was occupied at any given time).

Existing Flycatcher Conservation

The above assumptions about potential impacts to flycatcher territories from the covered activities also may be applied to estimate the number of territories that are already protected through various conservation measures. As described above in Section 2.7, there are currently 2,766 acres of woody riparian habitat under conservation, broken down as follows:

Type of Conservation/Management	Acres of Riparian Habitat
Conservation Easements:	1,763
State Wildlife Areas:	662
National Wildlife Refuges:	112
BLM Lands:	229
Total Habitat in Conservation:	2,766

Based on the existing acres of woody riparian habitat currently under conservation and management, as well as the habitat occupancy assumptions described above, there is already sufficient protected habitat to support up to 1,152 flycatcher territories, compared to up to 113 territories that may be impacted by the covered activities. This figure demonstrates that there may be more than 23 times the protected habitat in the Valley (2,766 acres) than what is identified in the Recovery Plan as being needed for downlisting or delisting the flycatcher (50 territories/120 acres).

Regardless of how the habitat impacts of the covered activities compare to potential flycatcher territories and recovery goals, the impacts will be fully mitigated by this HCP, as described below under Section 5.0.

5.0 HCP IMPLEMENTATION

As described in detail in Chapter 4, this HCP will mitigate about 1.14 acres of permanent impacts and up to 270 acres of temporary impacts to potential habitat each year. This implementation approach is commensurate with the small amount of permanent and temporary impacts to suitable or potential habitat that are expected to occur during the 30-year permit terms. This approach will satisfy the ITP requirements and is also anticipated to serve as a catalyst for additional riparian habitat conservation, which will ultimately benefit the long-term survival of the covered species in the Valley.

5.1 Rationale for this Implementation Approach

This implementation approach is appropriate for the magnitude and extent of impacts covered for the following reasons:

- Most of the covered activities have been conducted on a routine basis in the Valley for over 100 years.
- Most of the covered activities occur in marginal habitat, outside of the breeding season for the covered species.
- The covered species have successfully coexisted with these activities in the Valley; flycatcher recovery goals within the San Luis Valley Recovery Unit are currently being met.
- While most of the impacts from the covered activities will occur in marginal habitat, these mitigation measures will focus on the conservation and enhancement of core habitat and buffer habitat areas.
- Core habitat areas on public lands are already managed to support the covered species, thereby preserving the likelihood that recovery goals will continue to be met in the future. These core habitat areas will be augmented and buffered by additional conservation lands.
- Temporary impacts, calculated for the 30-year permit terms, will be fully mitigated within the first five years of HCP implementation and maintained for the life of the permits.
- This HCP provides a catalyst for additional conservation measures (beyond those required to mitigate impacts) by working with willing landowners to encourage voluntary conservation and habitat enhancement activities, promoting county-level habitat protection policies, and helping to coordinate HCP implementation with outside conservation efforts. This additional conservation will help reduce the impacts from non-covered activities, and benefit riparian habitat and the covered species.

HCP mitigation and administration commitments, and other implementation measures are summarized in Table 10 and described in detail in the following sections.

Table 10. HCP implementation measures.

HCP Commitments *Measures that the District and other Permittees agree to implement as a condition of their ITPs.*		
Topic	**Tool**	**Purpose**
Impact Mitigation	▪ Conservation easements ▪ Habitat restoration and enhancement ▪ Landowner cooperative agreements ▪ Habitat management agreements	Mitigate the impacts of the covered activities through the conservation and enhancement of high quality habitat areas.
Core Habitat Conservation	▪ Federal lands management* ▪ SWA habitat management	Ensure that Federal and State lands that currently support the covered species continue to provide a foundation of Core Habitat.
Education and Outreach	▪ Landowner notification ▪ Community outreach ▪ Staff education	Reduce long-term riparian habitat impacts by providing BMPs and other technical information, and showing the benefits of this HCP and overall habitat conservation.
HCP Administration	▪ District staff support ▪ Steering committee ▪ County adopting language that provides the legal authority to enable HCP implementation	Facilitate efficient and effective HCP implementation, and foster conservation partnerships.
Monitoring and Adaptive Management *(see Chapter 6)*	▪ HCP compliance ▪ Habitat quality monitoring on mitigation lands ▪ Habitat quality monitoring on Federal and State lands ▪ Reconfirm impact assumptions ▪ Ongoing species surveys	Monitor the suitability of mitigation lands, confirm the accuracy and effectiveness of this HCP and its assumptions, and respond to problems and uncertainties.
Additional Conservation Measures *Measures that the District and other Permittees will pursue on a <u>voluntary</u> basis to support this HCP and overall riparian habitat conservation.*		
Topic	**Tool**	**Purpose**
Additional County Land Use Policies	▪ Guidance for landowners or developers ▪ Guidance for county planning staff	Reduce the impacts of development and other non-covered activities, and promote overall riparian habitat protection (beyond the enabling language necessary for HCP implementation).
Conservation Support and Coordination	▪ Encourage partnerships with landowners and habitat enhancement programs ▪ Encourage additional private land conservation ▪ Coordinate partnerships with land trusts to focus habitat protections on buffer habitat areas ▪ Coordinate HCP implementation with the Rio Grande Natural Area	Support and facilitate synergistic and long-term relationships between HCP implementation and other conservation efforts, and provide partnerships for future conservation funding.

*Federal land management commitments are consistent with existing requirements.

5.2 Impact Mitigation Tools

The cornerstone of HCP implementation will be mitigation of the habitat impacts that occur due to the covered activities. As described in detail below, this mitigation approach emphasizes on-the-ground conservation and enhancement of a sufficient number of acres of riparian habitat at a specified level of habitat quality. The following habitat conservation, management, and enhancement efforts will be used as appropriate mitigation commitments for the purposes of this HCP:

- Conservation easements
- Habitat restoration and enhancement
- Management agreements

The District and other Permittees will work with private landowners, and Federal and State agencies to facilitate riparian habitat conservation and enhancement. The enrollment of private lands for mitigation purposes will occur on an individual, parcel-by-parcel basis. While it will be incumbent on the District and other Permittees to find and secure sufficient mitigation on non-Federal public or private lands, all mitigation activities on private lands will occur on an at-will, voluntary basis that is at the discretion of each individual landowner.

In general, HCP mitigation will be based on the following approach:

- The District will enroll and maintain sufficient mitigation credits to offset the impacts of the covered activities.
- Mitigation credits to offset temporary impacts will be secured within five years of HCP implementation (permanent impacts will be tracked and mitigated annually).
- Mitigation credits will be obtained on private lands on a voluntary basis, at the discretion of the landowner, as executed through a Landowner Cooperative Agreement (Appendix B).
- Efforts to locate and secure mitigation lands, which are anticipated to include discussions and negotiations with landowners, will be conducted by the District (including the HCP Administrator) with the assistance of other Permittees.
- The cost of locating, securing, and maintaining mitigation lands will be based on the availability of suitable mitigation land and willing landowners.
- To encourage Federal-non-federal partnerships, mitigation credits may be obtained through Federal conservation programs at a level that is proportional to the non-federal contribution.
- Funding required to implement the mitigation commitments can vary widely, depending on the number, type, size, and quality of mitigation lands that are established.

It is expected that some individual mitigation parcels may come and go during the 30-year term of this HCP (due to localized habitat degradation or terminated landowner agreements), and will be replaced by additional mitigation acres in other locations.

While most of the impacts will occur in marginal habitat areas, these mitigation tools will be focused on core habitat and buffer habitat areas, which will provide an added conservation

benefit for the covered species. (See Section 2.2 for detailed descriptions of core, buffer, and marginal habitat areas in the Valley). Habitat that is conserved, enhanced, restored, or managed using these tools in accordance with this HCP will become "mitigation credits" eligible for offsetting the impacts associated with the covered activities. Mitigation credits will be allocated in accordance with the ratios described below under *Impact and Mitigation Ratios*.

Conservation Easements

The District and other Permittees will work with individual landowners and land trusts to identify private lands that are protected by existing or potential conservation easements as mitigation opportunities. A growing number of landowners in the Valley are voluntarily placing conservation easements on their property. Currently about 1,700 acres of riparian habitat[22] on private lands in the Valley are protected by conservation easements, and more habitat is expected to be conserved within the next few years. Private conservation easements are typically held by nonprofit land trusts, such as the Rio Grande Headwaters Land Trust, Ducks Unlimited, Colorado Cattleman's Agricultural Land Trust, The Nature Conservancy, and the Trust for Public Land. The State and local units of government also may negotiate and hold conservation easements. Easements that were put in place during development of the HCP may be suitable for HCP mitigation if they are located on non-federal lands in the plan area, have been purchased with funds from the District and/or the State of Colorado, and have documents related to them stating they have been purchased, at least in part, to support HCP implementation.

Conservation Easement Eligibility Criteria

1. Easement Suitability. Conservation easements vary widely depending on the easement holder, funding sources, and particular land use and management restrictions that are written into the easement. For this reason, a variety of easement types may be eligible for mitigation.

High quality habitat areas that are currently protected by a conservation easement will be eligible for *potential* inclusion in the HCP mitigation program if they meet all of the following minimum criteria:

- Provides long- term[23] protection from development.
- Identifies and documents conservation values or conservation purposes that include the protection of a relatively natural habitat of fish, wildlife, or plants; or similar ecosystem (per 26 USC § 170(h)(1)); or more specifically, riparian habitat or wildlife habitat.
- Restricts, precludes, or manages activities that would impair riparian habitat.
- Has a demonstrated connection to HCP implementation or flycatcher conservation through grant funding requests, easement documents, or other means.
- Allows access for habitat quality monitoring.

2. Landowner Agreement. Enrollment of conservation easements in the HCP mitigation program will be executed through a Cooperative Agreement between the landowner and the

[22] Over 32,000 easement acres contain about 1,700 acres of mapped riparian habitat – see Tables 4 and 5.

[23] Most conservation easements are in perpetuity, though some have shorter time periods (10 yr., 20 yr., etc.); eligible easements must have a time period that is equal to or greater than the time period that mitigation credits are obtained. If a time-limited easement expires, it is no longer eligible for HCP mitigation (unless the landowner and the District develop a separate habitat management agreement).

District (described below). This agreement is *not* intended to be included as part of the Deed of Conservation Easement, which is negotiated between the landowner and a land trust. Instead, it will be a separate agreement between the District and the landowner that is negotiated and executed in partnership with the land trust.

3. Additional Provisions. Potential HCP mitigation lands under conservation easement that *do not* demonstrate a strong enough commitment to habitat protection, HCP implementation, or covered species conservation can be strengthened through additional habitat management provisions. These provisions would be added to the Cooperative Agreement (below) on a voluntary basis, and would be monitored by the District. Habitat management provisions that are sufficient to protect or improve riparian habitat would be developed on a case-by-case basis by District staff and the landowner, with input from the Steering Committee.

4. Federally-funded Easements. Easements that are primarily funded or held by a Federal agency (such as the NRCS or the Service) *may* be eligible for limited HCP mitigation credit, proportional to the non-federal contribution to the easement (e.g., State or local funding contributions or landowner donations). The eligibility and conditions of including Federally-funded easements is described in greater detail below under *Federal Programs*.

5. Habitat Monitoring. While the protections of the conservation easement make a parcel eligible for HCP mitigation, the true value of the parcel is in the quality of the protected habitat. Mitigation credits will be determined through field monitoring and mapping (see Section 6.0). Ongoing habitat quality monitoring will ensure that mitigation lands are of sufficient (based on overall conditions and comparison to reference sites).

Landowner Cooperative Agreements

Private lands that contain high quality woody riparian habitat, are subject to the protections of a conservation easement, or are being restored or enhanced can be enrolled in the HCP mitigation program through a cooperative agreement. The cooperative agreement will include the following provisions:

1. Validates the landowner's participation in the HCP mitigation program
2. Allows periodic access by the District or their representative for habitat monitoring, and by the Service for monitoring review[24]
3. Acknowledges the voluntary nature of the landowner's participation
4. Contains standard liability, notification, and severability conditions

[24] Because the HCP requires no minimization and mitigation measures by landowners other than the Permittees, the Service does not need access to landowners' lands for HCP compliance monitoring. However, the Service may monitor those lands belonging to landowners who have volunteered to sign a Landowner Cooperative Agreement or Habitat Management Agreement to help the District fulfill the HCP's mitigation obligations. The purpose of such monitoring is to assess the effectiveness of the mitigation effort on that property. To follow-up on the effectiveness of the mitigation efforts on a particular property, the Service will make arrangements with the voluntary landowner for property access at least 14 days in advance. During monitoring, the Service may be accompanied by the District or the District's designated representatives. The Permittees shall allow the Service, or other properly permitted and qualified persons designated by the Service, to enter the Permittees' lands covered by the HCP at reasonable hours and times in accordance with 50 CFR §§13.21 (e)(2) and 13.47. Nothing in this section precludes the Service from carrying out its duties as required and authorized by law.

5. Additional habitat management provisions, if needed

A sample landowner cooperative agreement is provided in Appendix B. As described below under *Impact and Mitigation Tracking*, the District will continue to track changes in mitigation credits as landowners join or withdraw from cooperative agreements. Likewise, mitigation credits may change over time based on monitoring results (described in Section 6.2).

HCP-Specific Easement Acquisition

The District, other Permittees, and HCP implementation partners may also pursue conservation easements (either donated or acquired) that are specifically drafted to address and provide HCP mitigation. Besides the criteria described above, such a conservation easement also would include more specific language about habitat for the covered species and its direct relationship to this HCP, as well as more-specific habitat management and conservation provisions. A separate cooperative agreement would not be necessary.

It may be in the interest of the Permittees to secure an HCP-specific conservation easement and have most or all of the HCP mitigation credits on a single property, which would simplify and reduce the cost of long-term monitoring and management. While the cost of an HCP-specific easement may be higher due to additional requirements, it could be an attractive option as particular conservation and funding opportunities arise or as mitigation needs change.

Habitat Management Agreements

Private lands that are not protected through a conservation easement will be eligible for HCP mitigation through a habitat management agreement. This agreement would document the landowner's commitment to habitat management provisions that support and protect the covered species. The riparian habitat that is subject to the agreement would be monitored every three years to ensure that minimum standards are being maintained. Mitigation credit would be based on the area of riparian habitat that is subject to the management agreement, and would be valid for as long as the management agreement is in place and monitoring demonstrates that sufficient habitat quality is maintained. A sample habitat management agreement is provided in Appendix C.

Habitat Restoration and Enhancement

The efforts of the State, local governments, private landowners, and Federal agencies to actively restore and enhance riparian habitat on their land also can be used for mitigation, subject to the provisions described below. Examples of efforts that could qualify for mitigation may include fencing to manage livestock, planting or transplanting native riparian vegetation, or in-channel grading or structures to improve bank habitat. The primary benefits of these efforts to the covered species are improving the quality of riparian habitat in a project area, and increasing the amount of available riparian habitat. General provisions for habitat restoration and enhancement projects are described below, while specific provisions related to the NRCS or other Federally funded efforts are described under *Federal Programs*.

General Provisions

Mitigation credits for riparian habitat restoration and enhancement efforts are subject to the following general provisions:

- *Project Area* – Mitigation credits will be taken on a per-acre basis, based on the project area boundaries.
- *Success Criteria* – HCP mitigation credits may not be taken until monitoring can demonstrate the preliminary success of the effort. This determination may take place no sooner than two years after the project initiation (see Section 6.1).
- *Ratios* – Restoration and enhancement efforts that show and maintain indications of success will be eligible for HCP mitigation at a 0.75:1 ratio (except for Federal programs as described below).
- *Long-term Monitoring* – Restoration and enhancement efforts that are included in the HCP mitigation program must be monitored every three years to track long-term success and trends (see Section 6.1).
- *Projects on Federal Lands* – Efforts to restore or enhance riparian habitat on Federal lands (such as Alamosa NWR or the BLM's McIntire-Simpson property) may be counted toward HCP mitigation, only if non-federal funds are used and the project supplements already planned efforts (see *Federal Programs* and *Federal/Non--federal Partnerships* below). Efforts on Federal lands that are entirely federally funded are not eligible for HCP mitigation.
- *Projects on State Lands* – Restoration and enhancement efforts on State lands, including SWAs, may be counted toward HCP mitigation. Since the State of Colorado (DNR) is a Permittee, no further agreements are required.
- *Projects on Private Lands* – Restoration and enhancement efforts on private lands may be included in the HCP mitigation program on a voluntary basis through a Landowner Cooperative Agreement.

Enhancement and Protection of Mitigation Lands

Projects to restore, manage, enhance, or protect riparian habitat on mitigation lands may be used (or desired) for the following reasons:

- Efforts to manage and protect riparian habitat may help ensure that sufficient habitat quality and area within the mitigation site (and subsequent mitigation credits) is maintained.
- If restoration efforts expand the amount of woody riparian habitat within the easement area, the value of that easement for mitigation (in terms of additional mitigation credits) may be increased accordingly.
- Conservation and enhancement efforts on lands under an existing conservation easement can strengthen the suitability of the easement for HCP mitigation, if the easement otherwise fails to demonstrate a sufficient level of conservation or connection to HCP implementation.

Federal conservation or assistance efforts (such as NRCS programs) may be used to achieve these habitat objectives on lands that are proposed or used for HCP mitigation credits through a conservation easement or other mechanism. However, to avoid double counting, restoration and enhancement projects (either Federal or non-Federal) on lands that are already used for mitigation may not be used for additional mitigation credit.

Federal Programs and Partnerships

Several Federal conservation programs are being implemented or have been proposed in the Valley. The NRCS, a Federal agency under the U.S. Department of Agriculture, provides funding, technical expertise, and other resources to many successful habitat conservation and enhancement efforts in the Valley. The NRCS is an important partner in riparian habitat conservation, management, and enhancement efforts; and frequently completes conservation projects in collaboration with State and local agencies, private conservation organizations, and individual landowners. The Service has recently proposed a Land Protection Plan (LPP) that would seek to use purchase land or conservation easements from willing landowners to protect wildlife habitat and movement corridors in the Valley.

Due to concerns about the use of Federal funding to support HCP mitigation, federally funded conservation easements, or restoration and enhancement efforts are not eligible for full mitigation credit. Instead, NRCS, the Service's LPP, or similar federally funded efforts may be used for mitigation credit at a ratio that is proportional to the non-Federal contribution. This will allow the District and the other Permittees to continue to work with the NRCS and the Service to conserve and enhance riparian habitat, and to continue to leverage both Federal and non-federal resources to maximize conservation benefits. Typical non-federal contributions include, but are not limited to, CPW, GOCO, or private grants, State or local matching funds, private contributions, and landowner donations.

Federal Conservation Easements

The NRCS holds conservation easements on private lands, and the Service is proposing to purchase similar easements through their proposed LPP. These easements are primarily funded by the Federal government and are funded and administered through the Wetlands Reserve Program, Section 6 Land Acquisition Grants, and other programs. These easements typically include strong provisions to protect habitat for the covered species. Conservation easements held by the NRCS or the Service may be included as HCP mitigation acres at a ratio that is proportional to the non-federal contribution. Easements purchased entirely with Section 6 grants may not be used for mitigation.

Participation in the HCP mitigation program would still be at the discretion of the landowner, as executed through a Landowner Cooperative Agreement that is separate from the conservation easement.

Restoration and Enhancement

The NRCS administers several programs that provide funding and technical assistance to restoration and enhancement efforts. These efforts may be counted toward HCP mitigation at a level proportional to the non-federal contribution, as described above.

Federal assistance programs, such as NRCS efforts, may be used to maintain the habitat quality of private HCP mitigation acres, or to strengthen the eligibility of conservation easement lands for HCP mitigation through habitat management provisions. Likewise, Federal funds may be used to maintain and enhance riparian habitat on State lands. In any of these cases, the restoration/enhancement itself would not count toward mitigation, but it would play an important role in ensuring that conservation lands used for mitigation maintain a desired level of habitat quality.

Federal/Non-federal Partnerships

This HCP is designed to encourage creative partnerships between Federal agencies, State and local agencies, conservation and community organizations, and private landowners to leverage funds and resources for the benefit of the covered species. In the spirit of such cooperation, the Permittees may receive mitigation credit when they assist with Federally funded conservation, restoration, and enhancement efforts. Potential partnership scenarios include:

a) non-federal funds being used to enhance habitat on Federal lands,
b) non-federal funds being used to assist with habitat enhancement on lands covered by an NRCS easement, or
c) a blend of Federal and non-federal funds being used to implement a restoration or enhancement project on private land.

Partnership projects on Federal lands may be eligible for HCP mitigation only if they: 1) are in addition to habitat enhancement projects already planned by the managing agency (as documented by an approved management plan/Comprehensive Conservation Plan/Resource Management Plan); and, 2) and are on federal lands under a protective management designation (e.g., BLM ACEC or Refuge management guidance) or associated management agreement that ensures adequate resource protection.

In any federal partnership scenario, mitigation credit may be obtained at a level that is proportional to the non-federal contribution.

5.3 Impact and Mitigation Tracking

Impact Ratios

Permanent Impacts

Each acre of permanent impacts resulting from covered activities will be mitigated with 1¼ acres of mitigation land of equal or greater habitat value (ratio of 1.25:1). This level of mitigation is sufficient for the following reasons:

- Mitigation acres are typically of greater habitat value (core or buffer habitat) than the potential habitat area permanently impacted (marginal habitat).
- Coverage for permanent impacts is limited to up to 0.5 acres for any particular project.
- Anticipated permanent impacts will be mitigated up front, prior to the impact occurring, creating a "backlog" of contingency mitigation for permanent impacts.
- Unanticipated future permanent impacts will be mitigated within one year after the impact has occurred.

Temporary Impacts

Each acre of temporary impacts will be mitigated by ¾ of an acre of mitigation land (ratio of 0.75:1). The level of mitigation for temporary impacts meets the maximum extent practicable standard for the following reasons:

- Most of the temporary impacts occur in marginal habitat.
- The HCP includes and mitigates impacts to many vegetation patches that are small, narrow, and do not meet the recovery plan definitions of habitat.

- To account for uncertainty, the HCP impact calculations and mitigation commitments use the most conservative, high end of a range of estimated impacts.
- Mitigation acres are typically of greater habitat value (core or buffer habitat) than the potential habitat area impacted by temporary impacts (marginal habitat).
- Mitigation acres will be in core or buffer habitat areas. Conservation and restoration of these areas will ensure long-term habitat connectivity, and will protect and enhance the ecological functions and processes that support sustainable populations of the covered species.
- Temporary impacts will be fully mitigated within the first five years of HCP implementation.
- The periodic nature of temporary impacts (generally occurring on a 5- to 10-year cycle) allow impacted marginal habitat to regenerate, thereby providing a rotating matrix of potential habitat. According to the Recovery Plan, over a five-year period under optimum conditions flycatcher habitat vegetation can germinate, be used for migration or foraging, continue to grow, and eventually be used for nesting (Service 2002a).

Mitigation Ratios

Land eligible to be allocated for mitigation consists of habitat permanently conserved, enhanced, restored, or managed in accordance with the requirements of this HCP. The allocation of mitigation acres is based upon the mitigation tool(s) used, and is defined below in Table 11.

Table 11. Mitigation Ratios.

Mitigation Tool		Mitigation Credit
Conservation Easement:	1 acre =	1 acre mitigation
Restoration and Enhancement:	1 acre =	0.75 acre mitigation
Management Agreement:	1 acre =	0.75 acre mitigation

Using these ratios, the District will be able to accurately quantify mitigation credits that are needed to offset the impacts of the covered activities. A sample mitigation tracking worksheet is provided below.

Table 12. Sample mitigation tracking worksheet.
Note: For Illustrative Purposes Only – all values are conceptual.

HCP Impacts	Habitat Acres	Ratio	Mitigation Need
Temporary impacts			
Routine agriculture	248	0.75	186
Community infrastructure	21	0.75	15.75
Conservation and restoration	2	0.75	1.5
Total Temporary Impacts			***203.25***
Permanent impacts*			
Year 1	3.4	1.25	4.25
Year 2	3.5	1.25	5.25
Year x	3.0	1.25	3.75
Year x+1	2	1.25	2.5
Total Permanent Impacts			***15.75***
	Total Mitigation Need		**219.0**

*Permanent impacts will be tracked and mitigated on an annual basis. Values shown are based on current estimates.

HCP Mitigation	Total Acres	Habitat Acres	Non-federal %	Ratio	Mitigation Credit
Conservation Easements					
RiGHT easement	250	50	100%	1.00	50
TNC easement	300	5	100%	1.00	5
NRCS easement	400	50	35%	0.35	17.5
HCP-specific easement	520	100	85%	0.85	85
Total Conservation Easement Credit					***157.5***
Habitat Restoration/Enhancement					
Private Land Habitat Enhancement					
Effort A (State funds)	n/a	10	100%	0.75	7.5
Effort B (State and NRCS funds)	n/a	15	40%	0.75	4.5
State Wildlife Area Enhancement					
Higel SWA Project	n/a	25	90%	0.75	16.9
Sego Springs SWA Project	n/a	15	100%	0.75	11.3
Alamosa NWR Habitat Enhancement					
Effort A (State, NRCS and Service funds)	n/a	25	20%	0.75	3.8
Total Restoration/Enhancement Credit					***43.9***
Management Agreements					
Agreement A	100	20	n/a	0.75	15
Agreement B	175	35	n/a	0.75	26.25
Total Management Agreement Credit					***41.25***
			Total Mitigation Credit		**328.7**

Mitigation Credit Balance	
Mitigation Need	219.0
Mitigation Credit	242.7
Balance	**+ 23.7**

5.4 Core Habitat Conservation

Although flycatchers have been detected and are suspected to breed on private lands, all of the known occupied flycatcher habitat is on the Service's Alamosa NWR, the BLM's McIntire-Simpson property, and on several SWAs managed by CPW. In order to ensure the long-term maintenance of these core habitat areas, these agencies have agreed to continue to protect and manage these parcels in a manner that benefits the flycatcher and cuckoo over the long term.

Federal Lands

As Federal agencies, the Service's National Wildlife Refuge division and the BLM are not eligible for incidental take coverage under this HCP and, therefore, cannot participate as formal Permittees. However, the Permittees will work with the Federal agencies to seek their continued commitment for overall conservation of the species by maintaining the covered species' habitat on Federal lands, through Section 7 of the ESA and agency-specific policies. This commitment may be documented in a written agreement, memoranda, or another appropriate mechanism.

State Wildlife Areas

As an agency under the DNR, CPW is a Permittee and a formal partner in HCP development and implementation. As such, CPW will commit to maintaining the current extent and quality of riparian habitat on SWAs, consistent with current CPW policies and management practices.

5.5 Education and Outreach

The District will actively work with landowners, local communities, private and public utilities, and other stakeholders to provide them with the information and tools to develop an understanding of this HCP and its benefits among landowners and the community, reduce the long-term impacts of covered and non-covered activities on riparian habitat, and solidify support for HCP mitigation programs. These measures will include specific efforts to notify landowners of their coverage under this HCP to reduce the impacts of specific activities, and general community outreach and education commitments.

Landowner Notification

Within the first six months of HCP completion and ITP issuance, the District will use a variety of methods to notify landowners in the Valley about this HCP. The purposes of the landowner notification are to:

1. Announce the completion of this HCP.
2. Notify landowners about their coverage under this HCP.
3. Educate landowners about riparian habitat conservation (including benefits and available assistance programs).
4. Encourage landowners to contact the District with any questions.

A similar notification effort will be conducted at least every 10 years during HCP implementation. Repeat landowner notification efforts may be warranted on a more frequent basis (five-year intervals) if there are substantial changes to this HCP, the conservation status of the covered species, overall riparian habitat conditions, the covered activities, or general economic conditions in the Valley.

Notification Methods

Several methods will be used to provide HCP notification to landowners:

- ***Notification Letter:*** A notification letter will be sent to key landowners who are most likely to conduct the covered activities and own land that contains high quality riparian habitat. "Key" landowners are those whose property falls partially or entirely within the designated 100-year floodplain, and are outside of incorporated town or city limits. Each County will be responsible for mailings to their respective "key" landowners.
- ***General Notification:*** Landowners outside of the 100-year floodplain will be notified through a variety of public venues, including the *Valley Courier* newspaper; letters to the Farm Bureau, Cattleman's Association, local water districts, local conservation districts, land trusts, and other community organizations; District, county, and municipal websites; and other appropriate public venues.
- ***Local Government Agencies:*** County and municipal planning and public works departments will be provided information about this HCP so they can assist in landowner notification and outreach, facilitate HCP implementation, and provide information to landowners whose activities are *not* covered by this HCP.

Certification of Coverage

The District will, upon request, provide any eligible landowner with a document that certifies they are covered by this HCP when they conduct the covered activities. Eligibility will be based on the physical location of the property within the HCP plan area. The certification document will identify the covered activities and describe the general terms of this HCP. Upon request from a landowner, certification documents will be generated on an as-needed basis.

Community Outreach and Education

While the impacts of the covered activities will be fully mitigated through the conservation and restoration efforts described above, those on-the-ground mitigation efforts need to be supported by a community outreach effort that achieves the following purposes:

1. Help landowners and the community understand the value of riparian habitat;
2. Help landowners, municipalities, and the community understand how they benefit from this HCP;
3. Encourage landowners to participate in HCP mitigation efforts and general habitat conservation programs.
4. Provide landowners with access to technical and financial resources (including BMPs) that support habitat conservation and minimize impacts.
5. Reduce impacts to riparian habitat from activities that are outside the scope of the HCP coverage.
6. Maintain a large pool of private lands that are eligible for HCP mitigation efforts should they be needed.
7. Continually gather and disseminate new information and techniques on riparian conservation and enhancement.

Outreach and Education Methods

A variety of potential community outreach and education methods are described in detail in Appendix D. These methods include:

- Written documents and materials;

- Presentations to community organizations;
- Informal meetings with landowners;
- Organized field trips;
- Agency staff trainings/presentations;
- Landowner recognition;
- Education programs; and
- Outreach partnerships with existing entities (i.e., Adams State College, Alamosa NWR, Colorado State University Extension Service, and SLV Ecosystem Council).

Covered Activity Reporting

As part of the community outreach process, individual landowners will be encouraged to voluntarily track and report the covered activities that they undertake over time (e.g., length of ditches cleared, fences repaired, grazing activity). Reported data will be tracked by geographical area (e.g., stream reach) rather than individual landowners or properties. This information will be provided to the District on a voluntary basis, and will *not* be used to evaluate, influence, or regulate individual land management practices. Instead, this information will be used to track the overall, long-term trends of the covered activities and will assist in evaluating the effectiveness of the HCP at 10-year intervals.

Outreach Contacts

At various stages of HCP implementation, the District will conduct several outreach contacts each year. An outreach "contact" is defined as a formal or informal presentation, or the distribution of written materials, to outside organizations or the public in a manner that reaches more than 10 people in a single event. Education and outreach contacts will be coordinated by the District and the HCP Steering Committee.

The frequency of contacts will be greatest within the first five years of HCP implementation when it will be important to gain community support for this HCP and mitigation efforts. After the fifth year of HCP implementation, the outreach and education commitments will be less intensive as the efforts transition from implementation start-up to long-term management. The targets for education and outreach efforts to be conducted by the District are:

- HCP years 1 – 5: six contacts per year
- HCP years 5 – 10: four contacts per year
- HCP years 10 – 30: two contacts per year

The District and other Permittees recognize that certain changes or developments, positive or negative, may warrant additional education and outreach contacts. As such, they are dedicated to whatever level of education and outreach that is appropriate to achieve effective HCP implementation.

5.6 HCP Administration

The Permittees will commit to the following measures to implement and administer this HCP in an effective and efficient manner.

District Staff Support

The District, on behalf of the other Permittees, will commit to an appropriate level of staffing, up to one half-time employee, for the following HCP implementation tasks:

- Track ongoing permanent impacts
- Identify and track mitigation acres
- Negotiate and secure landowner cooperative agreements, management agreements, or HCP-specific easement language
- Coordinate habitat quality monitoring on mitigation lands and reference sites
- Coordinate Valley-wide habitat mapping (every 10 years)
- Coordinate and implement education and outreach efforts
- Coordinate habitat enhancement activities as needed on mitigation lands to achieve and maintain mitigation commitments
- Coordinate the HCP Steering Committee
- Coordinate with county Land Use Administrators to provide information to landowners from the District regarding procedure and remedies for impacts beyond the scope of the HCP
- Work with the other Permittees, federal agencies, and other partners to coordinate voluntary conservation efforts and to secure necessary funding
- Prepare annual HCP report for submission to the Service
- Develop an annual work plan based on recommendations from the steering committee.
- Serve as a point of contact for agencies, landowners, and the general public
- Other tasks, as needed

The specific implementation tasks and staffing needs are expected to change during the course of HCP implementation. While the first several years will require a high degree of coordination, this HCP is anticipated to have relatively few requirements over the long term. For these reasons, the District and other Permittees will commit to the effective administration of this HCP rather than a fixed level of staffing. (However, for the purposes of funding assurances, the District anticipates funding a ½ full-time equivalent (FTE) for the first 10 years of HCP implementation, and the equivalent of a ¼ FTE thereafter).

County HCP Enabling Language

Each county will adopt a resolution, ordinance, or other appropriate legal mechanism under their existing land use regulatory powers that provides the authority to enable HCP implementation and ITP protections for landowners. This legal mechanism affirms the incidental take protections for the covered activities that are included in ITPs by defining county land use authority over typical and routine activities. It also establishes a clear process for District and county staff to respond to complaints, informs landowners of their ESA responsibilities, and potentially refers the impacts of non-covered activities to the Service. The enabling language and legal mechanism must be adopted and in place for incidental take permit protections to be

extended to private landowners within the county. Model enabling language is included in Appendix E. A county may expand its land use controls or habitat protections at its own discretion. Adoption of the basic legal mechanism is necessary for each county to provide ITP protections to landowners under its jurisdiction.[25]

Steering Committee

The District will establish a steering committee that may include, but would not be limited to, the following:

- Officials from the U.S. Fish and Wildlife Service (Ecological Services and Refuges);
- Officials from the U.S. Bureau of Land Management;
- County officials or representatives;
- Representative(s) from the District;
- Representative(s) of the State of Colorado Department of Natural Resources;
- Representative(s) of the NRCS;
- Representative(s) of farming/ranching organizations;
- Representative(s) of conservation/environmental organizations;
- Representative(s) of water user associations; and
- Individual(s) representing the public.

The primary responsibilities of the steering committee will be to:

- Work with landowners to establish and maintain mitigation opportunities;
- Establish, implement, and evaluate the monitoring program;
- Implement new monitoring techniques as new technology and information becomes available;
- Review and resolve any HCP implementation issues;
- Develop adaptive management strategies to address implementation issues;
- Pursue grants to facilitate riparian habitat conservation;
- Coordinate with the Rio Grande Natural Area Commission; and
- Assist in the preparation of an annual report to the Service.

The steering committee is anticipated to meet two times per year (spring and fall), and may schedule additional meetings or field trips on an as-needed basis. A representative from the steering committee will present the HCP progress to the District Board once each year.

The steering committee will play an advisory role, and will not have direct implementation responsibility. The primary purpose of the steering committee will be to act on behalf of the Permittees in reviewing monitoring data, evaluate the suitability of potential and actual mitigation lands, evaluate long-term habitat trends, and recommend an annual work plan that ensures that HCP mitigation commitments are satisfied. The steering committee will also provide a forum that includes resource experts, stakeholder interests, community leaders, and decision makers where resource information can be shared, habitat issues can be addressed, and partnerships can be built. These partnerships can foster and encourage new and ongoing riparian

[25] Municipalities are not required to adopt enabling language (but may choose to do so), since individual activities of individual landowners within municipal boundaries are not considered to result in take (see *Residential Activities* in Section 3.6). Municipal ITP coverage is therefore limited to activities conducted by the municipality.

habitat conservation efforts in the Valley. This arrangement will allow for an open process that can rely on existing social and professional networks, and community collaboration to support HCP implementation. A draft steering committee charter is presented in Appendix F.

Annual Work Plan

The District will develop an annual work plan based on recommendations from the steering committee. The work plan will outline implementation commitments and priorities for the following year, considering the following:

- Existing and mitigation parcels and projects
- Potential mitigation credit opportunities
- Short- and long-term monitoring results (see Section 6.1)
- Proposed adaptive management strategies (see Section 6.2)
- Education and outreach opportunities
- Partnership opportunities
- Other factors, as necessary

Annual Reporting

The District and other Permittees will prepare and submit an annual report to the Service.[26] The report is anticipated to include the following:

- Summary of key tasks identified and implemented in the work plan
- Description of mitigation lands added (or removed), and the mechanisms by which those areas are eligible for mitigation (e.g., conservation easement, habitat restoration)
- Summary of the current impact totals and mitigation credits
- Summary of habitat and species monitoring efforts and findings
- Description of outreach and education contacts
- Identification of upcoming issues and opportunities
- Description of implementation priorities for the following year

The annual report will be developed by District staff, with input from staff from other Permittee entities and steering committee members. The final report for each calendar year will be submitted to the Service by March 1 of the following year.

5.7 Additional Conservation Measures

In addition to the purposes set forth in this HCP, it will also serve as a catalyst to complement, facilitate, and promote ongoing habitat conservation beyond what is required for mitigation. The following voluntary measures will promote and encourage riparian habitat conservation in the Valley for the benefit of riparian habitat and the covered species.

County Land Use Policies

Each County will adopt language that provides the appropriate regulatory structure and authority to enable HCP implementation by providing a legal mechanism to extend permit protections to individual landowners. In addition to the enabling language, the Counties will be encouraged to

[26] Annual reports will be provided to both U.S. Fish and Wildlife Service Ecological Services staff, and local refuge staff.

develop or refine their land use policies and Land Use Code to discourage development impacts to riparian habitat.

As an example, updated land use policies may benefit riparian habitat conservation in the following ways:

- Reduce the impacts of development on overall riparian habitat.
- Provide the Counties with the guidance to help landowners voluntarily avoid impacts to riparian areas and minimize regulatory uncertainties during the development process.
- Help maintain habitat quality on HCP mitigation acres by reducing the potential for degradation or fragmentation of nearby habitat areas (and thereby reducing the need for enhancement of mitigation acres).
- Provide policies and guidance for developers and landowners that discourage impacts to riparian habitat and reduce the need for individual Section 7 consultations.

Conservation Support and Coordination

The District and other Permittees will continue to work with Federal and State agencies, land trusts, local stakeholder organizations, and landowners to facilitate the continued conservation and enhancement of riparian habitat in the Valley. This coordination may include, but is not limited to:

- Improved partnerships between willing landowners and habitat enhancement efforts by the NRCS, Partners for Fish and Wildlife, and other programs.
- Improved partnerships between willing landowners and land trusts to complete additional conservation easements that protect riparian habitat.
- Coordination with the establishment of the Rio Grande Natural Area, including planning and implementation, and potentially integrating the Natural Area into HCP implementation.
- Additional Federal and State grant programs to facilitate ongoing riparian conservation (including ESA Section 6 grants, North American Wetlands Conservation Act, and GOCO grants).

Conservation Focus Areas

Additional habitat conservation on private lands will advance the goals and purposes of this HCP, and facilitate long-term implementation efforts. In particular, additional voluntary habitat conservation on private lands in the following geographical areas is consistent with this HCP and should be encouraged:

- Rio Grande corridor between Alamosa and Del Norte,
- Rio Grande/Conejos River confluence area,
- Conejos River and Rio San Antonio south of Antonito,
- Rio Grande south of Alamosa,
- Saguache Creek west of Saguache,
- Sangre de Cristo Creek east of Fort Garland, and
- Culebra/Ventero Creeks between Sanchez Reservoir and Highway 142.

5.8 Summary of Implementation Responsibilities

Implementation of this HCP will be a collaborative effort between the Permittees and other implementation partners. Specific implementation responsibilities for each entity are summarized below.

U.S. Fish and Wildlife Service

- Participate in the HCP steering committee
- Provide technical assistance in the implementation, monitoring, adaptive management of the HCP, and participate in revisions and amendments as needed

Rio Grande Water Conservation District

- Oversee HCP implementation
- Provide staff support for HCP implementation
- Track impacts and identify mitigation credits
- Negotiate and secure landowner cooperative agreements, management agreements, or HCP-specific easement language
- Coordinate habitat quality monitoring on private mitigation lands and reference sites
- Coordinate Valley-wide habitat mapping (every 10 years)
- Coordinate habitat enhancement activities as needed on mitigation lands to achieve and maintain mitigation commitments
- Coordinate the HCP steering committee
- Coordinate and implement education and outreach efforts
- Coordinate with county Land Use Administrators on notification procedures and information regarding remedies for impacts beyond the scope of the HCP
- Work with other Permittees, Federal agencies, and other partners to coordinate voluntary conservation efforts and secure necessary funding
- Prepare annual HCP report for submission to the Service
- Serve as a point of contact for agencies, landowners, and the general public
- Develop an annual work plan based on recommendations from the steering committee
- Other tasks, as needed

State of Colorado Department of Natural Resources

- Survey covered species on State lands at least once every three years
- Conduct habitat quality monitoring on State lands
- Participate in the HCP steering committee

Counties (Alamosa, Conejos, Costilla, Mineral, Rio Grande, and Saguache)

- Adopt and enforce legal mechanism creating appropriate regulatory structure and authority
- Compile and mail landowner notification letters (every 10 years)
- Report County-permitted activities with permanent impacts
- Provide HCP information and guidance to landowners

Municipalities (Alamosa, Monte Vista, Del Norte, and South Fork)

- Report municipal activities with permanent impacts
- Report floodway clearing in excess of 4 acres/year

Landowners

- No requirements

6.0 MONITORING AND ADAPTIVE MANAGEMENT

6.1 Monitoring

Monitoring the effectiveness of the conservation measures, and ensuring compliance with the implementation commitments are mandatory elements of a HCP. The Service elaborated on monitoring and adaptive management requirements for HCPs in its *Five-Point Policy Guidance* (64 FR 11485). The Service identifies two types of monitoring required for HCPs:

1. **Compliance monitoring –** Monitoring and reporting necessary to demonstrate that HCP requirements are being carried out.
2. **Effectiveness monitoring –** Monitoring and reporting requirements necessary to evaluate whether the HCP measures are achieving the biological goals and objectives. Effectiveness monitoring also provides information to support adaptive management decisions.

The HCP Handbook (Service and NMFS 1996) describes monitoring measures required by Section 10 regulations of the ESA:

> For regional and other large-scale HCPs, monitoring programs should include periodic accountings of take, surveys to determine species status in project areas or mitigation habitats, and progress reports on fulfillment of mitigation requirements (e.g., habitat acres enrolled in mitigation lands) (p. 3-26).

Monitoring Approach

The District and other Permittees will monitor compliance with the terms and conditions of the permits, and the effectiveness of mitigation measures. Monitoring also will be used to assess the need for adaptive management in response to information gained during monitoring plan implementation and to relevant changed circumstances. The District will provide monitoring for compliance and effectiveness throughout the 30-year duration of the permits.

The monitoring approach for this HCP will achieve the goals stated above by focusing on three general parameters:

1. Valley-wide (macro) habitat quantity mapping
2. Parcel-specific (micro) habitat quality evaluation
3. Species occurrence monitoring

The first two parameters are habitat-based monitoring, while the third is based on surveys for the covered species. These monitoring types are described in the following sections. Detailed monitoring protocols and example data forms are provided in Appendix G.

Habitat-Based Monitoring

Riparian communities are dynamic and variable, and a standard index to habitat quality for the covered species has not been developed. Habitat-based monitoring focuses on monitoring trends

and changes in vegetation and other landscape features such as hydrological conditions, habitat heterogeneity, or vegetation succession, which provide habitat for the covered species. Changes in habitat are assumed to influence changes in the distribution or abundance of covered species. Habitat-based monitoring also has the added benefit of tracking changes in habitat that may also affect many species that are not covered by this HCP.

Habitat-based monitoring will be conducted at two scales; Valley-wide (or macro-habitat scale), and mitigation parcel-specific (or microhabitat scale).

Monitoring Goals

As described in Section 1.4, some of the overall goals of this HCP are to protect habitat for the covered species in a manner that contributes to their long-term recovery, and to contribute to the long-term conservation and management of riparian habitat in the Valley. The specific goals of this monitoring plan are to:

- Document compliance with this HCP, and the terms and conditions of the ITPs and Implementing Agreement (compliance monitoring);
- Detect and quantify positive and negative changes to woody riparian vegetation communities within the HCP boundary, and corresponding impact assumptions (macro-habitat scale) (effectiveness monitoring);
- Detect and quantify positive and negative changes to woody riparian habitat for the covered species on mitigation lands (micro-habitat scale) (effectiveness monitoring);
- Detect and quantify changes in the presence or abundance of the covered species on Federal and State core habitat areas (effectiveness monitoring);
- Determine if the biological goals (species and habitat conservation) and sufficient habitat quality standards are being achieved on mitigation lands (effectiveness monitoring); and
- Assess the need and set criteria for adaptive management.

Valley-Wide Habitat Mapping

As described in Section 2.2, existing woody riparian habitat was mapped along key drainages to serve as an indicator for the primary habitat needs of the covered species and the quantitative baseline for this HCP. This mapping will be updated every 10 years based on aerial photo-interpretation, or the most reasonably current and affordable mapping or remote sensing technology. Recent experience with riparian mapping for this HCP demonstrated that updating mapping on a five-year interval failed to detect any measurable habitat changes.[27] Repeat macro-habitat mapping will be used to identify the following:

- Quantity of woody riparian habitat with the HCP boundary
- Quantity of woody riparian habitat on mitigation parcels
- Ratio of tree/shrub habitat

[27] As described in Section 2.2, riparian habitat mapping was conducted in 2005 (based on 2002-2004 imagery) and updated in 2009 to reconcile changes in habitat conditions and aerial imagery, and to map additional stream reaches. Repeat mapping of original stream reaches between 2005 and 2009 resulted in a 0.6% increase in habitat (most of which can be attributed to mapping error rather than actual habitat changes).

Long-term trends in these characteristics will be evaluated and compared within a range of +/- 10 percent of the baseline.

Every 10 years, this revised habitat mapping will be used to track landscape-scale habitat changes and trends, revisit impact assumptions and calculations for the covered activities, and revise subsequent mitigation requirements (as needed). This revised habitat mapping is described further under Adaptive Management.

Core Habitat Monitoring

A key part of the habitat-based monitoring will be the establishment of reference sites on Federal and State lands that are known, or are believed, to support the covered species (core habitat). These references areas will:

- Establish a baseline of habitat condition on lands that are managed to support native wildlife, including the covered species, and have been documented to provide habitat;
- Track long-term changes in habitat composition in core habitat areas on Federal and State lands;
- Track the effectiveness of habitat management and restoration efforts on Federal and State lands;
- Facilitate implementation of micro-habitat monitoring protocol consistently across Federal, State, and mitigation lands; and
- Provide a point of reference from which to compare habitat quality on mitigation lands.

Overall, the reference sites will be valuable in determining the suitability of potential or existing mitigation lands. As habitat conditions and quality change over time, these sites will help determine whether habitat variability (positive or negative changes) on mitigation lands is consistent with variability on Federal and State lands. The reference sites also will be valuable in identifying regional circumstances that are outside the control of the Permittees, and that are more appropriately addressed under *Changed Circumstances*.

Reference sites will be established in different parts of the Valley to account for variation in hydrological and habitat characteristics in different geographic areas (e.g., Rio Grande, Conejos River, and Closed Basin); and to ensure that mitigation lands in any part of the Valley have a "local" reference point with similar characteristics.

General locations for potential reference sites include:

1. Rio Grande corridor west of Alamosa (State Wildlife Area)
2. Rio Grande corridor south of Alamosa (Alamosa NWR)
3. Conejos River (BLM land and/or State Wildlife Area)
4. Saguache County (location to be determined)
5. Costilla County (location to be determined)

Core habitat monitoring will be conducted as described under parcel-specific habitat monitoring below.

Parcel-Specific Habitat Monitoring

The cornerstone of the mitigation approach for this HCP is the conservation and enhancement of a sufficient number of acres of riparian habitat at a specified level of habitat quality (see Section 5.0). A key component of this approach is monitoring mitigation lands to ensure that sufficient habitat quality is maintained.

Microhabitat monitoring will be conducted on mitigation lands to quantify and evaluate if the quantity and quality of habitat is improving or degrading. Microhabitat monitoring will consist of the following:

1. Parcel- or area-specific vegetation mapping based on the National Vegetation Classification System or other comparable system
2. Habitat sampling to determine stand structure, cover, density, and species composition
3. Encroachment of invasive plant species
4. Photo documentation of typical habitat conditions from defined locations

Habitat sampling measurements will be incorporated into a Habitat Quality Index (HQI) that will determine the function and value (i.e., quality) of the habitat in providing the life requisites of covered species, as described in recovery plans or scientific literature. Habitat monitoring of all mitigation lands will be conducted on a rotating basis once every three years, and compared with baseline data and selected reference areas. Habitat quality on mitigation lands will be considered compliant with the HCP criteria if the HQI value is equal or greater than baseline or the reference area; whichever is lower.

An initial HQI worksheet, based on similar systems used to evaluate riparian habitat values by NRCS and CPW in the Valley, is provided in Appendix G. The HQI will be evaluated after the initial monitoring of mitigation and reference lands (within five years), and will be revised as necessary by the steering committee to ensure its effectiveness (see *Adaptive Management* below).

Restoration Monitoring

As described in Section 5.2, habitat restoration or enhancement efforts may be used to increase the size or improve the quality of mitigation lands. Restoration efforts also may be used individually for mitigation, once preliminary success can be demonstrated. In either case, the HQI monitoring described above will be used to evaluate the quality of the restored areas and their suitability for mitigation. The success of restoration will be determined by documenting that the restored habitat is progressing towards developing the habitat characteristics needed to support covered species (suitability). Success will be determined by maintaining an HQI value greater than ¾ the HQI value of the appropriate reference area. The ¾ HQI target is appropriate because many species of woody riparian vegetation will spread vegetatively or by seed and fill in gaps over time. The ¾ HQI value is conservative in that canopy cover, density, and structure will also continue to develop over time to full canopy spread increasing the suitability of the habitat for covered species.

Species Occurrence Monitoring

The District, with guidance from the Steering Committee, will coordinate species-specific monitoring actions for the flycatcher and cuckoo. The objectives of species-specific surveys are to conduct habitat occupancy surveys (presence/absence) in suitable habitat for flycatchers and cuckoos.

Southwestern Willow Flycatcher

Flycatcher surveys will be conducted within core habitat areas and on mitigation lands once every three years as follows:

- General surveys within core habitat areas will be conducted by Federal and State agencies responsible for managing those public lands following the most current flycatcher survey protocol approved by the Service. Commitment to this survey effort will be ratified in the IA. Under the 2010 survey protocol (Sogge et al. 2010), general surveys would consist of three surveys—one in each of three survey periods: May 15 – 31; June 1 – 24; and June 25 – July 17.
- Surveys on private mitigation lands will consist of a single callback survey conducted by the District in June or July during habitat monitoring.

Reports summarizing the findings of the surveys on both public and private lands will be submitted to the District and HCP administrator by the end of the calendar year. The reports will include survey locations identified by Township, Range, ¼ Section, or UTMs for both positive and negative surveys. Positive surveys will be reported to the Service and District within 24 hours of detection. The District will maintain a file with copies of the survey reports, and will summarize the results of the surveys in a brief table to be included in the annual report to the Service.

Western Yellow-billed Cuckoo

Surveys for cuckoos will be conducted simultaneously with flycatcher surveys described above. The surveys will follow the most current cuckoo survey protocol approved or accepted by the Service. The reporting of survey findings will be the same as described above.

6.2 Adaptive Management

Adaptive management will be an integral part of this HCP. The U.S. Department of the Interior Adaptive Management Working Group defines adaptive management as "a systematic approach for improving resource management by learning from management outcomes" (Williams et al. 2009). As described above, monitoring under this HCP involves a repeated assessment of habitat for covered species and, where practicable, an assessment of covered species' abundance and occupancy. The Monitoring Plan described in Section 6.1 will be adaptive to incorporate new protocols and techniques, as appropriate. Based on the results of monitoring, the District and Service will be able to determine how well the implementation measures proposed in this HCP are meeting the biological goals and objectives (see Section 1.4) and mitigation commitments (Section 5.0), and the steps necessary to modify activities to increase success.

Monitoring Evaluation

Covered species and their habitat will be monitored as described in Section 6.1. Any need for adaptive management will be based on annual reports and data gathered from monitoring and new research as it becomes available.

The results of monitoring will be reviewed annually during the first six years by the steering committee (accounting for two full rounds of parcel-specific monitoring). The steering committee would include a representative from the Service; therefore, coordination with the Service would be ongoing. After the first six years of HCP implementation, the results of monitoring will be reviewed every three years by the steering committee.

After three years, the first round of monitoring data for each location (reference sites and mitigation lands) will be used to establish baseline conditions for monitoring. This first round of monitoring data also will provide the first opportunity to comprehensively evaluate HQI results and develop guidelines for habitat quality levels that are suitable for mitigation (based on overall conditions and a comparison to reference sites). If monitoring in subsequent years indicates that a mitigation area does not meet suitability guidelines, one or more of the following adaptive management procedures will be initiated:

- Increase monitoring to determine the cause of the habitat decline, and potential remedies.
- Work with landowners to implement management or restoration measures to improve habitat quality (e.g., fencing, irrigation changes, planting, or others).
- Remove the parcel/area from the mitigation pool and substitute with another parcel of sufficient size and quality.
- Retain the parcel/area in the mitigation pool, but at a reduced credit value (with the credit shortfall replaced by another parcel).

Management or restoration measures to improve habitat quality on mitigation lands will be reevaluated after three years. If, after three years, habitat conditions have failed to improve, the area will no longer be eligible for mitigation credit and will be replaced by additional mitigation lands. (Any such area may become reenrolled as mitigation land at a later date if it is demonstrated that habitat quality standards have been achieved.)

Evaluation of Impact Assumptions

As described above under *Monitoring*, the District will update Valley-wide riparian habitat mapping every 10 years. Over time, it is expected that the acreage of woody riparian habitat in the Valley will expand or contract as a result of climate conditions, restoration and enhancement efforts, or changes in water management and agricultural practices. After updated habitat mapping is completed, the District also will revisit assumptions and data used to estimate the impacts of the covered activities (see Section 3.0 and Appendix A). Voluntary reporting of the covered activities as part of the community outreach process (see Section 5.5) will contribute to this effort, providing indication of the nature, size, and frequency of the covered activities in practice. If this evaluation of new information demonstrates that the habitat acres in the Valley or impact assumptions have changed (resulting in greater or fewer impacts), the mitigation requirements for this HCP will be adjusted accordingly:

- Minor (less than 15 percent[28]) changes in impacts and mitigation requirements resulting from this evaluation will be considered a minor modification to this HCP, and will be handled without amending the ITPs as described below in Section 7.6.
- A "major" change is defined as an increase in estimated impacts and mitigation requirements greater than or equal to 15 percent of those reported in Section 4.0.
- Decreases in impacts and mitigation requirements resulting from this evaluation will be considered a minor modification, regardless of the size of the reduction.[29]
- If major changes in impact assumptions and mitigation requirements are necessary, the Permittees will work with the Service to determine the appropriate amendment process (see Section 7.6).

Annual Reporting

The District will submit an annual report to the Service summarizing the extent and magnitude of potential take by covered activities and the monitoring activities conducted under this HCP. Each report will cover monitoring activities conducted during the calendar year, and will be submitted to the Service by March 1 of the following year. The District will have regular meetings with the steering committee to review the results of monitoring and to develop recommendations for adaptive management. Meetings will be held annually for the first six years of this HCP, and every two years thereafter.

The annual monitoring report will include the following:

1. A quantification of take (in habitat acres) resulting from covered activities. This quantification will be based on the current estimation of temporary impacts in addition to actual permanent impacts (estimated temporary impacts, based on macro-habitat mapping and other data, will be updated every 10 years).
2. A summary of the results of habitat monitoring studies using representative photographs, photo points, maps, and aerial photographs, as appropriate, to track the extent and condition of habitat.
3. A summary of the results of monitoring changes in riparian vegetation using a HQI (Appendix G) and permanent photo points.
4. A summary of the results of general flycatcher and cuckoo presence within core habitat areas and select private lands, and a discussion of implications for covered species.
5. A summary of the District's education program efforts within the past year.

[28] Based on current impact estimates of 270 acres of temporary impacts per year, a 15 percent change would constitute an additional 40.5 acres of habitat impacts (out of 15,128 total acres). This threshold for determining minor versus major changes is intended to distinguish normal fluctuations in the covered activities (less than 15 percent change), from larger changes in the nature and impacts of those activities (greater than 15 percent change).

[29] Major (greater than 15 percent) *reductions* in HCP impacts and mitigation would not require an amendment because the impacts would be within the range of impacts documented in this HCP, which are currently mitigated at the high end of the range. This approach also provides an incentive to reduce impacts over time through outreach and education efforts and voluntary conservation and enhancement of riparian habitat.

6. A summary table of county ordinance compliance, infractions, corrective actions implemented, and results.
7. After the first year, a summary of the adaptive management recommendations made by the steering committee at the most recent meeting, and a discussion of whether or how these recommendations were implemented by the District.

7.0 FUNDING AND IMPLEMENTATION

7.1 Funding Assurances

This HCP outlines specific actions and commitments that will be implemented by the District and other Permittees to ensure that the impacts of the covered activities are mitigated in a manner that satisfies ITP issuance criteria, does not appreciably reduce the likelihood of survival and recovery of the covered species in the wild, and promotes the long-term conservation and sustainability of riparian habitat in the Valley. These measures are described in Section 5.0, and Section 6.0. This section outlines the anticipated costs of the HCP commitments and identifies how they will be funded.

The Permittees are committed to fully implementing the mitigation and implementation strategy documented in this HCP. While the mitigation acreage is relatively certain, the specific mechanisms and partnerships that will be used to satisfy mitigation requirements are not certain and will likely change over time. Such flexibility is a key part of the implementation approach and will be integral to its success. For example, HCP mitigation can be achieved through the conservation of a single large tract of riparian habitat, the enhancement of numerous smaller areas, or some combination thereof. Therefore, the assurances for sufficient and effective incidental take mitigation are found in the Permittees' implementation and adaptive management commitments.

The District has committed to providing the necessary funding to implement the HCP and its mitigation and monitoring program. While the District will work with other Permittees and partners to collaborate on HCP implementation, and recognizing that the other Permittees have implementation responsibilities, the funding assurances for HCP implementation ultimately falls with the District. Funding sources for HCP implementation elements that are easily foreseeable will come from the District's regular operating expenses, County discretionary funds, and State funding through the CPW, DNR, or other programs. These basic funding sources also may be supplemented by State or private grants.

The District is managed and controlled by a Board of Directors, and is funded by levying taxes on real property within the boundaries of the District in accordance with its enabling legislation, C.R.S. 37-48-107 (2010). The mill levy is calculated yearly and is limited by TABOR restrictions and/or a statutory cap of 2.5 mills. The District's budget revenues from 2009 through 2011 have steadily increased from $1,407,561 to $1,626,067. By Colorado law, local units of government are not allowed to budget monies for future expenditures. The District's Board of Directors has made the commitment in past years to fund the personnel necessary to carry out the requirements of the HCP and continues to recognize the need to fund the HCP in the future if monies continue to be available in the District's annual budget process. As part of the District's ongoing support of the development and implementation of the HCP, the District added a line item to the yearly budget in 2008 for the position of HCP Administrator and has approved expenditures for an HCP administrator every year since. The 2011 budget was approved in October 2010 and the personnel salary expenditure (up to $40,000) for the HCP was included.

Since 2005, the District has also contributed about $100,000 to conservation and restoration efforts along the Rio Grande. These contributions have included $40,000 to the Rio Grande Headwaters Land Trust (for the Rio Grande Initiative), and $60,000 to the Rio Grande Headwaters Restoration Project to provide matching funds for grants. The District Board will continue to contribute funds to these efforts on an annual basis as the budget allows.

The State will include, in its annual budget and grant requests, funds to fulfill its obligations under this HCP and the Implementing Agreement. However, the State cannot guarantee future funds that are not yet appropriated by the State Legislature. Pursuant to CRS § 29-1-110, the financial obligations of the Permittees shall extend only to monies duly and lawfully appropriated and budgeted by the Permittees, and encumbered for the purposes set forth in this HCP and the Implementing Agreement. If at any point in the implementation and administration of this HCP, funding appears to be unavailable to meet commitments, the Permittees will consult with the Service to determine whether this HCP or ITPs needs amendment, modification, or termination (see Sections 7.5 and 7.6). All decisions pertaining to an individual Permittees' implementation and funding responsibilities will be made by each individual Permittee.

Although Permittees are not allowed, pursuant to Article 10 § 20 (4)(b) of the Colorado Constitution (TABOR) and/or statutory restrictions under 30-25-103 C.R.S, to commit tax-payer funds for multiple-fiscal year obligations, the Permittees intend to include the necessary funding to fulfill their HCP obligations as described in this section in their yearly budgeting process consistent with the needs of the individual government entity and to the extent allowed by law. Permittees will promptly notify the Service of any material change in Permittees' financial ability to fulfill their obligations. In addition to providing any such notice, Permittees will provide the Service with reasonably available financial information indicating whether they are able to fulfill their financial obligations under the HCP. Should any such financial changes impede the ability of any Permittee to fulfill its obligations under the HCP, the relevant Permittees, the District, and the Service shall immediately engage in a collaborative process to develop solutions to ensure full implementation of the HCP.

Implementation funding commitments to the extent allowed by law (in 2012 dollars) are summarized in Table 13, and are described below under three topic areas: HCP Administration, Habitat Mitigation, and Monitoring.

Table 13. Estimated implementation costs, years 1 – 10.

HCP Activity	Responsible Entity	Estimated Cost	Average Annual Cost (Years 1 – 10)*	Additional Costs (Every 10 Years)
HCP Coordination	District/ Permittees	$35,000 in first year		$35,000
Staff Support	District	$30,000 per year	$30,000	
Mitigation Coordination	District	*Up to $10,000/year of staff time***	*Up to $10,000/year of staff time***	*Unknown*
Education/Outreach	District	$900 years 1–5 $600 years 6–10 $300 years 11+	$750	
Landowner Notification	Counties	$12,000 every 10 years		$12,000 *($2,000 per County)*
Habitat Quality Monitoring	District	$7,500 per year	$7,500	
Species Surveys and SWA Habitat Quality Monitoring	State	$30,000 every three years	$10,000	
Species Surveys on Mitigation Parcel	District	Incorporated into habitat monitoring	Incorporated into habitat monitoring	
Habitat Mapping	District	$20,000 every 10 years		$20,000
Total			**$48,250**	**$67,000**
Costs by Entity				
Rio Grande Water Conservation District			$38,250	$35,000
State of Colorado			$10,000	$20,000
Counties *(total of all)*				$12,000

*Estimated costs based on 2012 dollars. At this time, it is not realistic to accurately forecast costs beyond year 10.
**The District and other Permittees are committed to securing and maintaining sufficient mitigation lands within five years of HCP implementation; mitigation expenses are anticipated to be primarily staff time, rather than any direct costs. The cost of $10,000 for staff time is an estimated proportion of the Staff Support costs, and are not included in the total HCP cost.

HCP Administration

The primary HCP administration commitments, including staffing, education, and outreach, will be the responsibility of the District, with assistance from the CPW and other Permittees.

HCP Coordination

The Permittees anticipate additional expenses in the first year following the issuance of permits to coordinate HCP start-up, and every 10 years to facilitate long-term monitoring and adaptive management efforts. In addition to existing staff support, additional costs for outside consultant support, legal counsel, and administrative overhead are likely to be needed.

Anticipated Cost: $35,000 in year 1
Responsible Entities: District and other Permittees

HCP Staff Support

The District will commit to an appropriate level of staffing to coordinate HCP implementation, monitoring, reporting, and other commitments. This coordination will primarily be the

responsibility of the District Manager and his/her designated assistant. While the District will commit to funding a certain level of staff capacity, it reserves the right to manage its own staffing levels over the long term, provided that HCP administration responsibilities continue to be met. Likewise, the District also may increase its staffing capacity as needed to effectively manage and implement this HCP. For cost-estimating purposes, the District will commit to funding a ½ FTE HCP coordinator for the first 10 years of HCP implementation, and the equivalent of a ¼ FTE employee thereafter.

HCP staff support will be funded by the District as a portion of its annual operating budget. The District also may seek additional outside funding sources to assist with HCP administration, which may include other Permittees (Counties and State), local communities, or grant programs.

Anticipated Cost:

- Years 1 – 10 – ½ FTE at $30,000 per year
- Years 11 – 30 – ¼ FTE at $15,000 per year

Responsible Entity: District

Habitat Mitigation

The heart of this HCP is the on-the-ground mitigation of impacts through conservation easements, habitat management agreements, and habitat restoration or enhancement efforts on State and private lands. Section 5.0 outlines the various tools that will be available for mitigation credit, and the details of how those credits will be obtained and managed. Considering this approach, the actual cost of habitat mitigation is not known, but is anticipated to be primarily District staff time, rather than direct costs.

Anticipated Cost: Up to about $10,000 per year (staff time), diminishing over time as mitigation parcels are established
Responsible Entities: District

Education and Outreach

The District and other Permittees will commit to an education and outreach program, as described in Section 5.0. These efforts will be conducted primarily by District staff, and are not expected to incur additional staffing costs. Anticipated costs are based on the annual targets for outreach contacts. The direct costs for these activities (including printing costs, gas/mileage, and other expenses) are expected to be about $150 per outreach event/contact. Education and outreach activities will be funded by the District as a portion of its annual operating budget. The District also may seek other sources to assist with these costs.

Anticipated Cost:

- Years 1 – 5 – six contacts at $900 per year
- Years 6 – 10 – four contacts at $600 per year
- Years 11 – 30 – two contacts at $300 per year

Responsible Entities: District and other Permittees

Landowner Notification

Within the first six months of HCP completion, and every 10 years thereafter, the District and other Permittees will use a variety of methods to notify landowners about this HCP. Key landowners along the 100-year floodplain will receive a letter, while other landowners will receive general notification through other means. These notification efforts will be coordinated

by the District as part of its staffing commitment. The costs associated with the District's coordination include advertisement space for print media, expenses, and other direct costs. The identification of, and mailing to, individual landowners will be the responsibility of each respective county.

Coordination of landowner notification activities will be funded by the District as a portion of its annual operating budget. The Counties' notification responsibilities will be funded individually by each County. The specific department or fund will be at the discretion of each individual County.

Anticipated Cost: $12,000 every 10 years ($2,000 for each of the six counties)
Responsible Parties: District and Counties

Monitoring

Monitoring the effectiveness of the conservation measures and ensuring compliance with the implementation commitments are mandatory elements of a HCP. As described in Section 6.0, HCP monitoring focuses on three general parameters:

1. Valley-wide (macro) habitat quantity mapping
2. Parcel-specific (micro) habitat quality evaluation
3. Species occurrence monitoring

Anticipated Cost:

- Valley-wide habitat quantity mapping – $20,000 every 10 years
- Parcel-specific habitat quality evaluation – $7,500 per year to evaluate one-third of the mitigation parcels each year
- Covered species occurrence monitoring:
    - Mitigation parcels – Incorporated into parcel-specific habitat monitoring
    - Core habitat areas – $7,500 per property (SWA) surveyed every three years

Responsible Entities:

- Valley-wide habitat quantity mapping – District
- Parcel-specific habitat quality evaluation – District
- Covered species occurrence monitoring:
    - Mitigation parcels – District
    - Core habitat areas – CPW, Service, and BLM

7.2 Implementation

Implementing Agreement and Permit Terms and Conditions

Implementation of this HCP will occur in accordance with the provisions of the Implementing Agreement and the terms and conditions associated with the ITPs.

7.3 HCP Participation

The District and other Permittees have prepared and will administer this HCP, and corresponding ITPs, on behalf of the citizens and landowners within the the plan area, and all of the local jurisdictions therein including quasi-municipal corporations such as water conservancy districts.

If an Applicant chooses to opt out of this HCP and its ITP coverage, any agricultural or infrastructure or other covered activities conducted by the entity or its citizens will be liable for take of the covered species pursuant to Section 9 of the ESA. Nonparticipation of one or more Permittees is discussed below under *Changed Circumstances*.

7.4 Additional Assurances, and Changed or Unforeseen Circumstances

Two primary goals of the Service's HCP program are: "(1) adequately minimizing and mitigating for the incidental take of listed species; and (2) providing regulatory assurances to Section 10 permittees that the terms of an approved HCP will not change over time, or that necessary changes will be minimized to the extent possible, and will be agreed to by the applicant" (HCP Handbook – Service and NMFS 1996). Recognizing the importance of both of these goals, the Service has adopted the "No Surprises" Policy, which addresses responsibilities for conservation and mitigation measures in response to changed or unforeseen circumstances affecting species that are covered by an ITP (50 CFR 17.22(b)(5) and (6), and 17.32(b)(5) and (6)).

Changed Circumstances

The ESA's implementing regulations define "changed circumstances" as "changes in circumstances affecting a species or geographical area covered by a conservation plan or agreement that can reasonably be anticipated by plan or agreement developers and the Service and that can be planned for" (50 CFR § 17.3).

In developing this HCP, the Permittees and the Service identified the potential "changed circumstances" that can reasonably be anticipated to affect the covered species and plan area, and have agreed upon the Permittees' responsibility under this HCP to implement conservation and mitigation measures to address such changed circumstances should they occur during the term of this HCP. The reasonably anticipated changed circumstances, and the Permittees' obligations connected thereto, are as follows:

1. ***Habitat loss from floods, prolonged drought, fire, or other naturally occurring events or processes.*** These naturally occurring, but unpredictable, events are part of the dynamics associated with riparian communities that may occur over the duration of this HCP. These events may alter, destroy, and renew riparian habitats, but on balance are not expected to have long-term detrimental effects on the covered species or their overall habitat availability. Based on the monitoring and adaptive management guidelines described in Section 6.0, the loss of habitat area or quality on mitigation lands will be monitored over time to ensure adequate habitat recovery. If adequate recovery from active restoration or natural regeneration does not occur, the affected parcel or habitat area would no longer be eligible for mitigation credit, and the Permittees would identify and secure replacement mitigation acres (see Section 5.0).
2. ***Habitat loss due to long-term climate change.*** Changes in global climate patterns have the potential to affect localized habitat conditions due to changes in precipitation patterns, irrigation practices, surface and ground water conditions, as well as the growth and vigor of native riparian vegetation. A great deal of uncertainty currently

exists in understanding future climate change and how it will affect ecological systems (Service 2009a). Currently reported projections[30] call for small increases in both annual average temperature and precipitation in the Valley and its watershed by 2050 (Climate Wizard 2011). While changes to precipitation and habitat are likely given trends, the timing, magnitude, and nature of those changes and their subsequent effects on riparian habitat and the covered species in the Valley are not known. Potential general secondary effects from climate change (such as fire, floods, or invasive species) are addressed individually.

Based on the monitoring and adaptive management guidelines described in Section 6.0, the loss of habitat area or quality on mitigation lands will be monitored over time to ensure adequate habitat recovery. If adequate recovery from active restoration or natural regeneration does not occur, the affected parcel or habitat area would no longer be eligible for mitigation credit, and the Permittees would identify and secure replacement mitigation acres (see Section 5.0). If the Permittees are unable to satisfy their ITP commitments due to habitat or hydrological changes resulting from climate change, the Permittees would be allowed to amend this HCP, subject to the terms described in Section 7.6.

3. ***Habitat loss or changes from invasive species.*** Localized infestations of invasive plant species may alter or destroy riparian habitat function, but are considered part of the overall habitat matrix, and are not expected to have long-term detrimental effects on the covered species or their overall habitat availability. Localized habitat loss from typical invasive species would be handled as described above in item 1.

   Salt cedar (*Tamarix* spp.*)* is an aggressive exotic tree species that has replaced native riparian tree species throughout the southwestern United States, and also provides habitat for the flycatcher at lower elevations. Removal of any salt cedar in the Valley is a covered activity, and Permittees firmly believe that the biological benefits of salt cedar eradication in the Valley outweigh its value as habitat for the covered species. In the event that riparian habitat on mitigation lands is overtaken by salt cedar, the habitat area would no longer be eligible for mitigation credit, and the Permittees would identify and secure replacement mitigation acres. Affected areas would again become eligible for mitigation after it is successfully restored to native species (see Section 5.2).

   In the event that covered species occupancy is documented in habitat dominated by salt cedar or another invasive species, the Permittees will work with the Service to determine the appropriate response for incidental take, native habitat restoration, and HCP mitigation.

4. ***Habitat loss from development or other non-covered activities.*** A variety of development-related activities have the potential to impact or eliminate riparian habitat in the Valley. These activities include residential, commercial, or any other

[30] Based on annual average changes by the 2050s as reported by www.climatewizard.org; Model: Ensemble Average, SRES emission scenario: A2

development, the construction of private roads or driveways, and the construction or expansion of golf courses. These activities are not covered by this HCP and would be subject to individual compliance and enforcement under the ESA. Such enforcement would not require additional measures by the Permittees.

If development or other non-covered activities occur on mitigation lands in a manner that reduces or eliminates that quality or quantity of riparian habitat, the affected area would be removed from the mitigation pool and would be replaced by mitigation credits in an alternate and suitable location.

5. ***Small changes in habitat or impact assumptions.*** Small changes in the estimated impacts of the covered activities (see Section 6.2) due to changes in habitat mapping or new information that alters impact assumptions may occur over the life of the ITPs. If changes to habitat mapping or impact calculations are documented but are up to 15 percent greater than the impact values reported in this HCP, no additional measures by the Permittees are required. If such changes exceed 15 percent, an amendment to the ITPs may be required, subject to the terms described in Section 7.6.
6. ***Downlisting or delisting of covered species due to recovery efforts.*** No additional measures by the Permittees are required.
7. ***Critical habitat designation for species covered by this HCP (including potential future changes or amendments to the ESA critical habitat provisions).*** No additional measures by the Permittees are required. (May require reinitiation of intra-Service consultation).
8. ***Future listing of a nonlisted covered species.*** Should the cuckoo become listed under the ESA, take authorization of this species on the permits would immediately become effective, as prescribed by regulation (63 FR 35, February 23, 1998).
9. ***New Listing of Additional Riparian Species.*** While it does not constitute a "changed circumstance" as described above and in 50 CFR § 17.3 (because it would not affect the species currently covered by this HCP), the new listing of additional riparian species is a foreseeable possibility that may need to be addressed in the future. In the event that a non-covered species may be affected by covered activities and becomes listed under the ESA, Permittees will implement "no-take/no-jeopardy" measures as identified by the Service until permits are amended to include such species, or until the Service notifies Permittees that such measures are no longer needed to avoid jeopardy to, take of, or adverse modifications of the critical habitat of the non-covered species. For example, the Northern leopard frog (*Rana pipiens*), which is known to occur in the Valley, was petitioned to be protected under the ESA (Service 2009b). In the event that the leopard frog, or other riparian species, is listed in the Valley, the following options are available to provide ESA compliance to the Permittees and beneficiaries under this HCP: a) amend this HCP to include the new species, impacts to that species, and subsequent mitigation requirements (per Section 7.6); b) develop a separate HCP or other ESA compliance mechanism that specifically addresses the activities, habitat, and geographic area affected by the newly listed species; or c) individuals and entities could comply with the ESA on a case-by-case basis.

10. ***Withdrawal by local units of government.*** The District and other Permittees have prepared this HCP on behalf of the Counties and municipalities and all of their residents. Fulfillment of the Permittees' commitments to address covered take is not dependent upon participation by any of the other local governments, and no additional measures will be required of the Counties or municipalities to address non-participation by one or more of the other local government jurisdictions. If any of the local jurisdictions elect to not participate in this HCP, covered activities within the boundaries of the jurisdiction would no longer receive incidental take coverage. In the event of any such withdrawal, no additional commitments shall be required of the Permittees unless it is necessary to mitigate for the take of covered species that occurred pursuant to the terms of the ITP before its withdrawal, as determined by the Service in collaboration with the Permittees. If needed, the Permittees would be allowed to amend this HCP, subject to the terms described in Section 7.6.
11. ***Withdrawal by one or more of the Counties.*** The collective participation of the Counties strengthens the effectiveness of this HCP. However, no single County contains all of the riparian habitat in the Valley, or bears a disproportionate responsibility for the implementation of this HCP. Accordingly, no additional measures will be required of a participating County in the event of nonparticipation by another County. However, if one or more of the Counties declines ITP coverage, the remaining Permittees would be permitted to adjust habitat mapping, impact projections, and mitigation requirements accordingly. The non-participating County would be responsible for any necessary ESA compliance, including individual mitigation for incidental take. If needed, the remaining Permittees would be allowed to amend this HCP, subject to the terms described in Section 7.6.
12. ***Withdrawal by the State***. If the State of Colorado withdraws its support for, and participation in this HCP, the other Permittees will consider their ability to fulfill the State's commitments and financial responsibilities. In the event of any such withdrawal, no additional commitments shall be required of the Permittees unless it is necessary to mitigate for the take of covered species that occurred pursuant to the terms of the ITP before its withdrawal, as determined by the Service in collaboration with the Permittees. If the other Permittees determine they are unable or unwilling to fulfill the State's commitments, the Permittees will work with the Service to amend or revoke this HCP and ITPs (see Section 7.6).
13. ***Withdrawal or elimination of the Rio Grande Water Conservation District.*** If the District determines at a later date that it can no longer administer the HCP implementation, the other Permittees will fulfill the District's role and responsibilities. If the District or its revenue source cease to exist, and the other Permittees determine they are unable or unwilling to fulfill the District's commitments, the Permittees will work with the Service to amend or revoke this HCP and ITPs. However, there is no reason to suspect that the District will not participate in this HCP, or will cease to exist during the life of this HCP.

So long as the terms of this HCP, Implementing Agreement, and ITPs are being properly implemented or any critical habitat would not be adversely modified, the Service will not require any mitigation, conservation measures, or funding in addition to the measures and funding

specified in this Section 7.0 to address changed circumstances. Other than the "changed circumstances" specifically identified in this Section 7.4, all other changes in circumstances affecting covered species shall be deemed "unforeseen circumstances," as described below.

Unforeseen Circumstances

In the event that significant "unforeseen circumstances"[31] occur during the life of the permits, adjustments to this HCP may be proposed by either the Permittees or the Service to address those circumstances. The Service and Permittees would work together to redirect resources to address unforeseen circumstances. Notwithstanding the foregoing, however, so long as the Permittees are in good faith implementing this HCP, the Service shall not:

a) Require the commitment of any additional land, water, or financial compensation by the Permittees, partners, or covered landowners in this HCP; or
b) Impose additional restrictions on the use of land, water, or natural resources otherwise available for use by the Permittees, partners, or covered landowners in this HCP under the original terms of this HCP.

Identification of Changed or Unforeseen Circumstances

In order to ensure that appropriate measures can be taken in response to changed or unforeseen circumstances, the Permittees will undertake the following:

- Provide written notice to the Service within 30 days after learning that a changed circumstance described above has occurred. As soon as practicable, but not later than 90 days after learning of the changed circumstance, Permittees will modify their activities in the manner and to the extent required by this HCP, and report to the Service on its actions.
- If the Permittees or Service become aware of unforeseen circumstances, they will notify the other and take the appropriate actions as described above.

If any of these significant changes occur during the year, they will be summarized in the annual report.

7.5 Permit Enforcement, Suspension, and Revocation

Enforcement

The provisions of this HCP are enforceable through the terms and conditions of the permits issued by the Service.

Suspension

The Service may suspend all or part of the privileges authorized by an ITP, pursuant to the provisions of 50 CFR § 13.27, if the Permittees do not comply with the conditions of the ITP or with any applicable Federal laws or regulations governing the conduct of the permitted/covered activity. Prior to proposing any suspension of a permit implementing this HCP, the Service will

[31] "Unforeseen circumstances" are defined as "changes in circumstances affecting a species or geographic area covered by a conservation plan that could not reasonably have been anticipated by plan developers and the Service at the time of the conservation plan's negotiation and development, and that result in a substantial and adverse change in the status of the covered species" (50 CFR § 17.3).

meet and confer informally with the Permittees in an effort to resolve any grounds for concern. If these attempts at informal resolution are unsuccessful, the Service will then follow the provisions of 50 CFR § 13.27 prior to making a final decision to suspend the permit(s). A suspension shall remain in effect until the Service determines the Permittees have corrected the deficiencies.

A partial suspension of an ITP may apply to only a specified Permittee, or to only a portion of the permit coverage area or permitted/covered activities. In the event of a partial suspension, the portion of the ITP not subject to the suspension shall remain in full force and effect. The ITP of the other Permittees implementing this HCP also shall remain in full force and effect, and shall be unaffected by any such permit suspension procedures.

Revocation

The Service shall not revoke the ITPs for any reason except those listed in 50 CFR § 13.28(a)(1)-(4), or unless the permitted/covered activities would be inconsistent with the criteria set forth in 16 USC § 1539(a)(2)(B)(iv), and the inconsistency has not been remedied in a timely fashion. Prior to proposing any ITP revocation, the Service will meet and confer informally with the Permittee(s) in an effort to resolve any grounds for concern. If these attempts at informal resolution are unsuccessful, the Service will then follow the provisions of 50 CFR § 13.28 prior to making a final decision to revoke. An ITP will only be revoked if the Service and the Permittee(s) have not been successful in remedying the causes for revocation through other means.

A partial revocation of an ITP may apply to only a specified Permittee(s), or to only a portion of the permit coverage area or permitted/covered activities. In the event of a partial revocation, the portion of the ITP not subject to the revocation shall remain in full force and effect. The ITP of the other Permittees implementing this HCP shall also remain in full force and effect and be unaffected by any such revocation.

Incidental take coverage and ESA compliance for covered activities that have been conducted pursuant to the implementation and mitigation measures in this HCP shall continue and be unaffected in the event of any subsequent revocation of an ITP. In the event of any such revocation, no additional commitments shall be required by the Permittees unless it is necessary to mitigate for the take of covered species that occurred pursuant to the terms of the ITP before its revocation, as determined by the Service in collaboration with the Permittee(s).

Withdrawal of Participation

At any time during the term of this HCP and ITPs, a Permittee may choose to discontinue its participation in this HCP as to: a) one or more of the covered species; b) a portion of the permit coverage area; and/or c) one or more of the permitted/covered activities. Withdrawal or non-participation by one or more of the Permittees will be considered a "changed circumstance" as described in the previous section.

ESA compliance for covered activities that have been implemented pursuant to the mitigation measures in this HCP shall continue and be unaffected by any subsequent termination of the HCP provided there are no outstanding mitigation requirements associated with those activities. Withdrawal of one or more of the Counties or local jurisdictions from this HCP will not affect the validity of the HCP as to the other participating entities.

No monetary damages

No party shall be liable in monetary damages to any other party or other person for any breach of this agreement, any performance or failure to perform a mandatory or discretionary obligation imposed by this agreement, or any other cause of action arising from this agreement.

Non-waiver of Rights

By participating in this HCP, no Permittee, covered jurisdiction, or landowner shall be deemed to have waived or relinquished any right to challenge the legal, scientific, or technical validity of the Service's actions or determinations including, but not limited to, the listing status, critical habitat (or related) designations, habitat needs, or conservation and recovery standards applicable to any covered species. Except as provided above, the District and Permittees also do not waive their right to take actions to enforce the terms of this HCP, ITPs, or intergovernmental agreements.

7.6 Revisions, Substitutions, and Amendments to the HCP

Technical Revisions

Technical revisions to this HCP may include corrections of typographic, grammatical, and similar editing errors; correction of any maps or figures to eliminate errors; or other revisions to this HCP that do not diminish the level or means of mitigation, or increase the impacts to the covered species or their habitats. Such technical revisions would not materially alter the terms of the Section 10(a)(1)(B) permits. Upon the written request of the Permittees, the Service will approve technical revisions to this HCP if such revisions do not increase allowable impacts, diminish the level of mitigation, or otherwise conflict with the primary purposes of this HCP.

Minor Modifications

Minor modifications to this HCP can be accomplished without amending the associated Section 10(a)(1)(B) permits. The circumstances under which minor modifications to this HCP may be needed include, but are not limited to:

- Changes in riparian habitat mapping due to expansion or contraction of habitat area over time, expanded mapping efforts, or improved mapping technology;
- Changes in riparian habitat mapping resulting from an improved understanding of habitat quality, dynamics, or value to the covered species that is gained through implementation of monitoring efforts;
- Minor changes in the county enabling language;
- Minor changes in landowner agreements; and
- Changes in land ownership of mitigation parcels/areas.

To the extent those and other minor modifications do not adversely affect the covered species in a manner significantly and quantifiably different from that analyzed in this HCP, and associated biological opinion, permit findings, and NEPA documents, the Service shall approve such modifications and no change in the permits shall be required.

When the Permittees determine that minor modification to this HCP is required, supporting documentation will be prepared and submitted to the Service. The documentation will include a description of the reason for the minor modification, and an assessment of its environmental effects. The proposed minor modification also will detail any proposed changes to the avoidance, minimization, mitigation, and monitoring measures to ensure that the affected species will be appropriately protected. Within 60 days of the Service's receipt of the notice of the proposed modification, the Service shall notify the Permittees in writing if it determines the proposal will require an amendment to the permits. Otherwise, the Service shall promptly approve the modification. Minor modifications will be documented in the HCP annual report submitted to the Service.

Major Modifications and Amendments

All major modifications and amendments to the Section 10(a)(1)(B) permits proposed by the Permittees shall be approved by the Service in accordance with applicable laws and regulatory requirements. A major modification and/or amendment to the permits may require additional ESA Section 7 and/or NEPA analysis and public review. The circumstances under which an amendment to this HCP and ITPs may occur include, but are not limited to:

- Additions of species to be covered by this HCP and/or ITPs;
- Changes in the geographical area covered by this HCP;
- Changes in the anticipated or actual levels of take authorized by the ITPs;
- Changes in the participation in this HCP by the Permittees;
- Revocation of an enabling land use language that provides the authority to enable HCP implementation by a Permittee;
- Major (greater than or equal to 15 percent) increases in impact assumptions and mitigation requirements;
- Documentation of significant unforeseen circumstances (Section 7.4) that alter the context of this HCP; and
- Renewal of the ITPs.

8.0 RELATIONSHIP OF HCP TO ESA REQUIREMENTS AND RECOVERY PLAN

8.1 Relationship to ESA Permit Issuance Criteria

Section 10(a)(2)(B) of the ESA requires the following criteria to be met before the Service or NMFS may issue an ITP. If these criteria are met and this HCP and supporting information are statutorily complete, the permits must be issued.

1. The taking will be incidental. *All taking of Federally listed fish and wildlife species as detailed in the HCP must be incidental to otherwise lawful activities and not the purpose of such activities.*

This HCP covers the incidental take of the flycatcher and cuckoo that may result from otherwise lawful covered activities (e.g., routine agriculture, community infrastructure, and riparian conservation and restoration activities) that commonly occur in the Valley. None of the covered activities are conducted with the intended purpose of directly or indirectly harming the covered species. While some of the covered activities will require the short-term removal or disturbance of riparian habitat, such impacts would be a consequence of, not the purpose of, the activity.

Furthermore, this HCP does not propose any mitigation or monitoring programs that require actions that could result in the deliberate take of covered species. While ongoing surveys for the flycatcher and cuckoo have the potential to result in the inadvertent disturbance of individual birds, such take would not be deliberate and is highly unlikely.

2. The Applicant will, to the maximum extent practicable, minimize and mitigate the impacts of such taking. *This finding typically requires consideration of two factors: adequacy of the minimization and mitigation program, and whether it is the maximum that can be practically implemented by the applicant.*

The San Luis Valley Regional HCP outlines a mitigation and implementation strategy that includes the following elements:

1) mitigating the temporary and permanent impacts of the covered activities through habitat conservation and enhancement on private lands;
2) managing and protecting riparian habitat on Federal and State lands to maintain a foundation of core habitat for the covered species;
3) monitoring mitigation lands and core habitat areas to ensure that suitable habitat quality is maintained, and
4) conducting community outreach efforts to further reduce the impacts on habitat and to promote voluntary conservation.

This mitigation and implementation strategy satisfies the criteria by providing a straightforward mechanism to mitigate habitat impacts with the conservation and enhancement of similar or higher quality habitat, as well as other measures to reduce impacts and improve habitat

conservation over the long term. This strategy will not only mitigate the impacts of the covered activities, but is also expected to result in a net benefit to the covered species by buffering and improving the conservation and management of core habitat areas. Additional impact minimization efforts will also be pursued, including education and outreach, conservation support, and a stronger local government role as land use staff interact with landowners and developers conducting non-covered activities. Minimization measures are not credited for offsetting impacts, since they are voluntary and are difficult to quantify. The Permittees believe this approach is both effective and efficient, leveraging existing community resources and partnerships to benefit the habitat, the covered species, and citizens without undue financial burden on the local governments and individual landowners.

3. The applicant will ensure that adequate funding for the HCP and procedures to deal with unforeseen circumstances will be provided. *The Services must ensure that funding sources and levels proposed by the applicant are reliable and will meet the purposes of the HCP, and that measures to deal with unforeseen circumstances are adequately addressed.*

As described in Section 7.1, the District and other Permittees are committed to providing the necessary funding to fully implement the commitments outlined in this HCP. In addition, the Permittees are committed to working with the Service to address unforeseen circumstances, as described in Section 7.4.

4. The taking will not appreciably reduce the likelihood of survival and recovery of the species in the wild. *This critically important criterion establishes a fundamental "threshold" standard for any listed species affected by an HCP.*
This HCP covers a set of ongoing and routine activities that generally result in minimal impacts to marginal habitat, most of which recovers over time. In order to compensate for the potential incidental take of the covered species, the mitigation measures proposed in this HCP will offset the impacts on an acre-for-acre basis with the conservation, management, and enhancement of high quality habitat. This approach is expected to increase the likelihood of species recovery in the Valley.

5. The applicant will ensure that other measures that the Services may require as being necessary or appropriate will be provided. *The principal additional measure that the Services may require at this time is the Implementing Agreement. Other measures the Services might recommend during HCP negotiations could include those necessary to guarantee funding for the mitigation program and monitoring and reporting requirements to ensure permit compliance.*

Additional measures that will be provided as part of this HCP include an Implementing Agreement, as well as other Memoranda of Understanding and/or Intergovernmental Agreements, as needed, and voluntary measures described in Section 5.0 that will facilitate successful implementation and riparian habitat conservation.

6. The Services have received such other assurances as may be required that the HCP will be implemented. *The applicant(s) must ensure that the HCP will be carried out as specified. The authority of the permit is a primary instrument for ensuring that the HCP will be implemented. When developed, Implementing Agreements also provide assurances that the HCP will be*

properly implemented. Where a local government agency is the applicant, the Agreement should detail the manner in which local agencies will exercise their existing authorities to effect land or water use as set forth in the HCP.

Following the approval of this HCP and prior to the issuance of ITPs, the Permittees will have finalized and signed an Implementing Agreement that outlines the commitments and responsibilities of each Applicant, and the terms and conditions of the agreement.

8.2 Relationship to the Flycatcher Recovery Plan

The recommendation of the Southwestern Willow Flycatcher Recovery Team was approved by the Service's Southwest Regional Director on August 30, 2002. This recommendation was used as a source of information and guidance in preparation of this HCP. Although the recommendation in the Valley is currently being met, this HCP is intended to be consistent with the guidelines and suggestions of the Recovery Plan as discussed below.

Management Units within broader Recovery Units are the basic geographical components of the Recovery Plan. The HCP plan area includes the entire San Luis Valley Management Unit, which is part of the larger Rio Grande Recovery Unit. The Rio Grande Recovery Unit encompasses the Rio Grande watershed from its headwaters in Colorado to the Pecos River confluence in southwestern Texas.

The Recovery Plan sets recovery criteria for the entire San Luis Valley Management Unit at 50 territories (or at least 50 to 80 percent of that number if the overall goal in the Rio Grande Recovery Unit is met), unless changes are made as a result of reevaluation after five years (Service 2002a). The San Luis Valley Management Unit currently supports about 73 territories at four separate sites on Federal and State lands that have been surveyed. This number exceeds the recovery criteria for the San Luis Valley Management Unit.

Consistency with Recovery Criteria

Several of the criteria used in developing the Recommendations, including the rationale for determining recovery criteria, provided guidance in the development of this HCP (Service 2002a, pp. 74-75). These criteria include:

1. *Large populations contribute most to metapopulation stability.*

   Large populations (>10 territories), centrally located, contribute most to metapopulation stability, especially if other breeding populations are nearby. Such populations persist longer than small ones, and produce more dispersers emigrating to other populations or colonizing new areas (p. 74).

2. *Smaller populations can contribute to metapopulation stability when arrayed in a matrix with high connectivity.*

   Within a Management Unit or portions thereof, a matrix of smaller populations may provide as much or more stability than a single isolated population with the same number of territories because of the potential to disperse colonizers throughout the network of sites (p. 75).

3. *Maintaining/augmenting existing populations is a greater priority than allowing loss and replacement elsewhere.*

Maintaining and augmenting existing breeding populations is a faster, easier, and more reliable way to achieve and maintain population goals than to allow loss of existing populations with the hopes of replacement elsewhere. Thus, maintenance and protection of existing breeding populations is a priority (p. 75).

4. *Establishing habitat close to breeding sites increases the chance of colonization (p. 75).*

Existing riparian habitat in the Valley currently supports about 73 flycatcher territories, which exceeds the recovery goal for this Management Unit. This HCP is intended to support the conservation and management of core habitat on Federal and State lands, while also conserving high quality habitat on private lands. In addition to the management and enhancement of core habitat areas, this HCP presents a strategy that emphasizes the conservation, management, and enhancement of high quality riparian habitat on private lands adjacent to and outside of the core occupied habitat areas. This approach will provide a protected habitat buffer around existing occupied habitat sites, will provide additional dispersal habitat on private lands, and will ultimately contribute to the overall stability of flycatcher populations in the Valley. This approach is consistent with the recovery criteria outlined in the Recovery Plan, and will provide a framework for successful flycatcher conservation in the Valley.

Consistency with Measures to Minimize Take and Offset Impacts

The Recommendation also provides guidelines for measures to minimize take or offset impacts from projects (Service 2002a, pp. 82-83). These guidelines include:

1. *Research, monitoring, and survey projects should be used to evaluate the efficacy of measures intended to minimize or reduce impacts.*

As described in Section 6.0, this HCP includes monitoring of habitat quality in both Federal and State lands (core habitat) and on private mitigation lands, as well as ongoing surveys to track the presence or absence of the covered species. This monitoring data will provide a more robust understanding of local habitat conditions in the Valley, and how those habitat conditions correlate with use by the covered species. While the primary purpose of this monitoring is to ensure the suitability of conserved or restored areas for mitigation, a secondary benefit will be a growing database of habitat conditions and trends that can be used to identify high quality habitat, and minimize and work to further reduce future impacts to those areas.

2. *All efforts should focus on preventing loss of flycatcher habitat.*

As discussed previously, one of the main goals of this HCP is to conserve and enhance existing core flycatcher habitat in the Valley on private lands, and high quality buffer habitat on private lands. Most of the mitigation is expected to be obtained through conservation easements on private lands that protect riparian and flycatcher habitat in perpetuity.

3. *Protected habitat should include adequate funding to ensure the habitat is managed permanently for the protection of the flycatcher.*

The implementation strategy of this HCP includes commitments from the State to maintain and enhance habitat on State lands, and efforts to promote habitat enhancement on Federal lands. While it is not possible to identify specific long-term funding sources, the Permittees

are dedicated to the implementation of this HCP and its commitments with funding from existing programs and other sources.

4. *Areas slated for protection as a means of offsetting impacts should be conserved based on the following priorities: 1) occupied, unprotected habitat; 2) unoccupied, suitable habitat that is currently unprotected; and 3) unprotected, potential habitat.*

As discussed previously, the conservation priorities of this HCP are to 1) enhance occupied, protected habitat on State lands; 2) protect and enhance suitable habitat that is currently unprotected by promoting voluntary conservation efforts; and 3) protect potential habitat. Since flycatcher surveys have been, and will continue to be, focused on Federal and State lands, it is not known whether any occupied, unprotected habitat exists on privately owned land. However, the general approach of this HCP is consistent with the priorities in the recovery guidelines.

5. *Occupied habitat is considered occupied year-round for project-related effects that degrade habitat quality.*

Occupied flycatcher habitat is only known to occur on Federal and State conservation lands that have been surveyed. These areas will be managed year-round to protect and enhance flycatcher habitat as part of a diverse riparian community.

Consistency with Recommended Recovery Actions

The Recovery Plan suggests a number of actions that are believed to be important to flycatcher recovery where feasible, legal, and effective (Service 2002a, pp. 105-136). Although this HCP is not required to contribute to the recovery of the flycatcher, it does seek to be consistent with the Recovery Plan recommendations to help ensure that the incidental take from the covered activities will not appreciably reduce the likelihood of survival and recovery of the species in the wild (Service and NMFS 1996, p. 3-20). The potential recovery actions that are relevant to this HCP include the following:

2. *Secure and enhance currently suitable and potentially suitable habitat on Federal lands; develop management plans to reduce threats and promote processes that secure, restore, and enhance currently suitable and potentially suitable habitat (Recovery Action 1.1.1, p. 106).*

This HCP will focus on the conservation, management, and enhancement of core habitat on Federal and State lands, while also promoting voluntary conservation, enhancement, and impact minimization on private lands that support suitable habitat.

3. *Manage livestock grazing to restore desired processes and increase habitat quality and quantity; if livestock grazing is a major stressor, implement conservative livestock grazing guidelines (Recovery Action 1.1.3.1.1.1, p. 114).*

Livestock grazing is one of the activities covered by this HCP. Impacts to woody riparian habitat from livestock grazing (which primarily occur in marginal habitat areas) will be mitigated through the conservation, management, and enhancement of high quality habitat areas; resulting in a net increase in protected, suitable habitat for the covered species. In addition, education and outreach efforts will be implemented to reduce the impacts of grazing and other activities on riparian habitat, and to improve grazing management practices.

4. *Manage exotic plant species (Recovery Action 1.1.3.2, p. 117).*

Exotic riparian plant species, such as salt cedar and Russian olive, are currently not a significant concern in the Valley. The Permittees are committed to aggressively controlling these exotic species so they do not become established and overtake native riparian habitat. However, the management and removal of these plant species could result in take of the covered species, and is covered by this HCP. This HCP is designed to encourage the proactive management of these and other exotic species.

5. *Work with private landowners, State agencies, and nongovernmental organizations to conserve and enhance habitat on non-federal lands; evaluate and provide rangewide prioritization of non-federal lands; provide technical assistance to conserve and enhance occupied habitats on non-federal lands; and pursue joint ventures toward flycatcher conservation (Recovery Action 1.2, p. 122).*

A major component of HCP implementation is to work with State agencies, local governments, private conservation organizations, and individual landowners to encourage the conservation and management of non-federal lands in the Valley. During the course of HCP development, several collaborative conservation efforts have resulted in the successful conservation and enhancement of private lands in the Valley, benefiting the covered species and ultimate HCP implementation. The HCP also includes a list of conservation focus areas where ongoing conservation efforts should be targeted to provide the greatest benefit to the covered species. The District, other Permittees, and the HCP steering committee will work to coordinate and share riparian management practices, and support ongoing conservation efforts in the Valley that already benefit riparian areas. This will provide a coordinated and synergistic approach to flycatcher conservation.

6. *Increase population stability; conserve and manage all existing breeding sites; develop new habitat near extant populations; and increase population sizes at small occupied sites (Recovery Action 2, p. 124).*

This HCP provides a strategy to protect and enhance existing breeding sites, while encouraging the conservation and enhancement of additional habitat in adjacent and tributary areas that could potentially support new territories.

7. *Survey and monitor; and monitor effects of management and restoration practices (Recovery Action 5, p. 128).*

This HCP includes monitoring commitments that will ensure habitat quality on mitigation lands is sustained, and that management and restoration practices on those lands are successful.

8. *Provide public education and outreach (Recovery Action 7, p. 133).*

Public education and outreach is an element of this HCP that will help educate landowners and the general public about the flycatcher and the importance of riparian habitat protection, and improve their access to technical and financial resources that can assist with habitat management, protection, and enhancement efforts.

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APPENDICES

APPENDIX A –
ESTIMATED IMPACT CALCULATIONS

Appendix A - San Luis Valley Regional Habitat Conservation Plan
Estimated Impact Calculations

Summary of Estimated Impacts

Routine Agriculture		Acres/Year	Percent of Total Habitat
	Low	32.8	0.2%
	Median	135.0	0.9%
	High	237.1	1.6%
	Contingency	10.0	0.1%
Community Infrastructure		**Acres/Year**	**Percent of Total Habitat**
	Low	4.1	0.0%
	Median	9.5	0.1%
	High	14.9	0.1%
	Contingency	6.0	0.0%
Conservation and Restoration		**Acres/Year**	**Percent of Total Habitat**
	Low	negligible	
	Median	negligible	
	High	negligible	
	Contingency	2.0	0.0%
Total Estimated Impacts		**Acres/Year**	**Percent of Total Habitat**
	Low	36.9	0.2%
	Median	144.5	1.0%
	High	270.1	1.8%

Total Riparian Habitat in Plan Area = 15,128 acres

Estimated Impacts of Covered Activities

Livestock Grazing		Value	Unit
Riparian habitat within pasture areas		1,978.0	acres
Riparian habitat within pasture areas w/in NWR		21.9	acres
Potential impact area		1,956.1	acres
Low range of impacts		0.0	% expansion
High range of impacts		3.0	% expansion
	Low Impact Area	0.0	acres/year
	Median Impact Area	29.3	acres/year
	High Impact Area	58.7	acres/year

Fence Construction and Maintenance		Value	Unit
Length of existing or future fences is not known. Frequency and area of temporary impacts are small.			
Contingency mitigation (for all negligible agricultural impacts)		6	acres/year
	Impact Area	*negligible*	

Ditch Clearing and Maintenance		Value	Unit
Length of ditches within habitat/floodplain		1,767,487.0	feet
		334.8	*miles*
Low frequency clearing (every 10 yrs)		176,748.7	feet/year
High frequency clearing (every 5 yrs)		353,497.4	feet/year
Low clearing width (8 foot buffer)		1,413,989.6	square feet/year
High clearing width (20 foot buffer)		7,069,948.0	square feet/year
	Low Impact Area	32.5	acres/year
	Median Impact Area	97.4	acres/year
	High Impact Area	162.3	acres/year

Water Facility Maintenance and Operations		Value	Unit
Water wells within habitat/floodplain		676	number
Stream gages within habitat/floodplain		28	number
Diversions within habitat/floodplain		457	number
Minor Monitoring and Maintenance			
Water wells		*negligible*	
Stream gages		*negligible*	
Diversions		*negligible*	
Major Maintenance			
Water wells (every 15-20 years)		45.1	sites per year
Stream gages (every 20-25 years)		1.4	sites per year
Diversions (every 20-25 years)		22.9	sites per year
Combined frequency of major maintenace		69.32	sites per year
Low impact area (200 sq/ft)		13,863.3	square feet/year
High impact area (10,000 sq/ft)		693,166.7	square feet/year
	Low Impact Area	0.3	acres/year
	Median Impacts	8.1	acres/year
	High Impact Area	15.9	acres/year

New Water Facility Construction		Value	Unit
Number of construction sites within habitat		40	number
Average number of projects per year (over 30 years)		1.3	number/year
Low impact area (500 sq/ft)		666.7	square feet/year
High impact area (8,000 sq/ft)		10,666.7	square feet/year
Small impoundment impacts		*negligible*	
Contingency mitigation (for all negligible agricultural impacts)		6	acres/year
	Low Impact Area	0.02	acres/year
	Median Impacts	0.13	acres/year
	High Impact Area	0.24	acres/year

Water Diversions, Reservoir Operations, and Flow Management		Value	Unit
Fluctuating impacts and benefits over time, with negliglble effects.			
Contingency mitigation (for all negligible agricultural impacts)		6	acres/year
	Impact Area	*negligible*	

Vegetation Removal from Floodway		Value	Unit
Total Alamosa floodway area		253.0	acres
Total willow habitat within floodway		46.0	acres
Length of existing levee		3.5	miles
HCP coverage threshold (per mile of floodway)		4.0	acres
	Low Impact Area	4	acres/year
	Median Impact Area	9	acres/year
	High Impact Area	14	acres/year

Levee Improvement and Maintenance		Value	Unit
Length of existing and proposed levees		53,797.0	feet
Length of existing and proposed levee that intersects riparian habitat		13,197.6	feet
Proportion of levee that intersects habitat		25%	percent
Minor repairs (200 sq/ft) every year		200	square feet/year
Major repairs (10,000 sq/ft) every 3 years		3,333.3	square feet/year
Low impacts per year		49.1	square feet/year
High impacts per year		817.7	square feet/year
	Low Impact Area	0.00	acres/year
	Median Impact Area	0.01	acres/year
	High Impact Area	0.02	acres/year

Sediment Removal and Spoils Disposal	Value	Unit
Infrequent activity with minor impacts.		
Contingency mitigation (for all negligible infrastructure impacts)	6	acres/year
Impact Area	*negligible*	

Infrastructure Construction	Value	Unit
Number of locations per year	4	sites
Low impact area (1,000 sq/ft)	4,000.0	square feet/year
High impact area (10,000 sq/ft)	40,000.0	square feet/year
Low Impact Area	0.1	acres/year
Median Impact Area	0.5	acres/year
High Impact Area	0.9	acres/year

Infrastructure Maintenance	Value	Unit
Infrequent activities with minor impacts.		
Contingency mitigation (for all negligible infrastructure impacts)	6	acres/year
Impact Area	*negligible*	

Riparian Conservation and Restoration Activities	Value	Unit
Activities with minimal short-term impacts and likely long-term benefits.		
Habitat Creation, Restoration, and Protection	*negligible*	
Weed Management	*negligible*	
Wetland Creation and Management	*negligible*	
Wildlife Surveys	*negligible*	
Contingency mitigation (for all negligible conservation impacts)	2	acres/year
Impact Area	*negligible*	

Impact Contingencies		
Agricultural activities with negligible impacts	10.0	acres/year
Infrastructure activities with negligible impacts	6.0	acres/year
Conservation activities with negligible impacts	2.0	acres/year
Total Contingency Impacts	*18.0*	acres/year

APPENDIX B –
SAMPLE LANDOWNER COOPERATIVE AGREEMENT

SAN LUIS VALLEY REGIONAL HABITAT CONSERVATION PLAN

DRAFT

LANDOWNER COOPERATIVE AGREEMENT

Introduction and Background

In cooperation with the U.S. Fish and Wildlife Service ("Service"), the Rio Grande Water Conservation District ("District") has developed and is administering the San Luis Valley Regional Habitat Conservation Plan (HCP) in partnership with the State of Colorado Department of Natural Resources and Alamosa, Conejos, Costilla, Mineral, Rio Grande and Saguache Counties and the municipalities of Alamosa, Monte Vista, Del Norte, and South Fork ("HCP Permittees"). The purpose of the HCP is to provide regulatory coverage for landowners and local government entities in the San Luis Valley as they conduct routine agricultural, infrastructure, and conservation activities ("covered activities") that could result in the incidental take of riparian bird species that are listed under the Endangered Species Act (ESA) or are otherwise federally protected. These species are the southwestern willow flycatcher and yellow-billed cuckoo ("covered species").

Pursuant to Section 10(a)(2)(B) of the ESA, the District, the State, and local governments received Incidental Take Permits that relieves landowners and local governments of potential ESA liability when they conduct the covered activities. The HCP Permittees received Incidental Take Permits for the covered activities, subject to the provisions in the HCP that ensure that the impacts of the covered activities on riparian habitat are mitigated and monitored.

As part of the HCP mitigation commitments, the District has agreed to secure and monitor mitigation sites on private lands that contain riparian habitat of suitable quality. Mitigation credits at each site are quantified in acres, and are tracked by the District to be counted towards the total HCP mitigation requirement. Under the terms of the HCP, the sum total of mitigation credits for all sites must be greater than the habitat impacts of the covered activities.

The District will develop and maintain the mitigation credits by working with landowners to secure voluntary, cooperative agreements that formalize their participation and allow access for habitat monitoring and Service oversight. To be eligible for inclusion in the mitigation program, subject properties must:

1) contain riparian habitat that is capable of supporting one or more of the covered species, and
2) be protected by a conservation easement, management agreement, or similar mechanism that ensures the conservation of riparian habitat.

This Cooperative Agreement allows a subject property to be enrolled in the HCP mitigation program.

Involved Parties

This Cooperative Agreement is between the Rio Grande Water Conservation District (District) and _____ ("Cooperator").

Other interested parties include the __*[land trust]*_____ and the U.S. Fish and Wildlife Service. These other entities are not parties to this agreement, but will be provided with copies of this agreement.

Purpose

The purpose of this Agreement is to enroll the subject property into the District's mitigation program under the San Luis Valley Regional HCP. The District recognizes that the Cooperator has previously managed the property in a manner that protects and sustains important riparian habitat, and has taken additional steps to protect or enhance riparian habitat in the future. Furthermore, the subject property contains habitat of sufficient quality to potentially support the southwestern willow flycatcher and/or yellow-billed cuckoo, the species that are addressed in the HCP ("covered species").

As part of the HCP mitigation program, the District will ensure that the subject property is monitored to document that the quality and structure of riparian habitat is suitable for the covered species and, the monitoring commitments outlined in the HCP are implemented. Habitat monitoring will be conducted every three (3) years, using the habitat assessment standards described in Attachment A.

If monitoring results determine that the quantity or quality of the habitat is no longer sufficient, the District will work with the Cooperator to enhance or restore habitat or terminate this agreement.

Enrolled Property

The subject property is located in _____ County, Colorado.

Landowner Information

Mailing Address:	Contact Person:
_____	_____
_____	_____
_____	_____

Type of Habitat Mitigation

- □ Conservation easement
- □ Restoration/enhancement project
- □ Other: _____

Conservation Easement Information (if applicable)

The subject property is protected in perpetuity through a Deed of Conservation Easement that was conveyed to __*[land trust name]*_____ on _*[Date of easement*]___.

Easement Recording Number: _____, _____ County, Colorado.

Relevant information documenting the suitability criteria for an easement is included in Attachment C.

Riparian Habitat

Total Acres: _____ Riparian Habitat Acres: _____

Details on habitat composition, surrounding vegetation and land use context will be documented in the habitat quality monitoring forms.

Access to Enrolled Property

The Cooperator agrees to allow the District or their representatives reasonable access to his or her property for the purposes of habitat monitoring. The District or their representatives will coordinate with the Cooperator to schedule visits to the property at times that avoid inconvenience to the Cooperator or disruption of the Cooperator's use of the property. The District shall give the Cooperator at least 14 days advance notice of its desire to enter the property for monitoring, and the Cooperator shall not unreasonably withhold permission for such entry.

The Cooperator agrees to allow Service access to their property. Because the HCP requires no minimization and mitigation measures by landowners other than the Permittees, the Service does not need access to landowners' lands for HCP compliance monitoring. However, the Service may monitor those lands belonging to landowners who have volunteered to sign a Landowner Cooperative Agreement or Habitat Management Agreement to help the District fulfill the HCP's mitigation obligations. The purpose of such monitoring is to assess the effectiveness of the mitigation effort on that property. To follow-up on the effectiveness of the mitigation efforts on a particular property, the Service will make arrangements with the voluntary landowner for property access at least 14 days in advance. During monitoring, the Service may be accompanied by the District or the District's designated representatives. The Permittees shall allow the Service, or other properly permitted and qualified persons designated by the Service, to enter the Permittees' lands covered by the HCP at reasonable hours and times in accordance with 50 CFR §§13.21 (e)(2) and 13.47. Nothing in this section precludes the Service from carrying out its duties as required and authorized by law.

Terms and Conditions

This Cooperative Agreement is subject to the following terms and conditions:

Voluntary Participation

The Cooperator has entered into this agreement on a voluntarily basis, and will not be required to conduct or allow any measures besides those described above.

Termination of Agreement

The Cooperator may terminate this Cooperative Agreement at any time, upon written notification to the District. Such termination shall not affect the Cooperator's incidental take coverage under the HCP. The District may terminate this Cooperative Agreement at any time, upon written notification to the Cooperator.

Resource Management

The District recognizes that the Cooperator's past management practices have facilitated the existence of high-quality riparian habitat. The District further recognizes that additional commitments have been made to protect or enhance such habitat. Under this agreement, the Cooperator shall not be required to cease any existing resource management practices or initiate any additional management practices. (A separate Deed of Conservation Easement, if applicable, may require or preclude certain management practices).

Considering the above, the District may encourage the Cooperator to participate in additional efforts to further maintain or enhance riparian habitat on the enrolled property. Such efforts may be coordinated and/or funded through the District, Colorado Parks and Wildlife, the Natural Resources Conservation Service, or other entities. The Cooperator's participation in any additional habitat management, enhancement, or restoration efforts shall remain voluntary.

Covered Species Surveys

This Cooperative Agreement will allow the District or their representatives reasonable access to the subject property for the monitoring of riparian habitat structure and composition. This agreement does not allow or imply access for the purposes of conducting formal breeding territory or population surveys for the covered species. However, the Cooperator recognizes that the recording or documentation of informal, opportunistic observations of the covered species during habitat monitoring visits may occur. Any access for the purposes of formal species surveys may be arranged separately and is entirely at the discretion of the Cooperator. Though surveys are voluntary, knowledge of covered species occurrence will be useful for long-term HCP administration and status reviews.

Access for Other Parties

This agreement does not allow or otherwise permit access by any other parties, including but not limited to representatives of federal, state, or local agencies (besides the Service access described above), representatives from private organizations, or the general public. Any access to other parties to the subject property is entirely at the discretion of the Cooperator.

Transfer of Property

The Cooperator will notify the District no less than 60 days prior to selling or transferring the enrolled property to another entity, in order to provide the District the opportunity to secure a similar Cooperative Agreement with the successor.

Liability

The Cooperator assumes no liability for injury to any employee or representative of the District in the course of any visit to the property, except insofar as such injury is the result of the Cooperator's negligence. The District or their representatives shall not be liable for any damage to the property arising from any visit to the property, unless such damage is the result of negligence on the part of the District or their representatives.

AGREED TO BY:

_____	_____
(Cooperator)	Rio Grande Water Conservation District
_____	_____
Date	Date

Attachment A: Habitat Quality Index Monitoring Approach [Appendix G in the HCP]
Attachment B: Map of Subject Property
Attachment C: Easement Suitability Documentation

APPENDIX C –
SAMPLE HABITAT MANAGEMENT AGREEMENT

SAN LUIS VALLEY REGIONAL HABITAT CONSERVATION PLAN

DRAFT

HABITAT MANAGEMENT AGREEMENT

Introduction and Background

In cooperation with the U.S. Fish and Wildlife Service ("Service"), the Rio Grande Water Conservation District ("District") has developed and is administering the San Luis Valley Regional Habitat Conservation Plan (HCP) in partnership with the State of Colorado Department of Natural Resources and Alamosa, Conejos, Costilla, Mineral, Rio Grande and Saguache Counties and the municipalities of Alamosa, Monte Vista, Del Norte, and South Fork ("HCP Permittees"). The purpose of the HCP is to provide regulatory coverage for landowners and local government entities in the San Luis Valley as they conduct routine agricultural, infrastructure, and conservation activities ("covered activities") that could result in the incidental take of riparian bird species that are listed under the Endangered Species Act (ESA) or are otherwise federally protected. These species are the southwestern willow flycatcher and yellow-billed cuckoo ("covered species").

Pursuant to Section 10(a)(2)(B) of the ESA, the District, the State, and local governments received Incidental Take Permits that relieve landowners and local governments of potential ESA liability when they conduct the covered activities. The HCP Permittees received Incidental Take Permits for the covered activities, subject to the provisions in the HCP that ensure that the impacts of the covered activities on riparian habitat are mitigated and monitored.

As part of the HCP mitigation commitments, the District has agreed to secure and monitor mitigation sites on private lands that contain riparian habitat of suitable quality. Mitigation credits at each site are quantified in acres, and are tracked by the District to be counted towards the total HCP mitigation requirement. Under the terms of the HCP, the sum total of mitigation credits for all sites must be greater than the habitat impacts of the covered activities.

Private landowners may participate in the HCP mitigation program through the development and implementation of a voluntary habitat management agreement. To be eligible for inclusion in the HCP mitigation program, habitat management agreements must:

1) contain riparian habitat that is capable of supporting one or more of the covered species,
2) identify specific conservation and management measures to protect or improve riparian habitat,
3) document existing habitat conditions and allow ongoing habitat monitoring, and
4) be signed and approved by the landowner and the District.

This Habitat Management Agreement allows a subject property to be enrolled in the HCP mitigation program.

Involved Parties

This Habitat Management Agreement is between the Rio Grande Water Conservation District (District) and _____ ("Landowner").

The U.S. Fish and Wildlife Service is not a party to this agreement, but will be provided with copies of this agreement.

Purpose

The purpose of this agreement is to enroll the subject property into the District's mitigation program under the San Luis Valley Regional HCP. As part of the mitigation program, the subject property will be monitored to ensure that the quality and structure of riparian habitat is suitable for the covered species and the monitoring commitments outlined in the HCP.

Property Information

Property Location

Attach a map clearly showing the boundary of the proposed habitat management/ mitigation site and the general property boundary.

Landowner Information

Mailing Address:	Contact Person:
_____	_____
_____	_____

Description of Existing Riparian Habitat

Describe the existing riparian habitat on the property, including any current or historic management.

→ Attach a description of existing habitat and management, including photos and a map (if applicable).

Riparian Habitat

Total Acres: _____ Riparian Habitat Acres: _____

Habitat Management Plan

Proposed Habitat Management and Conservation Measures

Indicate the specific management measures the Landowner will implement to benefit riparian habitat on the property, and the conservation benefits expected from those measures. (Examples include fence installation to manage livestock, changes to water or livestock management to benefit habitat, vegetation planting, etc.).

→ Attach a description of the proposed habitat management and conservation measures.

Monitoring and Mitigation Credits

The property or site subject to this agreement will be eligible for inclusion in the HCP mitigation plan upon the completion of this agreement. Mitigation credits will be limited to the area of habitat that currently meets habitat quality standards.

Habitat monitoring will be conducted under the direction of the District every three (3) years, using the habitat assessment standards described in the HCP. If monitoring indicates improved or expanded riparian habitat due to the implementation of the habitat management and conservation measures, mitigation credits will be expanded accordingly.

If monitoring results determine that the quantity or quality of the habitat is no longer sufficient to support the covered species, the District will work with the Landowner to enhance or restore habitat, or terminate this agreement.

Access to Enrolled Property

The Landowner agrees to allow the District or their representatives reasonable access to his or her property for the purposes of habitat monitoring. The District or their representatives will coordinate with the Landowner to schedule visits to the property at times that avoid inconvenience to the Landowner or disruption of the Cooperator's use of the property. The District shall give the Landowner at least 14 days advance notice of its desire to enter the property for monitoring, and the Landowner shall not unreasonably withhold permission for such entry.

The Landowner agrees to allow Service access to their property. Because the HCP requires no minimization and mitigation measures by landowners other than the Permittees, the Service does not need access to landowners' lands for HCP compliance monitoring. However, the Service may monitor those lands belonging to landowners who have volunteered to sign a Landowner Cooperative Agreement or Habitat Management Agreement to help the District fulfill the HCP's mitigation obligations. The purpose of such monitoring is to assess the effectiveness of the mitigation effort on that property. To follow-up on the effectiveness of the mitigation efforts on a particular property, the Service will make arrangements with the voluntary landowner for property access at least 14 days in advance. During monitoring, the Service may be accompanied by the District or the District's designated representatives. The Permittees shall allow the Service, or other properly permitted and qualified persons designated by the Service, to enter the Permittees' lands covered by the HCP at reasonable hours and times in accordance with 50 CFR §§13.21 (e)(2) and 13.47. Nothing in this section precludes the Service from carrying out its duties as required and authorized by law.

Terms and Conditions

This Habitat Management Agreement is subject to the following terms and conditions:

Voluntary Participation

The Landowner has entered into this agreement on a voluntarily basis, and will not be required to conduct or allow any measures besides those described above.

Termination of Agreement

The Landowner may terminate this Habitat Management Agreement at any time, upon written notification to the District. Such termination shall not affect the Landowner's incidental take coverage under the HCP. The District may terminate this Habitat Management Agreement at any time, upon written notification to the Landowner.

Resource Management

This agreement includes specific commitments by the Landowner to manage to improve or protect riparian habitat. Under this agreement, the Cooperator shall not be required to cease any existing resource management practices or initiate any additional management practices that are not directly related to this Habitat Management Agreement.

Technical Assistance

Considering the above, the District may encourage the Landowner to coordinate with outside entities to develop or implement habitat management and conservation measures. Such efforts may be coordinated and/or funded through the District, Colorado Parks and Wildlife, the Natural Resources Conservation Service, or other entities. The Landowner's participation in any habitat management, enhancement, or restoration efforts or programs shall remain voluntary.

Covered Species Surveys

This Habitat Management Agreement will allow the District or their representatives reasonable access to the subject property for the monitoring of riparian habitat structure and composition. This agreement does not allow or imply access for the purposes of conducting formal breeding territory or population surveys for the covered species. However, the Landowner recognizes that the recording or documentation of informal, opportunistic observations of the covered species during habitat monitoring visits may occur. Any access for the purposes of formal species surveys may be arranged separately and is entirely at the discretion of the Landowner. Though surveys are voluntary, knowledge of covered species occurrence will be useful for long-term HCP administration and status reviews.

Access for Other Parties

This agreement does not allow or otherwise permit access by any other parties, including but not limited to representatives of federal, state, or local agencies (except for the Service access described above), representatives from private organizations, or the general public. Any access to other parties to the subject property is entirely at the discretion of the Landowner.

Transfer of Property

The Landowner will notify the District no less than 60 days prior to selling or transferring the enrolled property to another entity, in order to provide the District the opportunity to secure a similar Habitat Management Agreement with the successor.

Liability

The Landowner assumes no liability for injury to any employee or representative of the District in the course of any visit to the property, except insofar as such injury is the result of the Landowner's negligence. The District or their representatives shall not be liable for any damage to the property arising from any visit to the property, unless such damage is the result of negligence on the part of the District or their representatives.

AGREED TO BY:

_____	_____
(Landowner)	Rio Grande Water Conservation District
_____	_____
Date	Date

APPENDIX D –
EDUCATION AND OUTREACH FRAMEWORK

SAN LUIS VALLEY REGIONAL HABITAT CONSERVATION PLAN

OUTREACH AND EDUCATION FRAMEWORK

The success of the San Luis Valley Regional HCP will be driven by voluntary efforts to conserve or enhance riparian habitat on private lands. While mitigation needs will likely be met through the commitment of a few landowners, individual actions by hundreds of landowners will make a difference in protecting habitat for the covered species, maintaining a pool of potential mitigation lands, and providing other community and ecosystem benefits.

Outreach and education activities will play an important role in HCP implementation by giving landowners and the community the information and tools to make informed decisions about land management and riparian habitat protection. A provision of the HCP requires the District to coordinate or complete at least six outreach contacts each year.[1] This framework provides the District and the Steering Committee with general guidance on what types of outreach and education efforts can be used, and strategies that will help ensure their success.

Goals of the Education and Outreach Process

- Help landowners and the community understand the HCP
- Help landowners and the community understand the value of riparian habitat
- Identify and maintain potential mitigation lands
- Encourage voluntary conservation of riparian habitat

Potential Outreach and Education Activities

The following activities are described to give the District and the Steering Committee examples of outreach and education activities that are envisioned in the HCP. These examples are intended to provide general guidance – as implementation of the HCP continues, the outreach and education activities should be updated and refined to reflect new information and outreach approaches.

Outreach Materials

Depending on their intended use and audience, outreach materials may include the following:

- HCP fact sheets
- "Frequently Asked Questions" pamphlets
- Brochures
- Technical handbook for landowners
- Presentation boards
- Educational materials
- HCP website

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[1] An outreach "contact" is defined as a formal or informal presentation to outside organizations or the public, reaching more than 10 people in a single event.

Outreach materials should be reviewed and updated every few years to reflect new information, new resources, or changes in HCP implementation.

Presentations

Informative presentations are a useful way to reach various organizations including industry groups, community groups, environmental or conservation groups, or local government boards. A typical presentation could include:

- Background on the HCP
- Status of HCP implementation
- Why riparian habitat conservation is important
- How organization members can protect riparian habitat
- Resources that are available to assist in habitat conservation

Presentations should be tailored to the audience and should emphasize their particular interests, concerns, and opportunities. Feedback from these presentations and subsequent discussion should be used to further refine the outreach process and general HCP implementation.

Informal Meetings with Landowners

In most communities, the most effective outreach takes place at the individual level. Steering Committee members will play an important role in identifying and initiating contacts with key individuals based on their existing social and professional relationships. These informal discussions are valuable in providing information and resources to landowners and other stakeholders who may be more comfortable discussing HCP-related issues with a person they already know and trust.

These informal meetings should take place on a continual basis, concurrent with other, more formal, outreach and education efforts.

Field Trips

Field trips are one of the best ways to demonstrate the importance of riparian habitat conservation. Field trips can show stakeholders, decision-makers, and the general public:

- Habitat for the covered species
- The importance of riparian habitat for other wildlife species
- Riparian habitat management issues, successes, or shortcomings
- Conservation successes and partnership opportunities

Field trips are useful in several ways – they provide an on-the-ground understanding of riparian conservation issues; provide a networking opportunity for implementation partners and stakeholders; and provide an opportunity to celebrate successes. HCP-specific field trips can be organized for a specific target audience, or HCP implementation can be discussed as a component of other, related field trips. Field trips can and should be planned in collaboration with partners such as the U.S. Fish and Wildlife Service, Bureau of Land Management (BLM), Natural Resources Conservation Service (NRCS), Colorado Parks and Wildlife, and others.

Staff Trainings or Presentations

At the federal, state, and local levels, public agency staff will be responsible for implementing the HCP and ensuring compliance with HCP commitments. Technical trainings, presentations, or discussions with these and other groups can improve HCP implementation among those who

are in the position to implement it (or are directly affected by it) on a daily basis. State and federal resource agencies are useful sources of expertise for these events.

Landowner Recognition

Identify opportunities to publicly recognize landowners who have contributed to riparian habitat conservation and the implementation of the HCP. This type of recognition can be HCP-specific, or it can be given in collaboration with other organizations that have similar habitat conservation goals. Opportunities range from informal recognition during meetings, presentations, or field trips, to formal recognition or awards during public events. These efforts will show community gratitude for voluntary efforts of individuals, and will help contribute to HCP implementation by fostering a conservation ethic in the community.

Educational Programs

While it is not necessary or effective to develop a specific educational curricula around the HCP, the District and the Steering Committee should seek opportunities to develop partnerships that will incorporate the HCP into various levels of educational programs. Opportunities may include the following types of programs:

- K-12 education
- Adams State College programs and events
- Colorado State University Cooperative Extension programs and outreach
- Field education and interpretive programs (Refuges, BLM, NRCS, etc.)

These programs can be coordinated with a variety of existing partners and programs in the Valley, and should be tailored to the specific audience.

APPENDIX E –
MODEL COUNTY HCP ENABLING LANGUAGE

SAN LUIS VALLEY REGIONAL HABITAT CONSERVATION PLAN

MODEL COUNTY HCP ENABLING LANGUAGE

October 2012

Purpose and Intent

- To provide legal protection to typical and routine agricultural, infrastructure, and conservation activities in _____ County through the implementation of the San Luis Valley Regional Habitat Conservation Plan (HCP).
- To provide a mechanism for HCP implementation by defining county land use authority over typical and routine activities within riparian habitat areas.
- To protect riparian habitat areas that support the southwestern willow flycatcher, yellow-billed cuckoo, and other wildlife species that depend on riparian habitat.
- To establish a process for resolving the impacts of land management activities whose impacts are outside the scope of HCP coverage and may be in violation of the federal Endangered Species Act.

Authority

This ordinance is authorized pursuant to the following laws and regulations:

- Local Government Land Use Control Enabling Act (C.R.S. 29-20-104) which grants counties and municipalities broad authority to plan for and regulate the use of land, which includes "protecting lands from activities which would cause immediate or foreseeable material danger to significant wildlife habitat and would endanger a wildlife species."
- C.R.S. 24-65.1-101 which encourages local governments to designate areas and activities of state interest and, after such designation, to administer such areas and activities of state interest and promulgate guidelines for the administration thereof (1041 powers).
- Endangered Species Act (16 U.S.C. § 1531 et seq.) which prohibits the unauthorized "take" of a federally-listed threatened or endangered species or its habitat, including the endangered southwestern willow flycatcher. Section 10(a)(1)(B) (16 U.S.C. § 1539(a)(1)(B)) of the ESA allows the Service to permit the incidental take of a listed species with the approval of a Habitat Conservation Plan.

Definitions

"Covered activities" – typical and routine agricultural, infrastructure, and conservation activities that occur within riparian habitat areas, have the potential to impact the covered species, and whose impacts are specifically covered by the San Luis Valley Regional Habitat Conservation Plan (HCP). The covered activities, described in detail in the HCP, are:

a. livestock grazing
b. fence construction and maintenance

c. ditch clearing and maintenance
d. water facility construction and maintenance
e. water management and administration
f. floodway and levee construction and maintenance
g. utility infrastructure maintenance
h. road and bridge maintenance
i. stream channel shaping and stabilization for restoration
j. habitat creation and restoration
k. weed management
l. wetland creation and management

Activities related to land development, large-scale water projects or impoundments, sanitation or industrial water impoundments, highway construction, and federal activities are not covered by the HCP.

"Covered species" – Two bird species; the federally endangered southwestern willow flycatcher and yellow-billed cuckoo, a federal candidate species.

"Riparian habitat" – Plant communities that are found near streams and other bodies of water. In the Valley, riparian habitat is characterized by clusters of cottonwood and willow trees; and various shrubs surrounded by open water or subirrigated soils, wet meadows, and wetland areas.

"Typical and routine" – Practices that are usual, customary, and necessary for the continuation of agricultural operations, the maintenance and improvement of existing infrastructure, and the conservation and management of riparian habitat. These practices are conducted in a manner and a scope that is consistent with historical management and/or are consistent with management methods that are commonly accepted within the San Luis Valley and the surrounding region.

Allowance of Typical and Routine Land Management

Typical and routine land management activities in support of and related to agricultural, infrastructure, and conservation uses, as described in the HCP, will be permitted to continue with no restrictions to individual landowners under the federal Endangered Species Act related to the covered species, as long as the HCP is properly implemented. Incidental take of these two covered species by person who engage in these activities are authorized by an Incidental Take Permit (Permit) held by the County, which is supported by the HCP and its related Implementing Agreement. The HCP will be administered by the Rio Grande Water Conservation District (District), in partnership with _____ County and the State of Colorado. The County will rely on the District to ensure that all provisions and requirements of the HCP, including monitoring and mitigation, will be properly implemented.

Other Land Management Activities

The Permit does not provide incidental take coverage for persons engaged in land management activities that are beyond the scope of "typical and routine" agricultural,

infrastructure, and conservation uses as defined in the HCP. Land management activities that are not covered by the Permit, that are beyond the scope of "typical and routine," or that result in egregious and unnecessary habitat impacts, and that result in take of a listed species, are not protected by the Permit and may be in violation of the federal Endangered Species Act.

Procedures and Remedies for Impacts beyond the Scope of the HCP

Upon receipt of information or a complaint related to riparian habitat impacts that are not covered by the HCP and the Incidental Take Permit, the Land Use Administrator, in coordination with Rio Grande Water Conservation District staff, shall investigate said complaint. If the Land Use Administrator determines that land management activities are beyond the scope of "typical and routine" land management and may result in habitat impacts, the Land Use Administrator will notify the landowner in writing that the land management activities in question are:

A) In violation of this ordinance;
B) Are not covered, mitigated, or in any way protected by the HCP and associated Permit; and
C) May be in violation of the federal Endangered Species Act, if take of a listed species has occurred.

Based on the recommendations of the Land Use Administrator and the District, one of the following remedies may be pursued:

1. In cases where the habitat impacts are minimal and are not believed by the District to result in take of the covered species, the landowner would be notified that the subject habitat impacts are not covered by the HCP and may be subject to Endangered Species Act compliance or enforcement actions (with no County referral to the U.S. Fish and Wildlife Service).
2. The landowner and subject habitat impacts would be referred to the U.S. Fish and Wildlife Service for individual Endangered Species Act compliance or enforcement actions. The costs of ESA compliance or penalties would be the responsibility of the landowner.
3. The habitat impacts would be mitigated through the HCP. The landowner would be required to compensate the District for the additional costs of mitigation, on a cost-per-acre basis.
4. Additional or alternative remedies, as appropriate.

Erroneous complaints of impacts resulting from non-covered activities may be recorded and dismissed by the Land Use Administrator, in consultation with the District.

On an annual basis, the County will report complaints, inquiries, and enforcement actions related to this ordinance to the District for tracking purposes.

APPENDIX F –
DRAFT STEERING COMMITTEE CHARTER

DRAFT CHARTER

SAN LUIS VALLEY REGIONAL HABITAT CONSERVATION PLAN

STEERING COMMITTEE

Background and Purpose

The Rio Grande Water Conservation District (District) developed the San Luis Valley Regional Habitat Conservation Plan (HCP) on behalf of the six counties that comprise the San Luis Valley floor (Alamosa, Conejos, Costilla, Mineral, Rio Grande, and Saguache) and the principal municipalities along the Rio Grande (Alamosa, Monte Vista, Del Norte and South Fork) in cooperation with the State of Colorado Department of Natural Resources (State) (HCP Permittees). The HCP was completed pursuant to Section 10(a)(1)(B) of the Endangered Species Act, and is intended to provide regulatory coverage to certain agriculture, infrastructure, and conservation activities (covered activities). One of the primary goals of the HCP and its implementation is to provide for the long-term conservation of the southwestern willow flycatcher and yellow-billed cuckoo (covered species) and the riparian habitat that they require for survival.

The HCP identifies several implementation measures that are intended to reduce impacts of the covered activities on riparian habitat while improving the capacity of the Valley to sustain the complementary goals of sustainable agricultural production and riparian habitat conservation. The HCP Steering Committee is one of these measures.

Steering Committee Purpose and Goals

The Steering Committee is integral to the function and success of the HCP. The primary purpose of the Steering Committee is to provide a forum that includes resource experts, stakeholder interests, community leaders, and decision makers where habitat management information can be shared, habitat issues can be addressed, and partnerships can be built. The Steering Committee will advise the District and the HCP Permittees as they implement the HCP, will not have direct implementation responsibility, and will not have authority over the actions of individual participants or HCP Permittees.

Steering Committee Membership

The membership of the Steering Committee is intended to represent a cross-section of the government entities who are charged with implementing the HCP and the community stakeholders who are affected by the HCP. The following list includes the types of agencies and organizations that should be represented, and current examples of specific organizations that could be included.

Representatives of the following:

1. Rio Grande Water Conservation District
2. State of Colorado – Department of Natural Resources
3. Alamosa County

4. Conejos County
5. Costilla County
6. Mineral County
7. Rio Grande County
8. Saguache County
9. City of Alamosa
10. City of Monte Vista
11. Town of Del Norte
12. Town of South Fork
13. U.S. Fish and Wildlife Service – Refuges and Ecological Services
14. Bureau of Land Management
15. Natural Resources Conservation Service
16. Agricultural industry
17. Conservation organizations
18. Water user associations
19. General public

Parameters and Assumptions

- The Steering Committee will play an advisory role, and will provide recommendations to the HCP Permittees on matters pertaining to HCP implementation
- Responsibility for the implementation or enforcement of HCP commitments ultimately lies with the HCP Permittees
- Participation in the Steering Committee by HCP Permittees does not diminish the autonomy of each entity; likewise, non-participation by a Permittee shall not affect the validity of the HCP to the other participating entities

Operating Principles

- The Steering Committee will meet two times per year, and may schedule additional meetings or field trips on an as-needed basis
- Steering Committee members will be nominated by the HCP Administrator (District staff), and new members will be approved by a vote of the other Steering Committee members
- Meetings will be open to the general public, and will include opportunities for public comment
- Members commit to active participation and will strive to attend all meetings
- Members will use their existing professional and social networks to promote and improve the successful implementation of the HCP

Steering Committee Responsibilities

HCP Administration

- Assist the District with the preparation of an annual report on the progress and status of the HCP. This report will be submitted to the Service
- Pursue grant funding or partnerships to assist in the administration of the HCP or to assist conservation efforts that are consistent with the purposes of the HCP

Monitoring

- Provide recommendations to the District regarding habitat monitoring methods and protocols, and adapt those methods as improved technology or scientific information becomes available
- Review habitat monitoring results and provide recommendations on habitat suitability indicators, trends, and adaptive management responses
- Seek opportunities to improve the accuracy and effectiveness and reduce the cost of habitat monitoring methods.

Outreach and Education

- Provide recommendations to the District on outreach and education efforts
- Initiate individual outreach discussions with landowners or others to facilitate on-the-ground implementation of the HCP

Federal Land Management Recommendations

- On behalf of the Permittees, provide recommendations to federal land management agencies on measures to improve riparian habitat on federal lands
- Works with federal land management agencies to establish and maintain reference sites for habitat monitoring

Conservation Coordination

- Seek opportunities to promote voluntary land conservation in riparian habitat areas that would benefit HCP implementation
- Seek opportunities to coordinate the needs of landowners with private land trusts, NRCS programs, or other resources to facilitate mutually beneficial conservation and restoration projects
- Provide community support to conservation efforts that are consistent with HCP implementation goals

APPENDIX G –
HABITAT QUALITY INDEX MONITORING APPROACH

APPENDIX G

SAN LUIS VALLEY REGIONAL HABITAT CONSERVATION PLAN

HABITAT QUALITY INDEX MONITORING APPROACH

Introduction

Monitoring the effectiveness of the conservation measures, and ensuring compliance with the implementation commitments are mandatory elements of a HCP. The purpose of the Habitat Quality Index approach (HQI) is to establish standard metrics and protocol for evaluating the quality of available habitat for the two covered species; southwestern willow flycatcher (flycatcher) and western yellow-billed cuckoo (cuckoo). The HQI will be used to evaluate habitat quality on both mitigation lands and reference areas on federal and state lands. The HQI is a two-step process involving 1) a qualitative habitat characterization of the entire assessment area, and 2) a more quantitative HQI model that establishes measurable metrics of the covered species habitat to be monitored over time.

The Step 1 habitat characterization is adapted from the Riparian Proper Function Condition (PFC) approach (DOI 2003) for providing a course-scale overview of assessment area. This qualitative habitat characterization may be used as a screening tool for potential mitigation lands and may be able to identify subtle changes in habitat not detected in the more quantitative HQI model. Step 1 also involves vegetation mapping and establishing permanent photo points for comparison over time.

Step 2, the HQI model, identifies specific parcel characteristics, such as general habitat shape, vegetation alliance, food resources and vegetation composition, and then quantifies and scores specific habitat affinities of the covered species. The focus of the HQI is on the life requisites that contribute the most to covered species habitat. Life requisites evaluated in the HQI are based on the best available scientific information, including listing decisions published in the Federal Register, the recovery plan for the flycatcher (Service 2002a), published scientific literature and agency reports (see *References* section). The life requisites evaluated are:

- nesting and brood-rearing cover,
- water/hydrology,
- habitat structure and function, and
- absence of human disturbance

The HQI will evaluate habitat separately for flycatchers and cuckoos because although these species occupy similar riparian habitat, they use the habitat in very different ways and at very different scales. Compared to flycatchers, yellow-billed cuckoos have very large breeding territories and distinct habitat affinities are poorly defined. Thus, some of the HQI factors evaluated for the cuckoo are semi-qualitative.

This HQI approach is presented as a draft document for the HCP. It is a detailed concept based on similar approaches used by the NRCS, USGS and others for identifying and monitoring sensitive species habitat. The approach is intended for preliminary implementation, technical review, and revision by the Steering Committee to meet all participants (federal, state, private) expectations and limitations as the process moves forward and new information on the covered species becomes available.

Species Background

This section summarizes habitat affinities for the covered species establishing the baseline for the habitat quality index factors evaluated in the HQI

Southwestern Willow Flycatcher

In general, flycatchers breed in tall dense riparian habitat with low gradient streams, wetlands, or saturated soils usually nearby, at least early in the breeding season (Bent 1940; Stafford and Valentine 1985; Harris et al. 1987; Spencer et al. 1996). The Service (2002a) has reported that "occupied sites always have dense vegetation in the patch interior. These dense patches are often interspersed with small openings, open water, or shorter, sparser vegetation, creating a mosaic that is not uniformly dense (Service 2002a). In most cases, this dense vegetation occurs within the first 10 to 13 feet (3 to 4 meters) above ground. Nest locations are generally in areas where the canopy density ranges from 75 to 90 percent, often in close proximity to slow moving or standing water or saturated soils (Sogge, et al. 1997). Flycatchers are insectivores, feeding on a wide variety of insects including wasps; bees; flies; beetles; butterflies; moths; caterpillars; flying insects; Hymenoptera, Diptera, and Hemiptera (true bugs); and spittlebugs (Beal 1912; McCabe 1991; Drost et al. 1997; Durst et al. 2008).

Locally, the habitat on the Alamosa National Wildlife Refuge is described as monotypic stands of sandbar willow and peachleaf willow with little narrowleaf cottonwood overstory bordering the Rio Grande. These willow stands typically range from 10 to 40 feet (3 to 12 meters) in width (Service 2002b). Within the Conejos River watershed, local agency biologists (Lucero, pers. comm. 2005) have observed habitat patterns that vary from the refuge, including;

- Slow moving or standing water that is close or immediately adjacent to nesting habitat.
- Short, emergent wetlands that are flooded through mid-July.
- Tall grasses and sedges adjacent to nesting habitat provide important foraging habitat.
- Narrow [approximately 25-33 ft (8-10m)] strips of woody vegetation along ditches within the floodplain, if adjacent to a water source, or wet meadows that provide foraging habitat.

This suggests that a diverse riparian structure consisting of a complex of narrow strips of woody vegetation and larger patches of woody vegetation interspersed with wet meadow and tall grass foraging habitat and the surface water infrastructure that supports that structure (such as natural stream channels and irrigation canals/ditches), are important components of flycatcher habitat in the Valley**.**

Yellow-billed Cuckoo

In general, the cuckoo nests in a variety of habitats including open woodlands, parks, and riparian woodlands (AOU 1998). The western subspecies is restricted to cottonwood and willow woodlands with a dense understory and large blocks of riparian habitat (Carter 1998; Franzreb and Laymon 1993). However, cuckoo nests may not be directly related to proximity to water. Canopy cover at nest sites is typically dense (averaging 96.8% at the nest) and large patch sizes (generally greater than 20 ha [49.4 acres) are typically required (Laymon and Halterman 1989). Along the Sacramento and Feather Rivers, primary factors influencing nest site selection include the presence of cottonwood/willow riparian forest; patch size; and density of understory vegetation (Technology Associates 2009). Laymon and Halterman (1989) found a significant trend toward increased occupancy with increased patch size. Detections of cuckoos along the Conejos River occur in mature cottonwood forests with a tall, dense, willow understory with pools of standing stagnant water (Lucero and Cariveau 2004).

The cuckoo diet consists of mostly caterpillars, cicadas, grasshoppers, and other potential crop-destroying insects. As a result, cuckoos may exhibit irruptive behavior by moving into areas where cicada or caterpillar outbreaks are underway to capitalize on the available food source (Laymon 2001). Onset of breeding is apparently correlated with an abundant food supply, often coinciding with an outbreak of caterpillars or cicadas.

HQI Protocol

- Perform field surveys of the assessment areas once tree and shrub canopies have leafed out.
- Identify the HQI score for each of the nine HQI factors as described in the data sheet.
- Average the factors listed under each of the four life requisites and enter into the data sheet.
- The overall HQI value is the average of the life requisites (cover, water, habitat function, and disturbance) HQI values.
- Habitat quality on Mitigation lands is considered compliant with the HCP criteria if equal or greater than Baseline or the Reference; whichever is lower.
- Habitat quality on Mitigation lands are considered a concern if less then Baseline or Reference during a single survey period and non-compliant with the HCP criteria if less than Baseline or the Reference for three consecutive survey periods

Definitions

Habitat Shape – Course scale habitat category used by WEST LLC for describing the general shape (clump, linear strip, combination) of habitat patches. Shape categories are then linked to an overall vegetation composition based on the NVCS (WEST 2007)

NVCS – The National Vegetation Classification Standard or NVCS is a scheme for classifying the vegetation of the United States (FGDC 2008). The overall objective of the Vegetation Standard is to support the use of a consistent national vegetation

classification system (NVCS) to produce uniform statistics in vegetation resources from vegetation cover data at the national level. The non-profit group NatureServe maintains the NVCS for the U.S. government.

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SOUTHWESTERN WILLOW FLYCATCHER (SWFL) and YELLOW-BILLED CUCKOO (YBCU)
HABITAT QUALITY INDEX MODEL (HQI Step 2)
COLORADO

Property Name: _____ Reference Area _____
Location: T/R/S _____ UTMs Zone 13 _____ mE _____ mN
Surveyor Name: _____ Date: _____

Parcel Characteristics

General Habitat Shape ___Clump ___Linear ___ Combination
Overall NVCS Alliance _____
Remote Imagery (acre) Willow _____ Cottonwood _____ Open Water _____ Water Channel_____ Ag(crop/pasture)_____ Overall Parcel_____
Food (circle if outbreak) Wasp/bees____ Butterflies/moths____ Beetles ____ Cicadas/grasshoppers____ Caterpillars____

Habitat metrics are collected every three years to establish trends and compared to baseline (1st year's sampling)

Life Requisite	Factor (YBCU in RED)	SWFL Value	SWFL Score	YBCU Value	YBCU Score
COVER	**1. Nesting cover/Brood rearing cover (April-July) (parcel scale)**				
	a. Dense canopy with dense shrub[1] understory	NA		1.00	
	b. Dense canopy with sparse shrub understory	NA		0.70	
	c. Dense canopy with no shrub understory	NA		0.50	
	d. Sparse canopy with dense shrub understory	NA		0.70	
	e. Sparse canopy with sparse shrub understory	NA		0.20	
	f. No mature canopy	NA		0.00	
	a. Dense patches/thickets of willow, or other native shrubs predominantly (>60%) 2.5-7 m (8-23 ft) tall and patch width >10 m	1.00		NA	
	b. Dense stand of willows - most 2.5-7 m tall (8-23 feet), 6-10 m (19.5-33 ft) wide and > 0.25 acres total patch size	0.70		NA	
	c. Dense, monotypic stand of willows 1.5-2.5 m (5-8 ft) tall and > 10 m (30 ft) wide	0.50		NA	
	d. Several dense, narrow rows of willows 3-10 m (10-33 ft) wide, 2.5-7 m (8-23 ft) tall that add up to at least 0.25 acres total	0.50		NA	
	e. Dense, narrow patches <10 meter (30 foot) wide of willows > 1.5 m (4.8ft) that add up to less than >0.25 acres	0.20		NA	
	f. A single, narrow, <10 meter (30 foot) wide strip <0.25 acres, or single, obtuse patches <0.25 acres, or sparse (<40% cover) patches or an aggregate of <0.25 acre patches or all patches less than 1.5 m (4.8 ft) tall	0.00		NA	
	2. Nesting cover-size of patches/thickets described in #1a or #1b (nest territory scale)				
	a. Patches > 1 acre in size. Patch width averages > 30 feet (YBCU patches > 100 acre)	1.00		1.00	
	b. Patches between .05 and 1 acre size and > 30 feet wide (YBCU patches 50-99 acres)	0.60		0.60	
	c. 0.25 acre - 0.5 acre patches and >30 feet wide (YBCU patches 25-49 acres)	0.40		0.40	
	d. 0.25 acre >1 acre patches and 20 -30 feet wide (YBCU patches 10-24 acres)	0.20		0.20	
	e. Patches < 0.25 acres or larger patches < 20 feet wide - (YBCU < 10 acres)	0.00		0.00	
	3. Percent live canopy cover - all shrubs measured 3-4 feet above ground for SWFL; Trees measured for YBCU (parcel scale)				
	a. > 80 percent	1.00		1.00	
	b. 60-79 percent	0.60		0.60	
	c. 40-59 percent	0.30		0.30	
	c. < 40 percent	0.00		0.00	

Life Requisite	Factor (YBCU in RED)	SWFL Value	SWFL Score	YBCU Value	YBCU Score
WATER (Hydrology)					
	4. Water				
	a. Stagnant or slow flowing surface water under- lying or adjacent (w/in 15m) to nesting thicket during breeding[2]	1.00		NA	
	b. Flowing surface water underlying or directly adjacent (within 15m) to nesting thicket during breeding	0.70		NA	
	c. Surface water or saturated soil present early in nesting season but significantly dry by mid-summer. (July)	0.50		NA	
	d. Little or no water present or a steep stream gradient characterized by continual riffles, rapids or falls.	0.10		NA	
HABITAT STRUCTURE and FUNCTION					
	5. Number of Vegetative Strata[3] present in woody riparian				
	a. Appropriate number of vegetative strata for the site - (Typically 3 in SLV, 2 at high elevation or poor soils.)	1.00		1.00	
	b. One stratum missing	0.50		0.50	
	c. More than one stratum missing	0.10		0.10	
	d. Impervious surface or bare soil surface	0.00		0.00	
	6. Species Composition (Shrubs for SWFL, Overall for YBCU)				
	a. Native - Riparian vegetation is comprised of >90% native broadleaf species	1.00		1.00	
	b. Mixed Native and Exotic - Between 50-90% of riparian vegetation is native species	0.60		0.60	
	c. Mixed Native and Exotic - Between 10-49% of riparian vegetation is native species	0.30		0.30	
	d. Exotic/introduced >90% of riparian vegetation is exotic species	0.10		0.10	
	e. Non-native species (Tamarisk -Russian olive)	0.00		0.00	
	7. Recruitment of native plants* (Trees/shrubs)				
	a. Recruitment of 3 or more native species	1.00		1.00	
	b. Recruitment of 1-2 native species	0.50		0.50	
	c. No recruitment of native species	0.00		0.00	
HUMAN DISTURBANCE					
	8. Distance to heavy human activity (occupied houses, farmsteads, businesses, busy paved roads, etc.)				
	a. >1/4 mile (1320 feet)	1.00		1.00	
	b. 990 -1320 feet	0.70		0.70	
	c. 660 - 990 feet	0.50		0.50	
	d. 330 - 660 feet.	0.20		0.20	
	e. <330 feet.	0.00		0.00	
	9. Recreation/tourism Impacts				
	a. Light to no use April to mid-August	1.00		1.00	
	b. Moderate use April to mid-August	0.50		0.50	
	c. Heavy use April to mid-August	0.20		0.20	

[1] **Shrub Density** - A shrub stand is considered dense when it is so thick a person either cannot or does not want to walk through it. Be aware there may be dense thickets interspersed with openings that are navigable by a person. These complexes also provide good SWFL habitat. When the entire stand is thin with no dense patches, then the 0 rating is appropriate. The smallest usable habitat thickets/patches (non-breeding) are 30' x 10' x 5' tall . Closely associated patches of this minimum size must be aggregated into at least a 0.25 acre area in order to be suitable for SWFL breeding.

[2] **Breeding** extends from nest building through fledging - generally June - August 15 in Colorado (Kingery 1998)

[3] Strata as defined by the National Vegetation Classification System (NVCS): tree, shrub, herb (includes grasses)

***Recruitment indices:**

Germination (by seed and roots) = Seedling/saplings < 5 ft in height all species

Recruitment = Saplings > 5 feet in height - all species,

Scoring

An overall HQI value of 0.5 or greater is required to meet quality criteria for wildlife.

The overall HQI for southwest willow flycatcher and Yellow-billed cuckoo consists of four parts, a cover HQI value, a water HQI value, a habitat structure HQI value and a human disturbance HQI value.

	SWFL Score	YBCU Score
COVER HQI VALUE Average the values for factors 1-3. This factor is the HQI for cover	**0.00**	**0.00**
WATER HQI VALUE The value for factors 4 is the HQI for water	**0.00**	**NA**
HABITAT FUNCTION HQI VALUE Average the values for factors 5-7. This factor is the HQI for Habitat Function	**0.00**	**0.00**
DISTURBANCE HQI VALUE Average the values for factors 8 and 9. This factor is the HQI for disturbance	**0.00**	**0.00**
OVERALL HQI VALUE --(average of cover, water, function, and disturbance)	**0.25**	**0.33**

The overall HQI value is the average of the cover, water, habitat function, and disturbance HQI values.
Habitat quality on Mitigation lands are considered compliant with the HCP criteria if equal or greater than Baseline or the Reference; whichever is lower
Habitat quality on Mitigation lands are considered a concern if less then Baseline or Reference during a single survey period and non-compliant with the HCP criteria if less than Baseline or the Reference for three consecutive survey periods