

**United States Department of the Interior
Bureau of Land Management
San Luis Valley Field Office
46525 Highway 114
Saguache, CO 81149**

Environmental Assessment

Blanca Wetlands ACEC Plan Amendment

DOI-BLM-CO-300-2012-001 EA

June, 2013



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CHAPTER 1 – INTRODUCTION

1.1 IDENTIFYING INFORMATION

CASEFILE/PROJECT NUMBER (optional): DOI-BLM-300-2012-001

PROJECT TITLE: Blanca Wetlands ACEC Enlargement Plan Amendment

PLANNING UNIT: San Luis Resource Area

LEGAL DESCRIPTION: See Attachment 1

1.2 INTRODUCTION AND BACKGROUND

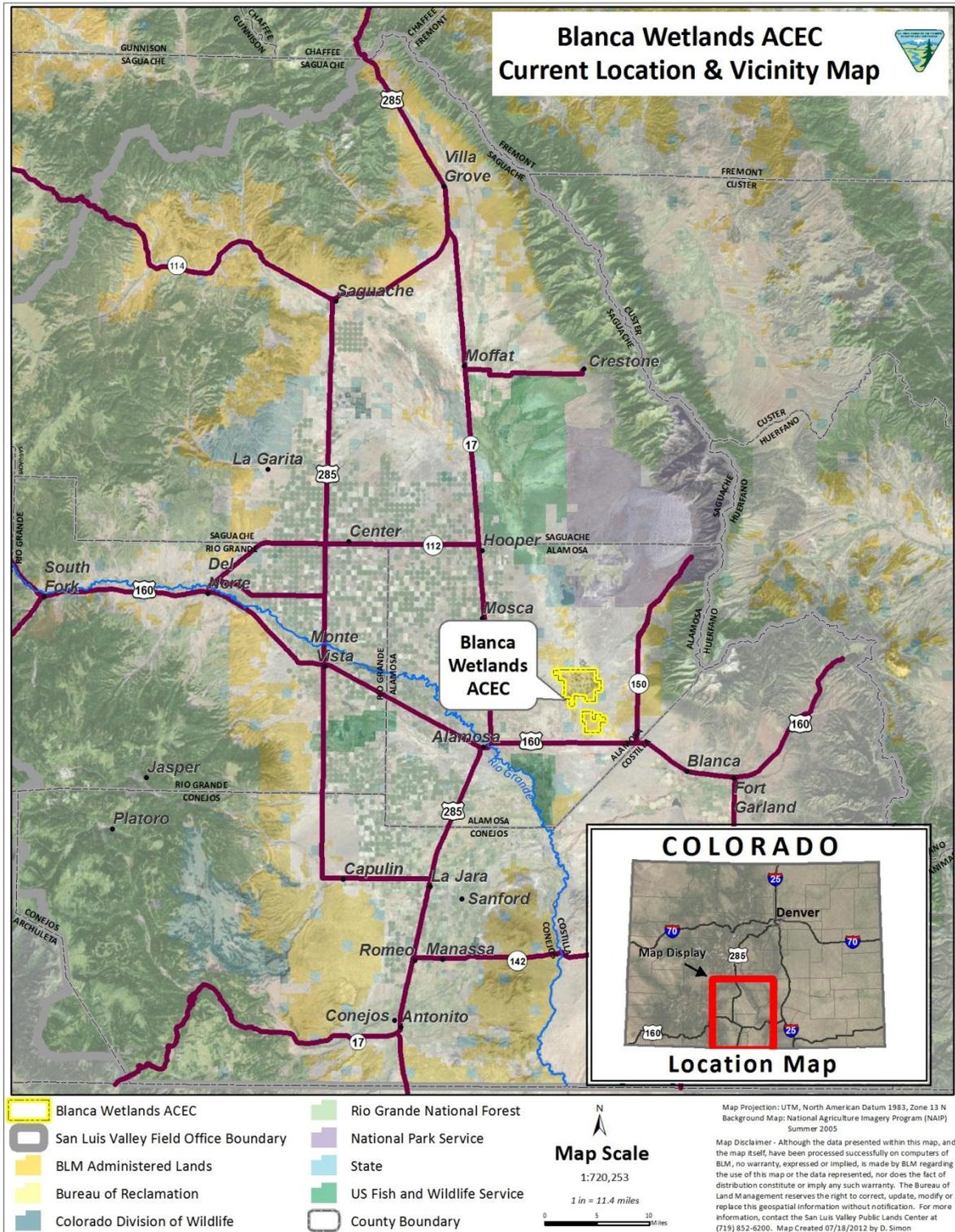
BACKGROUND: This EA has been prepared by the Bureau of Land Management (BLM) to analyze effects from potentially enlarging the Blanca Wetlands Area of Critical Environmental Concern (ACEC).

In 1991, the BLM designated the Blanca Wetlands as an ACEC within the San Luis Resource Area Resource Management Plan (SLRA RMP). An ACEC is an area within the public lands where special management attention is required: 1. to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources or other natural systems or processes; and 2. To protect life and safety from natural hazards (SLRA RMP and Final Environmental Impact Statement 1991 G-1).

Blanca Wetlands ACEC was nominated as an ACEC due to the recreational, wildlife, riparian, scenic, and special plant and animal values on the site. These values include productive playa and marsh habitats that contain high densities of water birds, amphibians, macroinvertebrates, and 13 threatened, endangered and sensitive wildlife and plant species. The 1991 SLRA RMP (p. 20 4-1) identifies the need for special management on the site to maintain and improve wetlands for waterfowl production and the enhancement of additional wetlands.

The current boundary of the Blanca Wetlands ACEC is located south of the Great Sand Dunes National Park and Preserve in the northeastern portion of the San Luis Valley (SLV). The ACEC consists of 9,714 acres comprised of over 200 basins located within the “Closed Basin”, which is the lowest area of the SLV that has no natural outflow (Figure 1).

Figure 1: Current ACEC Location and Vicinity Map



Blanca Wetlands ACEC is located at the south end of a large interconnected series of historic wetland basins that now include Mishak Lakes, the Baca National Wildlife Refuge, San Luis Lake State Wildlife Area, The Nature Conservancy's Medano and Zapata Ranches, and Blanca Wetlands. Although BLM designated only a small portion of the landscape as an ACEC in the SLRA RMP (1991), other areas of the closed basin contain the same physical characteristics and are part of the same hydrologic system as the existing ACEC and are as relevant and important to the ecological system as the existing ACEC.

Over the last decade, BLM has cooperated with several scientific teams on strategies to best manage Blanca Wetlands ACEC, including the Intermountain West Joint Venture Shorebird Science Team and the Wetland Review Team. These groups suggested larger-scale management efforts would more effectively mimic natural processes and provide greater management flexibility to meet the purposes of the ACEC. The Wetland Review Team stressed the importance of BLM acquiring additional habitat from willing sellers to improve connectivity from Blanca Wetlands to San Luis Lake to provide less mobile species the ability to disperse. These considerations of scale and physical and hydrological connectivity are the impetus behind the project proposal to enlarge the ACEC.

Blanca Wetlands ACEC has many aliases in local publications, documents and literature, including Blanca ACEC, Blanca Wildlife Habitat Area (BWHA), Dry Lakes, Blanca Area #4, and Blanca Wetlands. The range allotment located in the existing ACEC is called Blanca Wildlife Habitat Area (WHA) and an allotment located north of the existing ACEC is identified as Dry Lakes. The existing ACEC will be addressed as the Blanca Wetlands ACEC in this document unless referencing the range allotment or a publication with an alias for the area.

1.3 PURPOSE AND NEED

BLM is authorized to establish and alter ACECs as described in FLPMA and BLM Manual 1613. The existing Blanca Wetlands ACEC was established through the SLRA RMP signed December 18, 1991. The SLRA RMP recommends restoring and enhancing an additional 1,175 acres of wetlands. A subsequent SLV planning effort, the San Luis Valley Waterbird Plan (Olterman, J. 1995) recommends Blanca Wetlands expand up to an additional 5,000 acres of wetlands to assist in reaching managed wetland acre goals.

The purpose of the plan amendment is to modify the boundaries of the Blanca Wetlands ACEC to incorporate current and historic wetland areas that meet the relevance and importance criteria to promote wetland ecological function, restoration, connectivity, and biodiversity. BLM proposes to address the need for the project by enlarging the ACEC to include key parcels within adjacent lands that meet the ACEC criteria.

The project is needed because:

- A. The current size of the Blanca Wetlands ACEC prevents BLM from implementing broad-scale wetting and drying cycles on the existing wetlands that are necessary to promote wetland vigor, and thereby, wetland species production, biodiversity, and threatened and endangered species habitat.

- B. The existing Blanca Wetlands ACEC is isolated from other wetlands in the closed basin, making it difficult to implement management actions that promote restoration of processes, enhancement of additional wetlands, or provide connectivity for wildlife species.

1.4 DECISION TO BE MADE

BLM will decide whether to amend the 1991 SLRA RMP and expand the boundaries of the Blanca Wetlands ACEC based on the analysis contained in this Environmental Assessment (EA). This EA will analyze the effects of leaving the boundary to the Blanca Wetlands ACEC as it is now versus enlarging the existing ACEC under several different size alternatives. Enlarging the ACEC would entail changing the boundary on the map in the SLRA RMP. The BLM may choose to: a) enlarge the current ACEC as proposed; b) enlarge the ACEC with modifications/mitigation; c) provide an alternative to the proposed action; or d) not enlarge the ACEC at this time. The decision in this amendment will not apply to private lands.

If a decision is made to enlarge the ACEC, a change in status will occur of Category I lands to Category II lands within the proposed ACEC boundary expansion. In accordance with the RMP, Land Use Allocations Decisions, 1-12, land disposal will not occur in the designated ACECs, WSAs, and SRMAs within the planning area; disposal of land will only be allowed through exchange, unless excepted in other decisions.

The decision in this amendment is at a planning level only and will not include implementation actions. Any future implementation would not only include additional NEPA analysis, but also additional public comment, securing funding, securing or changing the appropriate water rights, project engineering and design, and coordination with other agencies and adjacent landowners. The number of wetland acres restored would be only a fraction of the acreage in the ACEC, and would depend on site characteristics related to hydrology and soils, proximity to existing wetlands, locations where partners are interested in working with the BLM, and the potential affects to existing uses on new included BLM administered lands.

1.5 SCOPING, PUBLIC INVOLVEMENT AND ISSUES

NEPA regulations (40 CFR §1500-1508) require that BLM use a scoping process to identify potential significant issues in preparation for impact analysis. The principal goals of scoping are to allow public participation to identify issues, concerns, and potential impacts that require detailed analysis.

At the planning level, scoping is used to: 1. Identify significant impacts that might influence and guide exactly where, when, and how site-specific projects are implemented; 2. Assist BLM in identifying any “fatal flaws” before significant time and resources are invested in implementing site-specific projects; and, 3. Assist BLM in analyzing how proposed projects relate to other broad-scale authorized activities on public lands, such as livestock grazing or energy development.

The SLV BLM initiated scoping with a Notice of Intent (NOI) to expand the Blanca Wetlands published in the Federal Register on October 11, 2011 (Vol. 76, No. 196). In addition to the NOI, SLV BLM consulted/scoped with the following Persons/Public/Agencies:

- A. The project was posted by BLM on the SLV Field Office NEPA website on 2/16/2012 to initially identify issues.
- B. Calendar notices and public service announcements were submitted to KENY TV, and the following radio stations KRZA, KSLV, KGWI, KSPK, KXMT on 2/13/2012 announcing the project and open house.
- C. An information postcard was sent to 1,322 landowners within the project area boundary, 28 tribal contacts, and 39 private and governmental organizations on 2/14/2012 informing potentially interested parties about the open house, the website for the project, how to send in comments and how to stay on the mailing list.
- D. A public notice was published in the Valley Courier seeking comments on the project on 2/25/2012.
- E. A ½ page fact sheet on the project requesting comments and announcing the open house was printed in the Valley Courier on 2/23/2012 and the Conejos County Citizen on 2/29/2012. The Associated Press network dispersed information on 2/25/2012 that was published in either print or online in USA Today, 9News, and the Pueblo Chieftain announcing the BLM's request for comments and the BLM's open house on 2/29/2012.
- F. Finally, an open house was held on 2/29/2012 in Alamosa, CO., and approximately 70 people attended.

Over 185 public comments were received. The issues identified during external scoping include:

- Concern over what the proposed project means to private property rights;
- Concern over economics and the government potentially acquiring more land;
- Support for the project because it promotes sustainability and connectivity of wetlands;
- Support or opposition to scale and scope of the project;
- Opposition to the project because of concern over BOR pumping in the same area; and
- Concern over water rights.

Issues identified during internal scoping were:

- Management actions/opportunities are limited on Blanca Wetlands at the current ACEC scale;
- Connectivity of wetlands in the closed basin is currently limited under the existing ACEC boundary;
- An issue that no buffer exists around the wetlands and development/disturbance is likely;
- Concern that cultural values should be recognized within the site and acknowledged;
- Conflicts with the existing grazing plan and wetland habitat objectives are present;
- Concern over how this project will compliment on-going analysis of land allocations for renewable energy purposes, including concurrent RMP amendments for solar and geothermal leasing;
- Concern over potentially including the Zapata Falls area as an ACEC; and
- Concern over how to apply RMP direction for the Blanca Wetlands ACEC over an expanded scale if an expansion occurs.

The issues of scale and scope, connectivity, and buffering the wetlands were determined to be important enough to influence the range of alternatives and to change scope of this project. Other issues and concerns received from scoping were incorporated by either addressing the opposing viewpoints through different alternatives and/or through applying a mitigation measure to minimize or eliminate the effects.

The comments/concerns that were not addressed through an alternative were addressed as follows:

1. The first concern that BLM would potentially create wetlands where the closed basin project operates is outside the scope of this document. The closed basin project is a Bureau of Reclamation and Rio Grande Water Conservation District effort that extracts water out of the closed basin watershed via a system of groundwater wells and delivers it to the Rio Grande through a canal to assist the State of Colorado with meeting its commitments to the Rio Grande Compact. This project will define the boundary of the ACEC only. It will not authorize any wetland restoration efforts. Future restoration efforts will undergo additional site-specific NEPA requirements. However, to assure this concern is addressed at this level, a mitigation measure through all the action alternatives will be added to assure future wetland restoration is focused within the ACEC in areas that maximize the ability to hold water targeting areas outside of the zone of influence around individual closed basin project wells.
2. Scoping revealed concerns over whether this project would affect private property rights. Although the alternatives for expanding the ACEC boundary would include private land, there would be no BLM jurisdiction on those lands nor any management imposed on private land owners. BLM and private property owners' jurisdiction would not change due to an ACEC boundary expansion regardless of land ownership. Also, acquisition of key land parcels for connectivity would only be pursued with willing sellers. It is also important to note that funding for acquisition of properties from willing sellers is not presently available. Funding will be sought on a case-by-case basis as opportunities occur to acquire property that would be suitable for wetland restoration or that would be suitable for establishing connectivity between existing wetlands.
3. The original proposal that was scoped included grazing decisions. Although some public comments were received on grazing, decisions pertaining to grazing land use allocations have been eliminated from this Environmental Assessment, so those comments are not addressed.
4. Finally, should the ACEC be enlarged, there would be no expansion of use of BLM's existing water rights. If additional water sources are required, they would be acquired from willing sellers. Any changes of water rights or new irrigation would be submitted to the Colorado Division of Water Resources and the Division 3 water court for approval.

CHAPTER 2 - PROPOSED ACTION AND ALTERNATIVES

2.1 INTRODUCTION

The purpose of this chapter is to provide information on the Proposed Action and Alternatives. Alternatives considered but not analyzed in detail are also addressed. While discussed during public scoping, evaluating grazing on Lakes, Dry Lakes and Blanca Allotments has been dropped from the proposed action and EA because the analysis for those grazing decisions will occur on a project-level scale.

The alternatives listed below incorporate the concepts and issues and concerns brought up during scoping, including, connectivity, broadening the ACEC to allow for more flexibility in management on Blanca Wetlands, offering a buffer to the existing Blanca Wetlands, assuring compatibility with proposed actions within BLM's solar and geothermal planning efforts, eliminating the proposed ACEC acreage east of Hwy 150 and Zapata Falls Recreation Site, including an area that emphasizes heritage resources, and offering various alternatives for scale or size.

2.2 ALTERNATIVES ANALYZED IN DETAIL

2.2.1 Proposed Action

Alternative 1: The ACEC is comprised of two areas; Area 1: Blanca to San Luis Lake and Area 2: Mishak Lakes

Under this alternative, Blanca Wetlands ACEC would be enlarged to incorporate two separate areas. The first would include the area east to Hwy. 150, south to the Emperius Tract on the 4S road, west to include historic wetland basins that extend near Hwy 17 (excluding the residential areas near Mosca and Hooper), and north to include San Luis Lakes State Park and The Nature Conservancy's West Medano Tract. The second area would include Mishak Lakes and extend to Baca National Wildlife Refuge to the east and consolidate the BLM lands in Mishak Lakes to the west, north and south (Figure 2). Alternative 1 would enlarge the ACEC to 122,762 acres (19,400 BLM, 17,626 other public lands, and 85,736 acres of private land). A legal description is available in Attachment 1.

Alternative 1 would identify an area beyond the current Blanca Wetlands ACEC boundary for emphasis on wetlands restoration and recreation. The expanded boundary would provide the potential for connectivity of wetlands up to Mishak Lakes by including lands adjacent to other natural resource managed properties, such as Baca National Wildlife Refuge, Great Sand Dunes National Park, and San Luis Lake State Park. This expansion would address the Resource Condition Objective Decision under Wildlife and Fish Habitat Management (1-12) of the SLRA RMP, which states "Provide special management to improve the present acres of wetlands in the Mishak Lakes and Dry Lakes areas to the historical acres of wetlands". Any land acquisition by BLM would occur with willing sellers, at fair market value, if those lands are consistent with the objectives of the ACEC (i.e. wetlands and wetland/wildlife-related recreational opportunities). BLM's management of the ACEC would apply only on lands under BLM ownership. This

project would not give BLM additional authority or jurisdiction on private lands within the proposed ACEC boundary.

BLM Manual 1613.22 states that “management prescriptions must be developed for all potential ACEC’s. At least one prescription for each potential ACEC must be developed which provides special management attention”.

Under this Alternative, the following management prescriptions from the SLRA RMP would be applied across the expanded ACEC:

Resource Condition Objective 4-1:

Provide special management to maintain and improve wetlands for waterfowl production in the area, maintain 1600 acres of wetlands, and enhance an additional 1,175 acres of historical wetlands. Recreation emphasis will be placed on warm water fisheries and watchable wildlife related values.

Land Use Allocation 4-1:

The area is designated as an area of critical environmental concern (ACEC) and a special recreation management area (SRMA). This area will be managed with a strong emphasis on wildlife management and public recreation opportunities. Recreation objectives for the Blanca SRMA will be to enhance opportunities for fishing, viewing wildlife, waterfowl hunting, upland game hunting, and other day-use recreation. Since recreation opportunities are depended on wildlife values, these values will be enhanced and protected.

Although the management prescriptions listed above will apply across the enlarged ACEC under this alternative, the SRMA will not be expanded. In addition, there are several other management prescriptions listed in the SLRA RMP for the ACEC (Table 1) that will not be applied to the expanded area. This variance is based on a need to offer special protection in areas that are already developed for wetlands versus those that are proposed for future development pending available funding and NEPA. If future conditions allow for wetlands to be developed, management prescriptions will be analyzed through NEPA for application across the expanded area at that time.

Management prescriptions from the SLRA RMP Area #4 (Blanca Wetlands) will be applied to the expanded ACEC as follows:

On the existing Blanca ACEC (9,714 acres), management would continue to follow the decisions outlined under Blanca Area #4 in the SLRA RMP (December 1991). Management on BLM lands in the proposed expansion area outside of the existing ACEC would continue to follow the direction that applies to all lands within the San Luis Resource Area as defined under San Luis Area #1 of the SLRA RMP (December 1991) with the exception of the Resource Condition Objective and the Land Use Allocation 4-1 as listed above. Table 1 displays the proposed application of the management prescriptions across the area under this alternative.

Table 1: Management Prescriptions for Alternative 1

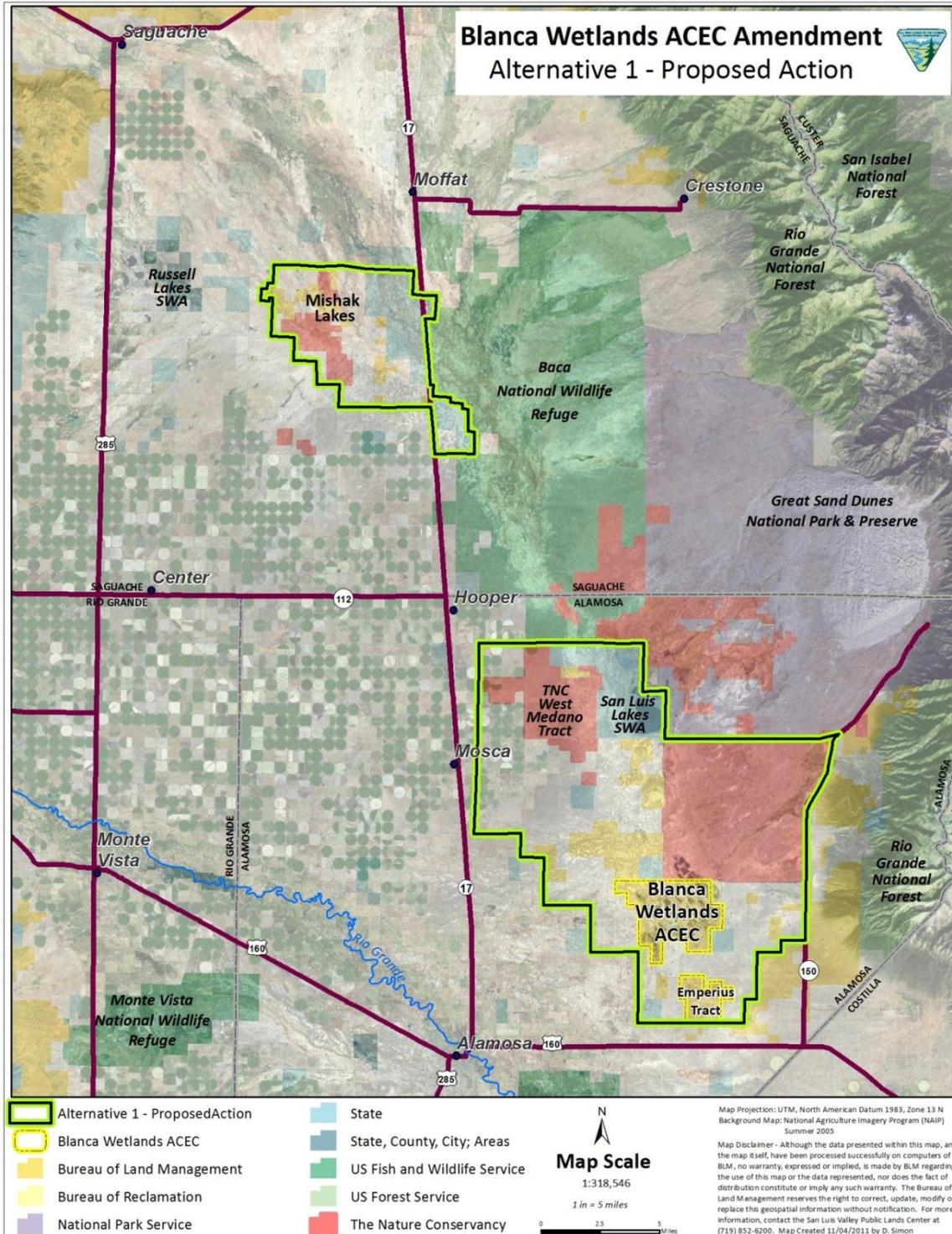
Management Prescriptions (Land Allocation Decisions)	Existing ACEC	Expanded Area	Comment
Locatable mineral entry	5350.87 acres withdrawn in 1975 per PLO 5504.	Open	Locatable mineral entry will be evaluated on a case by case basis that ensures compatibility with the Resource Objectives of this ACEC
Waterfowl seasonal closure from Feb. 15 th -July15 th (SLV RMP 4-4)	Closed to protect nesting waterbirds	Open	As wetlands are developed, this prescription will be reevaluated
Fluid Mineral Entry (other than geothermal)	Open	Open	Fluid mineral entry will be evaluated on a case by case basis that ensures compatibility with the Resource Objectives of this ACEC
Geothermal	Open but being addressed in a concurrent NEPA document	Open but being addressed in a concurrent NEPA document	
Land Disposal Categories	No change	Category 1 lands will become Category 2 lands*	Lands within the ACEC will only be available for disposal per SLRA RMP Lands and Realty Management Land use Allocation Decision 1-12.
Special Recreation Management Area (SRMA)	Yes	No	The SRMA will not be expanded with the ACEC boundary

*Please refer to [Section 3.5.2](#) of this document for definitions of Category 1 and 2 lands.

Any changes to these management prescriptions based on changes in wetland conditions will be addressed in future NEPA either through a SLRA RMP amendment or at the time of SLRA RMP revision. Any future implementation actions (e.g., wetland projects) would also require additional NEPA and will be evaluated through site-specific NEPA at the time the project is proposed.

A concurrent NEPA document addressing geothermal development on BLM lands in the SLV Resource Area is underway. If BLM were to decide to expand the ACEC boundary, any closure made as part of the Decision Record for the Geothermal Leasing EA would apply to the current ACEC, and would apply within the expanded Blanca Wetlands ACEC on all BLM land or BLM managed mineral estate.

Figure 2: Alternative 1- Proposed Action



2.2.2 Other Action Alternatives

Alternative 2: Blanca to San Luis Lake

This alternative would follow the same provisions as alternative 1 but would be reduced in size with the removal of the Mishak lakes area. Blanca Wetlands ACEC would be enlarged to include the area east to Hwy. 150, south to the Emperius Tract, west to include playa basins that extend near Hwy 17 (excluding the residential areas and center pivots near Mosca and Hooper), and north to include San Luis Lakes State Park and The Nature Conservancy's West Medano Tract. The total acres of the ACEC under this alternative would be 99,062 acres (16,656 BLM, 10,296 other public land, and 72,110 private). A legal description is available in Attachment 1. Mishak Lakes would not be included in the ACEC.

Alternative 2 would identify an area beyond the current Blanca Wetlands ACEC boundary for emphasis on wetlands restoration and recreation. The expanded boundary would provide the potential for connectivity of wetlands up San Luis Lakes. Any land acquisition by BLM would occur with willing sellers, at fair market value, if those lands are consistent with the objectives of the ACEC (i.e. wetlands and wetland/wildlife-related recreational opportunities). BLM's management of the ACEC would apply only on lands under BLM ownership. This project would not give BLM additional authority or jurisdiction on private lands within the proposed ACEC boundary.

BLM Manual 1613.22 states that "management prescriptions must be developed for all potential ACEC's. At least one prescription for each potential ACEC must be developed which provides special management attention".

Under this Alternative, the following management prescriptions from the SLRA RMP would be applied across the expanded ACEC:

Resource Condition Objective 4-1:

Provide special management to maintain and improve wetlands for waterfowl production in the area, maintain 1600 acres of wetlands, and enhance an additional 1,175 acres of historical wetlands. Recreation emphasis will be placed on warm water fisheries and watchable wildlife related values.

Land Use Allocation 4-1:

The area is designated as an area of critical environmental concern (ACEC) and a special recreation management area (SRMA). This area will be managed with a strong emphasis on wildlife management and public recreation opportunities. Recreation objectives for the Blanca SRMA will be to enhance opportunities for fishing, viewing wildlife, waterfowl hunting, upland game hunting, and other day-use recreation. Since recreation opportunities are depended on wildlife values, these values will be enhanced and protected.

Although the management prescriptions listed above will apply across the enlarged ACEC under this alternative, the SRMA will not be expanded. In addition, there are several other management prescriptions listed in the SLRA RMP for the ACEC (Table 1) that will not be applied to the expanded area. This variance is based on a need to offer special protection in

areas that are already developed for wetlands versus those that are proposed for future development pending available funding and NEPA. If future conditions allow for wetlands to be developed, management prescriptions will be analyzed through NEPA for application across the expanded area at that time.

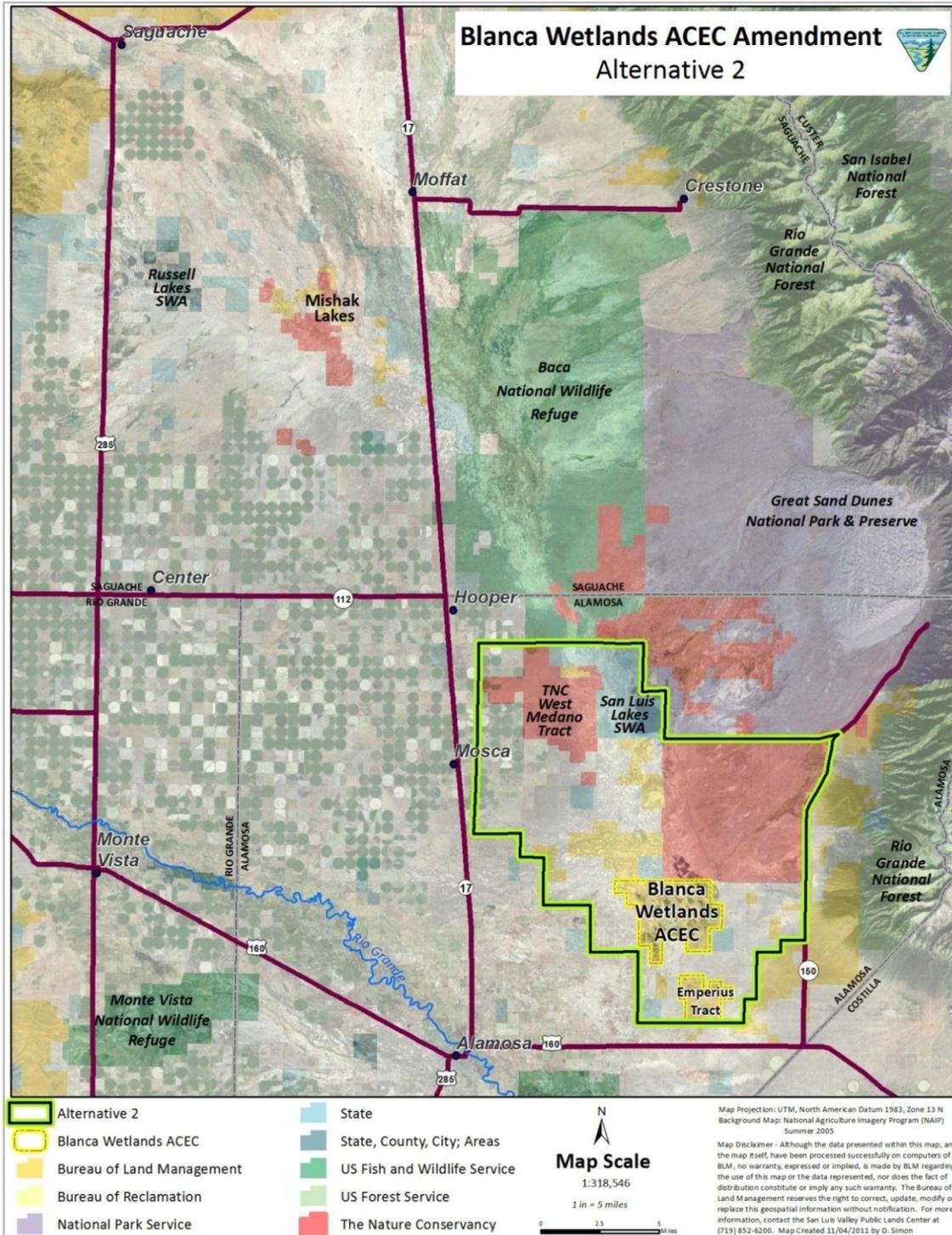
Management prescriptions from the SLRA RMP Area #4 (Blanca Wetlands) will be applied to the expanded ACEC as follows:

On the existing Blanca ACEC (9,714 acres), management would continue to follow the decisions outlined under Blanca Area #4 in the SLRA RMP (December 1991). Management on BLM lands in the proposed expansion area outside of the existing ACEC would continue to follow the direction that applies to all lands within the San Luis Resource Area as defined under San Luis Area #1 of the SLRA RMP (December 1991) with the exception of the Resource Condition Objective and the Land Use Allocation 4-1 as listed above. Table 1 displays the proposed application of the management prescriptions across the area under this alternative.

Any changes to these management prescriptions based on changes in wetland conditions will be addressed in future NEPA either through a SLRA RMP amendment or at the time of SLRA RMP revision. Any future implementation actions (e.g., wetland projects) would also require additional NEPA and will be evaluated through site-specific NEPA at the time the project is proposed.

A concurrent NEPA document addressing geothermal development on BLM lands in the SLV Resource Area is underway. If BLM were to decide to expand the ACEC boundary, any closure made as part of the Decision Record for the Geothermal Leasing EA would apply to the current ACEC, and would apply within the expanded Blanca Wetlands ACEC on all BLM land or BLM managed mineral estate.

Figure 3: Alternative 2 - Blanca to San Luis Lake and TNC's West Medano Tract

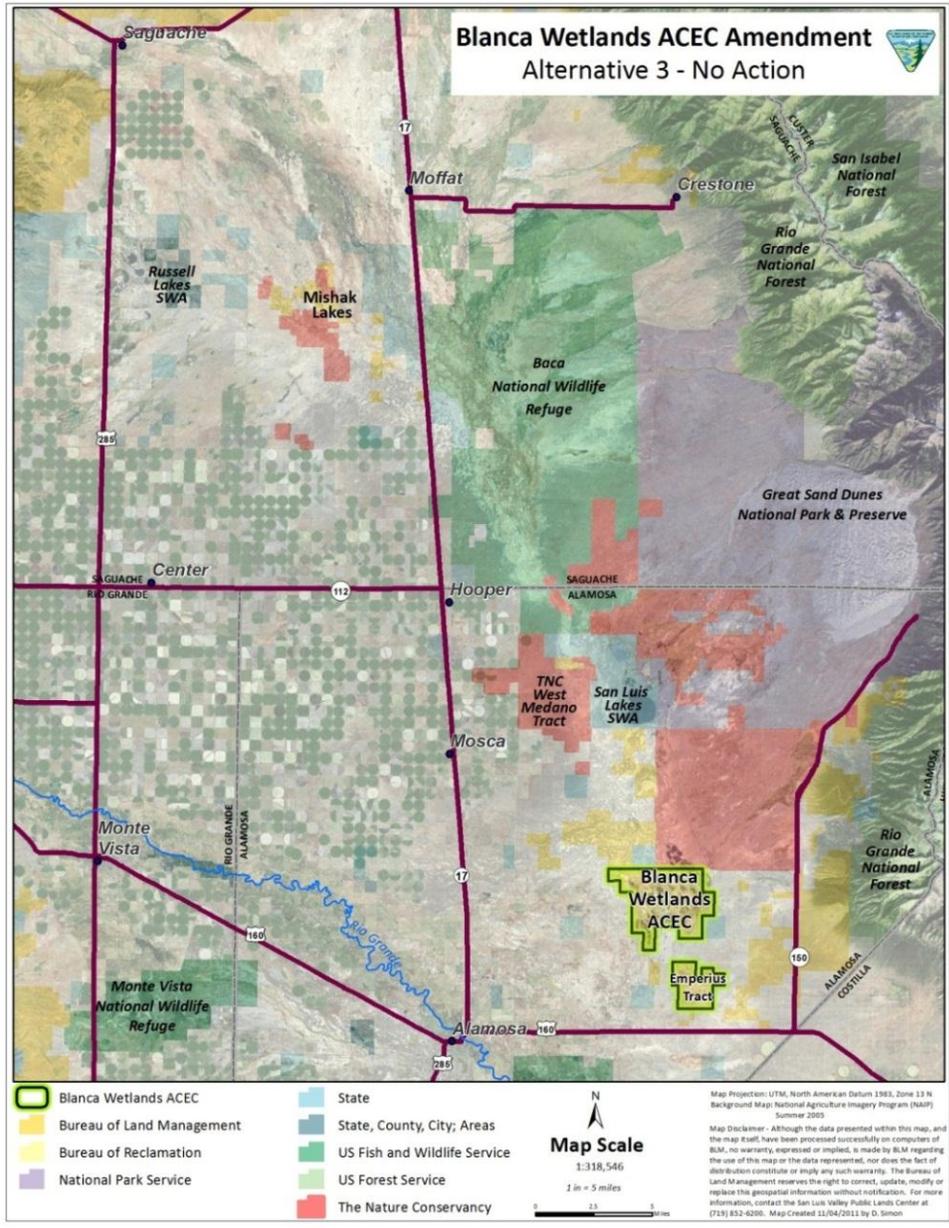


2.2.3 No Action

Alternative 3: No Action – No Change in the existing ACEC boundary

Under this alternative, there would be no change in the existing boundary of the Blanca Wetlands ACEC. The area would remain at 9,147 acres. There would be little opportunity for connectivity of wetlands and wetland restoration by BLM outside the existing ACEC (Figure 4).

Figure 4: Alternative 3 - No Action / No Change in the Current ACEC Boundary



2.3 ALTERNATIVES CONSIDERED BUT NOT ANALYZED IN DETAIL

Alternatives Considered but Dropped from further analysis.

1. An alternative that includes the area east of Hwy 150 was considered but dropped because wetland restoration opportunities on the east side of Hwy 150 are not as feasible considering slope, land use, and ability to get water to the site if the area were to be targeted for emphasis on wetland restoration. Dropping this alternative also eliminated the concern between recreation and wildlife priorities.
2. An alternative that includes the area from Mishak Lakes to Russell Lakes west to Hwy 285. This was dropped because the opportunity for having sufficient water in the future to connect or restore wetlands in the area is remote. Also, many public comments recommended dropping this area.
3. An alternative that includes the residential area over to Hwy 17, including the towns of Mosca and Hooper. This was dropped due to public concerns over including residential communities (towns) as well as the limited ability to do restoration work in those areas.
4. An alternative was considered that would enlarge the boundary to only include public lands. This alternative was dropped because it wouldn't provide for connectivity of the wetlands and because there would not be an opportunity to work with willing sellers to purchase relevant parcels.

CHAPTER 3 - AFFECTED ENVIRONMENT AND EFFECTS

3.1 INTRODUCTION

This section provides a description of the human and natural environmental resources that could be affected by the Proposed Action. This section also presents comparative analyses of the direct and indirect effects on the affected environment stemming from the allocation of this area as an ACEC under the Proposed Action and other alternatives analyzed. This analysis is intended to evaluate the effects to allocating additional lands as part of the Blanca Wetlands ACEC. This project is not an implementation action, so specific implementation effects are not analyzed.

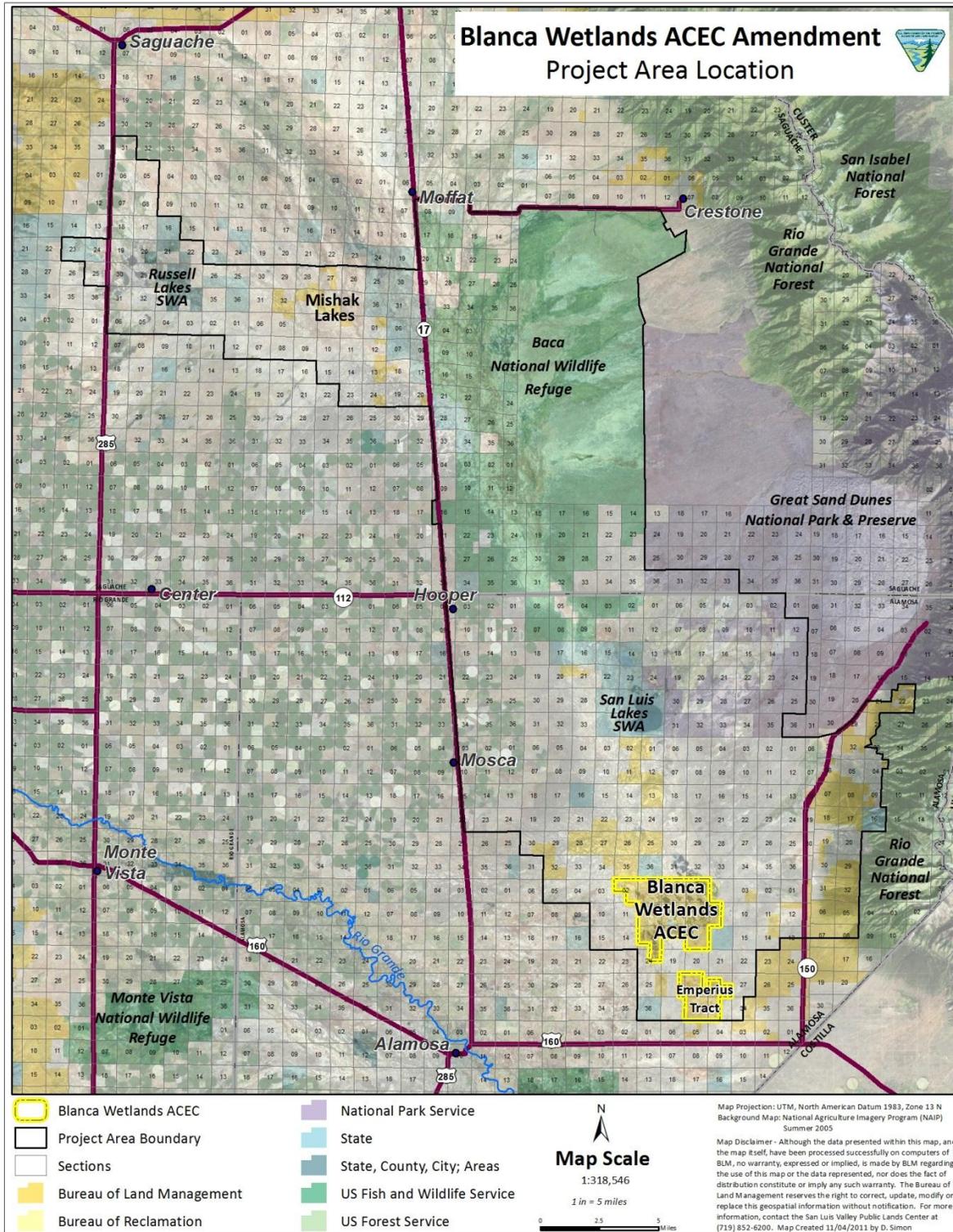
The project area boundary that was used for initial scoping and for analysis of the affected environment was selected to incorporate a broad scope of the hydrologic system, which promotes a landscape approach to management of playa wetlands by addressing hydrologic connectivity of wetland systems. A playa wetland is an area consisting of shallow, generally saline basins with clay dominated soils that have a high water table. These conditions allow the basin to respond to rainfall or snowmelt (Figure 5). The project area boundary includes a large portion of the playa wetland system within the closed basin of the SLV (Figure 6). Due to concerns expressed by the public during scoping, smaller areas were considered for inclusion into the alternatives. However, the revised alternatives still create physical and hydrological connections between playa wetland landscapes.

None of the alternatives include the entire project area boundary.

Figure 5: Playa Wetland Photograph



Figure 6: Project Area Location and Affected Environment Analysis Area



In January 1997, the Colorado State Office of the BLM approved the Standards for Public Land Health and amended all RMPs in the State. Standards describe the conditions needed to sustain public land health and apply to all uses of public lands.

Standard 1: Upland soils exhibit infiltration and permeability rates that are appropriate to soil type, climate, land form, and geologic processes.

Standard 2: Riparian systems associated with both running and standing water function properly and have the ability to recover from major disturbance such as fire, severe grazing, or 100-year floods.

Standard 3: Healthy, productive plant and animal communities of native and other desirable species are maintained at viable population levels commensurate with the species and habitat's potential.

Standard 4: Special status, threatened and endangered species (federal and state), and other plants and animals officially designated by the BLM, and their habitats are maintained or enhanced by sustaining healthy, native plant and animal communities.

Standard 5: The water quality of all water bodies, including ground water where applicable, located on or influenced by BLM lands will achieve or exceed the Water Quality Standards established by the State of Colorado.

Because standards exist for each of these five categories, a finding must be made for each of them in an environmental analysis. These findings are located in Chapter 3 of this document.

3.1.1 INTERDISCIPLINARY TEAM REVIEW

A summary table is provided as a mechanism for resource staff review to identify those resource values with issues or potential impacts from the proposed action and/or alternatives (Table 2: Summary Table on Resource Impacts). Those resources identified in the table as potentially impacted will be brought forward for analysis.

Table 2: Summary Table on Resource Impacts

<u>Resource</u>	<u>Date Reviewed</u>	<u>Initials</u>	<u>Review Comment</u>
<u>Air Quality</u> <i>Negussie Tedela</i>	09/20/2012	NT	No direct impacts are anticipated because there is no physical disturbance with this project, but indirect impacts are possible if wetlands are developed in the foreseeable future.
<u>Geology/Minerals</u> <i>Andrew Archuleta</i>	3/6/2013	AA	Enlarging the ACEC in the action alternatives will reduce available acreage for geothermal development. There will be no direct impacts to other fluid minerals or locatable minerals. Indirect effects/conflicts are possible if wetlands are developed in the foreseeable future.
<u>Soils</u> <i>Negussie Tedela</i>	09/20/12	NT	No direct impacts are anticipated because there is no physical disturbance with this project, but indirect

<u>Resource</u>	<u>Date Reviewed</u>	<u>Initials</u>	<u>Review Comment</u>
			impacts are possible due to the potential of land acquisition and wetland development in the foreseeable future.
<u>Water Quality</u> <i>Surface and Ground</i> <i>Negussie Tedela</i>	09/20/12	NT	Same as above
<u>Invasive Plants</u> <i>Mark Swinney</i>	09/26/12	MAS	Same as above
<u>T&E and Sensitive Species</u> <i>Alyssa Radcliff</i> <i>Eduardo Duran</i>	9/24/2012	END ANR	Because this is a planning action, there are no effects that are likely to occur to TES species. If the ACEC is expanded and potential land acquisition or wetland development occurs, site specific NEPA will determine any effects to species at that time.
<u>Vegetation</u> <i>Mark Swinney</i>	9/24/2012	MAS	No direct impacts are anticipated because there is no physical disturbance with this project, but indirect impacts are possible due to the possibility of land acquisition and wetland development with water manipulation in the foreseeable future.
<u>Wetlands and Riparian</u> <i>Sue Swift-Miller</i>	9/24/2012	SSM	Expanding the boundary will have no direct impact on wetlands or riparian; however, beneficial indirect impacts would occur as this expansion leads to opportunity for future wetland development, connectivity and management flexibility.
<u>Wildlife Aquatic</u> <i>Jill Lucero</i>	9/24/2012	JL	Expanding the boundary will have no direct impact on aquatic wildlife; however indirect and cumulative benefits/opportunities could be realized as connectivity occurs with potential future wetland restoration on the landscape leading to species dispersal.
<u>Wildlife Terrestrial</u> <i>Alyssa Radcliff</i>	9/24/2012	ANR	Expanding the boundary would have no direct impact on terrestrial wildlife; however indirect and cumulative benefits could be realized as landscape level planning and restoration efforts in an expanded ACEC could potentially improve plant vigor and provide water.
<u>Migratory Birds</u> <i>Alyssa Radcliff</i>	9/24/2012	ANR	No direct impacts are anticipated because there is no physical disturbance with this project, but indirect and cumulative impacts are possible due to the possibility of land acquisition and wetland development in the foreseeable future. Most impacts are beneficial.
<u>Cultural Resources</u> <i>Angie Krall</i>	9/24/2012	AK	The proposal to expand the boundary could provide opportunity for land acquisition allowing for cultural resource protection on newly acquired public lands but also opens lands up to potential indirect effects from an increasing risk of vandalism. The project would allow more fluid research, management and protection across land management boundaries.
<u>Native American Religious Concerns</u> <i>Angie Krall</i>	9/24/2012	AK	The proposed expansion could protect land from development and maintain a natural system where ceremonies and rituals could be expanded or revived. However, it could also result in some indirect effects by increasing vandalism as more areas are open to public access.

<u>Resource</u>	<u>Date Reviewed</u>	<u>Initials</u>	<u>Review Comment</u>
<u>Socioeconomics</u> <i>David Epstein</i> <i>Colorado State Office</i> <i>Economist</i>	9/24/2012	DE	See Affected Environment
<u>Paleontology</u> <i>Angie Krall</i>	9/24/2012	AK	The proposal to expand the boundary could provide opportunity for land acquisition allowing for resource protection on newly acquired public lands but also opens lands up to potential indirect effects from an increasing risk of vandalism. The proposed project would provide more fluid research, management and protection across ownership boundaries.
<u>Visual Resources</u> <i>Sean Noonan</i>	9/24/2012	STN	Expanding the boundary will not alter the visual resource.
<u>Environmental Justice</u> <i>Martin Weimer,</i>	8/23/12	MW	Being a planning level action the proposed action and its alternatives will have no direct effect on minority or low-income populations. Indirect effects could result from implementation decisions in the future that were a result of this decision. Those actions would be analyzed at the time of their proposal and evaluated for their effects.
<u>Wastes Hazardous or Solid</u> <i>Leon Montoya</i>	9/10/2012	LAM	The BLM pre-acquisition process requires an Environmental Site Assessment to determine if hazardous wastes are present on the parcels proposed for acquisition. This will be done on a case by case basis as parcels are proposed for acquisition under LWCF or by donation.
<u>Recreation</u> <i>Sean Noonan</i>	9/10/2012	STN	The Blanca Wetlands SRMA and ACEC are separate and distinct land use planning allocations. Changing the ACEC boundary has no impact on the recreational values of the ACEC and no impact to the SRMA. The existing SRMA will remain at the current boundary if the ACEC is expanded.
<u>Farmlands Prime and Unique</u> <i>Eduardo Duran</i>	9/24/2012	END	No prime and unique farmlands are present within the Expansion project boundary.
<u>Lands and Realty</u> <i>Leon Montoya</i>	9/24/12	LM	The project area contains lands that were originally identified for disposal in the RMP. Potential expansion of the ACEC will require changing the status of lands from Category 1 to Category 2.
<u>Wilderness, WSAs, ACECs, Wild & Scenic Rivers</u> <i>Sean Noonan</i>	9/26/2012	STN	Wilderness, WSAs, and Wild and Scenic Rivers are not present within the current ACEC. Potentially expanding the ACEC would lead to negligible recreation impacts.
<u>Wilderness Characteristics</u> <i>Sean Noonan</i>	9/26/2012	STN	Per the wilderness characteristics inventory, there are no areas with these wilderness attributes in the project boundary.
<u>Range Management</u> <i>Mark Swinney</i>	9/24/2012	MAS	Potential indirect impacts to range management are possible. If wetlands should be restored on the allotments, goals for wildlife will potentially conflict with grazing under the current permit terms and conditions resulting in changes to the terms and conditions of the permit.

<u>Resource</u>	<u>Date Reviewed</u>	<u>Initials</u>	<u>Review Comment</u>
<u>Forest Management</u> <i>Jill Lucero</i>	9/24/2012	JL	This resource is not found within the boundary of the proposed ACEC expansion alternatives or within the existing ACEC; therefore, there will be no impact to this resource under any of the alternatives.
<u>Cadastral Survey</u> <i>Joe Velasquez, Leon Montoya, Sean Hines</i>	9/14/2012	LM	As parcels are acquired a survey will be done on a case by case basis to establish the boundary if needed. There is no impact to existing monuments by this action.
<u>Noise</u> <i>Martin Weimer, Project Lead, SO</i>	8/23/12	mw	This planning level action will not result in any impacts due to noise or result in any increased noise levels.
<u>Fire</u> <i>Paul Minow</i>	9/25/12	psm	Natural or management ignited fires are not affected by the expansion of the ACEC.
<u>Law Enforcement</u> <i>Brian Garcia</i>	9/27/12	BG	If the ACEC is expanded and parcels are acquired and/or held in private ownership as part of the ACEC. A full assessment and evaluation will have to be conducted to determine authority and jurisdiction for the affected land parcels. It may be possible to enter an MOU with State and Private landowners to address & fulfill law enforcement needs.

The affected resources brought forward for analysis include:

Air quality, soils, geologic and mineral resources, water quality, invasive plants, TES, vegetation, wetlands and riparian, aquatic species, terrestrial species, migratory birds, cultural resources, Native American religious concerns, paleontological resources, socio-economics, range management, and lands and realty.

3.2 PHYSICAL RESOURCES

3.2.1 AIR QUALITY

Affected Environment

Air Quality

Air quality and status of atmospheric condition are protected under the Federal Clean Air Act (CAA) of 1970 amended in 1990 and Federal Land Policy and Management Act (FLPMA) of 1976. Federal and State laws established all air quality protection requirements to protect human health by establishing acceptable airborne concentration levels. The United State Environmental Protection Agency (EPA) Office of Air Quality has set National Ambient Air Quality Standards (NAAQS) for six principal or criteria pollutants, including carbon monoxide (CO), ozone (O₃), nitrogen dioxide (NO₂), particulate matter (PM) or dust, lead (Pb), and sulfur dioxide (SO₂).

The air quality of the project area is considered to be typical of undeveloped regions in the western United States and has been designated as Prevention of Significant Deterioration (PSD) Class II (USDI-BLM, 1989). The Colorado Department of Public Health and Environment (CDPHE) reports emissions for several criteria and non-criteria pollutants for five counties within and around the analysis area (Table 3).

Table 3: The 2008 Annual Air Pollutant (tons/year) Emissions Inventory for the San Luis Valley Counties

County	Carbon Monoxide (CO)	Nitrogen Oxide (NO ₂)	Sulfur Dioxide (SO ₂)	Particulate Matter (PM ₁₀)	Volatile Organic (VOC)	Benzene
Alamosa	5,629.8	900.7	51.0	1,863.1	6,419.9	16.2
Conejos	5,771.3	629.0	17.1	1,709.2	10,091.7	20.3
Costilla	5,572.0	504.8	13.7	1,260.3	13,317.9	18.1
Rio Grande	7,497.0	888.8	17.8	1,872.7	8,534.1	28.3
Saguache	8,277.5	8,273.3	25.1	2,513.7	16,947.7	24.9

(Source: Colorado Department of Public Health, 2011)

Emissions of these pollutants originating from the planning area are usually near or below the measurable limits. However, Particulate Matter (PM₁₀) around the project site is expected to be higher because of unpaved roads and wind blowout of dust particles. The CDPHE Air Pollution Control Division assesses the maximum 24-hour average of particulate matter (PM₁₀) levels at Alamosa center. The center is located in close proximity to the project site. The data show that the PM₁₀ level is well above the National Ambient Air Quality Standard (NAAQS) for PM₁₀ (24-hour average) of 150µg/m³ for some years in the recording period. For example, historical maximum of PM₁₀ levels recorded at the Alamosa Adam State College center were 412, 424, and 473µg/m³ for the years of 1991, 2006, and 2007, respectively. According to the 2009 Colorado state ranking based on PM₁₀ level monitoring by 24-Hr maximum concentration, the Alamosa center has the third highest PM₁₀ concentration level from the 39 monitoring stations located throughout the state of Colorado (CDPHE, 2010). In addition, seasonally high wind blown dust (PM₁₀) results in significant visibility impairment both within and around the analysis area.

Environmental Effects

Alternative 1: Proposed Action (the ACEC is comprised of 2 areas, Blanca to San Luis Lake and Mishak Lakes)

Direct and Indirect Impacts:

This alternative would expand the ACEC boundary from Blanca to San Luis Lakes and includes Mishak Lakes area, increasing the current area to 122,762 acres (Figure 2). The proposed expansion of Blanca Wetlands ACEC boundary would have no direct impact on air quality. However, if future activities at the wetland development stage occur, impacts to air quality are possible. The magnitude and location of direct and indirect effects cannot be predicted until the site-specific wetland development projects are proposed in the future. Potential impacts to air quality and

climate change associated with any future wetland development activities would be assessed for each location during specific project proposals.

However, general indirect effects to air quality at the future wetland development stage can be predicted and are likely to include:

- Impacts associated with air pollution (fugitive dust) generated by land based equipment during clearing, leveling, excavating, placement of water control structures, and ditching activities to divert water to the project sites.
- Increased salinity from wetting and drying cycles affecting air quality. The wind blowout, especially in the spring, would disperse salt accumulated on the surface to surrounding areas creating minor adverse impact on air quality around future project sites.
- Construction equipment producing elemental and organic carbon via fuel combustion combined with surface disturbing activities that leave soils exposed to wind erosion. This equipment work will both increase creation of particulate matter (PM10) during construction phase of future wetland restoration projects in addition to the already existing higher level of PM10 around the analysis area.

However, Best Management Practices (BMPs) will be used to control dust and maintain air quality. Impacts to air quality are expected to be short-term and result in temporary increases in fugitive dust only during construction phase of future wetland development projects. Over the long run, wetland development will reduce fugitive dust and hence improve air quality.

Also, impacts from construction equipment will be short term, and adverse effects would be small in the overall regional context and temporary in nature. Following implementation of mitigation measures, criteria pollutant levels are expected to return to near pre-construction levels.

Protective/Mitigation Measures:

Protective/mitigation measures are not required at this phase of analysis. Specific protective/mitigation measures would be discussed in the future should a particular wetland expansion or development project be proposed.

Alternative 2: Blanca to San Luis Lake Alternative

Direct and Indirect Impacts:

This alternative would expand the ACEC boundary from Blanca to San Luis Lakes increasing the current boundary to 99,062 acres. The impacts discussed under the proposed action alternative would be the same for this alternative. However, the extent of the impact would be reduced due the smaller size of the proposed ACEC boundary for this alternative compared to the proposed action alternative.

Protective/Mitigation Measures:

Protective/mitigation measures are not required at this phase of analysis. Specific protective/mitigation measures would be discussed in the future should a particular wetland expansion or development project be proposed.

Alternative 3: No Action – No Change in the existing ACEC boundary

Direct and Indirect Impacts:

The current Blanca Wetlands ACEC boundary area would remain at 9,714 acres under this alternative. Under the No Action Alternative, no additional fugitive dust would be generated. Dust will continue to move around the site due to wind blowout at the current levels. No measurable air quality impacts are anticipated.

Protective/Mitigation Measures:

Protective/mitigation measures are not required.

3.2.2 CLIMATE CHANGE

Colorado's climate is characterized by the high elevations and complex topography of the Colorado Mountains, plateaus, and valleys. The climate of Colorado varies spatially and temporally. As a result, its temperature and precipitation histories differ across the state (Ray et al. 2008). Climate in the analysis area is somewhat semiarid and characterized by cold winters, mild summers, and low precipitation (Table 4 and Table 5). Due to strong sunshine and high wind velocity, the rate of evaporation is high in the lower elevation of the SLV.

Meteorological data, with long-term precipitation and temperature recording stations, are available at a number of sites within the SLV. The Alamosa and Saguache meteorological stations are selected as representative sites for the analysis area (Table 4 and Table 5). According to these meteorological sites, monthly average for annual maximum and minimum temperature in the SLV varies from 23.7 °F to 59.3 °F, while annual mean monthly averages temperature at the two sites are 41.5 and 42.8 (Table 4). One day maximum temperature of 99 °F recorded at the Saguache station on July 31, 2002, while minimum temperature of -42 °F was recorded at the Alamosa station on Dec. 14, 1964. Most of the annual precipitation, in the form of rainfall, occurs during the months of June through August.

Table 4: Summary of historical temperature data for two representative stations in the San Luis Valley

<i>Station Name and recording periods</i>	<i>Seasons</i>	<i>Monthly Averages (°F)</i>			<i>Daily Extremes (°F)</i>			
		<i>Max.</i>	<i>Min.</i>	<i>Mean</i>	<i>High</i>	<i>Date</i>	<i>Low</i>	<i>Date</i>
Alamosa, WSO AP (050130)	Annual	59.3	23.7	41.5	96	July 05, 1989	-42	Dec. 14, 1964
	Winter	37.0	1.4	19.2	66	Feb. 25, 1986	-42	Dec. 14, 1964
	Spring	58.9	24.4	41.6	90	May 31, 2002	-20	March 04, 1964

1948 to 2010	Summer	80.1	44.7	62.4	96	July 05, 1989	24	June 02, 1990
	Fall	61.2	24.2	42.7	87	Sept. 03, 1960	-30	Nov. 27, 1952
Saguache (057337) 1894 to 2009	Annual	59.3	26.4	42.8	99	July 31, 2002	-34	Jan. 07, 1971
	Winter	37.8	6.8	22.3	88	Jan 29, 1915	-34	Jan. 07, 1971
	Spring	58.9	26.0	42.4	92	May 30, 1910	-12	March 06, 1939
	Summer	78.9	45.1	62.0	99	July 31, 2002	19	August, 02, 1915
	Fall	61.4	27.6	44.5	97	Oct. 30, 1912	-27	Nov. 25, 1931

(Source: High Range Regional Climate Center: <http://www.hprcc.unl.edu/data/historical>)

Ray et al. (2008) show the temperature changes for the 30-, 50-, and 75-year periods (ending in 2006) in various regions of Colorado based on linear trend analysis. For the most recent 30-year period (1977-2006) the trend indicates that the SLV shows a temperature increase of 2.4 °F. For the 50-year period (1957-2006), the trend also indicates a temperature increase of 1.9 °F. Insufficient data were available to calculate 75-year trends for the SLV and the Southern Front Range divisions. A study conducted on several stations by Van Vliet et al. (2011) showed effect of an increase in air temperature on stream temperature. In this study, daily maximum water temperatures were higher under an air temperature increase of 4 °C (9.2 °F) combined with a 40% discharge decrease compared to an air temperature increase of 6 °C (10.8 °F) without discharge changes. An increase in stream temperature would affect aquatic habitat.

Precipitation on the SLV floor comes in the form of scattered summer afternoon rain showers. Most of the annual precipitation, in the form of rainfall, occurs during the months of June through September. The mean annual precipitation at the Alamosa and Saguache station is 7.12 and 8.27 inches, respectively, although wide fluctuations from year to year are common. Record high annual precipitation of 16.22 inches was recorded in 1957 at Saguache station, while the lowest annual precipitation of 3.4 inches was recorded in 1956 at the Alamosa station. One day maximum precipitation of 2.4 inches recorded at the Saguache station on October 21, 1906 (Table 5). The mean annual snowfall at the Alamosa and Saguache station was 31.7 inches and 23.5 inches, respectively. Record high annual snowfall of 69.1 inches was recorded in 1973 at Alamosa station. Most of the streams originate from snowmelt in the San Juan and Sangre de Cristo mountains.

The impact of climate change on runoff, precipitation, and temperature in the Rio Grande basin has not been extensively studied. However, several models are available that offer projections for this area: 1. A multi-model study shows that simulated runoff projects a decrease of 5 to 10 percent in the Rio Grande Basin (Ray et al. 2008); and 2. A temperature and precipitation projection model shows temperatures rising in the San Luis Valley by as much as 5 degrees F by 2050 and 8 degrees F by 2080 as well as declines in precipitation of about 2% by 2050 and as much as 10% in 2080 (The Nature Conservancy, 2007).

Table 5: Summary of Historical Precipitation and Snowfall Data for Two Representative Stations in the San Luis Valley

Station Name and recording period	Seasons	Precipitation (inches)							Total snowfall (inches)		
		Mean	High	Year	Low	Year	One day Max.	Date	Mean	High	Year
(050130) Alamosa, WSO AP, (1948 to 2010)	Annual	7.12	11.55	1969	3.4	1956	1.77	Sept. 30, 1959	31.7	69.1	1973
	Winter	0.87	2.17	1965	0.08	1999	0.91	Dec. 03, 1964	13.7	38.2	1965
	Spring	1.59	3.68	1973	0.19	1972	1.22	April 20, 1952	11.2	48.3	1973
	Summer	2.81	6.04	2001	0.75	1980	1.56	July 18, 1971	0.0	1.2	1950
	Fall	1.85	4.16	1972	0.23	1955	1.77	Sept. 30, 1959	6.7	34.1	1972
(057337) Saguache, (1894 to 2009)	Annual	8.27	16.22	1957	3.76	1905	2.40	Oct. 21, 1906	23.5	58.5	2001
	Winter	0.82	3.4	1918	0.05	1904	1.00	Feb. 26, 1918	11.3	39.0	1979
	Spring	1.74	4.86	1914	0	1899	1.37	May 07, 1976	7.8	31.2	1938
	Summer	3.75	8.01	1969	1.27	2002	1.80	June 15, 1914	0.0	1.0	1917
	Fall	1.97	4.61	1997	0.43	1900	2.40	Oct. 21, 1906	4.4	22.2	1961

(Source: High Range Regional Climate Center: <http://www.hprcc.unl.edu/data/historical>)

Aside from drier and hotter predictions, there is also the potential that runoff will occur at different times and over a shorter period as increased dust from southwestern states settles on the snow in the mountains of the San Luis Valley in the spring. The dust particulates are projected to absorb heat from the sun and expedite the snow melting process and result in earlier and faster runoffs. This would ultimately affect how much water can be held and lead to synchronized growth and flowering of plants across the landscape (Stelzer et al. 2009).

Environmental Effects

Alternatives 1 and 2:

Direct and Indirect Impacts:

These alternatives would expand the ACEC boundary to incorporate more of the historic wetland basins and connect those basins to other agencies also targeting wetland restoration. The proposed expansion of Blanca Wetlands ACEC boundary would have no direct impact on climate change nor contribute toward rising temperatures, lowering precipitation, nor any of the other effects from climate change.

However, managing on a landscape basis will likely improve BLM's ability to be responsive and adaptive to changing environmental conditions from climate change by increasing management flexibility. Greater connectivity provides the opportunity for species to access important habitats that may be limiting, or higher quality habitats, as well as providing greater protection from stranding through isolation of ephemeral habitats. Added connectivity and flexibility will aid BLM in being more resilient and resistant to the effects from rising temperatures, decreased precipitation and changed patterns of run-off, including quantities and timing. Some examples are: 1. If reduced water is available, BLM could work with adjacent wetland partners and pool efforts on instrumental areas for species production and migration; 2. BLM could run wells and call for canal water during critical times for species migration; thereby mitigating effects from early run-off or decreased rains; 3. Because of added flexibility for wetting, drying, and connectivity, BLM could dry portions of the wetlands and wet areas that connect to partners lands to create fewer larger wetlands rather than a number of small isolated tracts.

Overall, it is likely either of the action alternatives would result in positive effects by increasing BLM's ability to be responsive to climate change. Alternative 1 would provide increased flexibility and adaptability to climate change over alternative 2 because of opportunities to manage the ACEC on a larger scale with increased connectivity.

Protective/Mitigation Measures:

Protective/mitigation measures are not required at this stage of analysis. Specific protective/mitigation measures would be discussed in the future should a particular wetland expansion or development project proposed in the future.

Alternative 3: No Action – No Change in the existing ACEC boundary

Direct and Indirect Impacts:

The current Blanca Wetlands ACEC boundary area would remain at 9,714 acres under this alternative. Under the No Action Alternative, no measurable climate change impacts are anticipated.

Protective/Mitigation Measures:

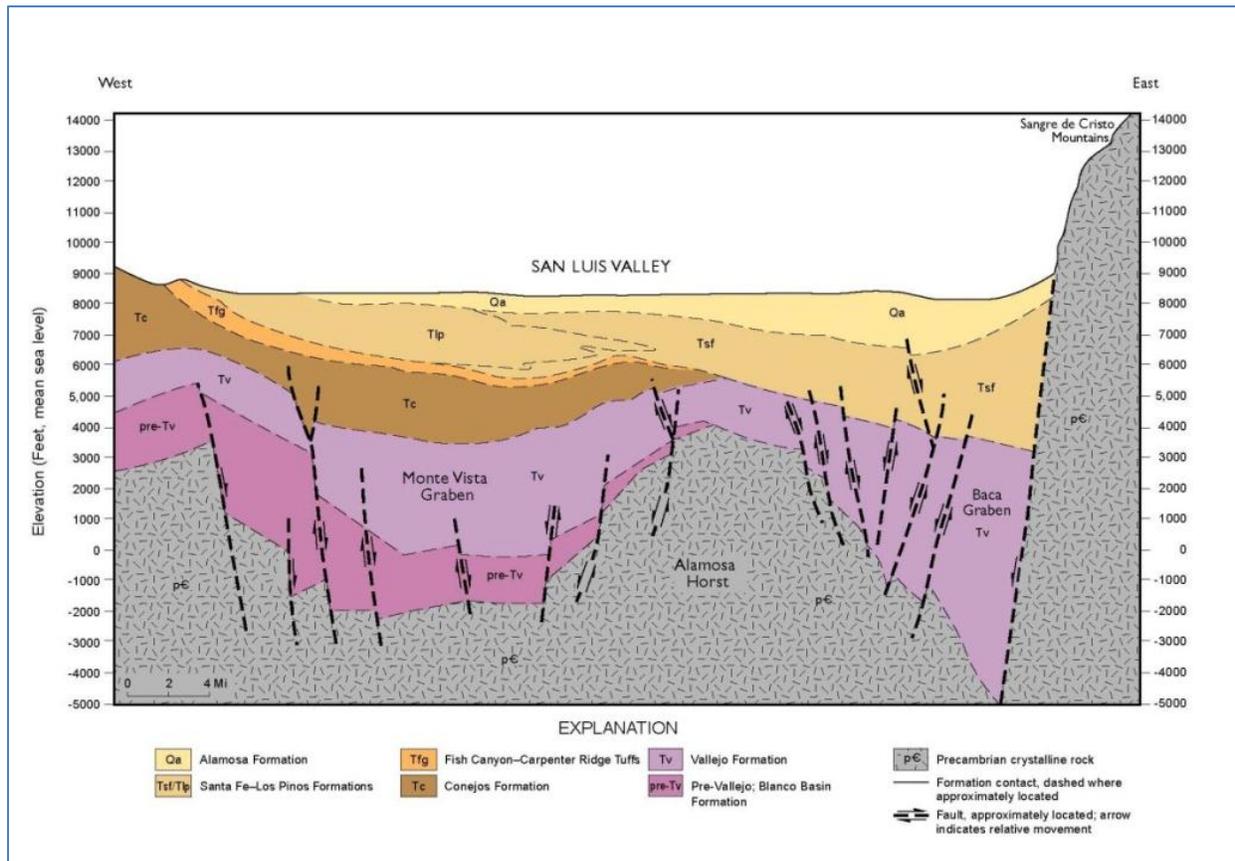
Protective/mitigation measures are not required.

3.2.3 GEOLOGIC AND MINERAL RESOURCES

Affected Environment

The Blanca Wetlands ACEC Expansion is located in the northern part of the SLV, in the Alamosa basin, on the edge of the western flank of the Sangre De Cristo Mountain Range. Blanca Wetlands sits in the lowest point within the basin, atop the Baca graben and is characterized by both Eolian deposits typical of the nearby dune fields and by playa lakes formed by both the lake deposits of the Alamosa Formation and the interbedded sand and clay layers of the Santa Fe Formation (Figure 7).

Figure 7: Generalized geologic cross section in the central part of the San Luis Valley. Modified from HRS Water Consultants, 1987.



There are no known occurrences of locatable minerals within the current Blanca Wetlands ACEC boundary and the potential for locatable minerals within the newly proposed boundaries is relatively low as the West Blanca Mining District is located approximately 6 miles to the northeast of the southern portion of the ACEC boundary. The Crystal Hill Mining District is approximately 14 miles to the west of the northwestern most boundary of the Mishak Lakes area. There is no known potential for locatable minerals within this area.

Additionally, the Blanca Wetlands ACEC lies along the Rio Grande Rift, a north-trending tectonic structure extending from south-central Colorado to northern Mexico (Burroughs 1974, 1981; Emery 1979). The Rio Grande Rift has been recognized as having geothermal potential due to the presence of Quaternary faulting along the western flank of the Sangre De Cristo mountain range. This potential is evident in well water temperatures that are present at hot springs near the area, such as Valley View, Joyful Journeys, and the Sand Dunes Swimming Pool. However, due to minimal exploration and the deep nature of the geothermal resources in the Alamosa Basin, there is insufficient data to quantify the location and quality of geothermal resources within the basin.

Finally, considerable mixed mineral ownership and split-estate are present within the proposed ACEC boundary expansion (Table 6, Table 7, and Table 8). Split-estate occurs when there are different ownerships of the surface and subsurface resources.

Table 6- Alternative 1 Subsurface Mineral Ownership

Sub-Surface Mineral Rights - Alternative 1		
Sub-Surface Rights	Surface Owner	Acres
All Minerals	Bureau of Land Management	17,192
All Minerals	Bureau of Reclamation	241
All Minerals	Private	8,321
All Minerals	State	41
No Minerals	Bureau of Land Management	175
No Minerals	Private	77,414
No Minerals	State	17,344
Other Minerals	Bureau of Land Management	2,033

Table 7: Alternative 2 Subsurface Mineral Ownership

Sub-Surface Mineral Rights - Alternative 2		
Sub-Surface Rights	Surface Owner	Acres
All Minerals	Bureau of Land Management	14,541
All Minerals	Bureau of Reclamation	241
All Minerals	Private	7,879
All Minerals	State	41
No Minerals	Bureau of Land Management	82
No Minerals	Private	64,231
No Minerals	State	10,014
Other Minerals	Bureau of Land Management	2,033

Table 8: Alternative 3 Subsurface Mineral Ownership

Sub-Surface Mineral Rights - Alternative 3		
Sub-Surface Rights	Surface Owner	Acres
All Minerals	Bureau of Land Management	6,362
All Minerals	State	40
Other Minerals	Bureau of Land Management	2,033

Environmental Effects

Alternative 1: Proposed Action (the ACEC is comprised of 2 areas, Blanca to San Luis Lake and Mishak Lakes)

Direct and Indirect Impacts:

Alternative 1 will increase the boundary of the Blanca Wetlands ACEC from 9,714 acres to 122,762 acres. As described in the proposed action, this Alternative would not change management of the existing Blanca ACEC (9,714 acres). Management would continue to follow the decisions outlined under Blanca Area #4 in the SLRA RMP (December 1991). Management on BLM lands in the proposed expansion area outside of the existing ACEC would continue to follow the direction that applies to all lands within the San Luis Resource Area as defined under San Luis Area #1 of the SLRA RMP (December 1991). Additionally, Resource Condition Objective 4-1 and Land Use Allocation 4-1 (pg. 20, SLRA RMP, December 1991) would be applied to all BLM lands within the expanded area. Future implementation actions (e.g., wetland projects) would require additional NEPA and will be evaluated on a case-by-case basis for their compatibility with ACEC objectives.

However, if BLM were to decide to expand the ACEC boundary, any closure made as part of the SLV Geothermal Leasing EA would apply to the expanded Blanca ACEC resulting in a reduction to the amount of acreage available for geothermal development. In total, Alternative 1 would close approximately 25,000 acres of federally-managed mineral estate from geothermal leasing, exploration, and development: 17,433 acres beneath BLM and Bureau of Reclamation-managed lands, and 8,321 acres of split-estate mineral estate.

There currently are no proposals for geothermal leasing within the project area. Any future acquisitions within the ACEC boundary would be subject to the pending Decision Record for the Geothermal Leasing EA. Private property interests, including privately-held mineral estate, are not affected by any decision to expand the ACEC boundary.

There will be no direct impacts to locatable minerals as proposed in this alternative. Currently, the locatable minerals under approximately 5,350 acres of the Blanca Wetlands ACEC are withdrawn from mineral entry in accordance with Public Land Order No. 5504, dated June 23, 1975. The remaining portion of Blanca Wetlands is not segregated or withdrawn from mineral entry, and the BLM does not anticipate the need to pursue a mineral segregation or withdrawal in connection with the ACEC expansion. Any land acquired within the ACEC boundary would be closed to mineral entry until opened through the proper public notice procedures.

At the time of this analysis, both a mining claim recordation report and a land case recordation report for leasable minerals were generated in the BLM's database of record, Legacy Rehost 2000 (LR2000). According to the report there were no active or pending mining claims or geothermal leases filed within the proposed boundary. There was one deferred expression of interest for oil and gas outside of the proposed boundary.

Indirect impacts associated with the expansion of the Blanca Wetlands ACEC Boundary have potential to cause conflicts in cases of mixed mineral ownership and split estate. These indirect impacts will need to be analyzed in further detail in the implementation stage as land is acquired on a case by case basis.

Alternative 2: Blanca to San Luis Lake

Direct and Indirect Impacts:

Alternative 2 will increase the boundary of the Blanca Wetlands ACEC from 9,714 acres to 99,062 acres. As described in the proposed action, this Alternative would not change management of the existing Blanca ACEC (9,714 acres). Management would continue to follow the decisions outlined under Blanca Area #4 in the SLRA RMP (December 1991). Management on BLM lands in the proposed expansion area outside of the existing ACEC would continue to follow the direction that applies to all lands within the San Luis Resource Area as defined under San Luis Area #1 of the SLRA RMP (December 1991). Additionally, Resource Condition Objective 4-1 and Land Use Allocation (pg. 20, SLRA RMP, December 1991) would be applied to all BLM lands within the expanded area. No specific land use allocation decisions would be made at this time and future implementation actions (e.g., wetland projects, land use restrictions, etc.) would require additional NEPA and will be evaluated on a case-by-case basis for their compatibility with ACEC objectives.

However, if BLM were to decide to expand the ACEC boundary, any closure made as part of the San Luis Valley Geothermal Leasing EA would apply to the expanded Blanca ACEC, resulting in a reduction to the amount of acreage available for geothermal development. In total, Alternative 2 would close approximately 22,600 acres of federally-managed mineral estate from geothermal leasing, exploration, and development: 14,782 acres beneath BLM and Bureau of Reclamation-managed lands, and 7,879 acres of split-estate mineral estate

There currently are no proposals for geothermal leasing within the project area. Any future acquisitions within the ACEC boundary would be subject to the pending Decision Record for the Geothermal Leasing EA. Private property interests, including privately-held mineral estate, are not affected by any decision to expand the ACEC boundary.

There will be no direct impacts to locatable minerals as proposed in this alternative. Currently, the locatable minerals under approximately 5,350 acres of the Blanca Wetlands ACEC are withdrawn from mineral entry in accordance with Public Land Order No. 5504, dated June 23, 1975. The remaining portion of Blanca Wetlands is not segregated or withdrawn from mineral entry, and the BLM does not anticipate the need to pursue a mineral segregation or withdrawal in connection with the ACEC expansion. Any land acquired within the ACEC boundary would be closed to mineral entry until opened through the proper public notice procedures.

At the time of this analysis, both a mining claim recordation report and a land case recordation report for leasable minerals were generated in BLMs database of record Legacy Rehost 2000

(LR2000). According to the report there were no active or pending mining claims, oil and gas leases, or geothermal leases filed within the proposed boundary.

Indirect impacts associated with the expansion of the Blanca Wetlands ACEC Boundary have potential to cause conflicts in cases of mixed mineral ownership and split estate. These indirect impacts will need to be analyzed in further detail in the implementation stage as land is acquired on a case by case basis.

Alternative 3: No Action – No Change in the existing ACEC boundary

Direct and Indirect Impacts:

There will be no direct or indirect impacts to geologic or mineral resources from this alternative.

3.2.4 SOILS (includes a finding on standard 1)

Affected Environment

The soil within the project boundary is described in the soil survey of Saguache County (USDA-SCS, 1980), Alamosa County (USDA-SCS, 1980), BLM GIS soil database (Figure 8), and NRCS soil survey website (<http://websoilsurvey.nrcs.usda.gov>). All soils have low risk for water erosion, except for the Mount Home-Saguache cobbly sandy loam soils (Table 9). Most of the soils have moderately high to very high saturated hydraulic conductivity at the surface. Depth to a root restrictive layer is greater than 80 inches. The natural drainage class of all soils ranges between moderately- to excessively well-drained except for the CpB, Se, Hs, SIB, and Gn soils, which are poorly drained (Table 9).

Most of the areas are comprised of saline soils. The main source of salinity at the project area is from the presence of natural soil minerals, which produce carbonates upon weathering. Salts can be transported to the soil surface by capillary action from the salt rich water table and then accumulate on the surface due to evaporation (Figure 9). Average depth to water table varies between 24 to more than 80 inches. A Wind Erodibility Group (WEG) consists of soils that have similar properties in relation to their susceptibility to wind erosion. The soils within group 1 are the most susceptible to wind erosion and group 8 are the least susceptible (Table 9).

Table 9: Description of dominant soil types within analysis area

<i>Map unit symbol</i>	<i>Map unit name</i>	<i>Slope (%)</i>	<i>Range site</i>	<i>Sat. Hydraulic cond.</i>	<i>drainage class</i>	<i>Wind Erodibility Group</i>	<i>Erosion risk</i>	<i>salinity</i>	<i>Depth to Water table (in)</i>	<i>Available water capacity</i>	<i>Depth to restrictive layer (in)</i>	<i>Areal Coverage (%)</i>
14	Corlett-Hooper complex	0 to 15	Sandy Hummocks	Very high	Moderately well drained	1	low	Very slightly to moderately saline	42 to 72	Low	>80	4.16
35	Hooper loamy sand	0 to 1	Salt Flats	High	Moderately well drained	2	low	Slightly to moderately saline	48 to 72	Low	>80	3.45
36	Hooper clay loam	0 to 1	Chico Land	Moderately high	Moderately well drained	4L	low	Slightly to moderately saline	48 to 72	Low	>80	3.39
42	Laney loam	0 to 3	Salt Flats	Moderately high	Well drained	4L	low	Very slightly to moderately saline	>80	Moderate	>80	1.48
CoE	Corlett sand, hilly	0 to 15	Sand Hummocks	Very high	Moderately well drained	1	low	Very slightly to moderately saline	42 to 72	Low	>80	1.03
CpB	Corlett-Hooper complex, undulating	0 to 15	Sand Hummocks	Very high	Moderately well drained	1	low	Very slightly to moderately saline	42 to 72	Low	>80	13.92
CtE	Cotopaxi sand	10 to 25	Deep Sand	High	Excessively drained	1	low	—	>80	Very low	>80	2.27
Gn	Gunbarrel loamy sand	0 to 1	Salt Flats	High	Poorly drained	2	low	Nonsaline to very slightly saline	54 to 60	Low	>80	9.45
Ho	Hooper loamy sand	0 to 1	Salt Flats	High	Well drained	2	low	Slightly to moderately saline	48 to 72	Low	>80	8.12
Hp	Hooper clay loam	0 to 1	Unclassified	Moderately high	Well drained	4L	-	Slightly to moderately saline	48 to 72	Very low	>80	3.49
Hs	Hooper soils, occasionally flooded	0 to 1	Alkali Overflow	Moderately high	Poorly drained	4L	low	Slightly to moderately saline	24 to 36	Very low	>80	1.66
Le	Laney loam	85	Salt Flats	Moderately high	Well drained	4L	low	moderately saline	>80	Moderate	>80	2.42
LiC	Littlebear sandy loam	3 to 6	Valley Sand	High	0	3	low			Moderate		1.54
Mc	McGinty sandy loam	0 to 1	Salt Flats	High	Moderately well drained	3	low	Nonsaline to slightly saline	54 to 60	Moderate	>80	2.19
Mo	Mosca loamy sand	85	Valley Sand	High	Well drained	2	low	Nonsaline to slightly saline	>80	Very low	>80	4.19
MtD	Mount Home-Saguache cobbly sandy loams	4 to 12	Foothill Sand	High	Well drained	8	high	Nonsaline to slightly saline	>80	Low	>80	3.96
Se	San Luis sandy loam	0 to 1	Salt Flats	High	Poorly drained	3	low	Very slightly to moderately saline	24 to 42	Moderate	>80	1.14
SIB	San Luis-Corlett complex, undulating	0 to 1	Salt Flats	High	Poorly drained	3	low	Very slightly to moderately saline	24 to 42	Moderate	>80	4.62
SpB	Space City loamy fine sand	0 to 3	Sandy Bench	High		2	low	Nonsaline	>80	Low	>80	1.02

SrB	Space City loamy fine sand, alkali substratum	0 to 3	Valley Sand	High	excessively drained	2	low	Nonsaline	>80	Low	>80	7.34
StE	Space City-Hooper complex,	55	Valley Sand	High	excessively drained	2	low	Nonsaline	>80	Low	>80	4.09
UrF	Uracca very cobbly loam	15 to 35	Unclassified	Moderately high		8		Nonsaline	>80	Very low	>80	4.60

Soil features such as rills, gullies, pedestals, surface litter and plant cover are important indicators of Standard 1. On-site soil investigations were conducted in May, 2011. Most of the soils examined were in properly functioning condition, meaning that soil productivity is being maintained. Sheet erosion is not excessive and no soil compaction was observed which would adversely affect infiltration and permeability. There are some small areas of pedestaled plants and poor vegetation cover occurs, but in general, standard 1 is being achieved.

Environmental Effects

Alternative 1: Proposed Action (the ACEC is comprised of 2 areas, Blanca to San Luis Lake and Mishak Lakes)

Direct and Indirect Impacts:

This alternative would expand the ACEC boundary from Blanca to San Luis Lakes and include the Mishak Lakes area increasing the current area to 122,762 acres (Figure 2). The proposed Blanca Wetlands ACEC expansion would not have a direct effect on Public Land Health Standards on the soil resource on these lands, but at the future development stage, there could be instances where there would be impacts on soils. For example, soils could be physically disturbed through the removal and compaction of soil and the exposure of subsoils during construction of irrigation ditches, dams, wells, and/or other water intake and diversion structures. These activities could compact, expose soil, mix horizons, and impact physical characteristics of the soil. The magnitude and location of direct and indirect effects cannot be predicted until the site-specific wetland development action is proposed. Future wetland development would be analyzed with specific mitigation measures to assure implementation of proper BMPs. Following these practices, soil resource impacts would be mitigated and would still meet standards with future development.

Finally, organic soils are characterized by a deep layer of decaying plant matter at the soil surface. In the future, under Alt. 1 or 2, wetland restoration would potentially occur, and the layer of organic matter would increase in depth and soil condition would improve because dead plant matter accumulates faster than it can decompose under anoxic (inadequacy in the oxygen) conditions. Short term adverse effects of the future wetland development activities would be minor and would be temporary in nature.

Protective/Mitigation Measures:

Protective/mitigation measures are not required at this time. Specific protective/mitigation measures would be discussed in the future should a particular wetland expansion or development project be proposed.

Alternative 2: Blanca to San Luis Lake

Direct and Indirect Impacts:

The impacts discussed above under Alternative 1 would be the same for this alternative. However, the extent of the impact would be lower due the smaller size of the proposed ACEC boundary compared to Alternative 1.

Protective/Mitigation Measures:

Protective/mitigation measures are not required at this time. Specific protective/mitigation measures would be discussed in the future should a particular wetland expansion or development project be proposed.

Alternative 3: No Action – No Change in the existing ACEC boundary

Direct and Indirect Impacts:

The area of current Blanca Wetlands ACEC boundary would remain at 9,714 acres under this alternative. Impacts to soil resources would occur naturally from the effects of various climatic events. Other impacts to soils may occur from ongoing livestock use and other human activities. Because no surface-disturbing activities would take place, the No Action alternative would have no negative short-term effect on soils.

Protective/Mitigation Measures:

Protective/mitigation measures are not required.

Finding on the Public Land Health Standard for Upland Soils:

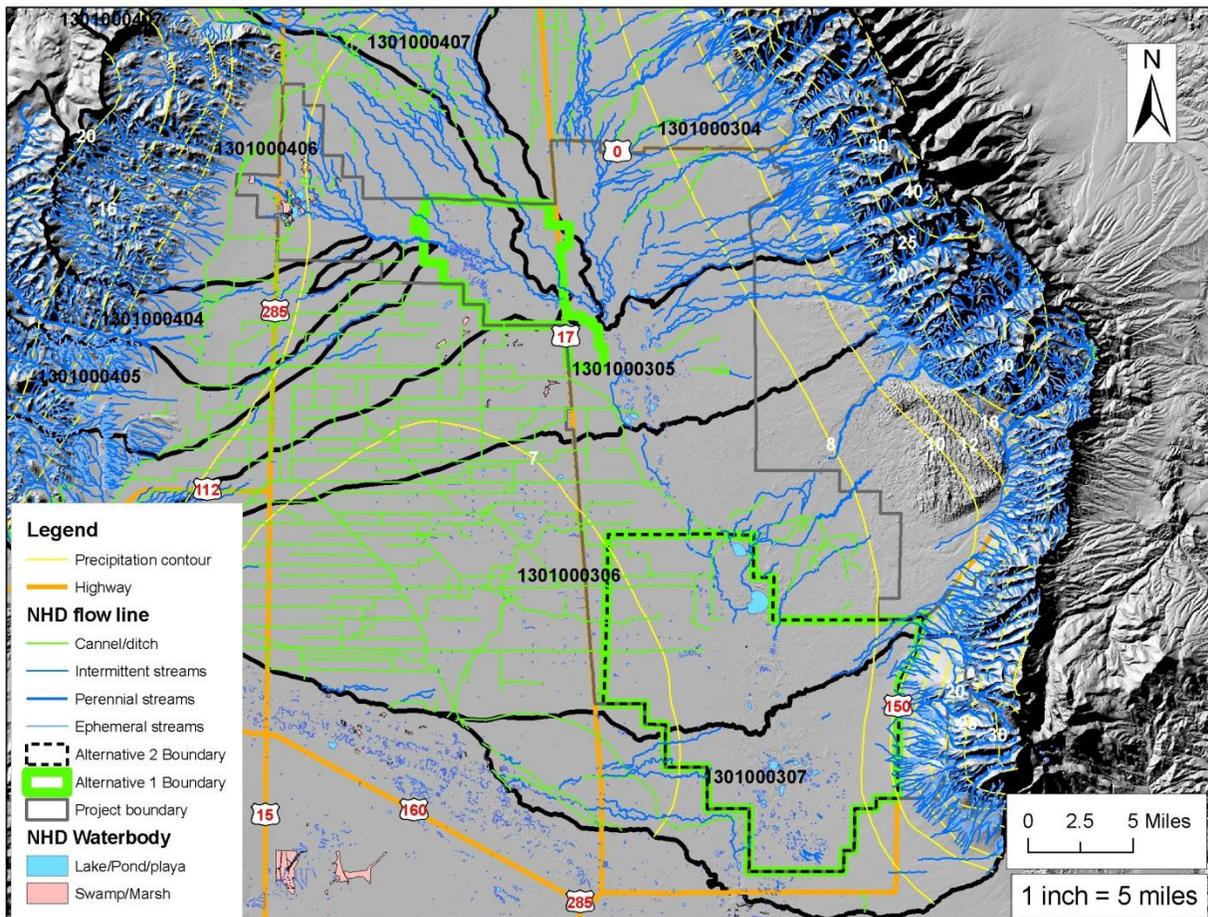
Soil features such as rills, active gullies, pedestals, surface litter and plant cover are important indicators of Standard 1. Most of the soils examined were in properly functioning condition, meaning that soil productivity is being maintained. Sheet erosion is not excessive and no soil compaction was observed that would adversely affect infiltration and permeability. Upland and riparian soils exhibit infiltration and permeability rates that are appropriate to soil type, climate, landform, and geologic processes. There are small areas with bare soils and inadequate vegetation cover, but in general, standard 1 is being achieved and there would be no anticipated impacts under any of the alternatives.

3.2.5 WATER (SURFACE AND GROUNDWATER, FLOODPLAINS)

Affected Environment

The project area is situated within eight, fifth-level watersheds (Figure 8). Elevation within these watersheds ranges from approximately 7,500 feet in the SLV floor to over 13,600 feet in the northeastern part of the watersheds. Precipitation varies widely with elevation. Lower areas of the watersheds receive about seven inches and higher mountain areas receive about 30 inches of precipitation, with most of the rainfall events occurring in July and August. The amount of precipitation within the analysis area ranges between seven and 16 inches. In general, potential evapotranspiration exceeds precipitation on the SLV floor and the reverse is true in the high elevation areas (HRS Water Consultants, Inc., 1987).

Figure 8: Hydrology and Water Resource Map Encompassing the Analysis Area and the Proposed Alternative



The analysis area is situated within a closed basin watershed located north of the City of Alamosa within Alamosa and Saguache Counties. The closed basin covers a large area in the northern part of the SLV and drains about 2,900 square miles. It is separated from the rest of the SLV by a low alluvial fan. There is no drainage from the basin and much of the water that flows into it is lost through evapotranspiration. The Bureau of Reclamation’s Closed Basin Project in

the SLV extracts water from the basin, and the water is delivered to the Rio Grande for use in accordance with the Rio Grande Compact among the States of Colorado, New Mexico, and Texas, and the Treaty of 1906 with the Republic of Mexico. Project water is also made available to the Alamosa National Wildlife Refuge, Blanca Wetlands ACEC, and San Luis Lake to mitigate Closed Basin Project impacts to fish and wildlife habitat as required by the Fish and Wildlife Coordination Act (U. S. Department of the Interior, Bureau of Reclamation, 2008).

Saguache Creek and San Luis Creek are the major perennial streams located within or in the vicinity of the analysis area. Numerous smaller streams also enter the closed basin from the Sangre de Cristo Mountains. All streams originating from these watersheds historically disappeared into the basin. Generally, stream flow no longer reaches near the center of the closed basin. San Luis Lake, Russell Lake, Mishak Lakes, and many other small lakes are present within the analysis area (Figure 8). The hydrology of the analysis area is modified by construction of roads, intensive surface- and ground-water use, and construction of ditches for agricultural purpose since the start of irrigation farming in the SLV. As a result, the basin that historically functioned as wetland playas (wetland) no longer does so. San Luis Creek rarely supplies water to the historic playa wetland area. Water storage is no longer occurring in most parts of the wetland basin throughout all seasons to the extent that it did historically.

Figure 9: Map of Wells, Diversions, and Water Sources

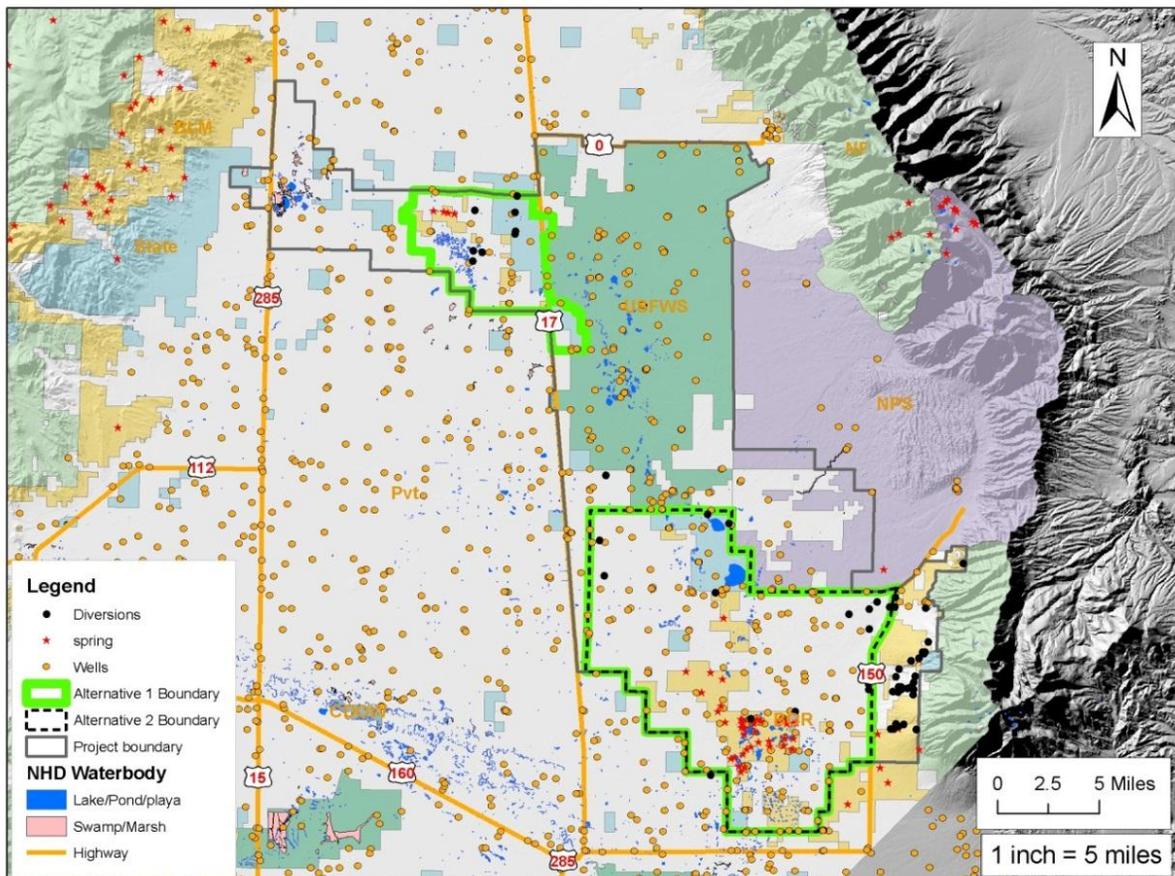


Figure 10: Closed Basin Canal



There are many wells, canals, and diversions located within or around the analysis area that pump and divert groundwater for domestic and agricultural activities (Figures 11 and 12).. Wells associated with the Closed Basin Project are also located throughout the project area to pump water to the Closed Basin Canal.

Figure 11 shows a wetland dependent on ground water for productivity. This wetland is irrigated through artesian water wells because surface water diversions and well pumping have resulted in loss of wetlands in historically wet areas.

Confined and unconfined groundwater resources within the analysis area are sources of water for domestic and agricultural uses. Along the edges of the SLV there is little separation between the confined and the unconfined aquifers (CDWR, 1998). Some of the areas, which are located along the edge of the SLV, may have little or no separation between the confined and unconfined aquifers. In some parts of the SLV, where the confining layer is less thick and has more transmission, water from the confined aquifer leaks upward through the confining layers into the unconfined aquifer (Division 3 Water Administration, 2011). However, the relationships between the two aquifers and between the aquifers and the surface water are not well defined. Several diversions and wells on private lands locally alter surface and groundwater hydrology in these watersheds. The analysis area is positioned at the groundwater sump where the water level is near to the ground surface.

Figure 11: Artesian Fed Wetland



The unconfined aquifer is recharged by infiltration of irrigation waters, leakage from canals, seepage from mountain streams that flow across permeable alluvial fans, and infiltration from precipitation. Below the unconfined aquifer are a number of clay-based layers that serve to separate the unconfined aquifer from the deeper layers of sands and gravels containing water in the confined aquifer. Confined and unconfined aquifers are not disconnected entirely by the clay-based layers. The clay layers reduce upward movement of water from the confined aquifer creating water pressure (U.S. Fish & Wildlife Service 2011). The confined aquifer is recharged from precipitation in the Sangre de Cristo mountains in the east and San Juan mountains in the

west which enters the aquifer at the base of the mountains as streams course high permeability zones. (HRS 1987). The limited supply of surface water makes groundwater the primary resource for many water users within or around the analysis area.

The Clean Water Act (CWA) requires that chemical, physical, and biological integrity of all waters, stream channels, and wetlands be protected. San Luis Creek and Saguache Creek are currently meeting water quality standards and are not listed under Section 303d of the Clean Water Act. However, San Luis Lake is under 303 (d) listing due to high levels of Ammonia (NH₃) and Iron (Fe). The State of Colorado periodically assesses stream water quality throughout the State to determine whether stream segments are supporting designated uses. A review of the Colorado 2010 Integrated Water Quality Monitoring and Assessment Report indicates that insufficient information is available to identify if the San Luis Creek segment between Piney Creek and San Luis Lake supports one of the designated uses (Aquatic Life Cold). Saguache Creek and its tributaries are not listed under 305(b) of the Clean Water Act. Therefore, meeting designated uses (Colorado Water Quality Control Division, 2010) and standard 5 is being achieved.

Environmental Effects

Alternative 1: Proposed Action (the ACEC is comprised of 2 areas, Blanca to San Luis Lake and Mishak Lakes)

Direct and Indirect Impacts:

This alternative would expand the ACEC boundary from Blanca to San Luis Lakes and includes Mishak Lakes area increasing the current area to 122,762 acres (Figure 2). The proposed expansion of Blanca Wetlands ACEC boundary would have no direct impact on surface water and groundwater resources. However, indirect effects on water quality and quantity could occur from potential future activities within the expanded ACEC. Impacts to water would be addressed at that time.

In the event of wetland restoration in the future, potential negative impacts to surface water and groundwater resources would be associated with the surface disturbance due to initial construction activities. Minor impacts at the stage of development would result from the irrigation ditches, dams, wells, and/or other water intake and diversion structures. Minor localized adverse water quality impacts may result from oil/grease leak from motorized vehicles. Impacts to water quality are expected to be short-term and result in temporary increases in turbidity only during construction phase of future wetland development projects.

Potential positive impacts at the wetland development stage include restoration of natural and historical wetlands that enhance the connectivity of various wetlands in the basin and imitate the functions of a healthy natural wetland ecosystems. This alternative would provide the most benefit for hydrologic connectivity of wetlands at a planning and potential development level up to Mishak Lakes.

Protective/Mitigation Measures:

Protective/mitigation measures are not required at this stage of analysis. Specific protective/mitigation measures would be discussed in the future should a particular wetland expansion or development project be proposed.

Alternative 2: Blanca to San Luis Lake

Direct and Indirect Impacts:

The impacts discussed under the proposed action alternative would be the same for this alternative. However, the extent of the impact would be reduced due the smaller size of the proposed ACEC boundary under Alternative 2, compared to Alternative 1. This alternative would provide the potential for hydrologic connectivity of wetlands from Blanca wetlands to San Luis Lakes.

Protective/Mitigation Measures:

Protective/mitigation measures are not required at this stage of analysis. Specific protective/mitigation measures would be discussed in the future should a particular wetland expansion or development project be proposed.

Alternative 3: No Action – No Change in the existing ACEC boundary

Direct and Indirect Impacts:

The current Blanca Wetlands ACEC boundary area would remain at 9,714 acres under this alternative. The water quality would continue to be affected due to high accumulation of salt on the surface unless rotation of water supply is practiced. Impacts to water resources would occur naturally from the effects of various climatic events. Other impacts to water quality may occur from ongoing livestock use and human effects. Because no surface-disturbing activities would take place, the No Action alternative would have no negative effect on water quality. Under the No action alternative, it is unlikely that natural processes would ever result in reoccupation of the historic hydrologic condition of the wetland and existing dry conditions would likely persist indefinitely. Decrease in surface and groundwater quantity would continue to occur from the effects of climatic changes.

Protective/Mitigation Measures:

Protective/mitigation measures are not required

Finding on the Public Land Health Standard for Water Quality:

The water quality of all water bodies, including ground water, located on or influenced by BLM lands, will achieve or exceed the Water Quality Standards established by the State of Colorado. Important indicators of Standard 5 are:

- Appropriate populations of macroinvertebrates, vertebrates, and algae are present, and

- Surface and ground waters only contain substances attributable to humans within the amounts, concentrations, or combinations as directed by the Water Quality Standards established by the State of Colorado.

A change to surface or ground water quality is not anticipated due to the proposed action or other alternatives and Standard 5 is being achieved.

3.3 BIOLOGICAL RESOURCES

3.3.1 INVASIVE PLANTS

Affected Environment

The project boundary encompasses several range sites, plant communities, and a large number of plant species based upon a wide variety of soil sites and the distribution of these sites across considerable elevation variation. The initial discussion of current conditions is located in the vegetation section. The range sites and major plant composition for the range sites are located in the vegetation section and the Ecological Range Sites description (Figure 13). Invasive, non-native weed species are prolific in some areas, while other areas are either dominated by bare sandy soils or native vegetation. For the most part, the dry, sandy, alkali nature of the various range sites is not conducive to the invasion of these species. Native vegetation struggles to be sustained even without grazing in the porous nature of the sandy soils and the alkali nature of the others.

Environmental Effects

Alternative 1 and 2

Direct and Indirect Impacts:

The movement of the ACEC boundary under either action alternative 1 or 2 would not produce any direct effects for invasive, non-native species. However, the enlargement of the ACEC would bring additional dry alkali lakes into the ACEC. There is the potential for future seasonal or intermittent flooding or water manipulation in these alkali lakes, which could result in indirect effects. This action would bring about a change in the vegetative community. The plant community would likely change from the dry community that exists to a wetland plant community similar to what exists in the Blanca Wetlands. The addition of moisture in the alkali lakes will create an environment conducive to the establishment of invasive non-native weeds. The seed source is nearby on multiple areas, including County Road Lane 6, the State Park, San Luis Lakes, and private lands belonging to The Nature Conservancy as well as other private lands. Nearby Blanca Wetlands has been invaded by various non-native invasive species due to the occasional or continual inundation of alkali lakes. The species that have invaded Blanca are hoary cress, white top, tamarisk, Russian knapweed, and Russian olive. These are the species likely to invade any areas of the expanded ACEC if intermittent flooding or water manipulation were to occur in the alkali lakes.

Protective/Mitigation Measures:

- 1) Monitor areas within the expanded ACEC where water manipulation is implemented in the future.
- 2) Treat invasive non-native species as soon as they are identified while the infestation is small and manageable.

Alternative 3: No Action – No Change in the existing ACEC boundary

Direct and Indirect Impacts:

The no action alternative would not change the current conditions described above. There would be no direct or indirect effects from boundary expansion.

3.3.2 THREATENED, ENDANGERED AND SENSITIVE SPECIES

Affected Environment

Thirty-five species of threatened, endangered, candidate, or sensitive (TES) wildlife and plants may occur in the San Luis Resource Area. Fifteen species are carried forward for analysis based on either their presence in the area, or the presence of suitable/potential habitat within the project area (Table 10).

The project area is known to support at least marginal habitat for one federally listed threatened or endangered species, the southwestern willow flycatcher. BLM personnel located this species once during wildlife surveys over the last 5 years during migration. This was a rare and isolated occurrence, and the habitat appears to be marginal for the species. Habitat is also present for twenty BLM sensitive species (Table 10). The BLM defines a Sensitive species as one that is not presently listed as Threatened or Endangered by the FWS, but a population viability concern has been identified as evidenced by:

- a) Important current or predicted downward trends in population numbers or density.
- b) Important current or predicted downward trends in habitat capability that would reduce a species' existing distribution.

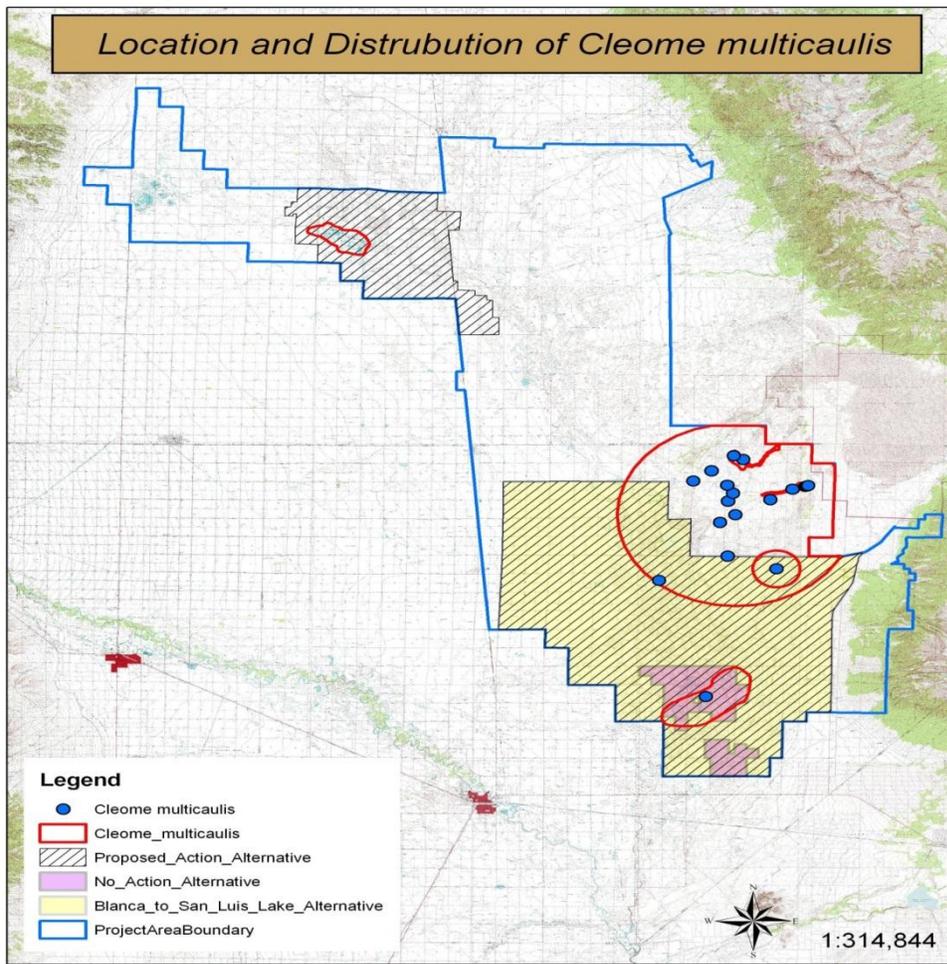
Habitat in the project area can be described as a mosaic, providing wetland habitat in low elevation inter-dunal areas surrounded by dry well-drained higher elevation shrubland habitat. The wetlands in the boundary provide habitat for American white pelican, bald eagle, white-faced ibis, Rio Grande chub, Northern leopard frog, and western snowy plover (Wetland/Riparian Sensitive species). The dry areas on site provide habitat for Gunnison prairie dog, mountain plover, milk snake, and burrowing owl (Upland Sensitive Species). The ferruginous hawk, Townsend's big-eared bat, big free-tailed bat, and peregrine falcon all have suitable habitat in the area for foraging. The peregrine falcon has been detected frequently foraging on the wetlands for birds, including waterfowl.

There are presently no reported records or suspected occurrence of Threatened or Endangered plants within the San Luis Resource Area or Blanca Wetlands ACEC Analysis Area. However, there are four BLM Sensitive plants (Ripley's milkvetch, rock loving neoparrya, fragile

rockbake, and pale blue-eyed grass) that occur within the San Luis Resource Area and one sensitive plant (slender spiderflower) that occurs within the analysis area (Table 10).

Documented locations of slender spiderflower (*Cleome multicaulis*) within the analysis area are based on reports from BLM inventories, Colorado Natural Heritage Program SLV inventory (CNHP 2006) and BLM personnel observations (Figure 12). *Cleome multicaulis* is a wetland species and has an ecological range site association with Alkali Overflow, Wet Meadow, Salt Flats, Valley Sand, Sand Hummocks and Deep Sand which makes approximately 70% of the analysis area (<http://websoilsurvey.nrcs.usda.gov>). This plant is typically restricted to saline or alkaline soils, old lake beds, wet meadows and ponds in the 7,500 to 8,000 feet elevation range. Field observations have shown that this species grows in perennially wet areas; however it extends its range into greasewood and salt grass communities. Two large populations are found in the analysis area with more than 8,000 estimated individuals. The Blanca Wetlands ACEC subunit and Sangre de Cristo subunit (Mishak Lakes area) populations are extremely vigorous and thrive in their preferred habitat.

Figure 12: Location and distribution of *Cleome multicaulis* within the analysis area



Environmental Effects

Direct and Indirect Impacts/Effects:

This project proposes only a boundary change without habitat altering actions; therefore, there will be no direct effects on any threatened, endangered, candidate, or sensitive species. An indirect effect of this boundary change could be a possible expansion of wetlands, land acquisition, and increased recreation in the future. At this time, there are no details on proposed scale or scope of these activities so it is impossible to determine specific effects/impacts from potential future implementation actions to TES. However, general potential effects to species will be described below as an indirect effect. Detailed implementation level analysis will occur through NEPA as future projects are proposed.

Table 10 shows a list of the threatened, endangered, and sensitive species addressed by BLM in the SLV and documents the effects/impacts expected as an outcome of this project under the different alternatives. Because effects from Alternative 1 and 2 would be similar (but at a different magnitude), the analyses of alternatives are combined.

Alternative 1 and Alternative 2 (Action Alternatives):

Direct and Indirect Impacts/Effects:

Southwestern willow flycatcher is the only Endangered or Threatened species that has marginal habitat and an isolated occurrence within this project area. Neither the Proposed action nor Alternative 2 would have any direct or indirect effects on this species as these alternatives are at the planning level with no habitat alteration at this stage. Potential future activities are not likely to promote willow expansion or growth thereby not changing current habitat distribution for this species.

Neither the Proposed Action nor Alternative 2 will have direct impacts on sensitive species as these alternatives are only proposing a change in boundary. An indirect effect of boundary changes could be future possible expansion of wetlands, land acquisition, and increased recreational activities. Future activities such as land acquisition and wetland expansion could beneficially impact all wetland/ riparian sensitive species found within the project area by improving and expanding wetland habitat distribution for these species. As wetlands are expanded, there could be an increase in recreational bird watching that could minimally disturb wetland/riparian sensitive species in the new habitat. The benefit of expanding wetlands would compensate for negative impacts to these species from recreation.

Future activities could reduce available upland habitat for terrestrial species if wetlands were expanded and recreation increased. However, upland habitat surrounding wetland expansions should be enhanced with more water availability and increased water table levels. Plant vigor should improve and vegetative community should become more diverse, thereby increasing sustainability of terrestrial species. The benefit of expanding the ACEC and creating the opportunity to add water to mimic historic wetland processes surpasses negative impacts to wildlife species from conversion of habitat.

Foraging sensitive species found within the analysis area could be beneficially impacted by future habitat altering activities. Once wetlands habitat is improved or expanded, there will likely be an increase in prey base availability and diversity, thus improving foraging opportunities.

Cleome multicaulis would be beneficially impacted by these alternatives though habitat expansion such as wetland maintenance and restoration work.

The Proposed Action Alternative would have the greatest indirect impact on sensitive species by providing the greatest potential for habitat expansion, through wetlands maintenance and restoration work, by increasing the Blanca Wetlands ACEC to 122,762 acres. Alternative 2 would provide slightly higher impacts, than the No Action Alternative, but less impacts than the Proposed Action Alternative.

Alternative 3: No Action – No Change in the existing ACEC boundary

Direct and Indirect Impacts/Effects:

The no action alternative will maintain the current status of wildlife habitat for threatened, endangered, candidate, and sensitive species. There are no direct or indirect effects expected under the no action alternative to these TES species.

Finding on the Public Land Health Standard for Special status, threatened and endangered species:

Because the action alternatives are at a planning level, there will be no change to the land health standard based on any of the alternatives listed in this document. Should the ACEC be enlarged and future actions lead to cycles of wetting and drying, plant vigor should improve, vegetative communities should become more diverse, and wetland availability should increase, thereby increasing sustainability of wildlife and plant TES communities.

Table 10: Direct, Indirect, and Cumulative Effects on Threatened, Endangered, and Sensitive Species

Species	Status	Species Occurrence	Alt. 1 & Alt 2	No Action
Federally Listed Species & Candidates				
Black-footed Ferret	FE	No habitat present; no known occurrence	None	None
Canada Lynx	FT	No habitat present; no known occurrence	None	None
Southwestern Willow Flycatcher	FE	No habitat currently present; one isolated occurrence during migration	NE	NE
Mexican Spotted Owl	FE	No known occurrence. Not suitable habitat in project area	None	None
Yellow-billed cuckoo	FC	No habitat present; no known occurrence	None	None
Gunnison Prairie Dog	FC	Suitable habitat present; no known occurrence	None	None
Rio Grande Cutthroat Trout	FC	Suitable habitat not present on BLM, no known occurrence on BLM	None	None
New Mexico meadow jumping mouse	FC	No habitat currently present in county, no known occurrence	None	None
North American Wolverine	FC	No habitat present, no known occurrence	None	None
BLM Sensitive Species				
Amphibians & Reptiles				
Northern Leopard Frog	SS	Suitable habitat present; known occurrence	BI	None
Milk Snake	SS	Suitable habitat present; no known	BI	BI

		occurrence		
Invertebrates				
Great Basin Silverspot Butterfly	SS	No habitat present; no known occurrence	None	None
Birds				
American White Pelican	SS	Habitat currently present; known occurrence in Blanca wetlands	BI	BI
Bald Eagle	SS	Foraging habitat available, winter range	BI	BI
White-faced Ibis	SS	Habitat currently present; known occurrence in Blanca wetlands	BI	BI
Northern Goshawk	SS	No habitat present; no known occurrence	None	None
Ferruginous Hawk	SS	Habitat present; known occurrence in uplands near Blanca wetlands	BI	BI
Peregrine Falcon	SS	Known occurrence; Suitable foraging habitat	BI	BI
Mountain Plover	SS	Minimal habitat present; no known occurrence	BI	BI
W. Snowy Plover	SS	Habitat present; known occurrence in Blanca wetlands	BI	BI
Burrowing Owl	SS	Habitat present near closed basin canal; no known occurrence	BI	BI
Gunnison's Sage Grouse	SS	No habitat present; no known occurrence	None	None
Black Swift	SS	No habitat present; no known occurrence	None	None
Brewer's sparrow	SS	Habitat present, may occur across the area	BI	BI
Mammals				
Big Free-tailed Bat	SS	Foraging habitat present, may occur across the area.	BI	BI
Fringed Myotis	SS	No habitat present, no known occurrence	None	None
Townsend's Big-eared Bat	SS	Foraging habitat present, may occur across the area.	BI	BI
Swift Fox	SS	No habitat present, no known occurrence	None	None
Fish				
Rio Grande Sucker	SS	Habitat present on the Baca National Wildlife Refuge, but not on BLM land in the project boundary	None	None
Rio Grande Chub	SS	Habitat is present and known occurrence	BI	None
Plants				
Ripley's Milkvetch	SS	No habitat present, no known occurrence	None	None
Rock loving neoparrya	SS	No habitat present, no known occurrence	None	None
Fragile Rockbrake	SS	No habitat present; no known occurrence	None	None
Slender spiderflower	SS	Habitat present; known occurrence in analysis area	BI	BI
Pale blue-eyed grass	SS	Habitat present, no known occurrence	None	None

**Species Status:*

FE = Federally Endangered FT = Federally Threatened SE = State Endangered ST = State Threatened SS = BLM Sensitive Species

**Determinations for Federally listed (T&E) species:*

NE = No Effect; NLAA = Not Likely to Adversely Affect; BA= Beneficial Affect, MA = May Affect; LAA= Likely to Adversely Affect; None= Species/habitat is not present.

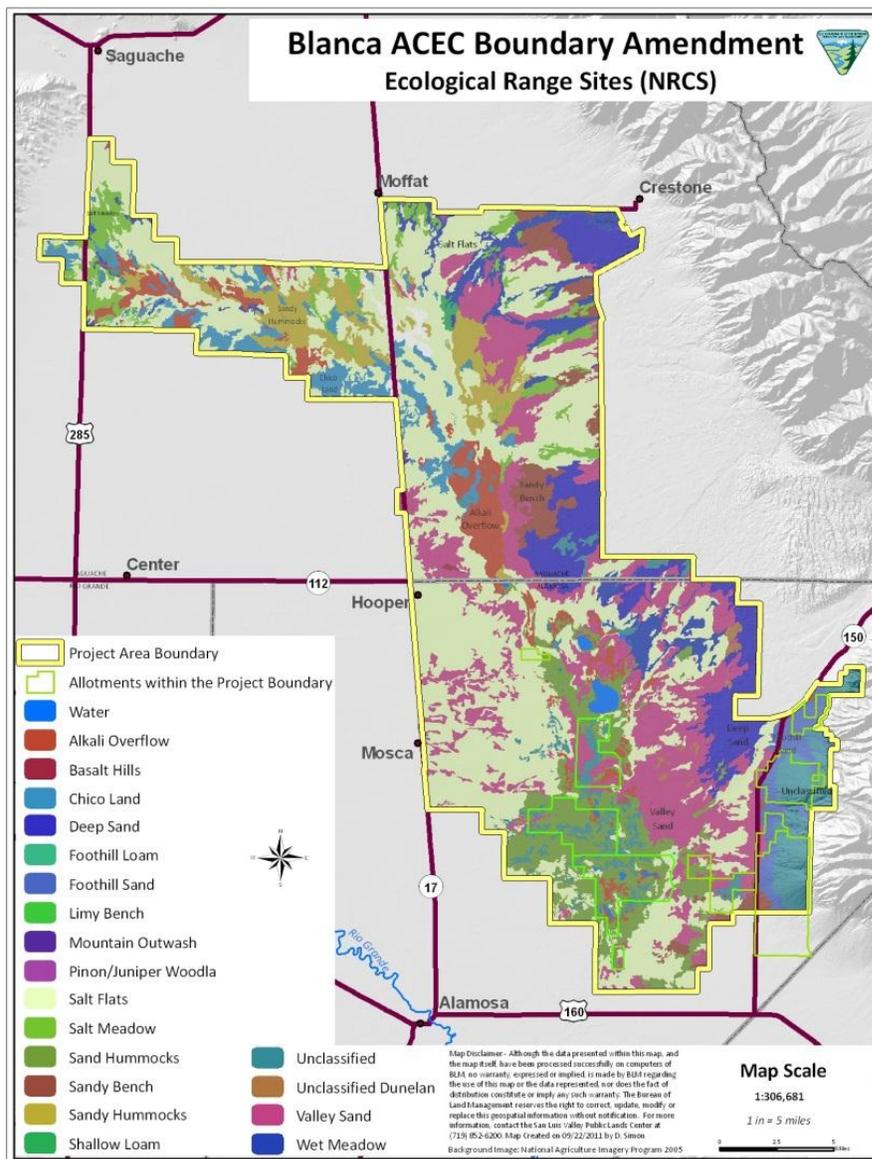
**Determinations for State Sensitive Species: NI = No Impact; MI= May Impact (May Impact Individuals, but is not likely to cause a trend towards Federal listing or loss of viability in the planning area); BI= Beneficial Impact; LI= Likely Impact (Likely to result in a trend towards Federal listing or a loss of viability in the planning area); None= Species habitat is not present or species is known not to be present*

3.3.3 VEGETATION (grasslands, forest management) (includes a finding on Standard 3):

Affected Environment

Alternatives 1 and 2 take in a large project boundary that encompasses several range sites, plant communities, and a large number of plant species based upon a wide variety of soil sites and the distribution of these sites across considerable elevation variation. The initial discussion will identify the range sites and major plant composition for the range sites (Figure 13).

Figure 13: NRCS Ecological Range Sites on the Analysis Area



The great variation in range sites is due to the wide range of elevation within the project boundary, from 7,500 feet to about 9,500 feet. The plants which are a minor component in each range site will not be identified. These minor component plants may not be essential for range site forage, but do play an important role for other animal life. An example of this situation is the minor component of forbs, yet forbs are critical to life cycles and habitat needs of many animal species. Table 11 identifies the range site and the major plants which make up the plant community in that range site.

Table 11: Range Sites in the Project Area

RANGE SITE	MAJOR PLANTS	ACRES
Water		1,611
Alkali Overflow	Indian saltgrass, creeping wildrye, Baltic rush, alkali bluegrass, greasewood	13,477
Basalt Hills	No identified plant community in the NRCS data base	91
Chico Land	Black greasewood, inland saltgrass, rubber rabbit brush, alkali sacaton, alkali cordgrass	11,748
Deep Sand	Indian ricegrass, needle-and-thread, fourwing saltbush, thickspike wheatgrass, spike dropseed, blue grama, sand dropseed	19,715
Foothill Loam	Western wheatgrass, needle-and-thread, fourwing saltbush, sedge, blue grama, rubber rabbitbrush, slender wheatgrass, Indian ricegrass, winterfat, big sagebrush	10.2
Foothill Sand	Scribner needlegrass, Indian ricegrass, needle-and-thread, true mountain mahogany, redfruit gooseberry, blue grama, rabbitbrush	6,057
Limy Bench	Winterfat, fourwing saltbush, fringed sagebrush, Indian ricegrass, blue grama, rubber rabbitbrush, bottlebrush squirreltail,	71.9
Mountain Outwash	Arizona fescue, mountain muhly, Indian ricegrass, muttongrass, western wheatgrass, junegrass, squirreltail, fringed sagebrush, Douglas rabbitbrush, big sagebrush	139.5
Piñon/Juniper Woodlands	Currant, true mountain mahogany, Indian ricegrass, bottlebrush squirreltail, fringed sagebrush, mountain muhly, blue grama, prairie junegrass, Scribner needlegrass, western wheatgrass, piñon	77.2
Salt Flats	Alkali sacaton, alkali cordgrass, greasewood, inland saltgrass, rubber rabbitbrush, western wheatgrass, Baltic rush, black greasewood, breadless wildrye, wild licorice	109,038
Salt Meadow	Alkali sacaton, alkali cordgrass, western wheatgrass, beardless wildrye, slender wheatgrass, wedgegrass, Baltic rush, sedges, saltgrass, mat muhly	9,806
Sand Hummocks	Black greasewood, rubber rabbitbrush, fourwing saltbush, Indian ricegrass, inland saltgrass, alkali sacaton,	36,173
Sandy Bench	Indian ricegrass, needle-and-thread, western wheatgrass, thickspike wheatgrass, spike dropseed, creeping wildrye, blue grama, sand dropseed, golden pea, yarrow, globemallow, buckwheat, fourwing saltbush, winterfat, skunkbush, currant	8,844
Sandy Hummocks	Black greasewood, rubber rabbitbrush, fourwing saltbush, Indian ricegrass, inland saltgrass, alkali sacaton	Undetermined
Shallow Loam	Arizona fescue, mountain muhly, parry oatgrass, junegrass, needle-and-thread, western wheatgrass, sheep fescue blue grama, pine dropseed, yarrow, lupine, penstemon, buckwheat, golden pea, mountain mahogany, snowberry, currant	470
Valley Sand	Blue grama, Indian ricegrass, alkali sacaton, fourwing saltbush, thickspike wheatgrass, black greasewood, rubber rabbitbrush,	53,184

	needle-and-thread, sand dropseed, alkali cordgrass, creeping wildrye	
Wet Meadow	Tufted hairgrass, slender wheatgrass, Nebraska sedge, western wheatgrass, bluejoint reedgrass, Baltic rush, American bistort,	11,060
Unclassified Duneland	Not established	282
Unclassified		17,311

The Blanca Wetlands Integrated Activity Plan/Environmental Assessment (USDI-BLM, August 1995) indicates that there are five range sites, as described by the NRCS. These sites compose the major vegetation of the Blanca WHA, Lakes and Dry Lakes Allotments, and are the majority of the range sites in the SLV bottom. These sites represent the sites that would be in the playas, and are determined by soil type and potential native vegetation. The sites are alkali overflow, sand flats, sand hummock, valley sand and sandy bench (Table 12).

Table 12: Ecological Range Site Classes

Ecological Range Site Classes (NRCS) for the Blanca WHA, Lakes, & Dry Lakes Grazing Allotments		
Ecological Range Site	Allotment Name	Acres
Water	Blanca WHA	231
Alkali Overflow	Blanca WHA	543
Salt Flats	Blanca WHA	846
Sand Hummocks	Blanca WHA	3,407
Unclassified	Blanca WHA	634
Valley Sand	Blanca WHA	176
Water	Dry Lakes	40
Alkali Overflow	Dry Lakes	89
Salt Flats	Dry Lakes	49
Sand Hummocks	Dry Lakes	3,058
Unclassified	Dry Lakes	973
Valley Sand	Dry Lakes	101
Alkali Overflow	Lakes	240
Salt Flats	Lakes	138
Sand Hummocks	Lakes	695
Unclassified	Lakes	771
Valley Sand	Lakes	1,179

1. *Alkali Overflow*: This site is characterized by shallow lake basins and broad drainage courses, and is strongly alkaline. Saltgrass and wire brush with occasional greasewood are the dominant plants.
2. *Salt Flats*: Salt flat range site is the most extensive site in the area and occur at slightly higher elevations than the Alkali Overflow site (Figure 14). Saltgrass, sandhill muhly, alkali sacaton, greasewood, and rabbitbrush are the dominant plants. The site

may become a solid stand of saltgrass under excessive moisture. This site occurs in a complex association with the sand hummock site. The soils are strongly alkaline.

Figure 14: Salt Flat at Low Point in Photo



3. *Sand Hummock*: Sand hummock range site consists of low dunes often intermingled with the salt flat range site. Vegetation consists of alkali sacaton, saltgrass, sandhill muhly, asters kochia, greasewood, and rabbitbrush. The only consistent moisture available is in the substratum and benefits only the deep rooting shrubs because of the alkaline nature of the soil.
4. *Valley Sand*: This range site is on smooth to uneven terrain, takes water readily and is not seriously affected by salts and alkali. This permits grasses typical of sandy soils to grow intermixed with salt tolerant shrubs. Indian ricegrass, alkali sacaton, needle-and-thread, and blue grama make up the grasses; with scurf peavine, asters, and other perennial forbs along with fourwing saltbush, rabbitbrush and greasewood make up the plant community. Saltgrass, muhly and scattered greasewood become the dominant plants under excessive moisture.
5. *Sandy Bench*: The sandy bench range site occupies smooth, gently sloping areas. Blue grama, Indian ricegrass, needle-and-thread, buckwheat, perennial forbs, and low rabbitbrush make up the plants common to this site. The site is free from salts and alkali and high water table, but is subject to wind erosion when the plant cover becomes too sparse (**Error! Reference source not found.**).

Figure 15: Sparse Vegetation on Sandy Bench in the Area



Riparian-Aquatic Vegetation (pertinent to the Blanca allotment only): Riparian and aquatic vegetation has been restored on the Blanca Wetlands ACEC due to well drilling, ditches, and low land flooding of alkali lakes (Figures 18 and 19). BLM manages wetland vegetation mainly through water manipulation. All species of aquatic vegetation at Blanca Wetlands ACEC occurs naturally when wetlands contain water. Species composition can be influenced depending on the volume of water flowing through a wetland system, water quality, alkalinity, and the distance from the water source. Fresh water species (e.g. cattail) tend to dominate with high volumes of fresh water and bulrush increases with increased salinity. Typical salt grass marsh habitat is generally provided at the tail end of each wetland system where there is minimal inflow and little or no outflow and periodic drying (Figure 16 and Figure 19).

Additional vegetative information is available from three vegetation inventories that have been completed for the Blanca Wetlands. These studies identify the current plant community, but do not give the seral stage. A comparison of the existing plant communities with the NRCS Soil Survey indicates that they would be in Potential Natural Community (PNC). The volume of information is too large to be available in this document or in the appendix/administrative record, but they are available at the San Luis Valley Field Office, La Jara location. The studies are: Colorado Natural Heritage Program, Wetlands Ecological Services Team, Soil Survey of the Blanca Wetlands special project for US Department of Interior, Wetland Classification of Blanca Wetlands, SLV, Colorado, June 17, 2011 by Alan Stuebe, and Colorado Natural Heritage Program prepared by Joe Rocchio, www.cnhp.colostate.edu/download/documents/2004/BLANCA_%20WETLAND_CLASSIFICATION.pdf

These studies characterize the plant community managed with seasonal and annual water inundation to manipulate vegetation and water levels for bird habitat, which is to mimic the historic wetland cycles.

Figure 16: Playa Wetland on Blanca Wetlands ACEC



Figure 17: Riparian/Aquatic Dependent Vegetation on Blanca Wetlands ACEC



Vegetative Monitoring Studies: Rangeland/grazing vegetative monitoring has not been completed on Lakes, Dry Lakes, and Blanca Wetlands Allotments due to nonuse that has occurred for over 30 years and these allotments have not been included in an active term grazing permit for the last 10 years. An Interdisciplinary Team visited the Blanca and Lakes and Dry Lakes Allotments. The allotments are meeting Standard #3 (Healthy Productive Plant and Animal Communities) of the Standards for Public Land Health.

Environmental Effects

Alternative 1: Proposed Action (the ACEC is comprised of 2 areas, Blanca to San Luis Lake and Mishak Lakes)

Direct and Indirect Impacts:

The proposed change in the boundary of the ACEC, will not impact vegetation. Expanding the boundary will bring additional dry alkali lakes into the ACEC. There is potential for future seasonal or intermittent flooding or water manipulation in these alkali lakes, which could result in indirect effects. Future implementation actions that seasonally inundate these areas would bring about a change in the vegetative community. The plant community would likely change from the dry community that exists to a wetland plant community similar to what exists in the Blanca Wetlands. This change in plant communities could contribute to indirect and cumulative impacts; however, these impacts would be analyzed in detail in a site specific NEPA document at a later time.

Alternative 2: Blanca to San Luis Lake

Direct and indirect Impacts:

Effects are the same as in Alternative 1, but less acreage will be affected.

Alternative 3: No Action – No Change in the existing ACEC boundary

Direct and Indirect Impacts:

The No Action Alternative will not change vegetation.

Finding on the Public Land Health Standard for Plant and Animal Communities:

Overall, this public land health standard is met on the range sites identified in the vegetation section of this document. The sandy nature of the soils across much of the area drive an early successional vegetative landscape constantly changing in a dunal environment. Because of this, some of the area is sparsely vegetated, but the plant communities are as expected on this type of site. However, on select portions of the project area boundary on both public and private land, greasewood overstory is dying from what appears to be a declining water table resulting in an unexpected elevated amount of bare soil.

Specific to the plant communities on the grazing allotments that fall within the project area boundary, this standard is met. The allotments involved include the Blanca WHA, Dry Lakes, Lakes, Caldwell pasture, Bachelor Lake allotment, Dow and Phiffer pasture allotments, Pinon, Windmill, and Foothills. A few of these grazing allotments would not be impacted by future flooding or irrigation due to their steep or hilly terrain. Such is the case with the Foothill, Caldwell pasture, Pinon and possibly the Windmill allotments.

Indirect effects that could influence how we meet this standard include the habitat displacement of plants that currently exist in the dry wetland basins. This displacement of dry land plants through flooding or irrigation is not expected to cause a significant impact to a single plant species, however, there will be direct impacts to the plant community from changing the type of

range site to a wetland environment even if the wetland is just an ephemeral wetland site. Existing plants will die off as standing water makes conditions unsuitable for the plant to exist. Other plants more suitable for the newly created wetland habitat will move in and thrive where the dry land plants could not.

3.3.4 WETLAND AND RIPARIAN ZONES

Affected Environment

The project area lies within a series of hydrologically connected wetland basins within the Closed Basin of the SLV. This area is located within the sump, or low lying area that collects water, where there is no natural outflow or surface water connection with the Rio Grande. (Biohabitats Inc. , 2007). For thousands of years, the watersheds on the North end of the SLV (San Luis Creek, Saguache Creek, Big and Little Springs Creeks, Zapata Creek and other smaller streams) drained into this sump creating a series of connected saline basins known as playas. As late as the 1800's, maps of the site show either a lake or interconnected basins and marshes all across the eastern side of the SLV within this sump (Figure 18).

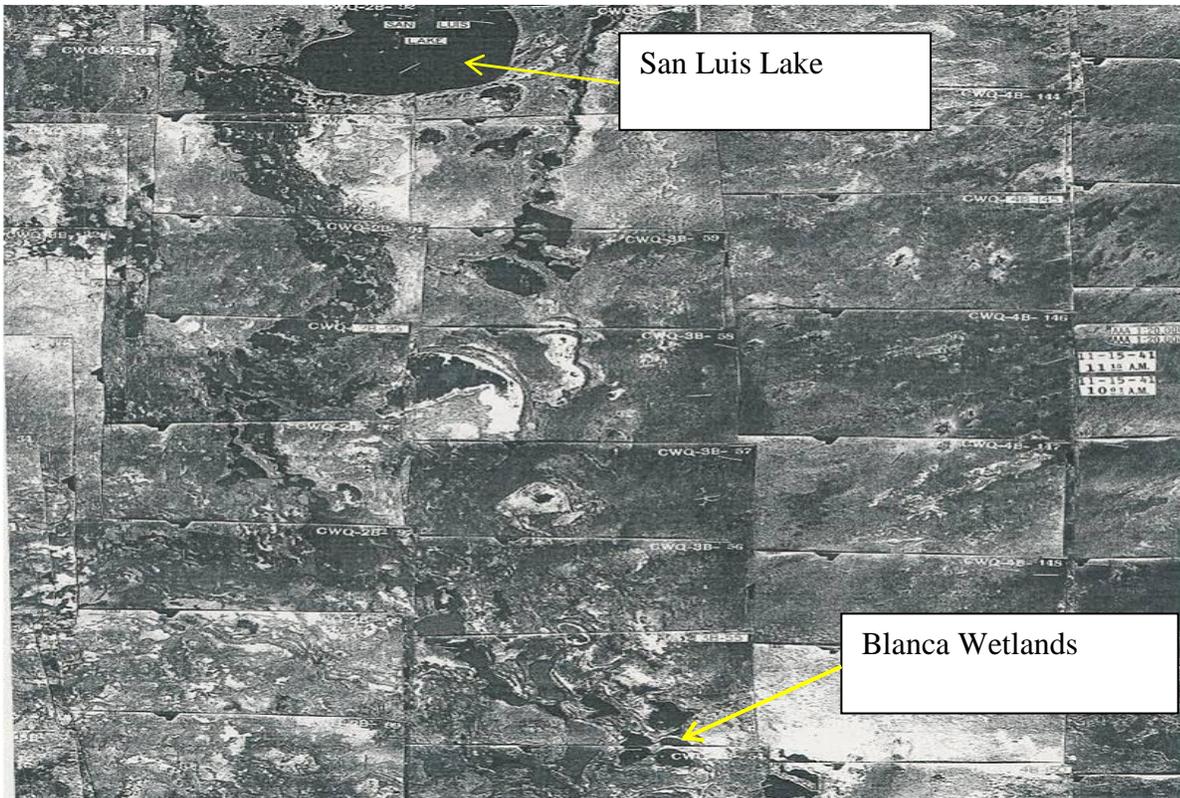
As recently as the 1940's, water was still reaching the southernmost portion of the Closed Basin in the area of today's Blanca Wetlands, as evidenced by aerial photos from that time period (Figure 19). By the 1950's, extensive water diversions and groundwater pumping eliminated the source of water for these wetlands, resulting in consequent drying of nearly all wetlands within the Closed Basin. The area that was once wetted in depths up to 15' was named the "Dry Lakes". Shortly after the drying, nesting populations of waterfowl and waterbirds declined by 50% during the 1960s and 1970s largely due to the loss of wetlands in the SLV. As a result, the BLM initiated wetland restoration efforts in the 1960's to restore a portion of this area now known as Blanca Wetlands.

Figure 18: 1863 Map Showing Historic Drainage Paths within the SLV



Wetlands restoration work initiated at Blanca Wetlands produced exceptional results. The area now supports 13 Threatened, Endangered and Sensitive species and over 160 species of birds, including 19 species of waterfowl and 22 species of shorebirds. The site maintains the state's largest breeding population of western snowy plover and supports a number of waterbird species of regional, national, and hemispheric importance (Ivey and Herziger 2006).

Figure 19: 1941 Photo Showing the area South of San Luis Lake in the Closed Basin



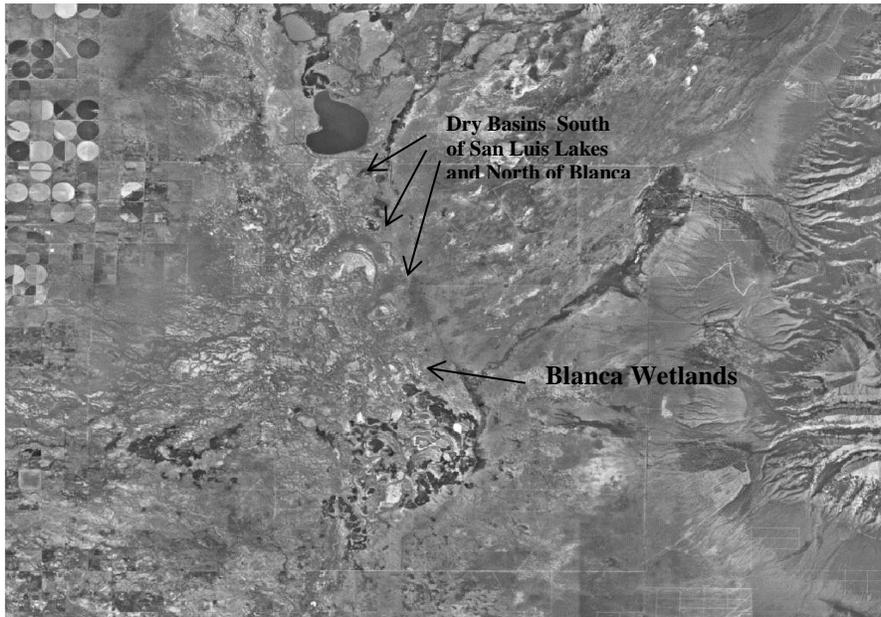
Blanca Wetlands has been named an Audubon Important Bird Area in Colorado and a Shorebird Key Site by the Intermountain West Joint Venture. It is also an important area for native amphibians, maintaining robust populations of 5 native herpetofauna.

Lastly, the area is known for its macroinvertebrate diversity, and for supporting a unique, undescribed species of fairy shrimp.

Largely due to the significant biological values of the wetlands, Blanca Wetlands was designated as an Area of Critical Environmental Concern (ACEC) in the 1991 SLRA RMP. Although at that time only 9,714 acres were designated as a wetlands ACEC, the RMP recognized the need for managing wetlands beyond this boundary. The SLRA RMP lists a wildlife and fish habitat management objective as: “provide special management to improve the present acres of wetlands in the Mishak Lakes and Dry Lakes areas to the historical acres of wetlands” (1991

section 1-12). In 1995, an Integrated Activity Plan (IAP) for Blanca Wetlands was developed, and further defined this need, stating, “in partnership with the USFWS and CDOW, cooperatively purchase, lease, exchange, and trade up to 7,000 acre-feet of water annually to develop and restore wetlands in the South San Luis Lakes and Blanca South units”.

Figure 20: Dry Basins Showing Lack of Connectivity to Blanca Wetlands ACEC



In recent years, research and feedback from wetland experts has suggested that the size of the ACEC may limit important aspects of wetlands functionality. For example, there is a lack of wetlands connectivity north of Blanca Wetlands, as evidenced by the dry playa basins that exist within the flow path of drainages that historically flowed into Blanca Wetlands (Figure 20).

In addition, wetland management techniques aimed at mimicking large-scale processes such as wetting and drying cycles are hampered by the small size of the existing ACEC.

Environmental Effects

Direct and Indirect Impacts:

Common to Alternative 1 and 2

The act of expanding the ACEC boundary would have no direct impact on the wetland resource; however, land acquisitions could occur as a result of expanding the boundary which may provide opportunity for wetlands restoration, creating beneficial impacts on the wetland resource.

Acquisitions would only occur if funds were available, and with willing sellers. Acquisitions would have to benefit the purposes for which the ACEC was designated, specifically wetlands, wildlife and recreation. At this time, land acquisition and/or wetland restoration is in the early planning stage and few specifics are known; therefore the magnitude and location of beneficial impacts cannot be predicted until site-specific acquisition or wetland restoration activities are proposed. At that time, a full analysis of potential effects would be completed. However, there are general effects from wetlands restoration work within this area that would likely occur that are pertinent to mention at this time. For example, wetlands restoration work would likely result in restoring some degree of connectivity with historic wetlands to the northeast. Greater connectivity provides the opportunity for species to access important habitats that may be

limiting, or higher quality habitats, as well as providing greater protection from stranding through isolation of ephemeral habitats. Acquisitions could also provide beneficial effects through creating a larger landscape across which wetlands management could occur. Specifically, it could provide the opportunity for employing larger scale wetting and drying cycles, mimicking an important natural, physical process that maintains wetlands productivity.

Because there is no direct impact on the wetlands resource from increasing the size of the ACEC, the analysis of effects will evaluate the varying levels of opportunity across the Alternatives. This analysis is intended to compare potential impacts to the wetlands resource created by the increased opportunity for wetlands restoration work as a result of the size of the ACEC increasing.

Alternative 1: Proposed Action (the ACEC is comprised of 2 areas, Blanca to San Luis Lake and Mishak Lakes)

Direct and Indirect Impacts:

Under the Proposed Action, there are approximately 7,487 acres of wetland acres (Figure 21) as mapped through the National Wetlands Inventory (NWI; U.S. Fish and Wildlife Service 2004). The NWI map is coarse-level assessment based on presence of wetland soil and vegetation types, and provides one indication of the wetland acreage that may exist under this Alternative that could provide an opportunity for protection or restoration. These mapped wetlands may not currently be managed specifically for wildlife values and may require restoration efforts, but they do provide an indicator of relative wetland restoration opportunities across Alternatives.

In addition, because these restoration opportunities occur across a larger area in this alternative, the ability to restore connectivity across the landscape is far greater than under Alternative 2. In particular, this Alternative provides the potential to re-connect historic Mishak Lakes to other historic wetlands in the Closed Basin. Lastly, this Alternative provides the greatest opportunity for employing large scale wetlands management approaches, simply because it provides the largest area to work within. The ability to do large scale management, mimicking natural processes, can be very beneficial to wetland productivity. BLM expects the greatest potential for this work under the proposed alternative, therefore this Alternative has the greatest likelihood of increasing wetlands productivity.

Protective/Mitigation Measures

None required.

Alternative 2: Blanca to San Luis Lake

Direct and Indirect Impacts:

Under this Alternative, there are approximately 4,588 wetlands acres (Figure 21) as mapped through NWI (U.S. Fish and Wildlife Service 2004). This Alternative would provide approximately 3261 acres of additional wetlands restoration potential, as compared to the No

Action Alternative. This Alternative provides 2899 acres less wetlands restoration potential than the Proposed Action. Therefore, while this Alternative does provide some additional opportunity for wetlands restoration, it provides substantially less opportunity than what would be provided under the Proposed Alternative.

Concurrently, the beneficial impacts to the wetlands resource would be slightly greater under this Alternative than under the No Action Alternative, but would provide far less beneficial impact than the Proposed Action.

In addition, because these restoration opportunities occur across a smaller area than Alternative 1, the ability to restore connectivity across the landscape is reduced from what is potential in Alternative 1, but slightly more than the No Action Alternative. In particular, this Alternative provides the potential to re-connect habitat to San Luis Lake, but lacks the potential to connect to historic Mishak Lakes.

Protective/Mitigation Measures:

None required.

Alternative 3: No Action – No Change in the existing ACEC boundary

Direct and Indirect Impacts:

Under this Alternative, the size of the current ACEC will remain unchanged, providing no additional opportunity for wetlands restoration work. Approximately 1,327 acres are classified as wetlands (Figure 21) (NWI citation). This Alternative represents the least opportunity for wetlands restoration work, and therefore the least potential beneficial impacts to the wetlands resource.

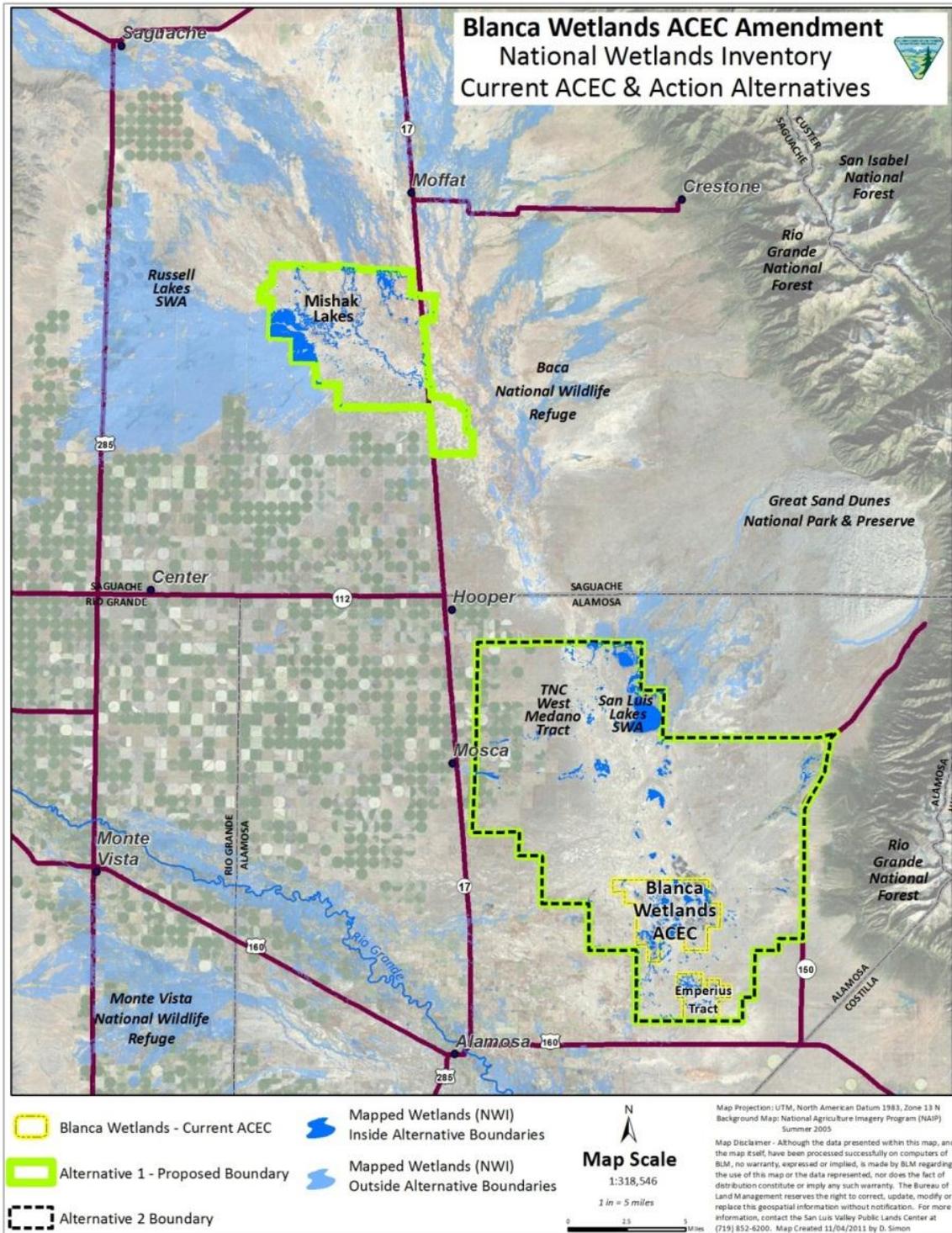
Protective/Mitigation Measures:

None required.

Finding on the Public Land Health Standard for Riparian Systems:

Because the riparian and wetland ecosystem has been broadly altered in the Closed Basin, this land-health standard is only partially met. The proposed project is at a planning level, so there would be no immediate improvement from the action alternatives nor is there a decline in riparian/wetland land health. However, enlarging the Blanca Wetlands ACEC will potentially lead to connected actions that would partially restore hydrologic processes. Therefore, the project could lead to future actions that improve riparian health and functionality and this land health standard.

Figure 21: NWI (National Wetland Inventory)



3.3.5 WILDLIFE AQUATIC

Affected Environment

The project area consists of interdunal ephemeral playa basins surrounded by arid upland shrubs. Intermixed in this mostly arid shrubland, are several wetland areas consisting of lakes, ponds, marshes, meadows, and playas, including Blanca Wetlands, San Luis Lake State Park and Mishak Lakes. Both San Luis Lakes and Blanca Wetlands are heavily managed wetland restoration areas that produce fish, waterbirds, and amphibians, but both areas are isolated islands of aquatic habitat in their arid surroundings. Mishak Lakes is a wetland area where no water management occurs and is left to respond to existing hydrologic conditions. This has led to a mostly ephemeral system that has been dry for the last 10 years but was wet as late as the 1990s. This broader landscape historically consisted of interdunal connected wetlands but was converted to arid terrestrial habitat through mostly human activities and effect of drought conditions.

The proposed project area contains mostly dry drainages that may run water during large precipitation events and during snowmelt, including the lower reaches of Saguache Creek, San Luis Creek and many of the Sangre de Cristo drainages. Most are considered ephemeral drainages by the time they reach the SLV floor near the project area. However, historic maps indicate connected channels are documented on the site historically. At this time, there are few perennial water sources, little riparian vegetative species present, and few fish species in areas outside of the wetland sites except for those present in Sand Creek and Big Spring Creek. Because there are few active channels in the project area, there is little associated lotic habitat. The fish on the wetland sites are mostly stocked warm- and cold-water fish. Historic populations of fish would have included endemic species, including the Rio Grande sucker, Rio Grande chub and the Rio Grande cutthroat trout.

There remain native amphibian populations using areas near water sources or isolated ephemeral puddles for their lifecycle needs. Habitat for the Northern leopard frog, chorus frog, Great plains toad, spadefoot toad and tiger salamander is present. Remnant populations of these species are present in relatively high abundance on Blanca Wetlands. Lastly, highly unique, diverse, and abundant macroinvertebrate populations are found within the wetland sites in the area. Many of these macroinvertebrates can survive in a dormant cyst condition for years in the soil and only emerge after a few weeks of wetting in the clay basins.

Environmental Effects

Alternative 1 and Alternative 2 (Action Alternatives):

Direct and Indirect Impacts:

Expanding the ACEC boundary would have no direct effects on the aquatic resource because this is a planning level action. No habitat altering actions are being proposed within this EA.

There is the potential for positive indirect impacts to the aquatic resource under either Alternative 1 or 2 from expanding the ACEC to include additional playas and wetlands and offer future restoration potential. Alternative 1 offers the greatest potential for positive impacts followed by Alternative 2 due to the larger scope providing the potential for more connectivity. Connectivity would allow for distribution of wetlands across the landscape in a manner that facilitates movement of aquatic species between those habitats. The connectivity also makes aquatic species more resilient to disturbances and stresses, such as drought.

Specifically, connectivity would occur under either action Alternative by expanding or reconfiguring available riparian and wetland habitat within the ACEC to aquatic habitats on lands managed by BLM, the Nature Conservancy, US Fish and Wildlife Service, National Park Service, and Colorado State Parks.

Actions possible under either Alternative 1 or 2 include land acquisitions from willing sellers and wetland development to promote connectivity. Connected habitat is important for aquatic species movement and colonization and to prevent population inbreeding and bottlenecks. Connectivity allows species to access important habitats that may be limiting or of higher quality as well as providing greater protection from stranding populations due to past isolation of the aquatic resources.

Finally, land acquisitions would protect ephemeral pools created by monsoon rains from being developed or destroyed. This protection would maintain habitat for aquatic species requiring ephemeral water, particularly the Great plains toads, spadefoot toads, and macroinvertebrates.

At this time, future projects and potential for land acquisition are in the very early planning stages, so assessing the magnitude of effects is premature. More specific site-specific analysis will occur as specific projects are defined.

Alternative 3: No Action – No Change in the existing ACEC boundary

Direct and Indirect Impacts:

The no action alternative will maintain the current status of wildlife habitat for aquatic wildlife. There are no direct or indirect effects expected under this alternative for these species. However, there could be lost opportunity to plan for the ACEC on a larger scale and an inability to plan future projects that would help to restore and connect habitat for these species.

Finding on the Public Land Health Standard for Plant and Animal Communities:

The land health standard for aquatic communities is minimally met for this area. This is due to the isolation of the existing restoration areas such as Blanca Wetlands, San Luis Lakes, and the adjacent Baca National Wildlife Refuge. Although there are healthy aquatic animal communities found in these areas, the hydrologic system that allows aquatic species to disperse and populate is patchy. Fisheries communities are also present in some areas, but they are either stocked fish or they are refugia populations found in some disconnected areas on wetland restoration sites. Therefore, the proposed planning level boundary adjustment will not immediately improve, nor will it cause a decline in the land health standard for aquatic wildlife. Should the ACEC boundary be expanded, and connected actions that create connectivity occur, habitat for aquatic

animal communities would be enhanced as populations of some species, such as amphibians, would be allowed to disperse.

3.3.6 WILDLIFE TERRESTRIAL

Affected Environment

The project area, is dominated by semi-desert shrubland habitat that is comprised primarily of greasewood, rabbit brush, inland salt grass, and various grasses and forbs. The area is designated crucial winter range in the 1991 SLRA RMP and winter habitat by Colorado Parks and Wildlife (Natural Diversity Information Source (NDIS), 2013) for elk and mule deer. An elk herd uses the area year-round for foraging and calving and rearing young. Much of the calving takes place in the tall grasses on the wetlands in the area. Mule deer use the area year-round because it provides browse and cover.

In general, semi-desert shrublands are occupied by ungulates, small mammals and select bird species but may also support a high diversity of reptiles. Various carnivores such as coyotes, ermine, and bears use the area,. Bears are occasionally seen on Blanca Wetlands, but are not known to use the area regularly and are likely attracted to the site from garbage left by recreationists. Small mammals, such as rabbits, voles, shrews, mice, and squirrels, are abundant using the arid shrub (rabbitbrush, greasewood, and 4-wing salt bush) and the thick herbaceous wetland where they forage and find shelter. Small mammals are essential in the diet of the many hawks observed, including ferruginous, Swainson's, Northern harrier, kestrel, sharp-shinned, Cooper's, rough-legged, and an occasional red-tail. In addition, a small wintering population of bald eagles and rare summer and spring occurrences by golden eagles are seen on the wetlands. Foraging habitat for prairie and peregrine falcons is also available across the across the analysis area. A diverse population of songbirds is documented using the site and are particularly prolific in the areas where wetlands are interspersed with the arid uplands. Over 160 species of birds have been found in some of the areas within the project boundary. Finally, several species of reptiles are known to use the area, including bull snakes, garter snakes, and short-horned lizards.

Environmental Effects

Alternative 1 and Alternative 2 (Action Alternatives)

Direct and Indirect Impacts:

Under this alternative, there would be no direct effects to terrestrial species because both Alternative 1 and 2 propose enlarging the boundary at a planning level, but do not propose altering habitat.

There are some indirect effects likely to occur to terrestrial species from future actions initiated as a result of the boundary expansion. For example, it is likely terrestrial species will benefit from potential future actions enhancing habitat that promotes increasing the mosaic of habitats and connectivity. It is also likely that any future development of wetlands in the area will likely be an attractant to terrestrial wildlife based on water resources, cover, and new foraging opportunities. In this dry landscape, any areas of water development are likely to benefit

terrestrial wildlife by increasing habitat availability through decreasing distance to water for drinking and using the cover that is often associated with riparian areas for rearing young, foraging, and security.

There could be some detrimental effects to terrestrial wildlife from potential increases in recreation activity resulting from future wetland improvements, and some conversion of habitat from terrestrial upland shrubs and grasses to wetland vegetation. However, available water, riparian habitat, and additional prey species associated with wetlands and playas allow for increases in wildlife abundance to meet various wildlife ecological needs. The benefit of expanding the ACEC and creating the opportunity to add water to mimic historic wetland processes for terrestrial wildlife surpasses any negative impacts to wildlife species from conversion of habitat.

Alternative 3: No Action – No Change in the existing ACEC boundary

Under Alternative 3, the ACEC will not be expanded and potential future actions to conduct wetland restoration will not occur. Lack of water, monotypic habitat, and limited palatable forage provides habitat for wildlife but does not provide the same level of biodiversity and abundance of wildlife as under Alternative 1 or 2, especially for amphibians, birds, and small mammals.

Finding on the Public Land Health Standard for Plant and Animal Communities:

For terrestrial wildlife, this land-health standard is currently met. Ground cover, overstory, and health of the plant life is in good condition in some areas and sparse in others. In parts of the area on both public and private land, greasewood overstory is dying from what appears to be a declining water table resulting in less ground cover. Terrestrial wildlife populations are largely dependent on the cover and the forage these plants provide, so marginal conditions on the site are a concern for the sustainability of wildlife populations. Because the action alternatives are at a planning level, there will be no change to the land health standard based on any of the alternatives listed in this document. However, should the ACEC be enlarged and future actions lead to cycles of wetting and drying over a landscape scale, plant vigor should improve and habitat for terrestrial species should be enhanced due to healthier and more diversity in the vegetative community thereby increasing sustainability of wildlife communities.

3.3.7 MIGRATORY BIRDS

Affected Environment

The Migratory Bird Act (MBTA) protects migratory birds and their parts (including eggs, nests, and feathers). Habitat in this area for migratory birds includes rabbitbrush/salt grass/greasewood habitat for ground nesting songbirds and raptors, wetland habitat for migrating and breeding waterfowl/waterbirds, and small scattered isolated patches of willow and cottonwood for songbirds and raptors.

A list of migratory birds from the FWS Birds of Conservation Concern for this area and their status can be found in Table 13. A review of the migratory bird table indicates that five species

on the BCC List for BCR 16 are excluded from analysis because they do not occur or are considered accidental within the SLV and will therefore not be affected by any management actions. These species include the veery, gray vireo, black rosy finch, Grace's warbler, and chestnut collared longspur. Species that do not occur or have no habitat present in the project area are those labeled "No" in the Occurrence in the Analysis Area column of Table 13.

The information provided in the migratory bird table indicates that fifteen species designated as Birds of Conservation Concern (BCC) for BCR 16 could breed in or near the analysis area or migrate through the general vicinity. Most migratory bird use in the SLV is limited to the summer period due to the harsh fall, spring and winter months. Most birds arrive during late spring (April/ May) and migrate from the area in early fall (August/ September). The species present during summer are most likely breeding and rearing young. Most species on the BCR 16 list follow this migration pattern; however, a few species are present during winter. Resident species that spend all or part of the winter in the SLV include the ferruginous hawk, golden eagle, Gunnison's sage-grouse, burrowing owl, peregrine falcon, prairie falcon, Lewis's woodpecker, and pinyon jay. Of these winter resident species, golden eagle, peregrine falcon, prairie falcon, ferruginous hawk, burrowing owl, and Lewis's woodpecker have potential year-round habitat present in the project area.

Table 13: Migratory Bird Table - FWS Birds of Conservation Concern (BCC) for BCR 16 and their Status within the Project Area (FWS 2008)

Species	Associated Habitat Types(s)	Occurrence in Analysis Area/ Adjacent Wetlands complex
American Bittern	Wetlands	Yes
Bald Eagle	Lakes and rivers	Yes
Ferruginous Hawk	Grassland, Mountain Shrub, Semi-Desert Shrubland, Sagebrush Shrublands	Possible
Golden Eagle	Agricultural, Grassland, Cliff/Rock/Talus	Yes
Peregrine Falcon	Agricultural, Pinyon-Juniper, Spruce-Fir, Ponderosa Pine, Cliff/Rock/Talus, Wetlands	Yes
Prairie Falcon	Agricultural, Grassland, Semi-Desert Shrubland, Cliff/Rock/Talus	Possible
Gunnison's sage-grouse	Mountain Shrub, Sagebrush Shrubland, Low Elevation Riparian	No
Snowy Plover	Wetlands	Yes
Mountain Plover	Agricultural, Grassland, Semi-Desert Shrubland, Sagebrush Shrubland	Possible
Long-billed Curlew	Shorelines	Yes
Willow Flycatcher	Willow-Riparian	Possible
Juniper Titmouse	Pinyon-Juniper Woodlands	No
Yellow-billed Cuckoo	Low Elevation Riparian, Wetlands	No
Flammulated Owl	Aspen, Ponderosa Pine, Mixed-Conifer, Spruce-Fir	No
Burrowing Owl	Grassland, Semi-Desert Shrubland, Sagebrush Shrubland	Possible
Veery	Dense riparian thickets, willow-riparian	No*
Lewis's Woodpecker	Ponderosa Pine, Low Elevation Riparian	Possible
Gray Vireo	Oak woodlands/scrub	No*
Pinyon Jay	Pinyon-Juniper, Ponderosa Pine	No
Bendire's Thrasher	Semi-Desert Shrubland	Possible
Black Rosy Finch	Spruce-fir forest; alpine	No*
Brown-capped Rosy Finch	Nests above timberline in alpine zone in cliffs, crevices; also utilizes spruce-fir forest	No
Cassin's Finch	Primarily spruce-fir, but also mixed-conifer forest	No
Grace's warbler	Ponderosa pine	No*
Brewer's sparrow	Sagebrush Shrubland	Possible
Grasshopper Sparrow	Grasslands	Possible
Chestnut-collared longspur	Shortgrass Prairie	No*

* Excluded from analysis because the species does not occur or has very rare migratory occurrence in the SLV.

Environmental Effects

Direct and Indirect Impacts:

Effects Common to All Alternatives:

The project area includes habitat for fifteen species of conservation concern, including five species that may be present during the winter period. None of the alternatives authorized under this EA will cause any direct effects to migratory birds since there are no habitat altering actions being initiated.

The immediate action of defining a boundary for the ACEC has no immediate effects to migratory birds under any of the alternatives; however there is the potential for positive indirect effects from future activities from either Alternative 1 or Alternative 2. For example, it is possible some level of land acquisition and wetland restoration within the project area will occur if either Alternative 1 or 2 are selected. If that occurs, additional environmental analyses will be necessary and site specific issues for migratory birds will be addressed at that level.

In 2010, BLM issued a decision to irrigate in South San Luis Lakes (DOI-BLM-CO-140-2010-009-EA), which is within the proposal for the expanded area under either Alternative 1 or 2. In the EA for that project, effects to migratory birds were addressed and those effects described would be similar to expected effects from future projects in this area. In general, effects to migratory birds include a potential loss of upland habitat with restoration and maintenance of wetland/ playa habitat which may change how and what species of migratory birds use the habitat. The costs of upland habitat conversion for the benefits of wetland/ playa habitat production are considered a benefit for most migratory bird species using the project area. Loss of a minimally productive rabbitbrush/ salt grass/ greasewood plant association to the conversion of a wetland or playa complex will provide habitat for many shorebirds, waterbirds, raptors, and waterfowl.

Finally, in terms of land acquisition, there could be positive effects to migratory birds as the landscape is managed for connectivity and partial restoration of ecological processes.

Alternative 3: No Action – No Change in the existing ACEC boundary

When considering foreseeable future actions for migratory birds, effects under this alternative would be loss of opportunity to restore landscape processes for these highly mobile species. In general, no direct or indirect effects, either positive or negative, will occur under this alternative.

3.4 HERITAGE RESOURCES AND HUMAN ENVIRONMENT

3.4.1 CULTURAL RESOURCES

Legal Framework: The legal framework requires that the BLM consider cultural resources as they relate to the National Historic Preservation Act (NHPA) 1966 as amended (36 CFR 800), the Archeological Resources Protection Act (ARPA) 1979, the American Indian Religious

Freedom Act (AIRFA) 1979 and the Native American Graves Protection and Repatriation Act (NAGPRA) of 1992. A National Programmatic Agreement among the BLM, the Advisory Council for Historic Preservation (ACHP) and the National Conference of State Historic Preservation Officers, as well as the Colorado State Protocol between the Colorado BLM and the Colorado State Historic Preservation Office (SHPO), allows for the BLM to make determinations of eligibility (DOEs) and effect when there is no potential for adverse effects on historic properties.

Affected Environment

A Class I literature search for the Blanca Wetlands ACEC Enlargement Project was conducted to determine the type and scope of cultural resources within the proposed project area(s). The search utilized the records of the State Historic Preservation Officer, the cultural resource atlas of the SLV Field Office, all relevant Cultural Resource Management (CRM) reports, General Land Office plat maps, and aerial photographs. This effort indicated that there have been at several previous cultural resource inventories within and adjacent to the proposed enlargement areas (Alternatives 1 & 2) totaling 33,218 acres. The most notable is the Closed Basin Project (CBP) that implemented at least 20,000 acres of cultural resource inventories, many of which have occurred within the proposed ACEC boundaries (Button 1987). The CBP revealed the extraordinary archaeological site density of the area that appears closely associated to a rich wetland environment. The literature search also indicates that documented archaeological sites for the enlargement proposal occur on lands owned by the BLM, the National Park Service (NPS), U.S. Fish and Wildlife Service (USFWS) and The Nature Conservancy (TNC). The currently held private lands within the proposed boundary enlargement undoubtedly contain an array of archaeological resources given their proximity to the rich lacustrine environment and the known archaeological sites on federal and TNC lands. However, information about these sites is lacking.

The actual survey areas for the CBP within the current project area are unclear and can only somewhat be discerned by known site locations. The survey strategy for the CBP was one of 'avoidance' to reduce the cost of data recovery and site mitigation. Subsequently, as more archaeological site data were gathered, the project design adapted to avoid all sites with any artifact density and potential buried deposits (Button 1987: I: 3). Therefore, one could easily surmise that much of the current project area has been previously covered by larger block surveys that fell outside of the impact zone, however, there is no survey data currently on hand to support this.

At least 300 sites have been identified and documented within the proposed boundary enlargement(s). Roughly a third (96) of the sites is *unevaluated* for significance to the National Register of Historic Places (NRHP). Only 15 are officially *eligible* to the NRHP with concurrence from the Colorado State Historic Preservation Office (COSHPO). The Trujillo Homestead (5AL706/NPS) and the Zapata Ranch (5AL297/TNC) are both listed on the National Register of Historic Places (NRHP). Unevaluated sites represent "deferred maintenance" in that they still require determinations of eligibility in order to be properly researched, managed and protected.

Other notable archaeological inventories have also occurred within the proposed project area. In 1975, archeologists surveyed an unknown number of acres for the “Blanca Wildlife Habitat Area (WHA) Project” (Dick 1975). Several sites were documented during the survey, most of which are represented by open prehistoric camps with identifiable hearths, groups of hearths, fire cracked rock and large lithic debitage and formal tool assemblages. The majorities of these sites, often associated with dry lakes and springs, dates from the Middle to Late Archaic (5,000 BC to 1,500 BC), and appear significant in terms of cultural material, chronology and depth of deposits. Subsequent this project, a sample of these sites were tested to determine the depth of cultural deposits (Jones & Jennings 1977). In 1982, archeologists surveyed an unknown number of acres for the University of Denver Archeological Project resulting in the recordation one prehistoric open campsite (Gadd 1982). In 2001, a team of Smithsonian archeologists surveyed 193 acres in the area of the San Luis Lakes north of the Blanca WHA (Jodry 2008). This effort further studied and excavated site 5AL326, now known as the Fishbone Site, which will be discussed further below. This extremely significant Early Archaic site, like several tested sites within the WHA, revealed the potential for very deep cultural deposits. In 2009, archeologists from the SLV Field Office conducted a cultural resource inventory of approximately 300 acres for the South San Luis Lakes Wetland Restoration Project (Parks & Krall 2010). Seven sites and nine isolated finds were documented during the inventory consisting primarily of prehistoric open lithic and open camp sites.

The project area is part of a unique cultural landscape wherein aboriginal human populations adopted a lacustrine adaptation similar to Great Basin cultures. This adaptation was uniquely geared toward the exploitation of the rich and fluctuating wetland habitats for at least 10,000 years (Button 1987). Research in the area also strongly suggests that the paleoecology and the unique topography of playas and parabolic dunes have remained largely unchanged for the past 10,000 years, despite the strong aeolian influence of the prevailing winds (Jones 1977; Button 1987; Jodry 2008). By extension, archaeological site distribution appears directly tied to this relative stasis in topography and wetland wetting and drying regimes; most of the more significant extensive sites tend to be *above* 7,520 feet, clustering in the areas of high ground above areas that experienced a wetting and drying regime that varied year to year.

Predominantly prehistoric in nature, the sites within the proposed enlargement areas represent a high concentration of sites that date to the Paleoindian period (11,500–8,000 Before Present B.P.) and provide evidence for the earliest human occupation of south-central Colorado. This period includes the Clovis, Folsom, and Plano stages, and is characterized by the hunting of big game such as mammoth and bison by hunters using long, lanceolate projectile points and atlatls (spear throwers).

Most notable among this site type are the *eligible* Reddin Folsom Site (5SH77), the Zapata Folsom Site(5AL90) the *unevaluated* Little Clovis Site (5AL94), the Beck Folsom Site (5AL97), and *eligible* site 5AL123, an open camp consisting of projectile points ranging from Paleoindian (Clovis and Folsom), to Early Archaic (Bajada), and to the Late Prehistoric. The Archaic period (8,000–1,600 B.P) also appears well represented within the project area. The signature site is perhaps the Fish Bone Site (5AL326), also known as the Borrow Pit site, known for the butchered remains of fish bones recovered during a Smithsonian excavation (Jodrey 2008). These include the Rio Grande chub (*Gila elegans*) and the Buffalofish (*Ictiobus bubalus*). The site appears to date to the end of the Early Archaic (6280 to 5990(BP)) during the so-called

Altithermal Refugium era that some researchers suggest was warmer and drier (Benedict 1979). The presence of fish that need at least 12-15 feet water depth to thrive indicates that perhaps the wetlands area did not experience the extreme heating and drying regimes evident in the Great Plains and Great Basin during that era.

Other notable Archaic period sites within the proposed amendment include the *unevaluated* the Seven Dunes Complex (5AL08), *unevaluated* site 5SH1532, *eligible* site 5SH1645, and *eligible* site 5SH1803. The Late Prehistoric era (1,600–500 B.P.) appears to experience a spike in population growth, as this site type is ubiquitous throughout the SLV. The project area is no exception boasting a possible kill site at the *unevaluated* Hairy Buffalo Site (5AL384) and 5AL836, an *eligible* open camp site containing Upper Republican cord marked pottery. Cord marked pottery is rare in this area and only six sites have been found to contain this type within the SLV (Colorado Context: Rio Grande Basin 1999). All of the previously recorded sites with cord marked pottery are located in proximity of San Luis Lakes and within approximately 22 miles of Mosca or Medano Passes.

The Protohistoric Period (500–130 B.P.) is the era most commonly defined when European contact occurred within the region. A significant linear resource that dates to this era is the East Fork of the North Branch of the Old Spanish National Historic Trail (1829-1848) in the southeastern portion of the proposed amendment area. Other proto-historic sites in the area include *eligible* site 5AL717 that includes 13 Culturally Modified Trees (CMTs) peeled for food by Utes and Apaches, *eligible* site 5AL969, and the *unevaluated* Little Spring Complex (5AL10). From 1536 to 1848, most of the western United States, including a majority of the land that was later to become Colorado, was under the rule of Spain. The area was sparsely settled and seldom explored until 1821, after Mexican independence, when the region experienced an influx of Euro-American fur trappers. Notable historic sites within the project area include 5AL706, the Trujillo Homestead (5AL706/NPS) and the Zapata Ranch (5AL297/TNC), both listed on the National Register of Historic Places (NRHP).

Previous effects to cultural resources within the project area include human and natural impacts. The area is known well for having been heavily grazed historically and continues to be a popular place to illegally collect artifacts. Collectors are drawn to the dunes around the playas that shift each year, exposing new artifacts. At least one Archaeological Resources Protection Act (ARPA) case has been prosecuted in the Blanca Wetlands ACEC in 2007. Most sites currently documented within the project area boundary and input into the Colorado State Historic Preservation Office's (COSHPO) Compass Database are described as having been vandalized in some form or fashion.

Wind has also taken its toll in the form of an aeolian (wind deposited) environment that displaces artifacts vertically and horizontally, creating the collapse and superimposition of 10,000 years of an archaeological record often in one soil horizon. There is however, some evidence of intact (with stratigraphy) buried cultural deposits at 5AL326 (Jodry 2008). While the soil movement can be a problem for archaeologists, the sandy soil composition can also protect organic archaeological assemblages such as bone and wood. Several archaeological sites within the project area are potentially significant in terms of their intact buried deposits, extraordinary time depth, and potential level of preservation. Some sites are extremely large, such as the Seven Dunes Complex at 162 acres and the Reddin Folsom site at 87 acres. By far the most ubiquitous

site type generally dates to the Late Archaic, is diffuse, and is often characterized by one to four acre sites with thin surface scatters of lithics and fire cracked rock that were likely short-term, and as such, have low potential for stratified cultural deposits.

Environmental Effects

Alternative 1: Proposed Action (the ACEC is comprised of 2 areas, Blanca to San Luis Lake and Mishak Lakes)

Direct and Indirect Impacts:

Expanding the ACEC boundary would have no direct impacts on cultural resources. However, expanding the current ACEC boundary would have the potential for significant positive indirect effects on cultural resources. Any cultural resources currently located on private lands that are potentially sold to the federal government within the proposed boundary would then come under the purview of the National Historic Preservation Act (NHPA), would be protected from development, managed in the interest of the American public and protected under the Archeological Resources Protection Act (ARPA) with punitive measures to enforce vandalism and artifact collection violations.

The promotion of wetland ecological function, restoration, and connectivity on a larger scale than the current ACEC boundary would have an indirect positive effect on documented and yet to be documented archaeological sites within the proposed enlargement boundary(s). The natural and cultural landscapes appear to be greatly intertwined with regard to the long-term human adaptation to the lacustrine environment common within the Blanca Wetlands ACEC and on adjacent USFW, NPS, State and TNC lands. The proposal for a larger boundary would allow for more fluid research, management, protection and interpretation of archaeological resources that occur on or are adjacent to BLM, State, TNC, the Baca National Wildlife Refuge (USFWS), and the Great Sand Dunes National Park and Preserve (NPS) lands. Interagency cooperation is an important aspect of land management in the SLV, often a function of a lack of staff and resources. The enlarged boundary could promote more interagency cooperation and potential research funding strategies around the identification and study of cultural resources on a landscape scale. More indirect positive effects could include the expansion of a database for the further understanding of prehistory and history in the region. The data could then be translated to and shared with the public through a variety of means per the Section 110 mandate of the National Historic Preservation Act (NHPA).

An expansion of the ACEC would make it possible for BLM to acquire land in the area from willing sellers leading to indirect effects. A potential indirect negative impact to cultural resources could include an increase in the vandalism and collection of cultural resources accessed by the public on previously private lands acquired by the federal government.

Protective/Mitigation Measures:

To mitigate the potential negative impacts to cultural resources, newly acquired lands should have an archaeological reconnaissance completed to gauge the scope and significance of the cultural resources on each parcel. Law enforcement should then be notified of significant historic properties within newly acquired parcels. A public site steward program could also be put in

place to aid law enforcement and heritage program managers in protecting significant archaeological sites on newly acquired lands. Education regarding the law and interpretation of the significance of the cultural resources can also mitigate potential negative effects to cultural resources.

Alternative 2: Blanca to San Luis Lake

Direct and Indirect Impacts:

The potential positive and negative Direct and Indirect Impacts: would be the same as indicated for Alternative 1, but to a lesser degree given the smaller proposed enlargement boundary.

Protective/Mitigation Measures:

To mitigate the potential negative effects to cultural resources, newly acquired lands should have an archaeological reconnaissance completed to gauge the scope and significance of the cultural resources on that parcel. Law enforcement should be aware of significant historic properties within newly acquired parcels. A public site steward program could also be put in place to aid law enforcement and heritage program managers in protecting significant archaeological sites. Education regarding the law and interpretation of the significance of the cultural resources can also mitigate potential negative effects.

Alternative 3: No Action – No Change in the existing ACEC boundary

Direct and Indirect Impacts: The No Action Alternative would not have any foreseeable direct negative effects on cultural resources. Since this alternative includes no ground-disturbing activities, the potential for inadvertent discoveries of and damage and destruction to buried cultural deposits and aboriginal human remains would be negligible. This alternative would have no direct effect on significant heritage resources and no mitigation or monitoring activities would be necessary. However, this alternative has the least potential to increase knowledge base and the protection of archaeological sites on newly acquired lands within the larger connected wetland ecosystem.

3.4.2 NATIVE AMERICAN RELIGIOUS CONCERNS

Tribal consultation with San Luis Valley affiliated tribes was initiated during project scoping, and no comments were received. However, informal consultation between the Navajo Nation and the SLVFO Cultural Program Lead, regarding a previous wetland project in the vicinity, indicates that the Traditional Culture Program of the Navajo Nation supports the protection and enhancement of closed basin wetlands. To this day, medicine people visit the wetlands to make offerings, collect plant material and conduct ceremonies that can only happen there.

Affected Environment

The region encompassing the Blanca ACEC, the San Luis Lakes, the Great Sand Dunes and Mt. Blanca is viewed by many tribal peoples as a sacred landscape and could be recognized as a Traditional Cultural Landscape as defined by the Advisory Council on Historic Preservation

(ACHP) in the Traditional Cultural Landscape Action Plan (ACHP 2011). Several Northern Rio Grande Pueblos view SLV as the mythic and literal source of their existence, or emergence place (*sipapu*), the place where they came up to this world from the World Below, and the place where *Posoge* (the Tewa “Big River” or Rio Grande) originates (White 2005). The Santa Ana emergence story referred to the *Shipap* as a place in the north, “too sacred ... to live there” so the people moved south (White 1942:87). The wetland lakes in the Blanca Wetlands ACEC and San Luis lakes area are possible locations for the emergence place:

...Ma-se-ua is the spirit of Rain who dwells in the lagune of ‘Shipap.’ This Lagune is said to be to the North, beyond the ‘Conejos,’ and is described to be very round and deep. Many streams flow into it, *but it has no issue*. Out of this Lagune came forth the Indians and in it dwells ‘Te-tsha-na,’ our mother, from which sprang the Indian race. Those who die go to heaven above where God judges them and while the bad ones go to perdition forever, the good ones return to their mother in the said Lagune (Lange 1959:416).

Harrington concluded that Sandy Place Lake, or Sipop’*e*, was a “brackish lake situated in the sand dunes north of Alamosa, Colorado ... east of Mosca, a station on the railroad which runs from Alamosa to Silverton, and west of the Sierra Blanca.” Despite this attempt at specific placement of the lake, Harrington (1916:52) commented further that “All lakes were ... the dwelling places of ‘ōk’uwa ‘cachinas’ and passageways to and from the underworld.”

San Idelfonso Pueblo also recognizes a diety, *Somaikoli* who came, with the people from the Sandy Place Lake of the North that many believe to be in the SLV in the vicinity of the Great Sand Dunes (Ortiz 1969). *Somaikoli* is a crippled and blind deity associated with a dance that has been carried on since the time of Emergence. Archaeological evidence, such as Northern New Mexico Puebloan ceramics (Taos Incised and Corrugated) and some projectile point types denote Puebloan influence in the area possibly between 900-1500 AD (Button 1987).

The Great Sand Dunes just to the east of the wetlands are sacred to several Tribes including the Ute, Jicarilla Apache, and Dineh (Navajo). The Jicarilla Apache know the Great Sand Dunes as “*Seinanyédi*”, translated as “it goes up and down” (White 2005). Mount Blanca, another commanding landmark just to the south and east of the project area, is sacred to the Dineh as the White Shell Mountain of the East; *Sisnádjini*, known to be the eastern boundary marker of the traditional *Dinetah* or homeland. The Dineh have also shared that there are ceremonies and sings associated with the wetlands of the Blanca Wetlands ACEC and San Luis Lakes area (Tony Joe, Navajo Nation Tribal Historic Preservation Office, personal communication with Krall 2010). Medicine man Timothy Begay notes the Shooting Way chant as particularly associated with the wetlands (Timothy Begay, Navajo Nation Tribal Historic Preservation Office, personal communication with Krall 2012). Mount Blanca also known as Sierra Blanca is *Pintsae’i’i* “White Mountains,” to some Tewa groups and is located “east of Sipop’*e* Lake” according to Harrington (1916:564).

Within this traditional cultural landscape and the proposed enlargement boundaries, at least two archaeological sites identified during the Closed Basin Project indicated the presence of Native

American burials. These include 5AL08 (The Seven Dunes Complex) in 1979 and 5AL386 in 1984. There is no further data with regard to these remains. Anecdotally, it is known that the potential for such discoveries is high within the project area due to the high site density, the high potential for preservation of organic material and the erratic aeolian (wind driven) environment that can quickly expose and cover cultural deposits. Ranchers and past and present land managers have shared their own experiences of these occurrences in similar landscapes across the SLV. Fortunately, there is in place an intertribal and interagency Native American Graves and Repatriation Act (NAGPRA) Memorandum of Understanding (MOU) that has been ratified by several tribes that claim affiliation to the SLV including several Upper Rio Grande Pueblos, the Navajo Nation, and the three Colorado Ute Tribes and the Jicarilla Apache Nation. The cooperating agencies include the Bureau of Land Management, the U.S. Forest Service, the National Park Service and the Fish and Wildlife Service. The MOU is designed as a guide for the Tribes and land management agencies in the care of inadvertent human burial discoveries in the SLV.

Environmental Effects

Alternative 1: Proposed Action (the ACEC is comprised of 2 areas, Blanca to San Luis Lake and Mishak Lakes)

Direct and Indirect Impacts:

There are no direct impacts to the Traditional Cultural Landscape from expanding the ACEC. However, the promotion of wetland ecological function, restoration, and connectivity on a larger scale than the current ACEC boundary would have an indirect positive effect on the area that is part of the Traditional Cultural Landscape mentioned above. The land would be protected from development and would maintain a natural system wherein ceremony, ritual and collection areas could be expanded and perhaps revived given potential access to new areas. The natural and cultural landscapes appear to be greatly intertwined with regard to the long-term human use of the area also adjacent to USFW, NPS, State and TNC lands and are still active in the cultural memory of several extant tribes.

Because possible land acquisition could occur following expansion of the ACEC, a potential indirect negative effect to possible sacred sites on the landscape could include an increase in the vandalism and collection on these sites accessed by the public on previously private lands acquired by the federal government.

Protective/Mitigation Measures:

To mitigate the potential negative effects to possible sacred sites within current and newly acquired lands, the BLM should conduct tribal consultation regarding each parcel to determine if sacred sites are present. Law enforcement should be aware of possible sacred sites within newly acquired parcels but sacred site information would be protected from the public.

Alternative 2: Blanca to San Luis Lake

Direct and Indirect Impacts are the same as under Alternative 1.

Alternative 3: No Action – No Change in the existing ACEC boundary

The No Action Alternative would not have any foreseeable direct negative effects on possible sacred sites of the Traditional Cultural Landscape. Since this alternative includes no ground-disturbing activities, the potential for inadvertent discoveries of and damage and destruction to buried cultural deposits and aboriginal human remains would be negligible. However, this alternative has the least potential to increase knowledge base and the protection of sacred sites within the larger connected wetland ecosystem and the Traditional Cultural Landscape that it is a part of.

Direct and Indirect Impacts:

The potential positive and negative Direct and Indirect Impacts: would be the same as indicated for Alternative 1, but to a lesser degree given the smaller proposed enlargement boundary.

Protective/Mitigation Measures:

To mitigate the potential negative effects to possible sacred sites within current and newly acquired lands, the BLM should conduct tribal consultation regarding the each parcel to determine if sacred sites are present. Law enforcement should be aware of possible sacred sites within newly acquired parcels but sacred site information would be protected from the public.

3.4.3 PALEONTOLOGICAL RESOURCES

Affected Environment

The majority of the proposed enlargement areas consist of the Alamosa Formation, a high level alluvium of Pleistocene and Pliocene deposits that dates from roughly 1.6 million years to 10,000 years before present. Bouldering alluvial deposits occur high above modern streams. The Alamosa Formation is considered to be PFYC Class 4/5, having a high potential for scientifically significant vertebrate faunal fossils, including mammoths, camels, horses, rodents, birds, fish, turtles, and invertebrate fossils of mollusca, ostracods, bryozoans that may be associated with the Late Pleistocene era and Lake Alamosa (Lindsey 1983). However, there are no known paleontological localities documented within the current or proposed ACEC area boundaries. The remaining area is determined as PFYC Class 3, with unknown or little likelihood of fossils of scientific importance. These include; Surficial deposits (Quaternary-1.5 million years to 10,000 years before present) and young glacial drift; Colluvium (Holocene-10,000 years before present to the present) of poorly sorted material of slopes, ranging from silt to boulders which locally includes small alluvial-fan, talus, landslide, and glacial moraine deposits; Pre-ash flow andesitic lavas and breccias (Oligocene, 37 million to 24 million years before present) with vent facies lavas and breccias at numerous widely scattered volcanic sources surrounded by coalescing aprons of volcanoclastic debris; and Interlayered felsic and hornblendic gneisses (Precambrian-2.5 billion to 570 million years before present) that includes metarhyolites, metabasalts, and interbedded metagraywackes as well as more highly metamorphosed gneisses.

Environmental Effects

Alternative 1: Proposed Action (the ACEC is comprised of 2 areas, Blanca to San Luis Lake and Mishak Lakes)

Direct and Indirect Impacts:

Expanding the boundary of the ACEC would have no direct impacts on paleontological resources. As with cultural resources, expanding the current ACEC boundary would have the potential for positive indirect effects on potential paleontological resources. Any paleontological resources contained on private lands that are potentially sold to the federal government within the proposed enlargement areas would then come under the purview of and protected by the Paleontological Resources Preservation Act of 2009, would be protected from development, and managed and interpreted in the interest of the American public.

A potential indirect negative effect to paleontological resources could include an increase in the vandalism and collection of cultural resources accessed by the public on previously private lands acquired by the federal government.

Alternative 2: Blanca to San Luis Lake

Direct and Indirect Impacts:

The potential positive and negative Direct and Indirect Impacts would be the same as indicated for Alternative 1, but to a lesser degree given the smaller proposed enlargement boundary.

Alternative 3: No Action – No Change in the existing ACEC boundary

Direct and Indirect Impacts:

The No Action Alternative would not have any foreseeable direct negative effects on paleontological resources. Since this alternative includes no ground-disturbing activities, the potential for inadvertent discoveries of and damage and destruction to buried paleontological resources would be negligible. This alternative would have no direct effect on significant paleontological resources and no mitigation or monitoring activities would be necessary. However, this alternative has the least potential to increase knowledge base and the protection of paleontological sites on newly acquired lands within the larger connected wetland ecosystem.

3.4.4 ECONOMIC

Affected Environment

The project is located in the SLV, within the counties of Alamosa and Saguache. The demographic data is presented in Table 14. The area is economically distressed and rural in nature. Both counties that are part of the project area boundary have a low per-capita income (Alamosa - \$18,820 and Saguache - \$18,686), which is roughly 60% of the average for Colorado (Table 14). There are twice as many people below poverty level per capita in these Counties relative to the Colorado average.

Table 14: Demographic Data for Alamosa and Saguache Counties

	Alamosa	Saguache	Colorado
Population (2010)	15,293	6,161	4,887,061
Population (2000)	14,966	5,917	4,301,261
Population % Change (2000-2010)	2.2%	4.1%	13.6%
Per Capita Income (2010)	\$18,820	\$18,686	\$30,151
% Below Poverty	24.0%	24.4%	12.2%

Both Alamosa and Saguache counties have a large amount of federal land, 76,488 and 1,377,277 acres respectively. Federally managed lands, being so prominent in the area, have a large effect on the local economy.

The Department of Interior has an impact economically on the SLV and rural communities in the United States in many ways. A recent report (DOI 2012) reveals DOI activities contributed \$385 billion to the economy and supported over 2 million jobs in FY 2011. In some particularly economically distressed rural areas where jobs are scarce, Interior-managed lands provide a steady source of jobs and income (USDI 2009). Many of the jobs within the DOI 2012 report are associated with recreation and are located in rural communities, including 10,000 jobs created in Colorado. The report also stated that 2.6 billion was invested in construction and maintenance activities supporting almost 49,000 jobs across the nation. At a local level, the report highlighted BLM’s Blanca Wetlands contributions to the local community in terms of spending. The report states:

“Restoration and monitoring activities in the BWA have been ongoing since the 1960s. Annual expenditures have been about \$75,000. Annual activities include site maintenance and infrastructure development, weed management, well certification, monitoring (to collect bird, amphibian, fish, macroinvertebrate, groundwater and water quality, soils, and vegetation data). These annual expenditures provide local firms with a reliable stream of work and support an average of over \$29,000 in local labor income (salaries, wages, and benefits) each year. Over the next 10 years, BLM anticipates increased expenditures on deferred maintenance for wells and structures. Economic impacts in these years could support as much as \$150,000 in labor income per year for local well drillers, welders, and heavy equipment operators”.

Finally, a report written by the Outdoor Industry Association (2012) indicated 140 million Americans spent \$646 billion on hunting, fishing, hiking, and other outdoor recreation on public and private lands, including on the 500 million acres of public lands managed by Interior agencies.

In addition to the benefits to the community from local jobs, contracts, and economic spending related to wildlife, County governments in the area of impact receive federal payments to

recompense them for the loss of revenue that results from federal ownership. Generally, federal lands may not be taxed by state or local governments unless they are authorized to do so by Congress. Since local governments are often financed by property or sales taxes, this inability to tax the property values or products derived from the federal lands may affect local tax bases significantly. Instead of authorizing taxation, Congress has usually chosen to create various payment programs designed to make up for lost tax revenue. These programs take various forms. To mediate the loss in property taxes, "Payments in Lieu of Taxes" or PILT are sent to local governments. It is administered by the Bureau of Land Management (BLM) in the Department of the Interior and affects most federal lands (CRS Report for Congress June, 24, 1998). PILT adjusts for inflation and is based on acres and population variables. It is reduced by other federal payments to local governments, such as mineral revenue sharing or forestry fee sharing.

Locally, in fiscal year 2012, Alamosa County received \$185,029 in PILT for the 79,696 acres of federal land, while Saguache County received \$467,448 for its 1,276,214 acres of federal land. The majority of federal payments to Alamosa County were in the form of PILT (82.5%) while in Saguache County, only 13.1% of federal payments are due to PILT. Total federal payments to the counties, including PILT, Forest Service fees, BLM fees, and mineral revenue are: \$199,206 for Alamosa and \$3,565,439 for Saguache (2010). Therefore, the total federal payments to the counties are comparable: between \$2.50 and \$2.80 per acre.

PILT rates compare to private ownership rates as follows: Within Alamosa and Saguache counties, the property tax rate is .5% and .4% the value of the land (www.tax-rates.org, 2012 State Tax Rates and Exemptions). So, property worth \$500/acre would be taxed \$2.50/acre in Alamosa County and \$2.00 in Saguache County, comparable amounts to average federal payments per acre.

Finally, despite multiple ACEC areas being identified in the RMP over 20 years ago, County Assessors have seen no change in the property value from BLM land management designations (pers. communication between J. Lucero and Jacqueline Stephens, Saguache County Assessor, Naomi Keyes, Conejos County Assessor, and Sandra Hostetter, Alamosa County Assessor 7/13/2012 and 7/16/2012)

Environmental Effects

Alternative 1 and Alternative 2:

Direct and Indirect Impacts:

There could be potential future economic direct and indirect effects as a result of this designation under either alternative 1 or 2, but the scale of the effects will be somewhat larger under the proposed alternative (Alternative 1). There is the potential that in the near future, land acquisitions with willing sellers will occur in some of the expanded area. If more land is acquired by BLM, it is not clear whether the PILT value will be greater or smaller than the former property tax revenue received by the county because land values change. A positive indirect impact could result from restoration activities creating more contracting opportunities, which will provide more jobs in the community. On a more indirect level, enlarging the wetland

area could lead to increased recreation in the area encouraging more spending and employment based in the tourism sector. The non-market value inherent in future increases of healthy wetlands acreage should not be dismissed either. Though not quantified in the marketplace, many people place value on habitat restoration, meaning this action will increase consumer surplus in general, even if the total amount is unknown.

One of the issues brought up during scoping was a concern that land values would be reduced from potential buyers/developers being apprehensive to purchase land within an ACEC. Based on past SLV observations by County Assessor's (pers. Communication 7/13/2012), an ACEC designation has not been shown to change land values. It is unknown whether the land designation would deter or attract potential buyers as some individuals could find it appealing to purchase within an area designated as an ACEC, while others might be reluctant to purchase because they are apprehensive about what it means. A potential mitigation measure that provides informational resources to realtors on what it means to be in an ACEC could assist to at least partially mitigate these effects.

Protective/Mitigation Measures:

Provide information to realtors describing what it means to own private land within an ACEC boundary to reduce apprehension about purchasing land within the area.

Alternative 3: No Action – No Change in the existing ACEC boundary

Direct and Indirect Impacts:

Economic impacts from the no action alternative are less tangible. There would be no potential loss of tax revenue, but no potential gain from contracting work in the area. Also, much of the area the BLM has identified for designation is unimproved greasewood scrub areas. At a value of \$300/acre, this land could yield more money under PILT than as a private land tax base for Alamosa County. In addition, there would be no increase in future recreation or non-market values.

Protective/Mitigation Measures:

None needed

3.5 LAND RESOURCES

3.5.1 RANGE MANAGEMENT

Affected Environment

The project area boundary (Figure 22) is a broad hydrologic area that encompasses 10 allotments. However, because only 7 of those allotments are included within the alternatives, discussion in this section will be limited to those seven. They are: Lakes, Dry Lakes, Blanca WHA, Bachelor Lakes, Dow, Phiffer, and a small piece on the west side of Hwy 150 of Pinon. Lakes, Dry Lakes, Blanca WHA, and Pinon are category 'I' allotments while Bachelor Lakes, DOW Pasture, and Phiffer Pasture Allotments are 'C' allotments. Category 'I' allotments are managed to improve

conflicts with resource issues while category ‘C’ allotments are generally of smaller acreage that are usually grazed in conjunction with the permittee’s adjacent private lands.

This EA involves two separate grazing permits, Dry Lakes, Lakes, Blanca WHA, Piñon, and Bachelor Lakes are included in one permit whereas DOW Pasture and Phiffer Pasture Allotments are included in another permit. These allotments were analyzed and considered suitable for grazing in two different BLM documents: 1. San Luis Resource Area Grazing Management Environmental Statement, 1978; and 2. SLRMA Record of Decision (1991). A table on page D-2 of the Draft San Luis Resource Management Plan and Environmental Impact Statement shows a total of 257 AUMs on the Blanca WHA Allotment were put in temporary voluntary nonuse to be withheld from active grazing. This was in part due to wetland and wildlife resource values. In addition, the Dry Lakes and Lakes allotments were excluded in the past from grazing due to requests from the permittee to take non-use; initially due to operational reasons, and later, as part of a partnership to promote wetland restoration. As a result, these three active grazing allotments have been grazed little over the last 30 years. Some trespass or unauthorized grazing does occur at times.

An EA has not been completed to further evaluate the renewal of a term grazing permit on Lakes, Dry Lakes, and Blanca WHA Allotments. The Piñon Allotment was previously analyzed for grazing impacts in CO-0056-99-22-EA Rocky Mountain Bison EA completed in 1999. Bachelor Lakes and Piñon Allotments are currently being analyzed under a term grazing permit renewal EA, DOI-BLM-CO-140-2011-003-EA, and will not be further discussed in this document. DOW and Phiffer Pasture Allotments were analyzed for term grazing permit renewal under EA number CO-0056-99-5-EA in 1999.

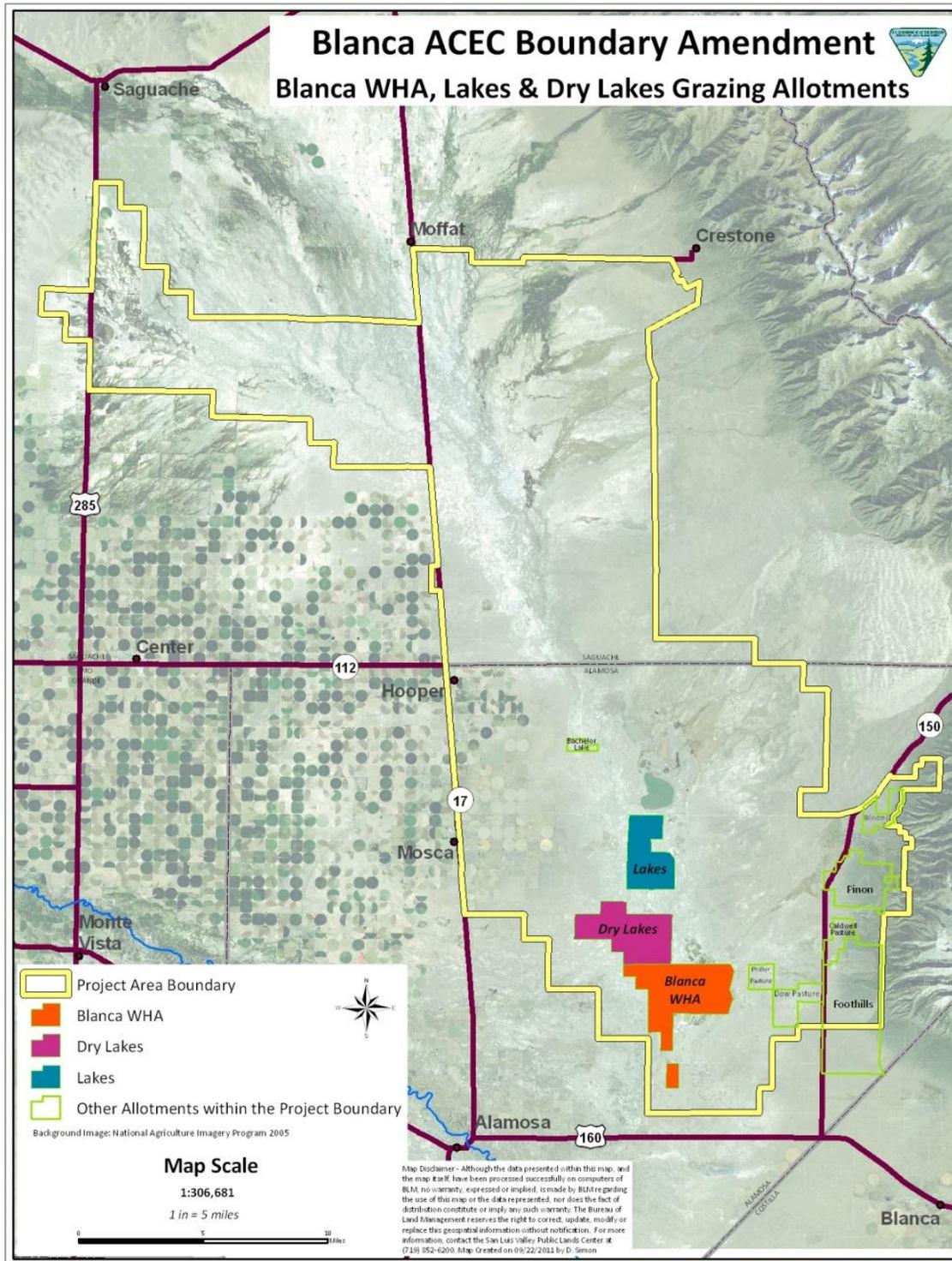
A field trip was conducted on June 16, 2011 to review vegetation, water sources, and boundary and cross fence conditions on Lakes and Dry Lakes Allotments. Lakes Allotment contains 2 artesian wells, one barely functional, neither capable together of supplying the necessary water associated with the number of head on the term grazing permit for this allotment. There is one cross fence which needs repair to be stock proof.

A water source was not found on Dry Lakes Allotment. One alkali lake with soft muddy surface and a water depth of less than two inches was located. Cattle would bog down in this lake, so the water is not acceptable for livestock. There are no cross fences. There is a possibility of distant stock water on adjacent private land to the east. The gates would have to be left open on the east boundary fence to provide access.

Allotment Usages indicated below:

<u>Allotment</u>	<u>Number & Kind</u>	<u>Grazing Period</u>	<u>% PL type & use</u>	<u>AUMS</u>
Lakes	30 cattle	7/1 to 8/4	100% active	35
Dry Lakes	90 cattle	7/1 to 8/4	100% active	104
Blanca WHA	257 cattle	9/1 to 9/30	100% active	253
Piñon	77 cattle	9/15 to 11/6	93% active	125
Bachelor Lake	3 cattle	6/1 to 1/31	100% active	24
DOW Pasture	3 cattle	5/16 to 10/15	100% active	15
Phiffer Pasture	1 cattle	5/16 to 10/15	100% active	5

Figure 22: Project Area Range Site Map



Environmental Effects

Alternative 1: Proposed Action (the ACEC is comprised of 2 areas, Blanca to San Luis Lake and Mishak Lakes)

Direct and Indirect Impacts:

Expanding the area/boundary to include Lakes, Dry Lakes, and Blanca Wetland Habitat Management (BWHM) Allotments in the ACEC will not have a direct effect on range management or grazing. The Pinon allotment will not be affected by the proposed action either directly or indirectly in the future due to the steep terrain of this allotment. This allotment is situated on the eastern slopes of the Sangre de Cristos mountains, which is likely to exclude it from future wetting or flooding efforts.

There is the potential for indirect effects on Lakes and Dry Lakes Allotments, which contain dry alkali lakes that could be flooded in the future. Blanca WHA has been used to accomplish wetland objectives for many years, and has resulted in non-use of the allotment for grazing. Non-use has also occurred on the Dry Lakes and Lakes allotments, which are active allotments but were not grazed for many years initially at the permittees request, and later due to planned partnership efforts involving the permittee to reflood existing dry wetland areas. Therefore, there is a possibility that planned future flooding of allotments could impact permittees (ranchers) through changing the terms of the permit in order to meet wetland goals, objectives or vegetative standards. However, any proposed changes to a permit would be addressed through the NEPA process and would be done through a consultation process with the permittees.

It is impossible to anticipate the indirect impacts until an updated plan for the ACEC has been developed and implemented. There are inherent conflicts between wetland/wildlife management and the grazing of domestic livestock under a term grazing permit. It is feasible that these conflicts can be resolved without negative impacts to either use through consultation and coordination dependent upon the goals and objectives of each use.

Alternative 2: Blanca to San Luis Lake

This alternative would basically have the same impacts as Alternative 1; however, the Mishak Lakes area is not included in Alternative 2 and therefore would not be impacted by this alternative as far as range management is concerned. There is currently no authorized grazing occurring in the Mishak Lakes area, and the areas has never been designated as an active grazing allotment; therefore, there would be no impacts to analyze concerning range management

Alternative 3: No Action – No Change in the existing ACEC boundary

Direct and Indirect Impacts:

There will not be any effect on range management and grazing.

3.5.2 LANDS AND REALTY (Land Status) and RIGHTS OF WAY (ROW)

Affected Environment

Affected Environment

The San Luis Resource Management Plan signed December 18, 1991, shows category I lands located in the proposed ACEC boundary expansion. According to the current RMP, Category I lands are defined as lands that have been identified for disposal and meet the criteria for public sale consistent with the provisions of Section 203 of FLPMA, other methods of disposal will not be precluded. Land acquisition will generally not be considered in these areas. These parcels are located in the following areas;

- T. 39 N, R 11 E., Sec 30, SE
- T. 39 N, R 11 E., Sec 29, SW
- T. 39 N, R 11 E., Sec 32, NW,SW, SE
- T. 39 N, R 11 E., Sec 22, S1/2
- T. 39 N, R 11 E., Sec 27, all
- T. 39 N, R 11 E., Sec 28, all
- T. 39 N, R 11 E., Sec 34, NE

The following listed lands below have also been identified as Category I disposal lands near Mishak Lakes. According to the San Luis Resource Management Plan Update dated December 1994, these scattered parcels will be limited to agencies or entities (Colorado Division of Parks and Outdoor Recreation, Colorado Division of Wildlife Service, Nature Conservancy, Nation Park Service, etc.) with an interest in the maintenance or enhancement of the potential riparian/wetland values. They will not be offered to the public for disposal.

- T. 42 N, R 9 E., Sec 1, NE
- T. 42 N, R 9 E., Sec 12, Lot 1-4
- T. 42 N, R 9 E., Sec 13, Lot 1-8
- T. 42 N, R 9 E., Sec 24, SE
- T. 42 N, R 10 E., Sec 18, Lot 2
- T. 42 N, R 10 E., Sec 20, SE

The remaining lands within the proposed ACEC boundary, with the exception of Blanca Wetlands ACEC and Zapata Falls SRMA are identified as category II lands and could be available for disposal on a case by case basis for the purpose of; minor boundary adjustments, enhance public resource values, state indemnity selections, Recreation and Public Purpose Act applications, or other appropriate statutory authority, if disposal serves the national interest. Land acquisition will be considered in these areas, however, land exchanges are the preferred method for ownership adjustments. All land acquisitions will be consistent with the provisions of FLPMA.

There is a utility corridor route that has been identified by the Western Utility Group (WUG) and is part of the current RMP, as well as, the Rio Grande Forest Service Plan. The utility corridor passes through BLM managed lands that are located in the proposed ACEC boundary expansion in the following areas;

- T. 38 N, R 12 E., E1/2
- T. 39 N, R 11 E., NE
- T. 40 N, R 11 E., Sec 20-21
- T. 42 N, R 10 E., Sec 20

The current San Luis Resource Area Approved Management Plan (December 1991) states that utility corridor routes, identified by Western Utility Group (WUG) and included in the Rio Grande Forest Plan are adopted with 3 exceptions. 1 Exception that may affect any new proposed utility corridor's within the proposed ACEC is on (page 15, 1-15 (3)) which states no major utility corridor's will be allowed in existing ACECs.

Environmental Effects

Alternative 1: Proposed Action (the ACEC is comprised of 2 areas, Blanca to San Luis Lake and Mishak Lakes)

Direct and Indirect Impacts:

The ACEC boundary expansion would require changing Category 1 lands to Category 2 as described in Section 1.4 of this document. Currently, there are no pending applications for sale or exchange of these parcels or any current plans for future sales or exchanges of these parcels. Also, the boundary expansion may possibly affect any proposed utility corridor(s) in this area.

Alternative 2: Blanca to San Luis Lake

Direct and Indirect Impacts:

Direct, Indirect and Cumulative impacts and protective/mitigation measures are the same as under Alternative 1.

Alternative 3: No Action – No Change in the existing ACEC boundary

Direct and Indirect Impacts:

BLM managed lands will remain in their current status and managed according to the current RMP. This means direct impacts would include category I lands could be disposed of resulting in a decline of BLM managed lands within the area. There is also the possibility of major development of power lines within the existing utility corridor due to the high potential for renewable energy projects that could be developed in this area.

RIGHTS OF WAY AND OTHER USES

Alternatives 1 and 2 (Action Alternatives)

Prior to land acquisitions, the interest or claim of any person(s) other than the record owner(s) who is occupying or using any part of the lands should be ascertained prior to closing. Consideration should be given as to whether under the circumstances of the acquisition, the interest will interfere with the contemplated use of the land. Measures should be taken to eliminate claims which are not compatible by obtaining disclaimers or quit claim deeds. In dealing with interests which are compatible as they exist or if modified, by agreeing to grant a private easement with specific terms and an agreed location and dimension for the easement, in return for the claimant's agreement to quitclaim any poorly defined possible easement which may have been acquired by prescription

Alternative 3 (No Action)

Future authorization of row grants, leases, and permits will continue to be authorized and each will be evaluated on a case by case basis for alignment and mitigation stipulations.

3.6 CUMULATIVE IMPACTS SUMMARY

This section provides a description of the human and natural environmental resources that could be affected by the Proposed Action and presents comparative analyses of the cumulative effects on the affected environment stemming from the allocation of this area as an ACEC under the Proposed Action and other alternatives analyzed. This analysis is intended to evaluate the cumulative effects of potentially allocating additional lands as part of the Blanca Wetlands ACEC. This project is not an implementation action.

Affected Environment (general to all resources)

Factors that have contributed to cumulative impacts and consequent changes in natural resources are numerous. Some issues in the SLV include habitat loss, agricultural developments, housing developments, water table reductions, intensive groundwater use, development of the Closed Basin Project, stream diversions, fire suppression, livestock grazing and management, past and present road management, wetland development activities (construction of irrigation ditches, dams, wells, and/or other water intake and diversion structures), and recreation activities. Some of these have the potential to reduce habitat quality; thereby, reducing the habitat availability for migratory birds and other wildlife and wetland and riparian dependent species that use the area for foraging, nesting, roosting and for migratory stop-over habitat.

The current recreation based activities appear to be having minimal influences on resources and habitats because recreation in the area on BLM lands outside of Zapata Falls is minimal and the most sensitive and isolated habitats are protected with seasonal closures. Many of the animal populations in the area have adapted to human use and tend to avoid humans; however the habitat that is available lends cover, foraging, and nesting/ burrowing/ birthing habitat for many migratory bird species, which help to reduce impacts from recreation. Recreational development or development on private lands may serve to fragment the contiguous habitat currently available and contribute to the need for a buffer on sensitive areas like the wetlands.

Private lands nearby are subdivided in several locations adjacent to and inside the proposed boundary and other private lands in the area have some level of development. Activities on private lands are not under the jurisdiction of the BLM and loss of habitat could occur through land clearing/ conversion, development, fencing, or other activities. This situation puts the impetus on the public lands to support more natural resource habitat, including wetlands and riparian, for migratory bird, wildlife, aquatic, wetland and TES species during critical periods such as the spring and fall migration and during the nesting season as they are displaced from adjacent habitat from human presence and habitat loss or fragmentation.

Irrigation, desertification, global warming, wildland to farmland conversion, population growth, and development in the SLV has greatly altered the water tables, the river flows, habitat connectivity, aquifer recharge and has created lands that are less productive with increased salinities and changes in vegetation types. Groups and partners have worked together to provide or connect wetland systems and mimic historic processes, sometimes through intensive management, on the National Wildlife Refuges, State Wildlife Areas, BLM, and private lands.

Alternative 1 and 2 (Action Alternatives)

Under either Alternative 1 or 2, the proposed ACEC expansion would offer increased emphasis on wetlands on BLM land in the closed basin and promote connectivity across a broader land base. The purpose and need for this project, and consequently Alternatives 1 and 2, are aimed at mitigating historic cumulative effects. The landscape has been so altered that the wetland basins have limited functionality and most basins are essentially dry and disconnected.

Either of these alternatives, Alternative 1 more than 2, would emphasize wetlands and recreation in the area and thereby create benefits for wildlife. The expanded ACEC would: 1. Provide the opportunity for improved wetland habitat due to increased flexibility in wetting and drying leading to positive cumulative effects for many of the existing resources; 2. Allow BLM to strategize acquisition/irrigation of basins that will best connect to other publicly-owned wetland areas under future implementation projects; and 3. Provide a buffer from development and disturbance on privately owned lands adjacent to the wetlands. Potential future enhancement of threatened and endangered species habitat and overall biodiversity on the site is also possible with the expanded ACEC and pending future project-specific NEPA.

Negative cumulative impacts from the immediate action of expanding the boundary are not expected at this time for most resources. It is possible less area for geothermal leasing will be available pending the Record of Decision for the San Luis Valley Geothermal Leasing EA. The proposed alternative in that document closes Blanca ACEC to geothermal leasing.

More specific analysis of cumulative impacts from future activities is difficult at this time because potential flooding depends on many factors such as availability of water, availability of land, and future funding. As site specific activity plans are proposed, more information will be available to ascertain specific cumulative impacts to other resources and users of the public lands.

In general, it is also possible that some uses within the boundary could be impacted if future wetland implementation projects occur. For example, if wetlands are developed in the expanded area, BLM might propose management actions such as seasonal closures to protect breeding wildlife; or it is possible modifications to range permits will be proposed to meet the ACEC wildlife habitat objectives. However, no changes to these resources are being proposed at this time. Future project-specific NEPA would address direct, indirect or cumulative effects from any of these changes and be completed with involvement with the other resources and affected parties. BLM is a multiple use agency, and is mandated to ensure that multiple uses of BLM lands are allowed to coexist as much as possible, including in ACEC's. However, future proposed actions will be analyzed to ensure compatibility with the resources the ACEC was established to protect.

Alternative 3 (No Action)

Alternative 3 will have neither positive nor negative cumulative effects. There will be no expansion of the ACEC.

CHAPTER 4 - CONSULTATION AND COORDINATION

4.1 LIST OF PREPARERS AND PARTICIPANTS

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ATTACHMENT 1 – Legal Description for the Action Alternatives

Alternative #1

New Mexico Principal Meridian, Colorado

- T. 42 N., R. 9 E.,
secs. 1 to 5, inclusive;
secs. 9 to 12, inclusive;
secs. 13 to 15, inclusive;
secs. 23 and 24.
- T. 43 N., R. 9 E.,
secs. 25 to 29, inclusive;
sec. 30, SE1/4SE1/4;
sec. 31, N1/2NE1/4, SW1/4NE1/4, W1/2SE1/4NE1/4, NE1/4SE1/4NE1/4;
secs. 32 to 36, inclusive.
- T. 39 N., R. 10 E.,
secs. 1, 2, secs. 11 to 14, inclusive, and secs. 23 and 24.
- T. 40 N., R. 10 E.,
secs. 13, 14, secs. 23 to 26, inclusive, and secs. 35 and 36.
- T. 42 N., R. 10 E.,
sec. 5, that part lying southwest of the centerline of Colorado State Highway 17;
secs. 6 and 7;
sec. 8, that part lying southwest of the centerline of Colorado State Highway 17;
sec. 17, that part lying southwest of the centerline of Colorado State Highway 17;
secs. 18 to 20, inclusive;
sec. 21, SW1/4, W1/2SE1/4, SE1/4SE1/4;
sec. 22, SW1/4SW1/4;
sec. 27, W1/2;
sec. 28, that part lying northeast of the centerline of Colorado State Highway 17;
sec. 33, that part lying northeast of the centerline of Colorado State Highway 17;
sec. 34, W1/2NE1/4, W1/2, W1/2SE1/4.
- T. 43 N., R. 10 E.,
secs. 30 to 32, inclusive.
- T. 38 N., R. 11 E.,
secs. 1 to 5, inclusive, sec. 10 to 15, inclusive, and secs. 24, 25, and 36.
- T. 39 N., R. 11 E.,
secs. 1 to 30, inclusive, and secs. 32 to 36, inclusive.
- T. 40 N., R. 11 E.,
secs. 14 to 23, inclusive, and secs. 25 to 36, inclusive.
- T. 38 N., R. 12 E.,
secs. 1 to 12, inclusive;
sec. 13, N1/2;
secs. 14 to 22, inclusive, and secs. 27 to 33, inclusive;
sec. 34, W1/2.
- T. 39 N., R. 12 E.;
- T. 39 N., R. 13 E.,

secs. 6 and 7;
sec. 18, that part lying northwest of the centerline of Colorado State Highway 150.

Sixth Principal Meridian, Colorado

T. 27 S., R. 73 W.,
sec. 30, that part lying northwest of the centerline of Colorado State Highway 150 and southeast of Alamosa County Road 6 S;
sec. 31, that part lying northwest of the centerline of Colorado State Highway 150 and southeast of Alamosa County Road 6 S.

T. 28 S., R. 73 W.,
sec. 6, that part lying northwest of the centerline of Colorado State Highway 150;
sec. 7, that part lying northwest of the centerline of Colorado State Highway 150.

Alternative #2

New Mexico Principal Meridian, Colorado

T. 39 N., R. 10 E.,
secs. 1, 2, secs. 11 to 14, inclusive, and secs. 23 and 24.

T. 40 N., R. 10 E.,
secs. 13, 14, secs. 23 to 26, inclusive, and secs. 35 and 36.

T. 38 N., R. 11 E.,
secs. 1 to 5, inclusive, sec. 10 to 15, inclusive, and secs. 24, 25, and 36.

T. 39 N., R. 11 E.,
secs. 1 to 30, inclusive, and secs. 32 to 36, inclusive.

T. 40 N., R. 11 E.,
secs. 14 to 23, inclusive, and secs. 25 to 36, inclusive.

T. 38 N., R. 12 E.,
secs. 1 to 12, inclusive;
sec. 13, N1/2;
secs. 14 to 22, inclusive, and secs. 27 to 33, inclusive;
sec. 34, W1/2.

T. 39 N., R. 12 E.;

T. 39 N., R. 13 E.,
secs. 6 and 7;
sec. 18, that part lying northwest of the centerline of Colorado State Highway 150.

Sixth Principal Meridian, Colorado

T. 27 S., R. 73 W.,
sec. 30, that part lying northwest of the centerline of Colorado State Highway 150 and southeast of Alamosa County Road 6 S.;
sec. 31, that part lying northwest of the centerline of Colorado State Highway 150 and southeast of Alamosa County Road 6 S.;

T. 28 S., R. 73 W.,
sec. 6, that part lying northwest of the centerline of Colorado State Highway 150;
sec. 7, that part lying northwest of the centerline of Colorado State Highway 150.

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