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Forest
Service

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# WATERSHED RESTORATION ACTION PLAN- Outlet San Antonio

**Jemez Ranger District, Santa Fe National Forest**
**Sandoval County, New Mexico**

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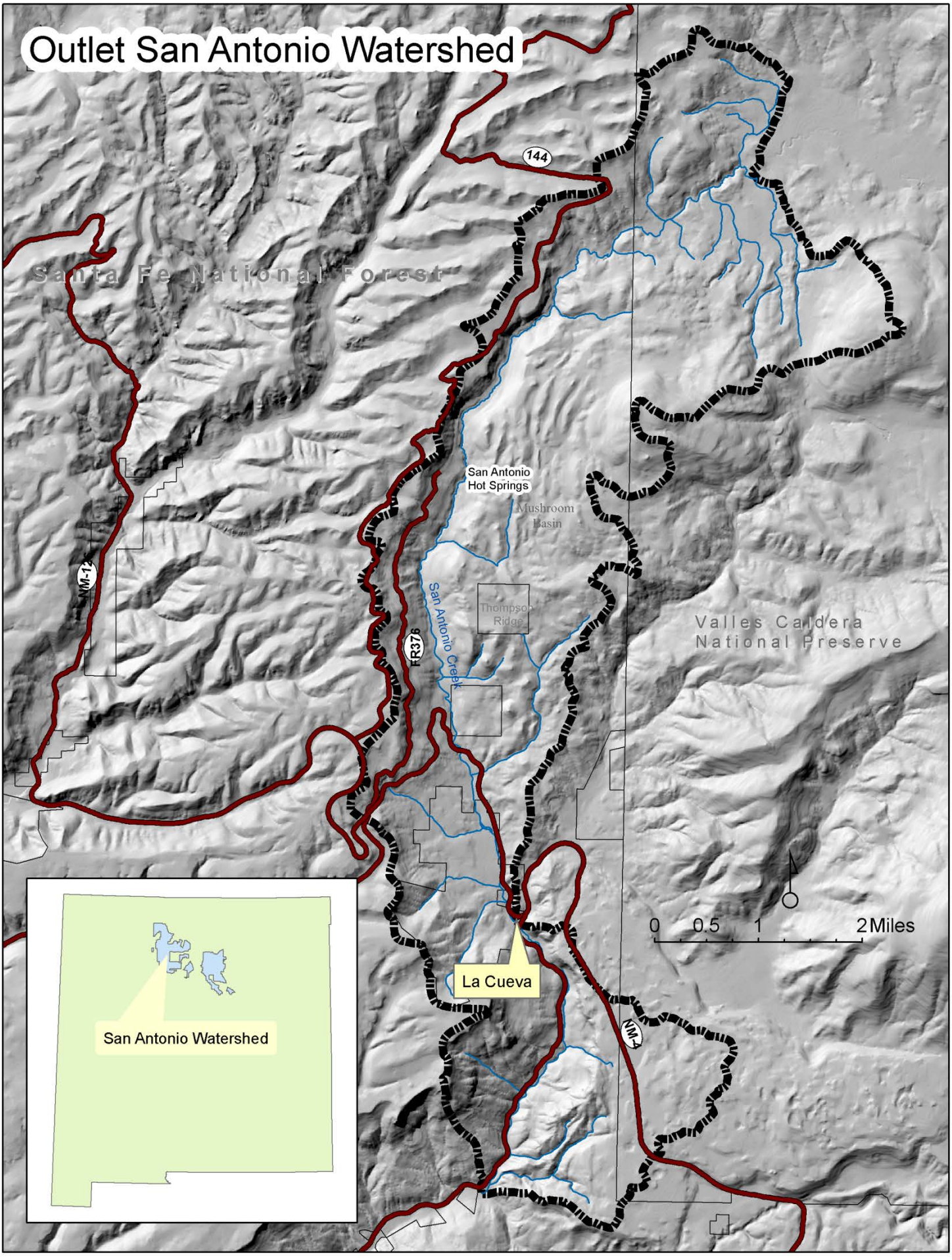
Outlet San Antonio Watershed
144
Santa Fe National Forest
San Antonio
Hot Springs
Mushroom
Basin
NM-126
FR376
San Antonio Creek
Thompson
Ridge
Valles Caldera
National Preserve
0 0.5 1 2 Miles
La Cueva
NM-4
San Antonio Watershed

**USDA Forest Service Watershed Condition Framework**
**FY2011 TRANSITION WATERSHED RESTORATION ACTION PLAN**
**Jemez Ranger District**
**Santa Fe National Forest**

## 1. Summary

**a. Watershed Name and HUC:**
Outlet San Antonio, HUC #130202020204

**b. General Location:**
Jemez Ranger District/Santa Fe National Forest (See Map)

**c. Total Watershed Area:** 14,800 acres**;** 8,940 acres-Santa Fe National Forest (SFNF), 4,580 acres-Valles Caldera National Preserve(VCNP)(a unit of the Forest Service, 1,280 acres- Private lands. **NFS (SFNF/VCNP) area within watershed:** 93%, SFNF portion 60%.

**d. Watershed Characterization:**

- **General Physiography:** San Antonio Creek originates as a spring in Valle Toledo within the Valles Caldera National Preserve (VCNP) and ends at the confluence with the East Fork Jemez River near Battleship Rock forming the Jemez River. The creek system is divided into two 6th code HUCs. The Outlet San Antonio, further described here, begins approximately 1.75 miles upstream of the point where the creek crosses onto the forest from the VCNP. Geologically, the creek and its tributaries flow through areas associated with the Jemez Mountains' volcanic origin. Soil parent material in this area is predominantly igneous and includes pumice and tuff, which are very soft and form highly erosive soils. Stream flows in the watershed fluctuate with high flows in the spring and late summer to low flow in the late spring/early to mid summer. Spring high flow events originate from snowmelt and are determined by the previous winter's snow pack. The late summer high flow events are dependent on the monsoon weather patterns, which typically develop in July and August. The flows related to monsoon events are not generally as high as the spring runoff.

- **Land Use:** Land use within the watershed emphasizes dispersed and developed recreation. Over 90% of the area is within Management area E, (50% dispersed recreation), and Management area X (43% developed and dispersed recreation-Jemez National Recreation Area). The remaining two management areas emphasize the protection of TES habitat and cultural resources.

- **General Overview of Concerns:** The primary concern is that the water quality of San Antonio creek is listed on the 303d report as not meeting its designated uses or is impaired. This impairment is likely related to riparian condition, sediment inputs from roads and trails and grazing impacts. Additional concerns within the watershed include: conifer encroachment into riparian, dispersed recreation, invasive or non-native species (weeds and non-native fish), wildfire potential and most recently, effects from the Las Conchas Wildfire.

- **Important Ecological Values:** There ar**e** over 39 miles of stream and over 1,400 acres of associated riparian vegetation which provide critical habitat for a variety

of species including TES Species (Mexican Spotted Owl) and numerous sensitive and candidate species including: Northern Goshawk, Jemez Mountain Salamander, Meadow Jumping Mouse, and potential habitat for the Rio Grande Cutthroat trout. Private land values are associated with two communities, La Cueva and Thompson Ridge. Recreational values include San Antonio Campground, San Antonio Hot Springs, two fishing access sites, and two picnic day use areas. The watershed is also a part of the Congressionally designated Jemez National Recreation Area.,

- **Current Condition Class:** 2.4 **Target Condition Class:** 1.7

**e. Key Watershed Issues**

1) Attributes/Indicators within SFNF control to affect

| ATTRIBUTES /INDICATOR | REASON FOR RATING |
|---|---|
| 1.1 Water Quality | *Impaired waters 303d listing. due to temperature and turbidity.* |
| 3.1 Aquatic Habitat Conditions | *Large woody Debris nearly absent, Channel shape and Function poor, Habitat fragmentation* |
| 4.1 Aquatic Biota Condition | *Some native and non-native species present. Habitat present for RGCT but non-native presence precludes reintroduction* |
| 5.1 Riparian/wetland Vegetation Condition | *Near absence of woody riparian vegetation in the mid and upper segments. Herbaceous cover in poor condition (Vigor and composition)* |
| 6.1 Road and Trail Condition | *Numerous roads in poor condition contributing to sedimentation. Many were improperly located or in need of closing, or maintenance.* |
| 10.1 Rangeland Vegetation | *Rangeland condition is rated as poor with a stable or downward trend predominantly due to poor animal distribution.* |

2) Attributes/Indicators that require other parties to address

| ATTRIBUTES /INDICATOR | REASON FOR RATING |
|---|---|
| 2.1 Water Quantity | *Reduced due to upland diversion* |
| 4.2 Aquatic Biota Condition | *Presence of non-native brown trout in the upper reaches on the VCNP prevent reintroduction of RGCT* |
| 6.2 Road and Trail Condition | *Numerous roads in poor condition, were improperly located or in need of maintenance contributing to sedimentation* |

## 2. Watershed Characteristics and Conditions

### a. General Context/Overview of the Watershed

The Outlet San Antonio (OSA) is a 14,800 acre 6th code HUC located on the Jemez Ranger District of the Santa Fe National Forest.

San Antonio Creek originates as a spring in Valle Toledo within the Valles Caldera National Preserve (VCNP) and ends at the confluence with the East Fork Jemez River near Battleship Rock forming the Jemez River. The San Antonio Creek system is divided

into two 6th code HUCs. The Outlet San Antonio, further described here, begins approximately 1.75 miles upstream of the point where the creek crosses onto the forest from the Valles Caldera National Preserve (VCNP).

**Climate:** Climate refers to the weather patterns, means and extremes of an area. The range of temperature and precipitation, winds and indications of climate change are displayed as averages. Extremes and the changes to their extremes are more difficult to compare. The weather station at Wolf Canyon (approximately 8 miles to the WNW) was selected as representative of the area due to its similar elevation. It should be noted that the complex terrain (variations in slope, aspect and elevation) would yield different averages than those presented below.

**Temperature**

Annual temperatures for the area are average 57 degrees for maximum temperature and 24 degrees as the average minimum. The trend indicates a slight increase over the last decade. Record high annual temperature and low annual temperatures are within 2 to 3 degrees and do not appear to be outside the historic range of variability.

**Precipitation**

Precipitation data for the area indicates a wide range of variability in precipitation with periods of drought occurring on a multi-decadal scale. The precipitation average is approximately 23 inches annually. The driest year of record was in 1956 at just over 11 inches of precipitation. Wettest extremes include over 34 inches in the early 1990's.

**Wind**

In general prevailing winds in this area are from the southwest to northwest but may shift to easterly during the summer monsoon season. Local winds are strongly influenced by terrain variations and may be channeled by canyons.

**Climate Change**

The long term temperature record for Jemez Springs indicates an overall warming trend in spite of significant periods of variability. The precipitation trend indicates some recent drying (1984-2004) but it is unclear if this is due to global climate change or a reflection of the apparently cyclical nature of precipitation in this area.

**Hydrology:** Stream flows in the watershed fluctuate between the high flow events in the spring and late summer to low flow in the mid summer. Spring high flow events originate from snow runoff and vary with the previous winter's snow pack. The late summer high flow events are related to monsoon weather patterns, which typically develop in July and August. The flow related to monsoon events is not typically as high as the spring runoff.

**Geomorphology:** Geologically, the creek and its tributaries flow through areas associated with the Jemez Mountains' volcanic origin. Rock in this area is igneous and includes pumice and tuff, which are very soft and form highly erosive soils. Topography is variable with steep slopes and narrow canyons, many capped with bluffs of volcanic tuff. The stream channel in the upper reaches meanders through broad meadows. The lower reaches are confined within narrow canyons. Stream slopes vary from 0.8% in the upper reaches to greater than 4.9% at the mouth.

**Uplands/hillslope conditions**: The majority of the uplands and hillslopes within the watershed are covered with forest vegetation. Ponderosa pine and Douglas fir dominate the south and west facing slopes as well as the majority of lands below 9,000 ft. Spruce/fir cover types are present in the upper reaches of the watershed as well as on north and northeast facing slopes in the lower watershed and along water courses throughout the watershed. Aspen is interspersed throughout the upper watershed although rarely as the dominant cover type.

Tree size is somewhat variable with the overwhelming majority of stands throughout the watershed in the mid-aged class. There are few areas in the seed/sapling/pole classes. Mature and old growth components are also under-represented. Mature trees do exist within the watershed, mostly as remnants or pre-dominants.

Tree density in nearly all the Ponderosa pine and dry mixed conifer is considered very high in regard to forest health and wildfire concerns. Densities in the wet mixed conifer and spruce fir are also high with many stands exceeding 800 trees or more per acre.

**Forest Health and wildfire:** Forested stands in the conditions as described above are susceptible to forest health concerns. Bark beetle and spruce budworm activity is evident throughout the watershed. Root rot, and aspen decline is also present. These disturbance factors however are not currently leading to large scale changes to the upland vegetation within the watershed. Wildfire potential is considered high. The watershed was modeled for the Southwest Jemez Collaborative Forest Landscape Restoration Project (CFLRP). Nearly all (80%) of the Ponderosa pine and Douglas fir stands within the landscape were classified as Fire Regime Condition Class (FRCC 3) (highly departed from natural fire regimes). In addition, steep slopes and terrain alignment with the prevailing winds create conditions that would greatly exacerbate the potential for a catastrophic wildfire event.

**Riparian conditions:**
Riparian condition is somewhat variable with the areas within the private lands and the area above the hot springs being dominated by herbaceous vegetation (grass/forb/)sedges). Native vegetation demonstrates a noticeable loss of vigor, reproduction, growth, and changes in composition as compared with the site's potential. For much of the area, the water table is disconnected from the riparian area and the vegetation reflects this loss of available soil water.

**Wildlife & fisheries:**
**Wildlife:** A wide variety of wildlife is found in the watershed including many species of birds, mammals, amphibians, reptiles, and insects. Habitats include wet meadows, Dry Ponderosa Pine/Douglas fir forest, Wet mixed conifer forest, Spruce/fir and upland meadows.

**Fisheries:** The watershed contains an assemblage of native fish including: Rio Grande cutthroat trout (*Oncorhynchus clarkii virginalis*), Rio Grande chub (*Gila pandora*), Rio Grande sucker (*Catostomus plebeius*), and longnose dace (*Rhinicthys cataractae*). Introduced species include Rainbow trout (*Oncorhynchus mykiss*), and Brown trout(*Salmo trutta*).

**Threatened, endangered and sensitive species and their habitat:** Numerous species that are known to inhabit or have habitat within the watershed are Threatened or Endangered Species (TES) listed; like the Mexican Spotted Owl. Or TES candidate ; the Meadow Jumping Mouse, Rio Grande Cutthroat trout, Northern Goshawk, Peregrine Falcon, and Jemez Mountain Salamander, or Region 3 (R3) Sensitive; the Rio Grande chub and Rio Grande sucker.

**Other resources:**

**Recreation:** There are numerous developed recreation sites within the watershed.; The San Antonio Campground. San Diego Overlook, San Antonio Hot Springs (day use), Dark Canyon Fishing Access, Rincon Fishing Access, and La Cueva Picnic area are located the Santa Fe National Forest. The Banco Bonito Staging Area is located on the Valles Caldera. There are also numerous areas used for dispersed recreation including hunting, fishing, and some dispersed camping.

**Private lands:** There are nearly 1,300 acres of private lands within the watershed. The community of La Cueva includes a mix of summer homes and year round residents. Thompson Ridge is predominantly summer homes only.

**Roads and Trails**

Roads

There are nearly 90 miles of roads within the watershed. Approximately 45 miles are managed by the Santa Fe National Forest with 27 miles open to use. There are approximately 40 miles are of the roads on the Forest and VCNP with native surface and are in need of maintenance.

Trails

There is approximately 1 mile of system trails within the watershed. These two trails provide access to hot springs within the watershed. The trail to Spence Hot Springs has been recently reconstructed and is very good condition. The trail to San Antonio Hot Springs is in poor condition and needs extensive work to reduce watershed effects. There is an additional 13 miles of known user created trails. Nearly all the user created miles need some form of stabilization work to either continue to be used or before they can be decommissioned.

**Range:** The watershed contains portions of three allotments: San Diego, Vallecitos, and the Cebolla/San Antonio Allotment. Little or no grazing occurs within the watershed on the San Diego or Vallecitos allotments within this watershed. Grazing does occur on the Cebola/San Antonio Allotment. Four permittees graze up to 347 head of cattle from June through October. Five pastures in this allotment are within the watershed with four pastures that total 4,000 acres managed as part of the deferred rotation. The San Antonio pasture along San Antonio Creek is grazed for a maximum of two weeks in the spring and two weeks in the fall as cattle are being moved from one pasture to another. Due to problems with the San Antonio well, grazing has been occurring within the riparian pasture for extended periods for the last few grazing seasons.

**Heritage Resources:**
Large portions of the watershed have been surveyed for Heritage resources for projects in the past. Site density is generally considered relatively low for the Jemez Mountains. Some pre-historic and historic sites have been located within the watershed but none to date have been recommended as eligible for nomination to the National Register of Historic Places.

**b. Watershed Conditions:**

**Overall Conditions**

The Watershed was assessed against the 12 Watershed Condition Indicators as described in the *Forest Service Watershed Condition Classification Technical Guide.* The overall rating for the watershed was a rating of 2.4 or in Poor condition (Impaired Function). A number of individual indicators were also in Poor condition including Water Quality, Riparian and Wetland Vegetation Condition, Road and Trail Condition, Soil Condition, Fire Effects and Regime. Other indicators were rated in Fair condition (Functioning at Risk).

**Conditions by Indicator**

Water Quality

San Antonio Creek is listed on the State of New Mexico's 303d integrated report as not supporting the designated use(s) of Domestic water Supply and High quality Cold Water Aquatic Life. The probable causes of the impairment are listed as Aluminum, Arsenic, Benthic-Macroinvertebrate Bioassessments, Water Temperature and Turbidity. The listed probable sources of the impairment include: Forest Roads, Loss of Riparian Habitat, Other Recreational Pollution Sources, Rangeland Grazing, Site Clearance (Land Development), Streambank Modifications/Destabilization, and Natural Sources.

Water Quantity

Water quantity within the watershed is likely a result of diversions and the high vegetative density. There are few major diversions within the watershed. There are a few earth tanks that hold water during a part of the year but their removal would not generate any measurable increase in stream quantity. The vegetative density is high and winter interception likely reduces water quantity to a measurable degree.

Aquatic Habitat Condition

An aquatic habitat assessment was done in 2002. The assessment breaks the stream system into 6 reaches in the watershed. The assessment concluded that the lower reaches (up to the Hot Springs) were in fair to good condition. Above the Hot Springs the assessment shows only fair to poor conditions due to poor channel shape and function(few pools, channel widening) and a lack of large woody debris.

Aquatic Biota

Aquatic biota in the watershed is considered to be in fair condition. A few species of native fish do inhabit the waters of San Antonio Creek. However Rio Grande

Cutthroat trout are absent. This is likely due to the presence of non-natives such as German brown and rainbow trout.

Riparian/ Wetland Vegetation

This indicator was ranked as poor in the watershed. The near absence of woody riparian species and the condition of the herbaceous riparian vegetation, especially in the upper reach, was identified as the main reason for this ranking. Changes in channel morphology, and cattle and elk grazing are the likely causes.

Road and Trail Condition

Runoff from roads and trails within the watershed are a likely source of the turbidity and resultant listing on the 303d report. Nearly all the roads within the watershed are native surface, many of these are also in need of maintenance. Some roads are no longer needed or are in such poor condition and could be obliterated (the segment of FR 376 above the Hot Springs is a good example). There are few trails designed to standard within the watershed. The trail up to the Hot Springs is in need of realignment to reduce runoff and impacts to the creek. Also, some trails, such as the trail along the creek above the Hot Springs could be eliminated entirely.

Soil Condition

Soils within the watershed are inherently highly erosive. Productivity is good and most areas have good vegetative cover. Overall soil condition is fair but effects to soils, especially soil erosion, will need to be addressed in all project actions.

Fire Effects and Fire Regime

This indicator was ranked as poor due primarily to the changed fire regime. Over half of the watershed is in FRCC 3. Dense forested stands on steep slopes with the terrain aligning with the prevailing winds occur throughout the watershed. Fire behavior models show a high probability of a large stand-replacing fire occurring in the area within the next 20 years. Work done on the Forest and the Valles Caldera has begun to focus on mitigating this.

Rangeland Vegetation

Rangeland Vegetation was ranked in fair condition. Cattle distribution has become an issue over the past few years due to water availability in the upland pastures. This has led to localized impacts in the riparian areas with changes to forage vigor and composition.

**Terrestrial Invasive Species**

Some invasive species have been found within the watershed. Invasive weeds are present along the streamcourse but populations are not yet extensive. The rating for terrestrial invasive species is listed as fair.

**Forest Health Condition**

Forest health condition was ranked as good. Insect and disease effects appear to be within the range of natural variability.

## 3. Restoration Goals, Objectives, and Opportunities

### a. Goal Identification and Desired Condition

An interdisciplinary watershed planning team was formed to develop the Goals, Objectives and Desired Conditions for the watershed. Goals and Objectives were formulated by comparing the existing conditions of the 12 indicators with desired conditions for the watershed as a whole. These Goals and Objectives focus on those indicators where improvement is needed and conditions can be addressed. As noted previously, some conditions within the watershed may be more a function of landform. A list of possible actions, along with opportunities for the planning and implementation of these actions was formulated to address discrepancies between Existing and Desired Conditions.

### b. Objectives

**i.** Alignment with National, Regional, or Forest Priorities: The objectives for the watershed align extremely well with the Forest Service's National and Regional priorities. The objectives are consistent with the Agency's commitment to restore landscapes, protect and enhance water resources and move the watershed to a condition where it is more resilient to the effects of climate change. The watershed also aligns well with the Southwestern Regions Landscape Conservation and Restoration Strategic Action Plan. The project is consistent with the Forest's priority to restore landscapes. The watershed is an integral part of the Forests priority landscape, the Southwest Jemez Mountains (SWJM) CFLRP.

**ii.** Alignment with State or local goals:

The objectives of this plan are also fully consistent with the New Mexico Environment Department's (NMED) mission to preserve, protect and improve surface water quality. This plan also considers, to the extent possible, the goals and recommendations listed in Sandoval Counties Jemez Valley Area Plan.

As mentioned previously, the watershed is within the SWJM landscape restoration project. The Forest and the VCNP are partners in the restoration of this landscape and share a common vision and goals.

### c. Opportunities

**i.** Partnership Involvement

NMED, The Nature Conservancy (TNC), New Mexico Game & Fish (NMG&F), WildEarth Guardians (WEG)

**ii.** Outcomes/Output

a) Performance Measure Accomplishment

Annually, the program will report accomplishment of activities implemented. The watershed will be reassessed every 2 years using the measures outlined in the *Forest Service Watershed Condition Classification Technical Guide.* The degree of success of the overall program will focus on the key indicators of Water Quality and Riparian/Wetland Vegetation.

b) Socioeconomic Considerations:

Social Constraints:

The watershed falls within a high use recreation area which has occasionally resulted in conflict with short and long term management objectives. The Forest has also recently experienced an exceptionally large catastrophic wildfire. The Forest has and will likely continue to experience pressure from the public and elected officials if they don't agree with the priorities established on this watershed versus fuels and fire treatments elsewhere on the forest.

Economic issues:

The Forest's ability to accomplish the goals outlined in this plan is tied to the budget it receives through regular appropriation. This plan also relies on the 10-year funding through the CFLRP program. This program funding is used to leverage other funds and helps attract partners which will help through outside funding and in kind contribution. Reductions in the CFLRP program funding or the regular appropriations could lead to challenges for the SWJM program and this watershed restoration plan.

**d. Specific Project Activities (Essential Projects)**

**a. Essential Project #1- In Stream Channel Restoration**

- Attribute/Indicator Addressed:
  Indicator 3, Channel Shape and Function, Large Woody Debris
  Indicator 1, Water quality, Impaired waters
  Indicator 3, Riparian/Wetland Vegetation
  Indicator 7, Soil Erosion
- Project Description:
  Remove failed erosion control structures. Remove failed fish habitat structures. Complete hydrologic design, plan and implementation in order to address stream morphology, increase pool to riffle ratio, and woody debris recruitment
- Partners Involvement: NMED, NMG&F
- Timeline: Starting in _2013_ and continuing for _3__ years
- Estimated costs and associated Budget Line Item: Total Cost $430,000, CFLR, NFVW, Partner

**b. Essential Project #2 –Riparian Meadow Restoration**

- Attribute/ Indicator Addressed :
  Indicator 3, Riparian/Wetland Vegetation
  Indicator 10, Rangeland Vegetation
  Indicator 1, Water quality, Impaired waters
  Indicator 11, Terrestrial Invasive Species
  Indicator 7, Soil Erosion
- Project Description:

Install a livestock/elk ex-closure, plant woody riparian vegetation (willow/cottonwood), remove conifer encroachment from riparian meadows, and treat invasive weeds.

- Partners Involvement: NMED, WEG, Cattle permittees
- Timeline: Starting in __2012___ and continuing for __5__ years
- Estimated costs and associated Budget Line Item: Total Cost $350,000, CFLR, NFVW, Partner

**c. <u>Essential Project #3 –Road and Trail Maintenance and Decommissioning</u>**

- Attribute/ Indicator Addressed:

Indicator 6, Road and trail condition, Road Density, Proximity to Water, Maintenance
Indicator 1, Water quality, Impaired waters
Indicator 7, Soil Erosion

- Project Description:
  Implement the decision to decommission the upper part of FR376. Close or decommission other roads as identified in Travel Management (approximately 24 miles). Other work includes; the maintenance of open roads (11 miles), close social trails along San Antonio Creek, and coordinate with the VCNP to address roads their roads.
- Partners Involvement: NMED, WEG
- Timeline: Starting in __2012___ and continuing for __5__ years
- Estimated costs and associated Budget Line Item: Total Cost $670,000, CFLR, NFVW, CMLG, , Partner

**d. <u>Essential Project #4 Range Management</u>**

- Attribute/ Indicator Addressed :

Indicator 5, Riparian/Wetland Vegetation
Indicator 10, Rangeland Vegetation
Indicator 1, Water quality, Impaired waters
Indicator 7, Soil Erosion (cattle trails)

- Project Description:
  Repair San Antonio well and add well control boxes accessible from upland pastures. Install drift fence across San Antonio Canyon. Maintain or replace earth tanks with trick tanks. Repair well in Calaveras pasture to provide water and improve cattle distribution.
  Partners Involvement: USDA (Secure Rural Schools), NMED, Cattle permittees,
- Timeline: Starting in __2012___ and continuing for __5__ years
- Estimated costs and associated Budget Line Item: Total Cost $220,000, CFLR, NFVW, RBRB, Partner

**e. <u>Essential Project #5 –Recreation Restoration</u>**

- Attribute/ Indicator Addressed:

Indicator 6, Road and Trail condition, Maintenance, Proximity to water
Indicator 1, Water quality, Impaired waters

Indicator 5, Riparian/ Wetland Vegetation
Indicator 7, Soil Erosion

- Project Description:
  - Build a new hot springs parking area, decommission existing parking area, install a new closure gate on FR376, build new trail to footbridge, realign trail from footbridge to Hot Springs, realign and stabilize the trail up the canyon (Lewis Trail), close social trails along the creek.
- Partners Involvement: NMED, Trail Partners
- Timeline: Starting in __2012___ and continuing for __3__ years
- Estimated costs and associated Budget Line Item: Total Cost $90,000, NFRW, CMLG, CMTL,

**f. <u>Essential Project #6 –Mushroom Basin Meadow Restoration</u>**

- Attribute/ Indicator Addressed:

Indicator 3, Riparian/Wetland Vegetation
Indicator 10, Rangeland Vegetation
Indicator 1, Water quality, Impaired waters
Indicator 11, Terrestrial Invasive Species
Indicator 7, Soil Erosion

- Project Description:

  Remove conifer encroachment from wet meadows , Build a livestock/elk exclosure, plant woody riparian vegetation (willow/cottonwood), and treat invasive weeds.

  Partners Involvement: WEG, Cattle permittees
- Timeline: Starting in __2013___ and continuing for __4__ years
- Estimated costs and associated Budget Line Item: Total Cost $200,000, NFTM, CFLR, NFVW

**g. <u>Essential Project #7 –Fire Effects and Forest Health</u>**

- Attribute/ Indicator Addressed:

Indicator 8, Fire Effects and Regime
Indicator 12, Forest health Condition

- Project Description:

  Thinning and prescribed burning of Ponderosa Pine and Dry Mixed Conifer
- Partners Involvement: TNC
- Timeline: Starting in __2012___ and continuing for __5__ years
- Estimated costs and associated Budget Line Item: Total Cost $800,000, WFHF, CFLR, NFTM

**e. Costs:**

| | Planning | Design | Implementation | Project Monitoring |
|---|---|---|---|---|
| FS Contribution | $104,000 | $27,000 | $2,101,000 | $30,000 |
| Partner Contribution (both in kind and $) | $0 | $2,000 | $513,000 | $19,000 |
| **Total** | $104,000 | $29,000 | $2,614,000 | $49,000 |

**f. Timelines and Project Scheduling**

| FY | Task | FS Cost | Partner cost |
|---|---|---|---|
| See Appendix A: Outlet San Antonio Project Schedule | | | |
| | | | |

**g. Other Partners**

New Mexico State Forestry, the New Mexico Forest and Watershed Restoration Institute, local environmental organizations as well as the local and regional forest products industry are all potential partners or interested parties in the design and implementation of the project in the Outlet San Antonio Watershed

**4. Restoration Project Monitoring and Evaluation**

**a. The forest will monitor:** Implementation and effectiveness. Other FS funded monitoring throughout and immediately adjacent to the watershed as a part of the Southwest CFLRP Monitoring. Extensive monitoring of climate, water quality and quantity, effects to wildlife and fish will be done through the CFLRP program.

**b. Monitoring will be done in cooperation with:** The New Mexico Environment Department, The Nature Conservancy, WildEarth Guardians, and the Valles Caldera National Preserve

Action Plan Date: September 15, 2011

Reviewing Official and Title: Maria T. Garcia FOREST SUPERVISOR

Forest Contact Information: Erica Nevins/Chris Napp

# Appendix A – Outlet San Antonio Project Schedule

**f. Timelines and Project Scheduling**

| FY | Project # | Task | FS Cost | Partner Cost |
|---|---|---|---|---|
| 2012 | 1 | Planning | $20,000 | $0 |
| 2012 | 1 | Hydro Design | $25,000 | $0 |
| 2012 | 2 | Planning Ch 18 review | $12,000 | $0 |
| 2012 | 3 | Planning | $16,000 | $0 |
| 2012 | 4 | Planning | $6,000 | $0 |
| 2012 | 4 | Repair San Antonio Well | $0 | $68,000 |
| 2012 | 5 | Planning | $6,000 | $0 |
| 2012 | 5 | Design | $2,000 | $2,000 |
| 2013 | 2 | Livestock/Elk Exclosure | $0 | $120,000 |
| 2013 | 2 | Willow/Cottonwood Planting | $48,000 | $32,000 |
| 2013 | 3 | Decommission 376 | $182,983 | $0 |
| 2013 | 3 | Reconstruct 376 (Drain and Spot Rock) | $102,000 | $0 |
| 2013 | 3 | Maintain all other Open Roads | $38,400 | $0 |
| 2013 | 4 | Repair Calaveris Well | $0 | $35,000 |
| 2013 | 4 | Well Control Boxes | $0 | $58,000 |
| 2013 | 4 | New Trick Tank | $24,000 | $0 |
| 2013 | 5 | New Hot Springs Parking area | $24,000 | $0 |
| 2013 | 5 | Rip/Seed existing parking area | $12,000 | $0 |
| 2013 | 5 | Closure gate on 376 | $10,000 | $0 |
| 2013 | 5 | New Trail to Footbridge | $1,500 | $0 |
| 2013 | 5 | Realign trail from footbridge to Springs | $1,600 | $0 |
| 2013 | 6 | Planning | $12,000 | $0 |
| 2013 | 7 | Planning | $32,000 | $0 |
| 2014 | 1 | Streambank restoration | $200,000 | $120,000 |
| 2014 | 1 | Woody Debris Recruitment | $32,000 | $0 |
| 2014 | 2 | Conifer Encroachment Cutting | $80,000 | $0 |
| 2014 | 2 | Treat Invasive Weeds | $42,600 | $0 |
| 2014 | 3 | Close roads(with final Mtc) | $130,000 | $0 |
| 2014 | 4 | Stock Tank Maintenance | $24,000 | $0 |
| 2014 | 4 | Canyon Drift Fence W/Stream crossing | $20,000 | $1,600 |
| 2014 | 5 | Realign/Stabilize trail up the Canyon | $24,800 | $0 |
| 2014 | 5 | Trail Closure signs | $2,000 | $0 |
| 2014 | 6 | Remove Conifer Encroachment from wet Meadows | $75,000 | $0 |
| 2014 | 7 | Thinning(Hand and Mechanical) | $480,000 | $0 |
| 2015 | 3 | Decommission roads(with Final Mtc) | $193,081 | $0 |
| 2015 | 6 | Livestock/Elk exclosures | $16,000 | $60,000 |
| 2015 | 6 | Willow planting | $0 | $18,000 |
| 2016 | 6 | Treat invasive weeds | $3,750 | $0 |
| 2016 | 7 | Prescribed Burn (Initial Entry) | $192,000 | $0 |
| 2016 | 7 | Prescribed Burn (maintenance) | $72,000 | $0 |