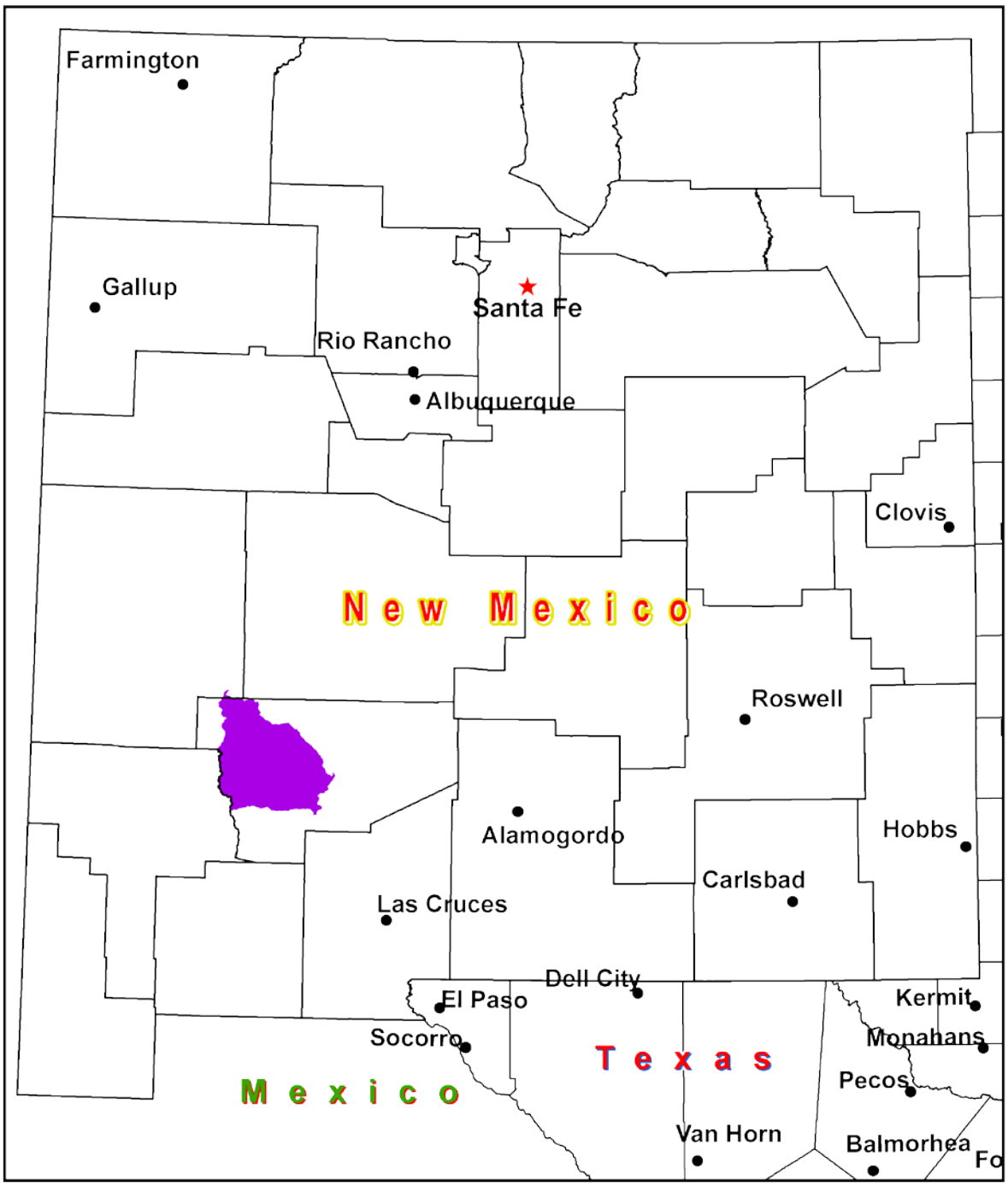
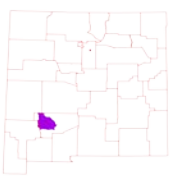
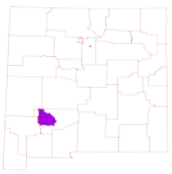


Rapid Watershed Assessment
Caballo Watershed





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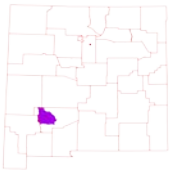

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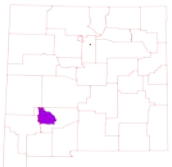


Overview

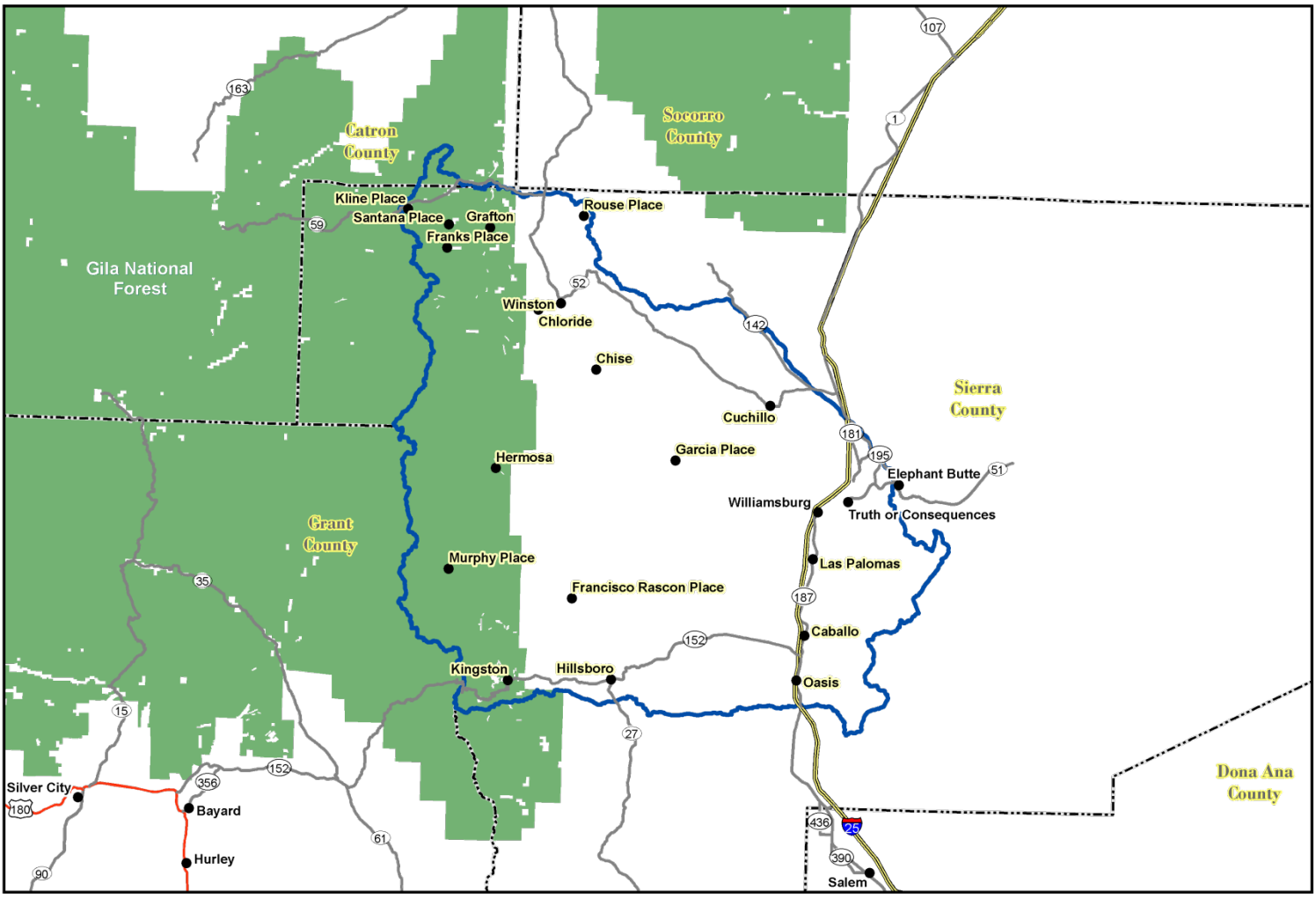
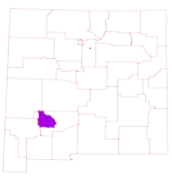


Figure 1 Caballo Watershed Overview

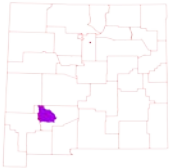


Overview

The Caballo Watershed is located in southwestern New Mexico and covers 794,222 total acres (3,214 sq. km). Portions of the Caballo Watershed are in Grant, Hidalgo and Sierra counties. Table 1 summarizes the distribution of the Caballo Watershed.

County	County Acres Total	Acres in HUC	% of HUC in County	% of County in HUC
Catron	4,442,108	3,678	<1	<1
Grant	2,543,536	172	<1	<1
Sierra	2,711,883	790,371	100	29
Sum (∑)	--	794,222	100	--

Table 1. Caballo Watershed acreage distribution.



Physical Setting

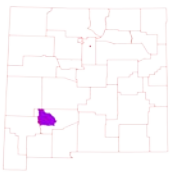
Geology: [1]

The watershed is part of the Rio Grande Rift physiographic province from Elephant Butte Lake Dam to Caballo Lake Dam. The rift is a graben with fault block mountains forming the eastern and western boundaries. Mountains to the west are usually volcanic in origin and to the east volcanic or sedimentary.

The mountain ranges consist of Paleoproterozoic Eon aged granitic plutons or quartzite; Tertiary Period aged volcanic (basalt, basaltic-andesite or rhyolite); and Paleoproterozoic Eon aged or earlier volcanic or metamorphic rocks. Pennsylvanian limestone, shale and sandstone occur in a few outcrops on the west side of the pre-Cambrian massif. The valley floors consist of Tertiary Period partly compacted sands and gravels of the Santa Fe group or Quaternary Period alluvium. The Santa Fe Group consists of alluvial fans, river channel deposits and inter-bedded volcanic rocks preserved in a complex of depressed fault blocks within the Rio Grande depression.

The ancestral Middle Rio Grande developed into a single river system about 5 million years ago (Crawford et al. 1993). Incision of the Middle Rio Grande Valley has been cyclic, and has produced gravel, sand, and silt terraces 9 to 53 meters (m) (30 to 175 feet (ft)) above the current floodplain. The Rio Grande is thought to have reached maximum entrenchment between 10,000 and 20,000 years ago, at a depth 18 to 40 m (60 to 130 ft) below the current valley floor. Since that time, sediment influx from tributaries has resulted in a gradual aggradation of the river bed. Historically, this process led to frequent avulsions of the river channel. The historic river channel was braided and sinuous with a shifting sand substrate that freely migrated across the floodplain, limited only by valley terraces and bedrock outcroppings (Crawford et al. 1993). Resource concerns are high sediment erosion and water runoff. In addition the lowering of valleys by river incision is a continuing process. Many valleys are flanked by terraces. Rivers respond by aggrading during climates that promote large sediment yield and large, stable discharges; and incise during climates that produce flashy flows and reduce the sediment supply. This can be exasperated by the mining of sand and gravel from the river channels. Groundwater quality and quantity is a concern. Groundwater occurs to a greater or lesser extent in all of these geologic units. The most significant aquifer is the Santa Fe Group, particularly its lower member, the Tesuque Formation. The upper member, the Ancha, is typically more conductive than the Tesuque but occurs above the water table in much of the Santa Fe watershed. Deeper groundwater is nearly continuous in the Tesuque Formation throughout the watershed area, to depths of 2000 feet or greater in some areas. This deep groundwater dates from the Ice Age and is recharged little if at all by present-day rainfall and snowmelt. Volcanics often serve as a “floor” or channel to concentrate percolating groundwater and cause it to emerge as spring flow.

Depth to groundwater is a concern if the shallow unconfined aquifer does not produce enough water for the resource or increased population demands are ‘mining’ the water. Groundwater in the igneous rocks and volcanics is usually along fracture zones which are hard to intercept with water wells. Groundwater quality ranges from good to poor for livestock or crops.



Soils:

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

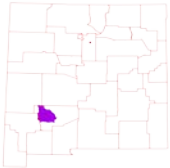
The soils in the Caballo Watershed are assigned to four groups (A, B, C, and D).

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.


Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.


Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.


Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.



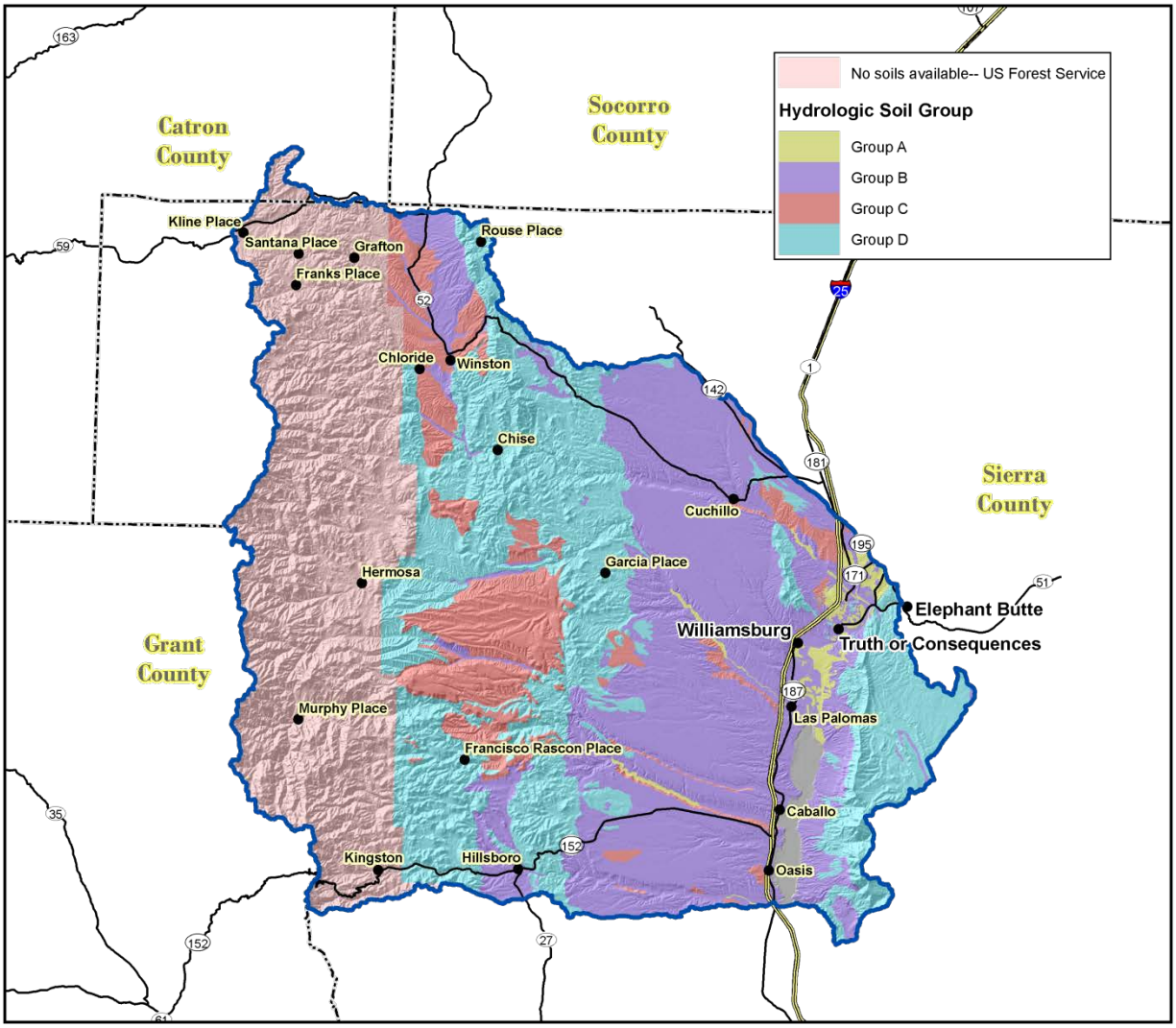
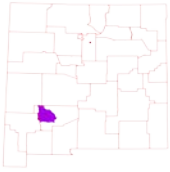


Figure 2. Caballo Watershed Hydrologic Soil Group.



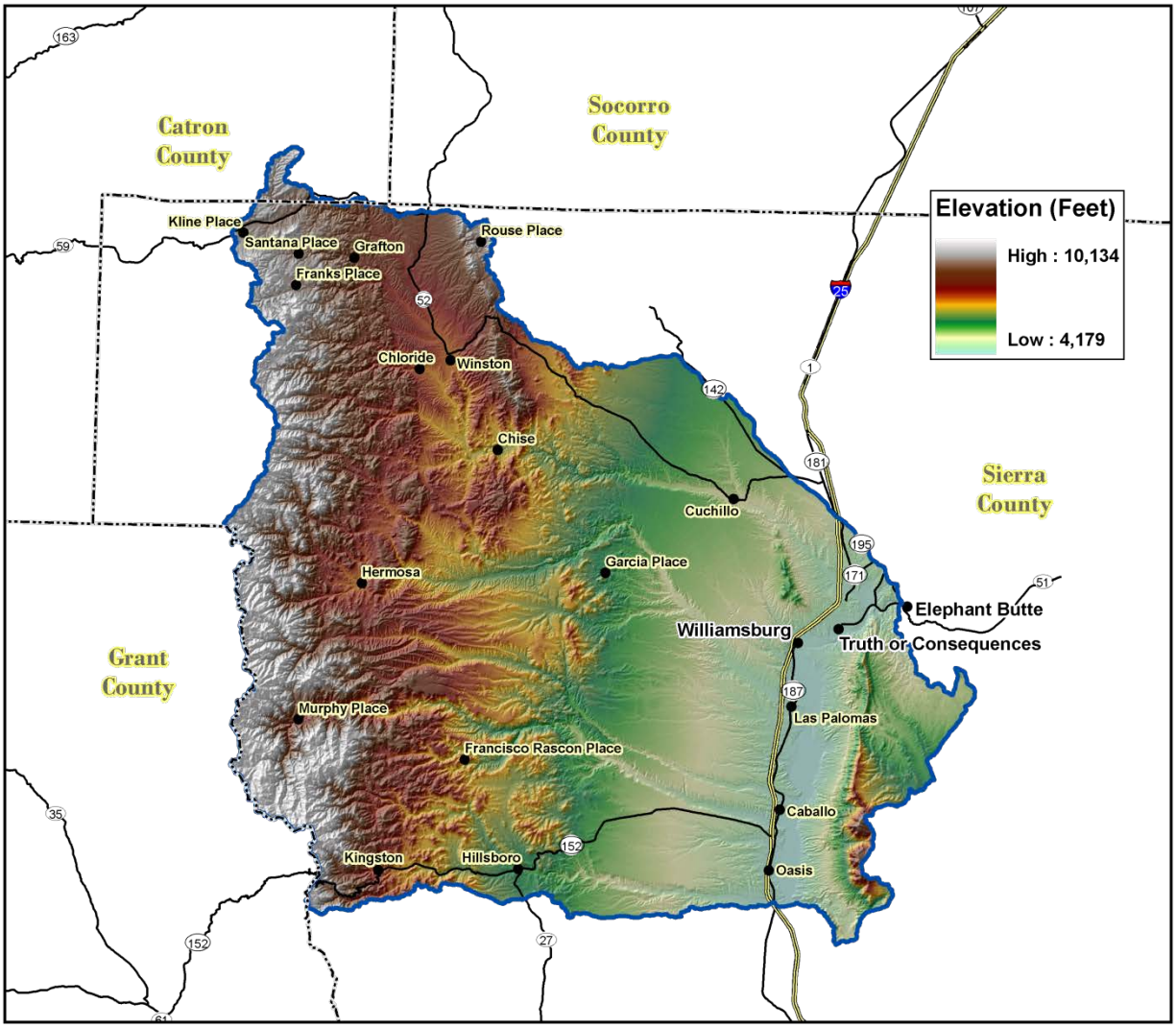
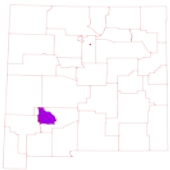


Figure 3. Caballo Watershed Shaded Relief



Precipitation [2]

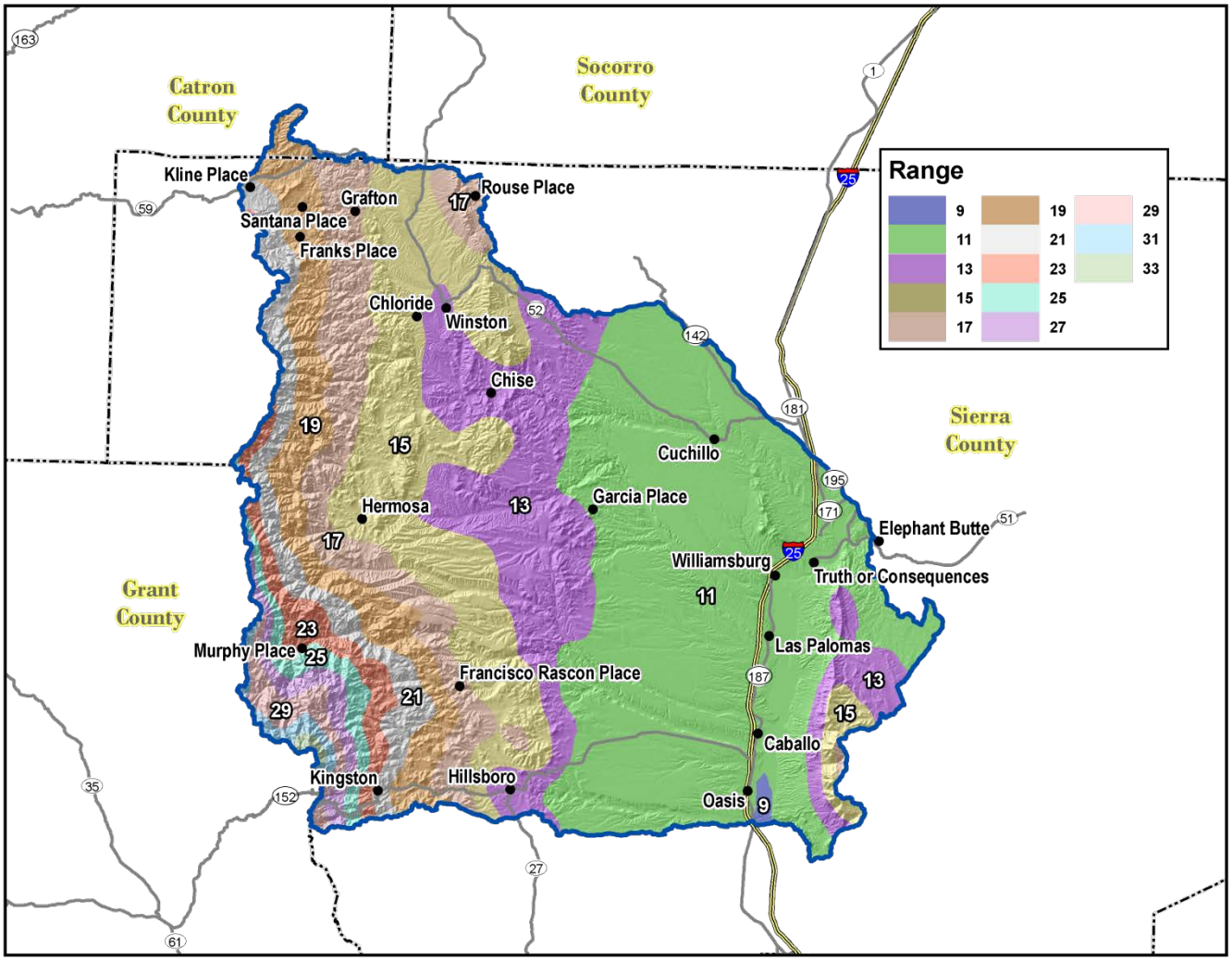
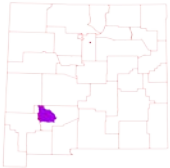


Figure 4. Caballo Watershed Annual Precipitation.



Land Ownership [3]

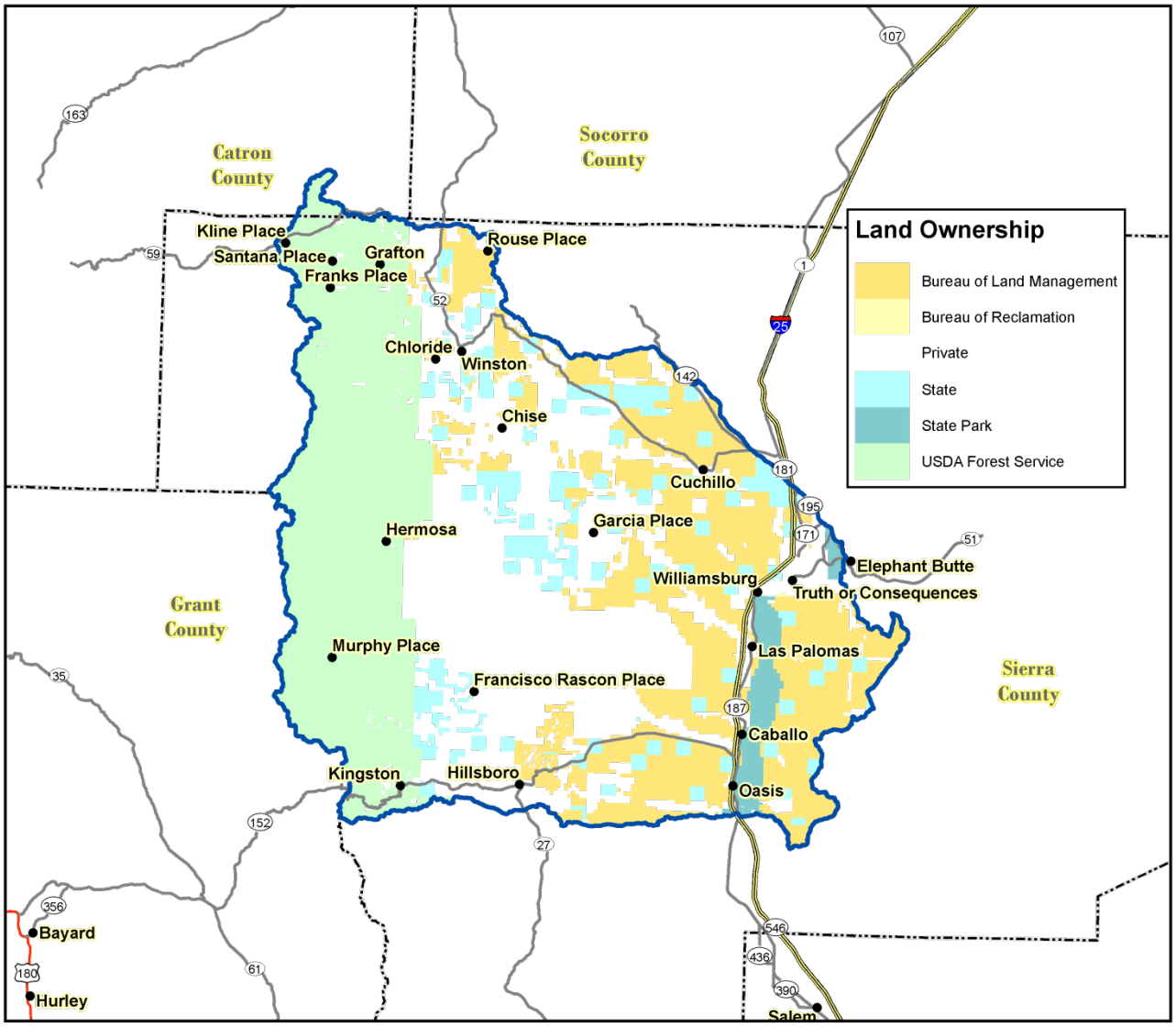
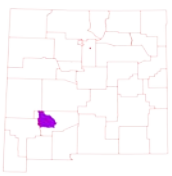


Figure 5. Caballo Watershed Land Ownership.

Land Ownership

COUNTY	BLM	Bureau of Reclamation	Private	State	State Park	USDA Forest Service
Catron			27			3,650
Grant						170
Sierra	203,550	85	290,532	69,966	18,504	207,738
Watershed (∑)	203,550	85	290,559	69,966	18,504	211,558
% Watershed	26	<1	37	9	2	27

Table 2. Land ownership in the Caballo Watershed.



Land Use / Land Cover [4,5]

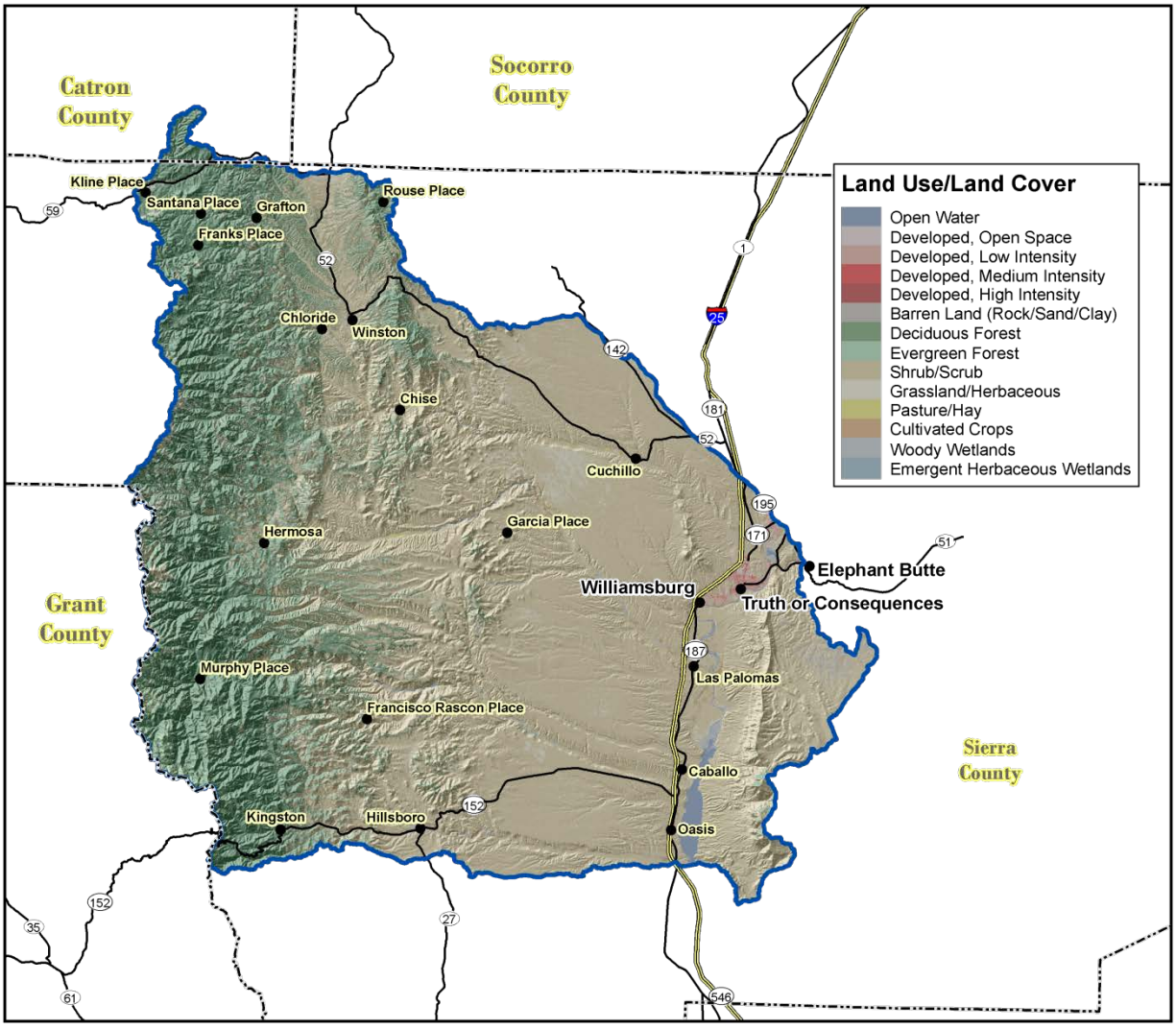


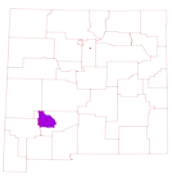
Figure 6. Subset of the National Land Cover Dataset in the Caballo Watershed.

Land Use / Land Cover

The U.S. Geological Survey (USGS) produced the National Land Cover Dataset (NLCD) as part of a cooperative project between the USGS and the U.S. Environmental Protection Agency (USEPA). The goal of this project was to produce a consistent land cover data layer for the conterminous United States. The Multiresolution Land Characterization (MRLC) Consortium collected the data used to compile the NLCD. The MRLC Consortium is a partnership of Federal agencies that produce or use land cover data; partners include the UNITED STATES GEOLOGICAL SURVEY (National Mapping, Biological Resources, and Water Resources Divisions), USEPA, the U.S. Forest Service, and the National Oceanic and Atmospheric Administration.

Land Use/ Land Cover	Acres	% of Watershed
Shrub/Scrub	516,145	65%
Evergreen Forest	226,612	29%
Herbaceous	25,814	3%
Deciduous Forest	4,860	1%
Developed, Low Intensity	4,634	1%
Open Water	4,287	1%
Woody Wetlands	3,432	< 1%
Developed, Open Space	3,079	< 1%
Barren Land	2,937	< 1%
Cultivated Crops	1,238	< 1%
Hay/Pasture	516	< 1%
Developed, Medium Intensity	467	< 1%
Emergent Herbaceous Wetlands	146	< 1%
Developed, High Intensity	33	< 1%

Table 3. Extent of NLCD classes in the Caballo Watershed.



Land Use / Land Cover

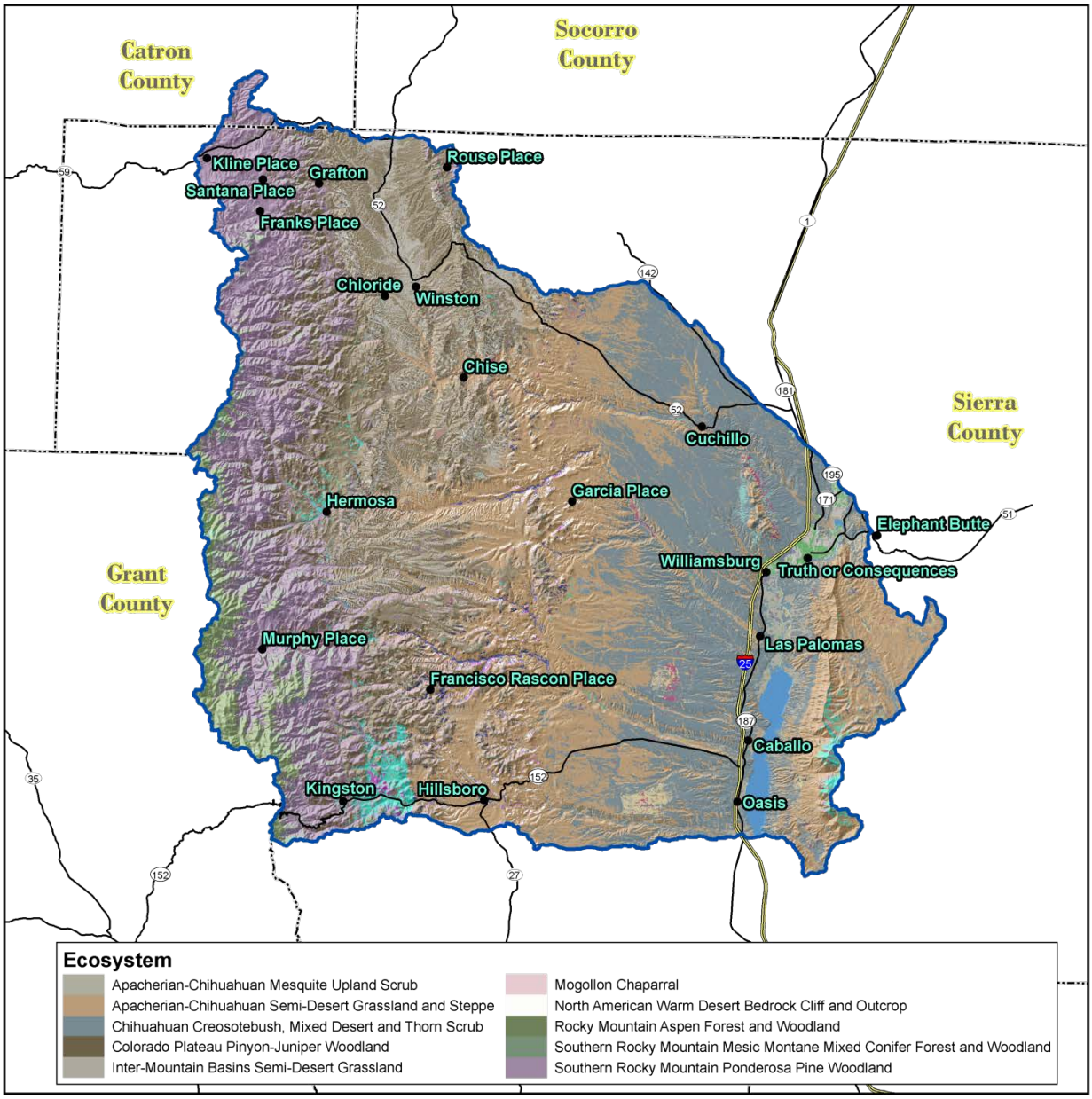
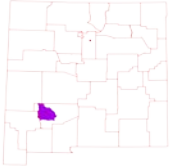


Figure 7. Subset of the SWREGAP over the Caballo Watershed. The 10 dominant ecosystems are displayed in the legend.

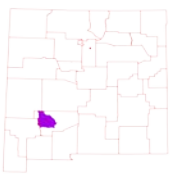


Land Use / Land Cover

The land cover mapping effort for the Southwest Region Gap Analysis Project was a coordinated multi-institution endeavor. This dataset was created for regional terrestrial biodiversity assessment. Additional objectives were to establish a coordinated mapping approach to create detailed, seamless maps of land cover, all native terrestrial vertebrate species, land stewardship, and management status, and to analyze this information to identify those biotic elements that are underrepresented on lands managed for their long term conservation.

ECOSYSTEM	Acres	% of Watershed
Apacherian-Chihuahuan Semi-Desert Grassland and Steppe	226,559	29%
Colorado Plateau Pinyon-Juniper Woodland	148,432	19%
Chihuahuan Creosotebush, Mixed Desert and Thorn Scrub	147,074	19%
Southern Rocky Mountain Ponderosa Pine Woodland	120,384	15%
Inter-Mountain Basins Semi-Desert Grassland	32,026	4%
Rocky Mountain Aspen Forest and Woodland	20,652	3%
North American Warm Desert Bedrock Cliff and Outcrop	15,924	2%
Apacherian-Chihuahuan Mesquite Upland Scrub	13,499	2%
Mogollon Chaparral	10,036	1%
Southern Rocky Mountain Mesic Montane Mixed Conifer Forest and Woodland	9,430	1%

Table 4. SW Region Gap analysis ecosystem acreages.



Hydrology [6,7,8,9,10]

The National Hydrography Dataset (NHD) is a comprehensive set of data that encodes information about naturally occurring and constructed bodies of water, paths through which water flows, and related entities. The NHD identifies 4,098 miles (6,596 km) of water courses in the Caballo Watershed. The majority of these courses typically flow intermittently in summer months during periods associated with high intensity convective thunderstorms.

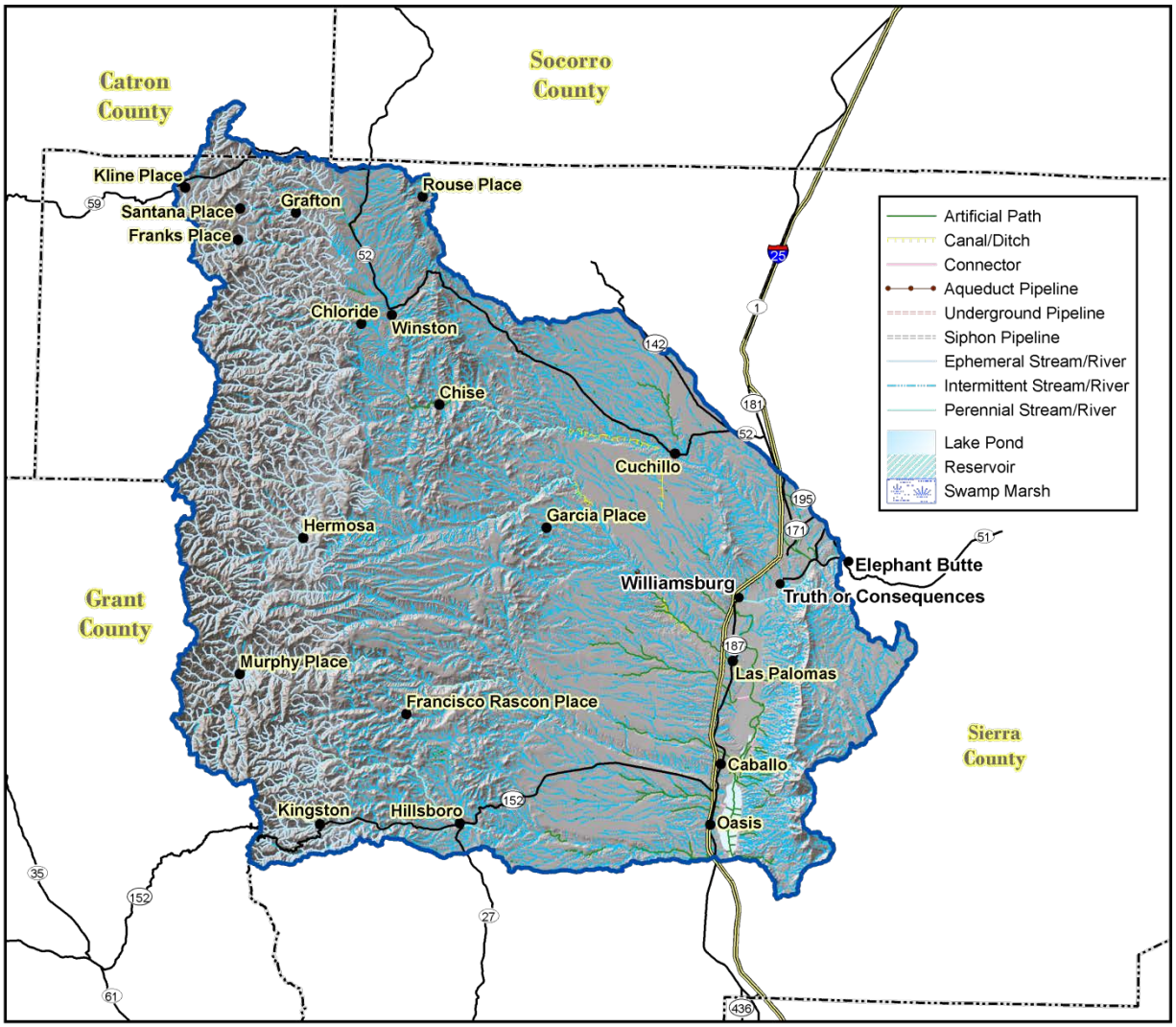
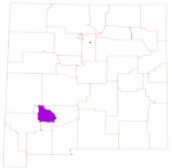


Figure 8. National Hydrologic Dataset (NHD) of the Caballo Watershed.

Water Course Type	Miles
Artificial Path	142
Canal / Ditch	12
Connector	4
Ephemeral Stream/ River	874
Intermittent Stream / River	2,945
Perennial Stream / River	120
Sum (∑)	4,098

Table 5. NHD Water Course Type and Extents



Gauging Stations:

There are 7 dams and water gauging stations in the watershed. USGS Site 08361000 is located at the top of the northeast section of the watershed near the Rio Grande below Elephant Butte Dam, NM. During the period 1916 – 2011, this site has had mean annual discharge of 988 cubic feet per second ranging from 0 (1918) to 7601 (1942) cubic feet per second.

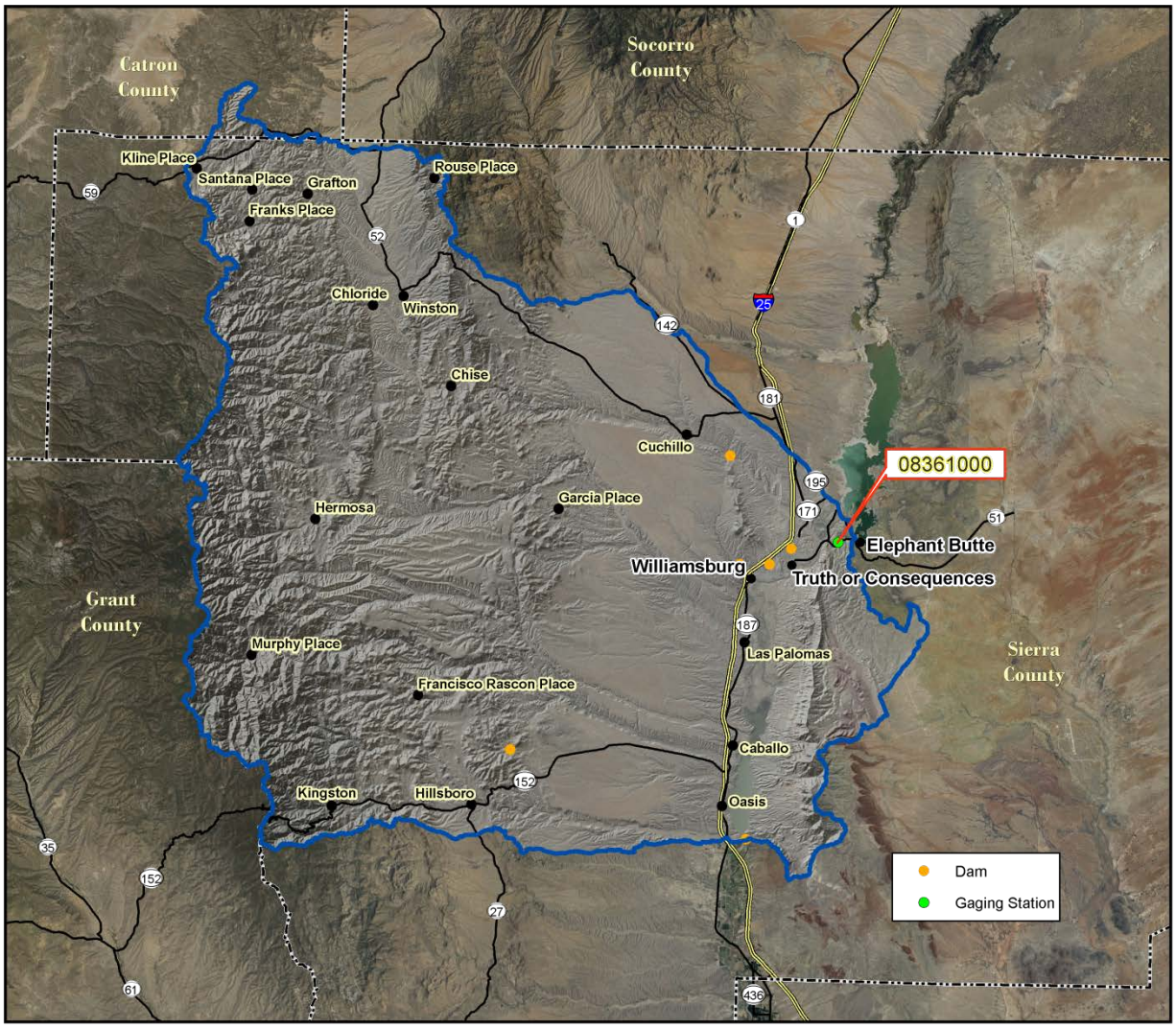


Figure 9. Gauging Stations in the Caballo Watershed.

Hydrology

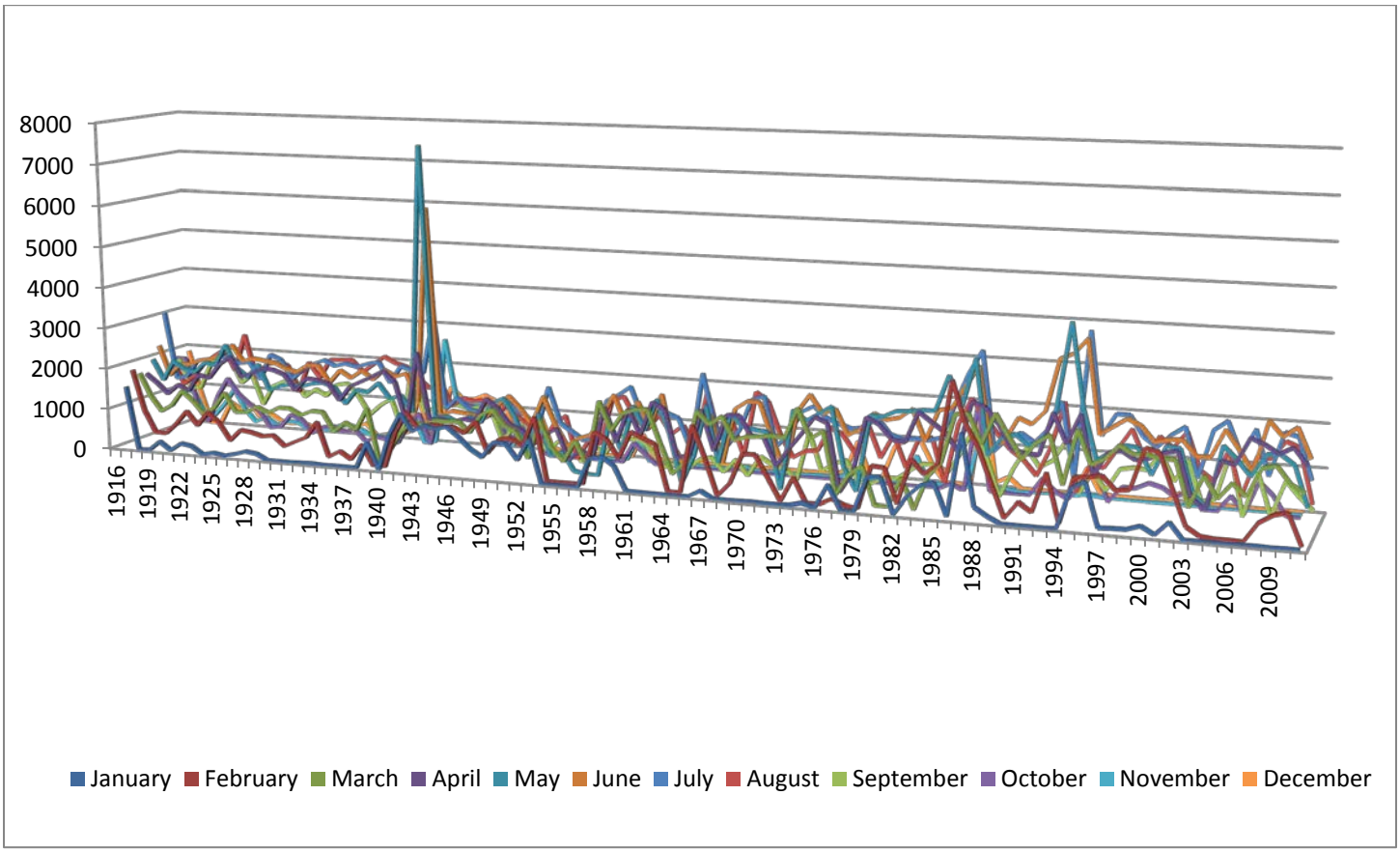
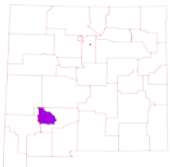


Figure 10. Monthly average of Mean Daily Flow on the Caballo Watershed at Rio Grande below Elephant Butte Dam, NM. Period of observation: 1916-2011.



New Mexico Water Quality Control Commission (NMWQCC):

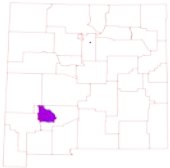
The New Mexico Water Quality Control Commission (NMWQCC) is the issuing agency of water quality standards for interstate and intrastate waters in New Mexico. The NMWQCC has defined the Caballo Watershed are completely within the Gila San Francisco, Hot Springs Artesian, Las Animas Creek, Lower Rio Grande, Mimbres and Rio Grande (Middle) Underground Water Basins. .

The Caballo Watershed has the following reaches listed as 303 (d) Impaired Surface Waters:

1. Caballo Reservoir
2. Las Animas Creek (perennial portion Rio Grande to headwaters)
3. Rio Grande (Caballo Reservoir to Elephant Butte Reservoir)

Use	1	2	3
Fish Culture		x	x
Irrigation	x	x	x
Livestock Watering	x	x	x
Marginal Coldwater Aquatic Life		x	NS
Primary Contact	x		
Secondary Contact		NA	x
Warmwater Aquatic Life	NS	x	x
Wildlife Habitat	x	x	x

Table 6. Listed Uses. NS = Not Supporting, NA = not assessed, x = Fully Supporting



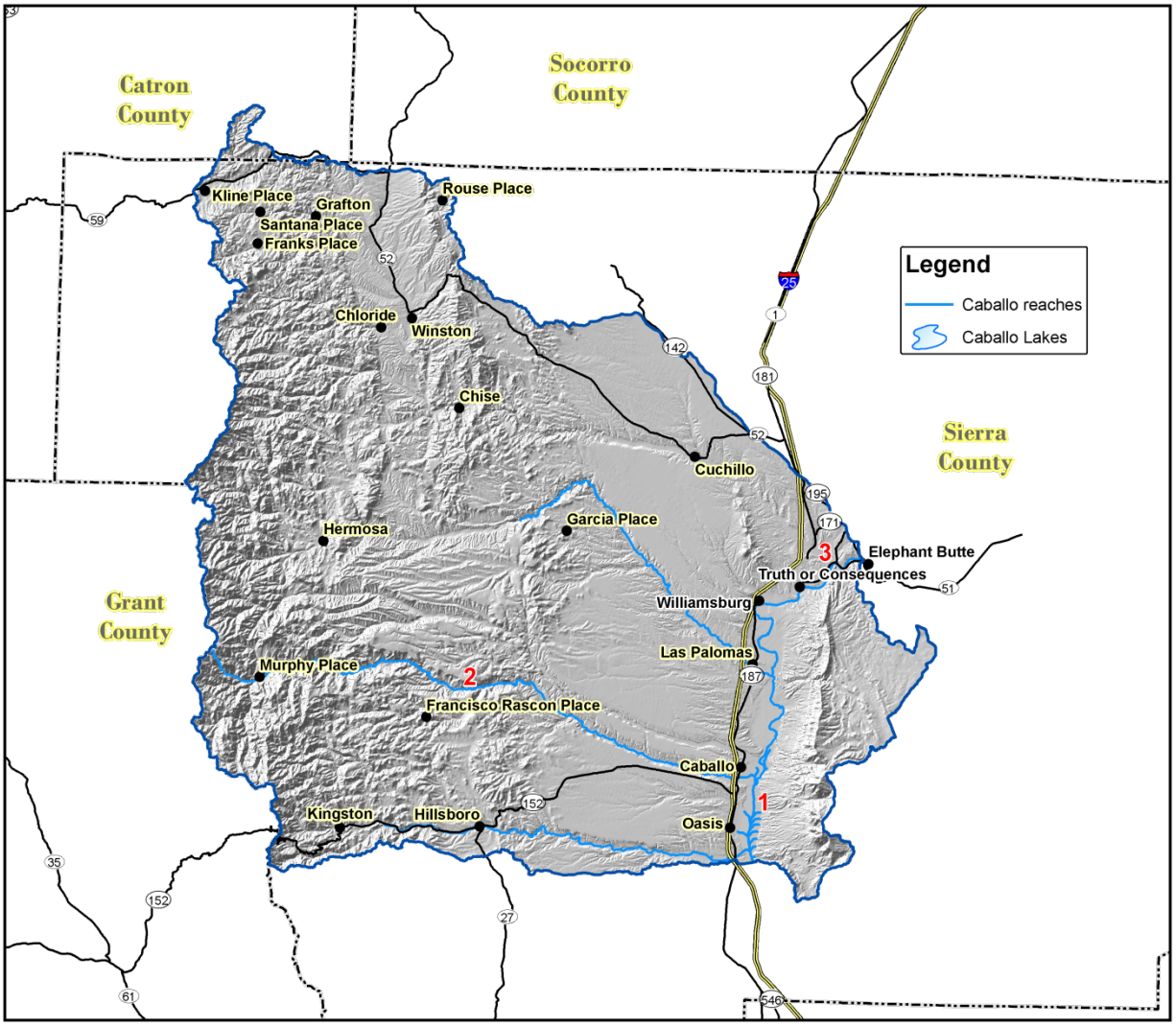
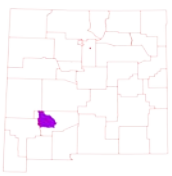


Figure 11. 303(d) Impaired Waters



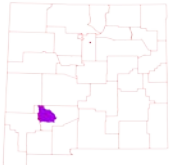
Hydrology

Under section 303(d) of the Clean Water Act, states, territories, and authorized tribes, are required to develop lists of impaired waters. These are waters for which technology-based regulations and other required controls are not stringent enough to meet the water quality standards set by states. The law requires that states establish priority rankings for waters on the lists and develop Total Maximum Daily Loads (TMDLs), for these waters. A TMDL is a calculation of the maximum amount of a pollutant a water body can receive and still safely meet water quality standards. Within the Caballo Watershed, there is one water body listed as impaired as of the 2010-12 listing cycle: Caballo Reservoir.

The river and stream reaches total 77 miles (124 km) and the listed water body covers 2,944 acres (12 sq. km).

Probable Causes of Impairment	Impairment		
	1	2	3
Benthic-Macroinvertebrate Bioassessments (Streams)		X	
Mercury in Fish Tissue	X		
Oxygen, Dissolved			X

Table 7- Possible Causes of Impairment



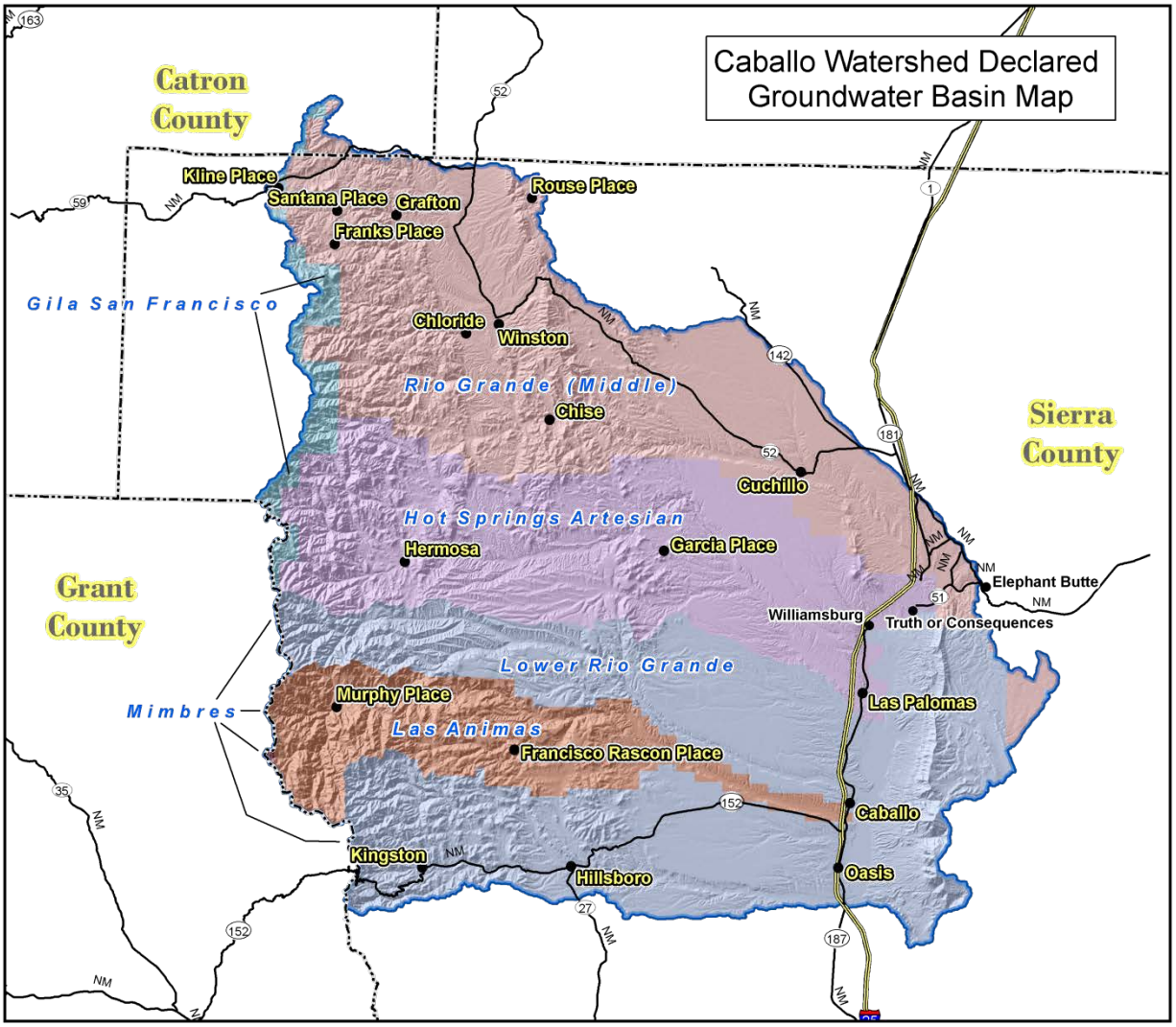
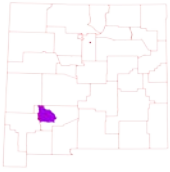


Figure 12. Declared Groundwater Basins of the Caballo.

A declared groundwater basin is an area of the state proclaimed by the State Engineer to be underlain by a groundwater source having reasonably ascertainable boundaries. By such proclamation, the State Engineer assumes jurisdiction over the appropriation and use of groundwater from the source. The Caballo Watershed is completely within Gila San Francisco, Hot Springs Artesian, Las Animas Creek, Lower Rio Grande, Mimbres and Rio Grande (Middle) Underground Water Basin. The surface watershed in New Mexico covers 794,222 of the approximately 5,528,715 million acres of the underground water basins in New Mexico.

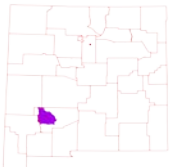


Threatened and Endangered Species [11]

Endangered species are those that are at risk of extinction throughout all or a significant portion of its native range. A threatened species is one that is likely to become endangered in the foreseeable future. The New Mexico Natural Heritage program tracks the status of threatened and endangered species which are listed on both federal and state lists. Table 8 lists those species that are currently listed and tracked in the Caballo Watershed.

Common Name	Scientific Name	Tax Class	Family	Federal Status	State Status
Bald Eagle	Haliaeetus leucocephalus	Aves	Accipitridae		T
Chiricahua Leopard Frog	Rana chiricahuensis	Amphibia	Ranidae	LT	
Common Black-Hawk	Buteogallus anthracinus	Aves	Accipitridae		T
Common Ground-Dove	Columbina passerina	Aves	Columbidae		E
Duncan's Corycactus	Escobaria dasyacantha var. duncanii	Dicotyledoneae	Cactaceae		E
Gray Redhorse	Scartomyzon congestus	Actinopterygii	Catostomidae		E
Mexican Spotted Owl	Strix occidentalis lucida	Aves	Strigidae	LT	
Mineral Creek Mountainsnail	Oreohelix pilsbryi				T

Table 8. Threatened and Endangered Plant and Animal Species.

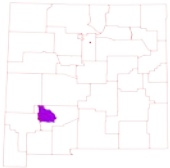


Invasive Species [12]

Invasive species are those which have been introduced into a region or ecosystem and have the ability to out-compete native species for resources (i.e. water, nutrients, sunlight, etc.) The Southwest Exotic Plant Mapping Program (SWEMP) is a collaborative effort between the United States Geological Survey and federal, tribal, state, county and non-government organization partners in the southwest which maintains ongoing efforts to compile and distribute regional data on the occurrence of non-native invasive plants in the southwestern United States. Within the Caballo Watershed, the SWEMP has identified 5 species of invasive plants (Table 9). Each of these species is defined as non-native by the USDA PLANTS database.

Scientific Name	Common Name
***Zygophyllaceae* (Caltrop Family)**	**African Rue**
Scrophulariaceae (Figwort Family)	**Dalmatian Toadflax**
Lythraceae (Loosestrife Family)	***Purple Loosestrife***
Asteraceae (Sunflower Family)	***Russian Knapweed***
Asteraceae (Sunflower Family)	***Yellow Starthistle***

Table 9. Invasive Species Recognized by the SWEMP.



Common Resource Areas[13]

A Common Resource Area (CRA) is defined as a geographical area where resource concerns, problems, or treatment needs are similar. It is considered a subdivision of an existing Major Land Resource Area (MLRA) designation. Landscape conditions, soil, climate, human considerations, and other natural resource information are used to determine the geographic boundaries of a Common Resource Area. Each Common Resource Area will have multiple Conservation System Guides associated with it. A Conservation System Guide associates, for a given CRA and land use, different components of Resource Management Systems and their individual effect on conserving soil and water resources.

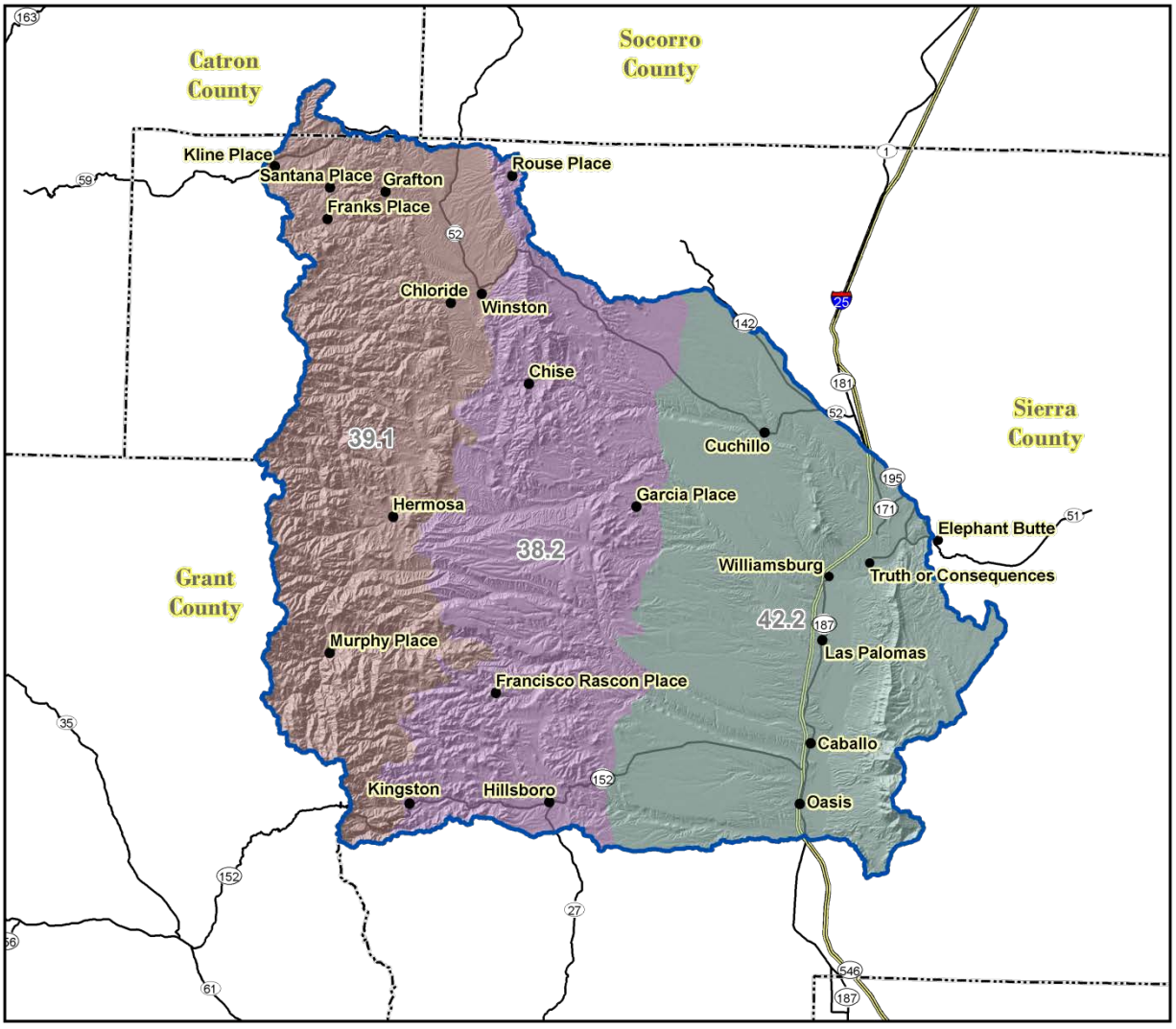


Figure 13 Common Resource Areas of the Caballo Watershed.

Common Resource Areas

38.2 - Interior Chaparral - Woodlands

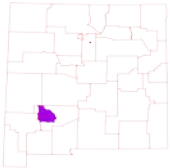
This unit occurs within the Transition Zone Physiographic Province and is characterized by canyons and structural troughs or valleys. Igneous, metamorphic and sedimentary rock occurs on rough mountainous terrain. Elevations range from 4000 to 5500 feet. Precipitation averages 16 to 20 inches per year. The soil temperature regime ranges from thermic to mesic. The soil moisture regime is aridic ustic. Vegetation includes turbinella oak, silktassel, juniper, pinyon, sugar sumac, and bullgrass.

39.1 Mogollon Plateau Coniferous Forests

This unit occurs within the Colorado Plateau Physiographic Province and is characterized by volcanic fields and gently dipping sedimentary rocks eroded into plateaus, valleys and deep canyons. Elevations range from 7000 to 12500 feet. Precipitation averages 20 to 35 inches per year. The soil temperature regime ranges from mesic to frigid. The soil moisture regime ranges from typic ustic to udic ustic. Vegetation includes ponderosa pine, Gambel oak, Arizona walnut, sycamore, and Douglas fir.

42.2 Chihuahuan Desert Shrubs

This unit occurs within the Basin and Range Physiographic Province and is characterized by valley plains, alluvial fans, and mountains. Sediments are from fluvial, lacustrine, colluvial and alluvial deposits. Igneous and metamorphic rock dominate the mountain ranges. Elevations range from 3800 to 5200 feet. Precipitation ranges from 8 to 10 inches per year. The soil temperature regime is thermic. The soil moisture regime is typic aridic. Vegetation includes Creosote, tarbush, soaptree yucca, torrey yucca, tobosa, and alkali sacaton.

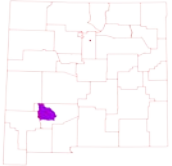


Conservation [14]

The USDA-Natural Resources Conservation Service (NRCS) focuses on the development and delivery of high quality products and services that enable people to be good stewards of our Nation's soil, water, and related natural related resources on non-Federal lands. The Natural Resources Conservation Service's conservation programs aid agricultural producers in their efforts to reduce soil erosion, enhance water supplies, improve water quality, increase wildlife habitat, and reduce damages caused by floods and other natural disasters. Public benefits include enhanced natural resources that help sustain agricultural productivity and environmental quality while supporting continued economic development, recreation, and scenic beauty.

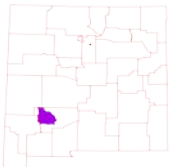
Conservation Practice	2007		2008		2009		2010		2011		TOTAL	
	#	Acres	#	Acres	#	Acres	#	Acres	#	Acres	#	Acres
Brush Management	1	5,449	1	5,449			1	33,616	1	8,945	4	53,458
Conservation Crop Rotation									2	24	2	24
Forage and Biomass Planting	1	12									1	12
Forage Harvest Management	3	44							1	46.8	4	91.2
Integrated Pest Management (IPM)									1	8,945		8,945
Irrigation Land Leveling	1	9					2	12	2	90	5	111
Irrigation System, Microirrigation			1	33							1	33
Irrigation System, Surface and Subsurface									1	9	1	9
Irrigation Water Management			1	33					5	131	6	164
Nutrient Management									2	66	2	66
Prescribed Grazing	2	3,241							2	14,393	4	17,634
Upland Wildlife Habitat Management	1	8,689	1	37,055	1	12,450			1	14,393	4	72,587
SUM (∑)	9	17,444	4	42,569	1	12,450	3	33,628	18	47,043	35	153,134

Table 10 . 5 year Trends in Applied Conservation Practices. Reported in Acres.



Conservation Practice	2007		2008		2009		2010		20111		TOTAL	
	#	Feet	#	Feet	#	Feet	#	Feet	#	Feet	#	Feet
Fence	1	817	1	6,328	1	3,031					3	10,176
Irrigation Water Conveyance, Pipeline, Low-Pressure, Underground, Plastic	3	24	2	13			5	52	2	36	12	125
Pipeline	1	4,581	1	2,864	2	32,188					4	39,632
SUM (∑)	5	5,422	4	9,205	3	35,218	5	52	2	36	19	49,933

Table 11. 5 Year Trends in Location Specific Applied Conservation Practices. Reported in Feet if Linear (i.e. Fence)



Soil Resource Inventory[15]

The Caballo Watershed has a number of certified National Cooperative Soil Survey (NCSS) inventories. The National Forest in New Mexico are not covered, but have soils information available through their Terrestrial Ecosystem Unit Inventories. These will be integrated with the National Cooperative Soil Survey (NCSS) Inventories in the next few years. Soils data is available from the NRCS Soil Data Mart at http://soildatamart.nrcs.usda.gov/ and/or the NRCS Geospatial Data Gateway at http://datagateway.nrcs.usda.gov .

National Cooperative Soil Survey:

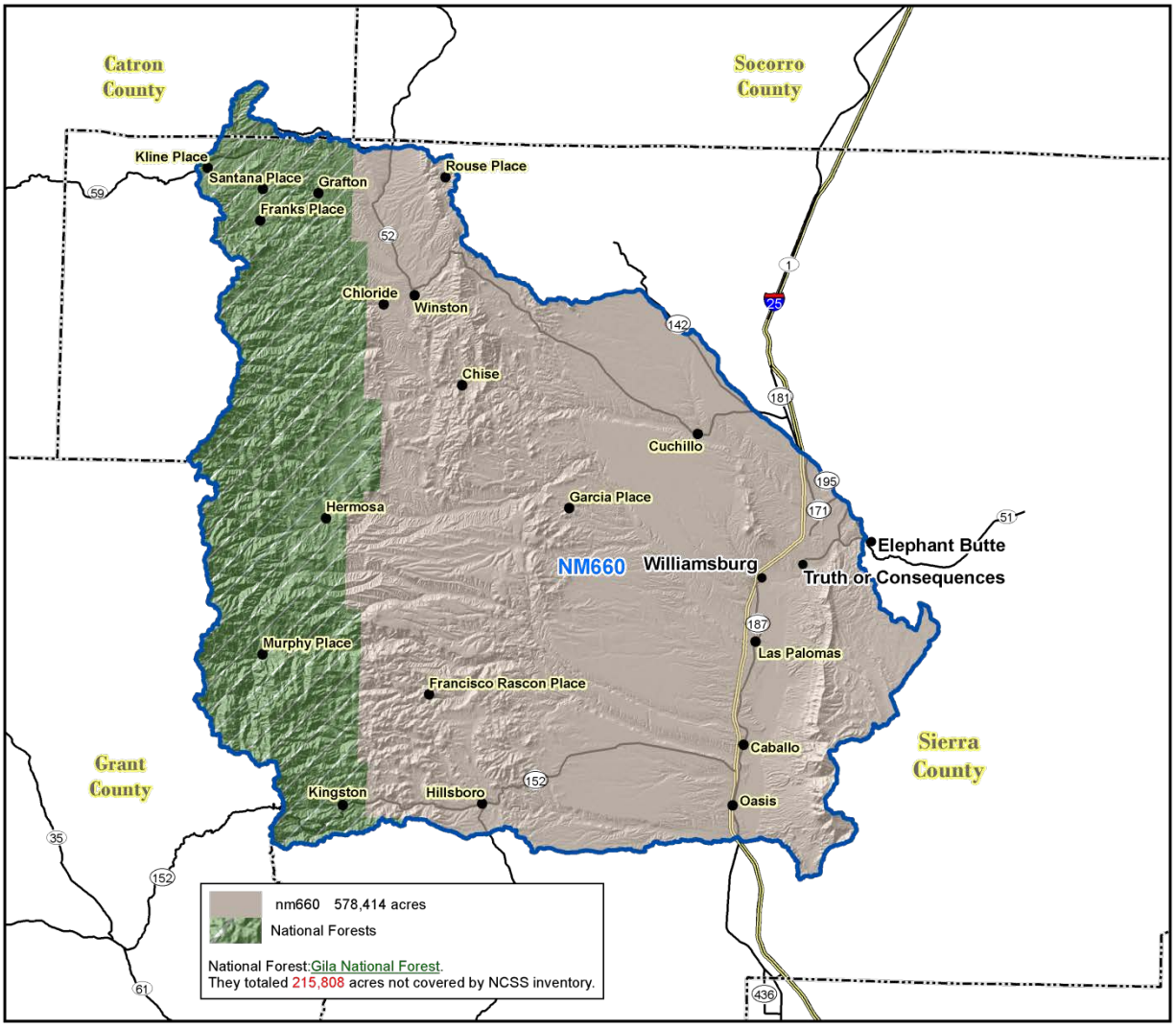
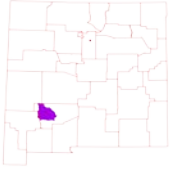


Figure 14. National Cooperative Soil Survey coverage of the Caballo Watershed.

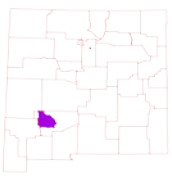


Soil Resource Inventory

In order to evaluate the susceptibility of erosion within the Caballo Watershed, a model was developed using Soil Survey Geographic Database (SSURGO) information. The soil properties saturated hydraulic conductivity, soil loss tolerance, and wind erodibility group were used in conjunction with slope to assess soil map unit potential for erosion. Saturated hydraulic conductivity and slope are reported in SSURGO databases as interval/ratio data whereas wind erodibility and soil loss tolerance are ordinal data. Data transformations for the model are listed -

SSURGO Value	Nominal Description	Model Rank
Saturated Hydraulic Conductivity		
µm / s		
705.0 - 100.0	Very High	0
99.9 - 10.0	High	1
9.9 - 1.0	Moderately High	2
0.9 - 0.1	Moderately Low	3
0.09 - 0.01	Low	4
Slope %		
0 - 5		0
6 - 10		1
11 - 15		2
16 - 25		3
> 25		4
Soil Loss Tolerance		
5	High Tolerance For loss	0
4	↓	1
3	↓	2
2	↓	3
1	Low Tolerance For Loss	4
Wind Erodibility Group		
1	Very High	4
2	Very High	4
3	High	3
4	High	3
4L	High	3
5	Moderate	2
6	Moderate	2
7	Moderate	1
8	Slight	0

Table 12. Criteria Used for Soil Erosion Susceptibility Model.



Soil Resource Inventory

For each soil map unit (discrete delineation), the soil properties (named above) of the dominant soil type was used as the condition to be evaluated in the susceptibility to erosion model. Miscellaneous areas such as gravel pits, water, riverwash, etc. were excluded from evaluation. Possible range of values for each map unit are 0 – 16. Increasing values represent a higher susceptibility to soil erosion. Forest Service Soils are not able to be included in the model at his time.

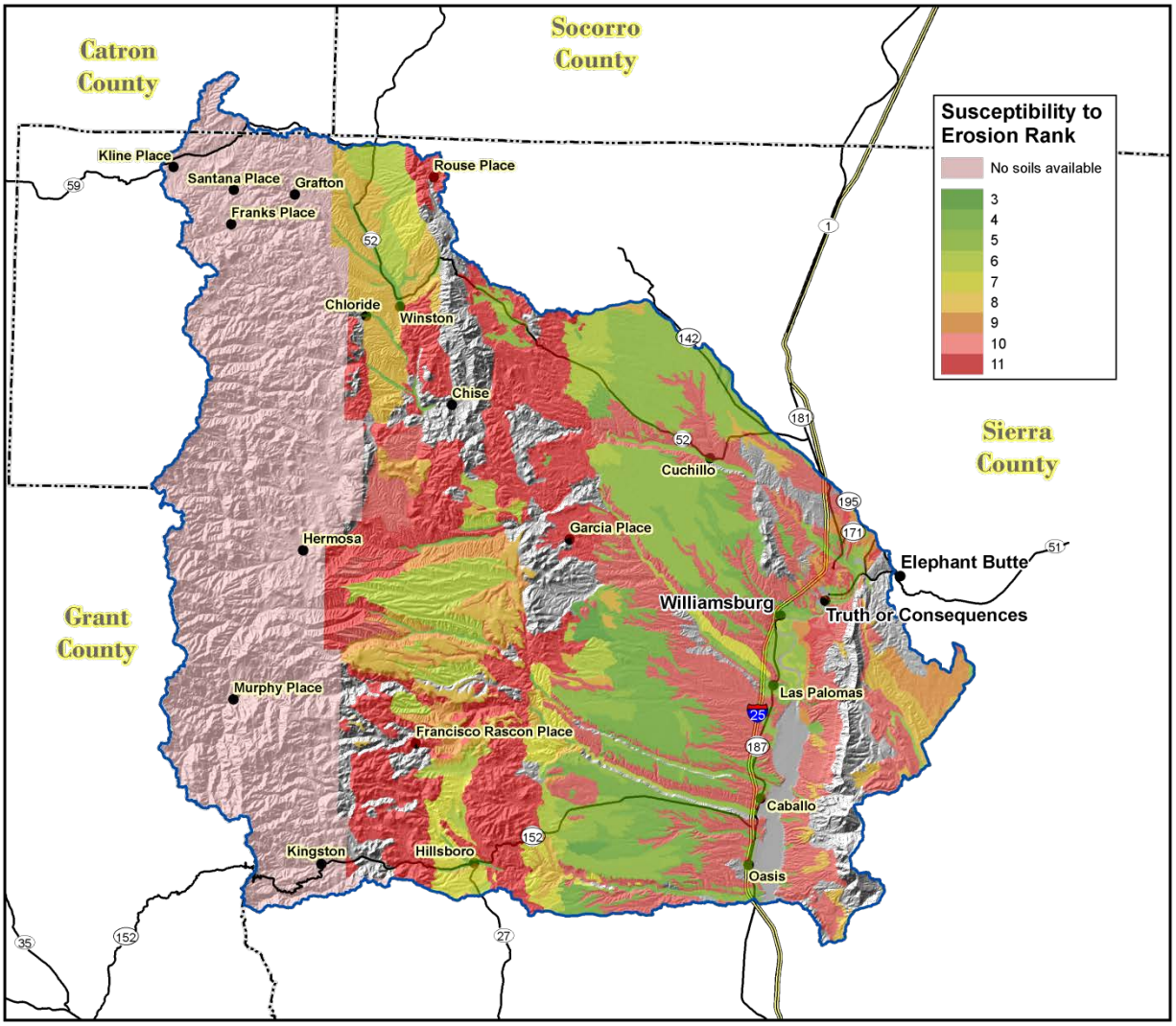
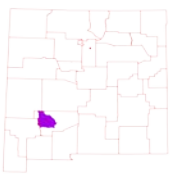


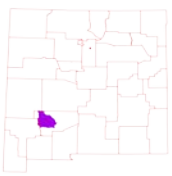
Figure 15. Caballo Watershed Erosion Potential.



Soil Resource Inventory

Rank	Acres
3	2,681
4	57,593
5	67,513
6	42,592
7	17,069
8	48,940
9	24,139
10	103,886
11	112,242
Sum(∑)	476,656

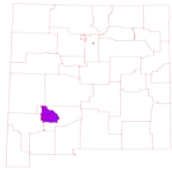
Table 13. Soil Erosion Potential Model Results. A greater rank indicates greater potential for erosion.



Socioeconomic Data 2010 [16]

COUNTY	Total population: Total	Total population: Hispanic or Latino	Total population: White alone	Total population: Black or African American alone	Total population: American Indian and Alaska Native alone	Total population: Asian alone	Total population: Native Hawaiian and Other Pacific Islander alone	Total population: Some other race alone	Total population: Two or more races	Families: Median family income adj. 2010
Catron	3,725	709	3,344	16	99	7	0	142	117	40,906
Grant	29,514	14,252	25,058	255	400	123	22	2,837	819	44,360
Sierra	11,988	3,352	10,265	49	199	49	3	1,032	391	38,641

Table 14. Socioeconomic Data of the Counties in the Watershed (2010).



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9. United States Environmental Protection Agency - http://cfpub.epa.gov/surf/huc.cfm?huc_code=13030101

10. New Mexico - Office of the State Engineer- http://www.ose.state.nm.us/water_info_data.html

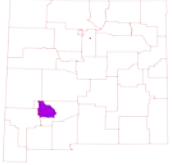
11. New Mexico Natural Heritage Program - http://nhnm.unm.edu/

12. Southwest Exotic Plant Mapping Program - http://www.invasiveweeds.com/mapping/welcome.html

13. Natural Resources Conservation Service – National Coordinated Common Resource Area (CRA) Geographic Database http://soils.usda.gov/survey/geography/cra.html

14. Natural Resources Conservation Service – Performance Results System http://ias.sc.egov.usda.gov/PRSHOME/

15. Natural Resources Conservation Service – Soil Data Mart http://soildatamart.nrcs.usda.gov/



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