



United States Department
of Agriculture



Natural Resources
Conservation Service

Lakewood, Colorado

RWA 13010002

June 2008

Alamosa-Trinchera Watershed

Hydrologic Unit Code 13010002

Rapid Assessment



Satellite Imagery: ArcIMS Server - Geographic Network Services hosted by ESRI

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Introduction

Background Information

The Natural Resources Conservation Service (NRCS) is encouraging the development of rapid watershed assessments in order to increase the speed and efficiency generating information to guide conservation implementation, as well as the speed and efficiency of putting it into the hands of local decision makers.

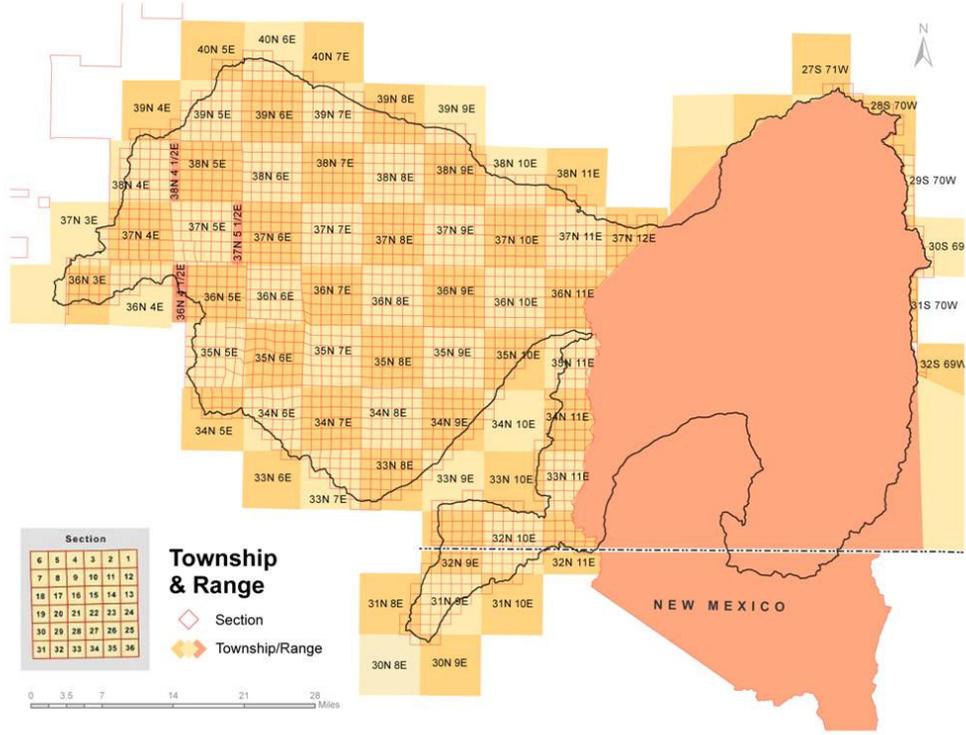
Rapid watershed assessments provide initial estimates of where conservation investments would best address the concerns of landowners, conservation districts, and other community organizations and stakeholders. These assessments help landowners and local leaders set priorities and determine the best actions to achieve their goals.

Benefits of these Activities

While rapid assessments provide less detail and analysis than full-blown studies and plans, they do provide the benefits of NRCS locally-led planning in less time and at a reduced cost. The benefits include:

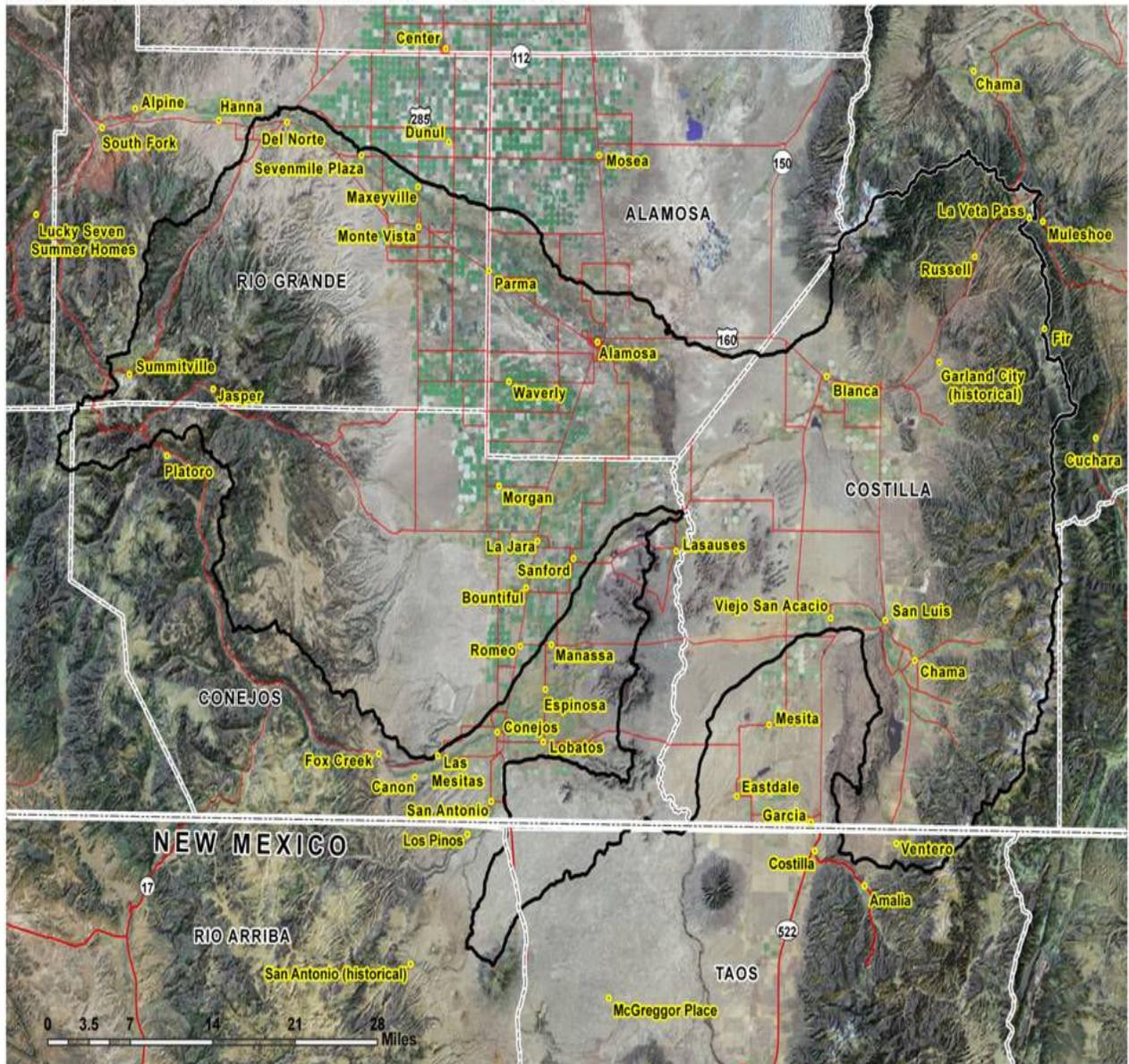
- Quick and inexpensive tools for setting priorities and taking action
- Providing a level of detail that is sufficient for identifying actions that can be taken with no further watershed-level studies or analyses
- Actions to be taken may require further Federal or State permits or ESA or NEPA analysis but these activities are part of standard requirements for use of best management practices (BMPs) and conservation systems
- Identifying where further detailed analyses or watershed studies are needed
- Plans address multiple objectives and concerns of landowners and communities
- Plans are based on established partnerships at the local and state levels
- Plans enable landowners and communities to decide on the best mix of NRCS programs that will meet their goals
- Plans include the full array of conservation program tools (i.e. cost-share practices, easements, technical assistance)

Rapid Watershed Assessments provide information that helps landowners and local leaders set conservation priorities.

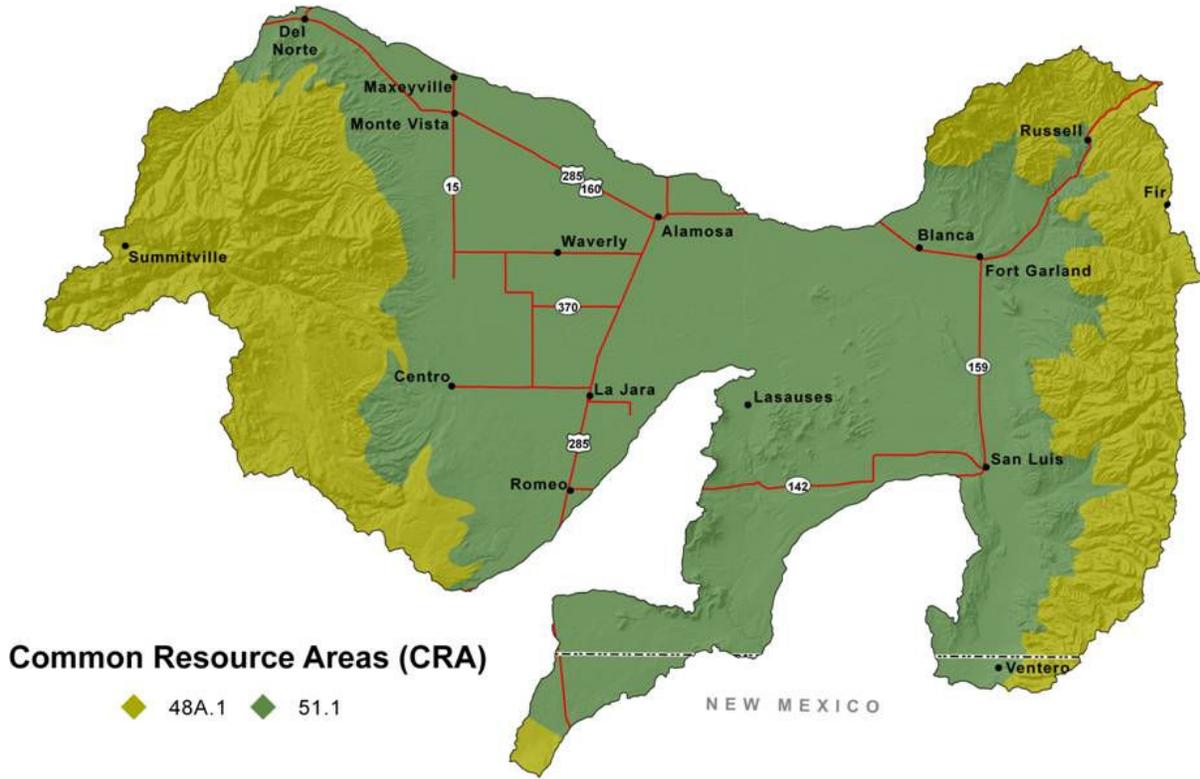


County	County Acres	County Acres in the Alamosa-Trinchera Watershed	% of County in the Watershed	% of Watershed in the County
Alamosa	462,644	146,385	31.6%	9.0%
Archuleta	859,537	1,797	0.2%	0.1%
Conejos	819,693	466,220	56.9%	28.7%
Costilla	787,075	652,534	82.9%	40.2%
Rio Grande	584,463	310,428	53.1%	19.1%
		1,624,020		97.1%

Alamosa-Trinchera Watershed - 13010002

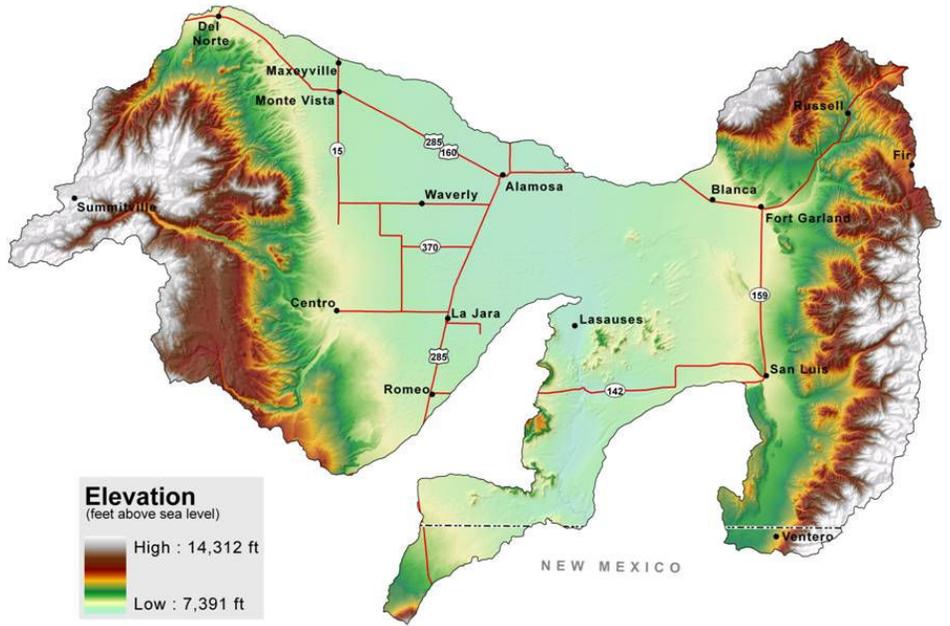


Satellite Imagery: Arc IMS Server - Geographic Network Services hosted by ESRI

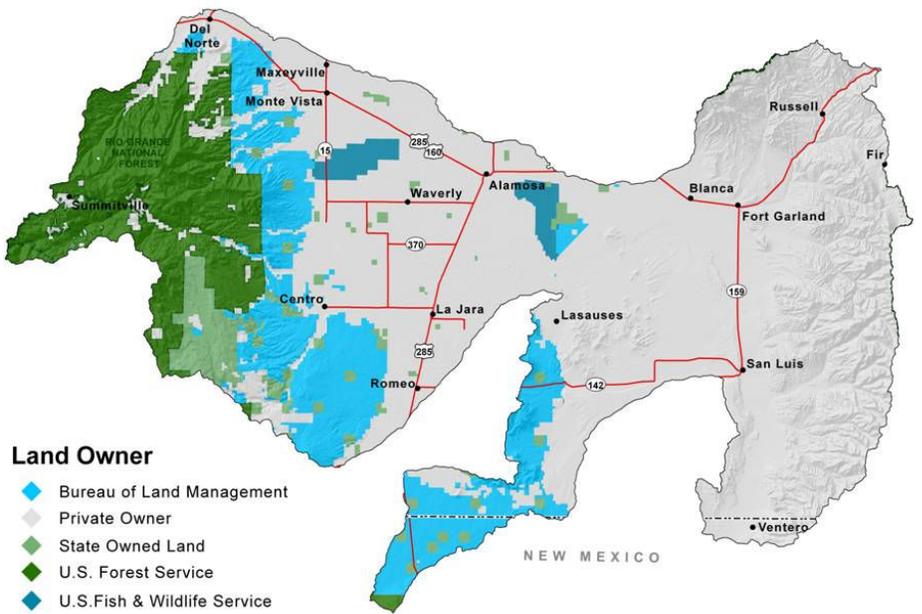


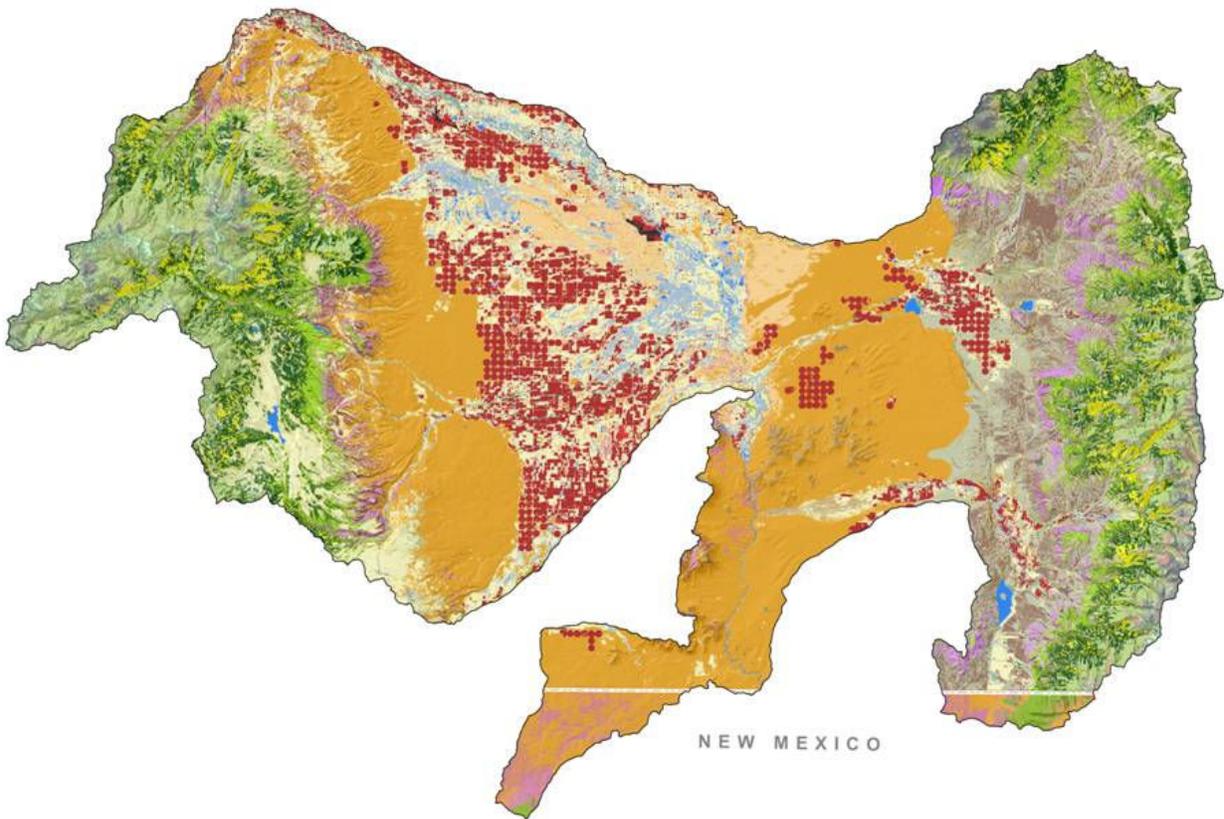
Common Resource Areas (CRA): Geographical areas where resource concerns, problems, and treatment needs are similar. Landscape conditions, soil, climate, human considerations, and other natural resource information are used to determine the geographical boundaries of the common resource area.

<u>MLRA</u>	<u>CRA</u>	<u>CRA NAME</u>	<u>DESCRIPTION</u>
48 A	48A.1	Southern Rocky Mountains - High Mountains and Valleys	This area is best characterized by steep, high mountain ranges and associated mountain valleys. The temperature regimes are mostly frigid and cryic; moisture regimes are mainly ustic and udic. Vegetation is sagebrush-grass at low elevations, and with increasing elevation ranges from coniferous forest to alpine tundra. Elevations range from 6,500 to 14, 400 feet.
51	51.1	High Intermountain Valleys	This is an area of low relief composed of valley fill sediments from the surrounding mountains. The temperature regime is mainly frigid but includes mesic in the southern part. The moisture regime is aridic. Characteristic native vegetation is greasewood, fourwing saltbush and alkali sacaton.



Alamosa-Trinchera	
Bureau of Land Management	201,901
Private	1,076,065
State	54,205
State, County, City; Wildlife, Parks & Rec	10,346
U.S. Fish & Wildlife	24,469
U.S. Forest Service	209,985





Vegetation

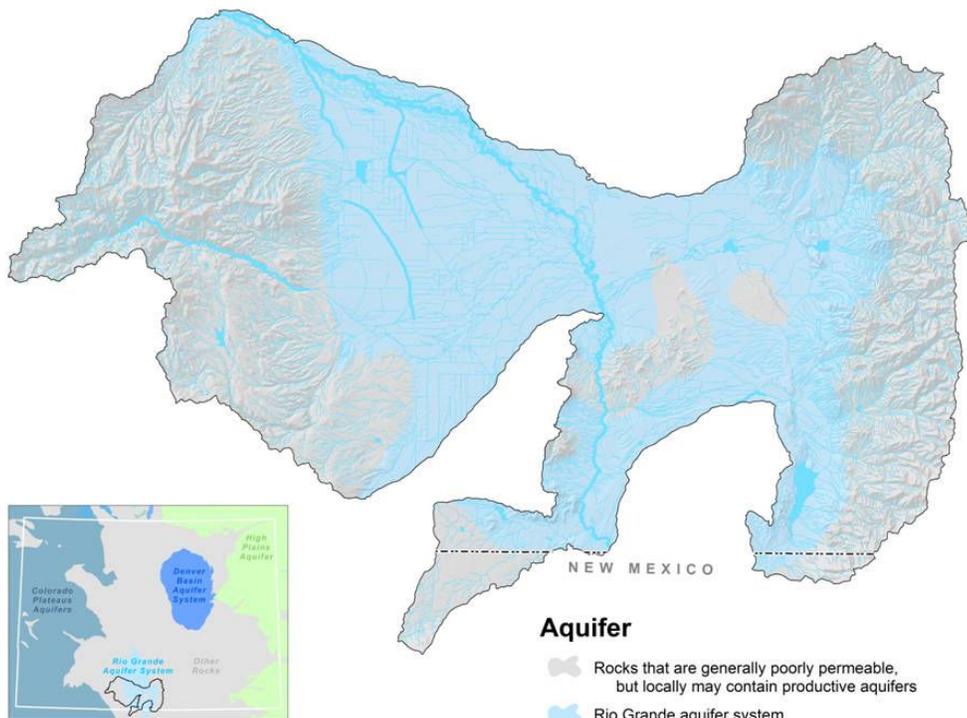
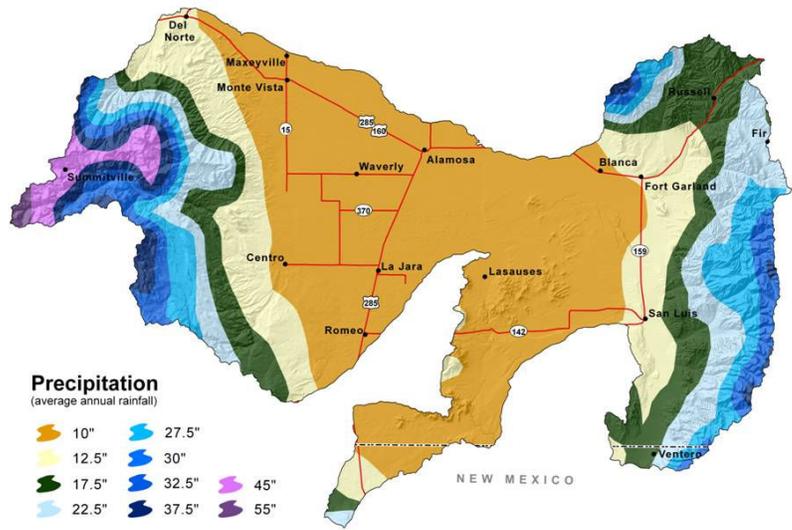
COLORADO - CVCP

- | | |
|------------------------------------|----------------------------------|
| ◆ No Data | ◆ Ponderosa Pine |
| ◆ Alpine Grass Dominated | ◆ Ponderosa Pine/Aspen Mix |
| ◆ Alpine Grass/Forb Mix | ◆ Ponderosa Pine/Douglas Fir Mix |
| ◆ Alpine Meadow | ◆ Rabbitbrush/Grass Mix |
| ◆ Aspen | ◆ Residential |
| ◆ Commercial | ◆ Rock |
| ◆ Conifer Riparian | ◆ Sagebrush Community |
| ◆ Cottonwood | ◆ Sagebrush/Gambel Oak Mix |
| ◆ Douglas Fir | ◆ Sagebrush/Grass Mix |
| ◆ Douglas Fir/Aspen Mix | ◆ Sagebrush/Mesic Mtn Shrub Mix |
| ◆ Douglas Fir/Englemann Spruce Mix | ◆ Sand Dune Complex |
| ◆ Englemann Spruce/Fir Mix | ◆ Sedge |
| ◆ Gambel Oak | ◆ Shrub Riparian |
| ◆ Grass Dominated | ◆ Shrub/Brush Rangeland |
| ◆ Grass/Forb Mix | ◆ Shrub/Grass/Forb Mix |
| ◆ Greasewood | ◆ Soil |
| ◆ Herbaceous Riparian | ◆ Sparse Grass (Blowouts) |
| ◆ Irrigated Ag | ◆ Sparse PJ/Shrub/Rock Mix |
| ◆ Lodgepole Pine | ◆ Spruce/Fir/Aspen Mix |
| ◆ Lodgepole/Spruce/Fir Mix | ◆ SubAlpine Shrub Community |
| ◆ P. Pine/Gambel Oak Mix | ◆ Subalpine Grass/Forb Mix |
| ◆ PJ-Mtn Shrub Mix | ◆ Talus Slopes & Rock Outcrops |
| ◆ PJ-Oak Mix | ◆ Upland Willow/Shrub Mix |
| ◆ PJ-Sagebrush Mix | ◆ Water |
| ◆ Pinon-Juniper | ◆ Willow |
| | ◆ Xeric Mountain Shrub Mix |

Land Use	Total Acreage	Vegetation	Acreage
Cropland	129,306	Irrigated Ag	129,306.1
Rangeland/Grassland	998,147	Alpine Grass Dominated	13,508.2
		Alpine Grass/Forb Mix	15,403.8
		Alpine Meadow	22.5
		Grass Dominated	215,647.6
		Grass/Forb Mix	2,331.2
		Greasewood	55,294.1
		PJ-Mtn Shrub Mix	198.0
		PJ-Oak Mix	0.5
		PJ-Sagebrush Mix	7,717.7
		Pinon-Juniper	32,744.6
		Rabbitbrush/Grass Mix	420,480.6
		Sagebrush Community	38,792.4
		Sagebrush/Gambel Oak Mix	387.4
		Sagebrush/Grass Mix	87,309.0
		Sagebrush/Mesic Mtn Shrub Mix	28.6
		Sand Dune Complex	1.6
		Sedge	52.8
		Shrub/Brush Rangeland	5,364.2
		Shrub/Grass/Forb Mix	3,903.1
		Soil	1,549.8
		Sparse Grass (Blowouts)	4,584.1
		Sparse PJ/Shrub/Rock Mix	27,539.3
		SubAlpine Shrub Community	26,100.0
Subalpine Grass/Forb Mix	26,596.3		
Upland Willow/Shrub Mix	8,492.9		
Willow	3,026.7		
Xeric Mountain Shrub Mix	1,070.3		
Forest	347,453	Aspen	45,639.3
		Conifer Riparian	3.7
		Cottonwood	6,381.0
		Douglas Fir	30,081.4
		Douglas Fir/Aspen Mix	7,069.8
		Douglas Fir/Englemann Spruce Mix	39.5
		Englemann Spruce/Fir Mix	106,647.2
		Gambel Oak	65.2
		Lodgepole Pine	2.8
		Lodgepole/Spruce/Fir Mix	30.8
		P. Pine/Gambel Oak Mix	23.1
		Ponderosa Pine	5,961.1
		Ponderosa Pine/Aspen Mix	3.8
		Ponderosa Pine/Douglas Fir Mix	53,403.2
Spruce/Fir/Aspen Mix	92,101.1		
Riparian	58,455	Herbaceous Riparian	58,182.4
		Shrub Riparian	272.2
Water	8,482	Water	8,482.4
Other	34,211	Commercial	1,832.7
		Residential	1,821.7
		Rock	30,544.2
		Talus Slopes & Rock Outcrops	7.3
		No Data	5.2
Total CO Watershed Acres			1,576,054

Precipitation

Droughts are regular visitors to the watershed as with the rest of Colorado. Statewide, in the 1900's alone, four prolonged dry spells occurred. There was one in the 1910s. Another, in the '30s, caused the dust-bowl period. The second worst drought on record in the state occurred in the mid-50s. A series of hot, dry summers following a period of scant mountain snowpack created water shortages. The fourth drought hit parts of Colorado in the late 1970s. In this century, the most severe drought since 1723 hit the state in 2002. Prior to the 1700's, researchers looking at tree ring records have found evidence of even more severe droughts, some lasting many years. Rainfall occurs as frontal storms in the spring and early summer and high intensity, convective thunderstorms in summer. Maximum precipitation is from mid spring through late autumn. Precipitation in winter is snow.



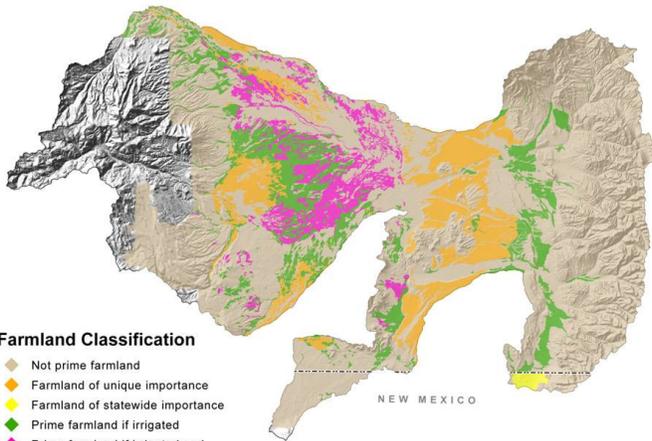
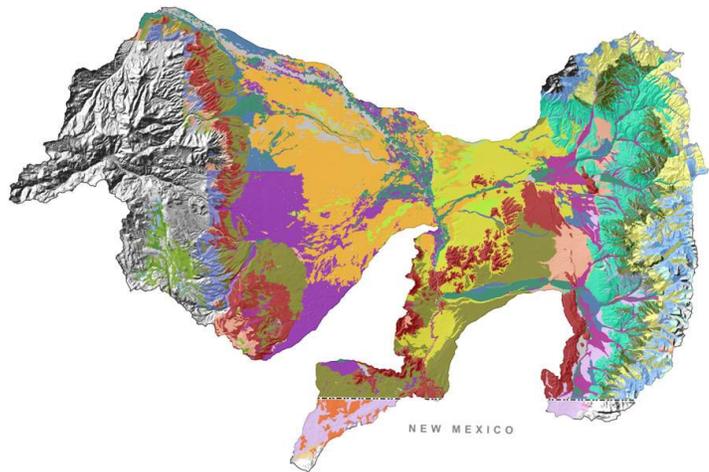
Ecological Sites

The plant community on an ecological site is typified by an association of species that differs from that of other ecological sites in the kind and/or proportion of species or in total production.

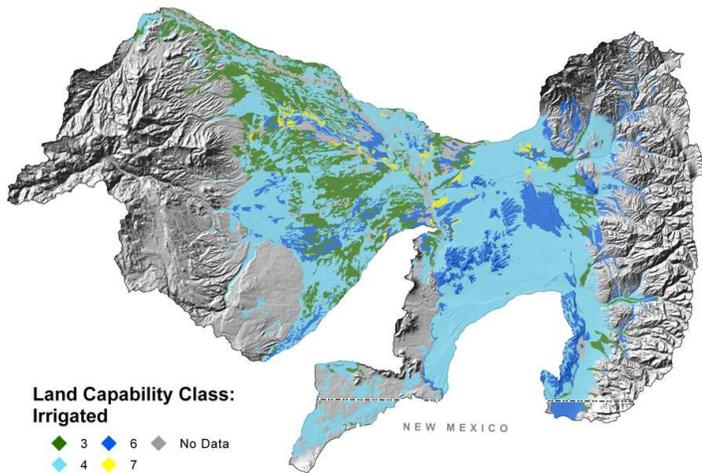
Ecological Site maps give an overall indication of the soils plant relationship in the area. More detailed descriptions of ecological sites are provided in the Field Office Technical Guide (FOTG). The FOTG is available in local offices of the Natural Resources Conservation Service (NRCS) and online at <http://www.nrcs.usda.gov/technical/efotg/>.

Soil: Ecological Site Names

- | | |
|----------------------------------|--------------------|
| ◆ Aspen Woodland | ◆ Mountain Outwash |
| ◆ Alkali Overflow | ◆ Rocky Foothills |
| ◆ Alpine Slopes | ◆ Salt Flats |
| ◆ Basalt Hills | ◆ Salt Meadow |
| ◆ Deep Sands | ◆ Sand Hummocks |
| ◆ Desert Salty Silt (Pickleweed) | ◆ Sandy Bench |
| ◆ Foothill Loam | ◆ Shallow Loam |
| ◆ Limy Bench | ◆ Stony Loam |
| ◆ Loamy | ◆ Subalpine Loam |
| ◆ Loamy Foothills | ◆ Swale |
| ◆ Loamy Park | ◆ Valley Bench |
| ◆ Mixed Conifer | ◆ Valley Sand |
| ◆ Malpais | ◆ Wet Meadow |
| ◆ Meadow | ◆ Wet Subalpine |
| ◆ Mountain Breaks | ◆ No Data |
| ◆ Mountain Meadow | |



- Farmland Classification**
- ◆ Not prime farmland
 - ◆ Farmland of unique importance
 - ◆ Farmland of statewide importance
 - ◆ Prime farmland if irrigated
 - ◆ Prime farmland if irrigated and reclaimed of excess salts and sodium



Land Capability Classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive land-forming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations that show suitability and limitations of groups of soils for rangeland, for woodland, and for engineering purposes.

Capability classes, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use.

Class 1 - soils have few limitations that restrict their use.

Class 2 - soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

Class 3 - soils have severe limitations that reduce the choice of plants or that require special conservation practices, or both.

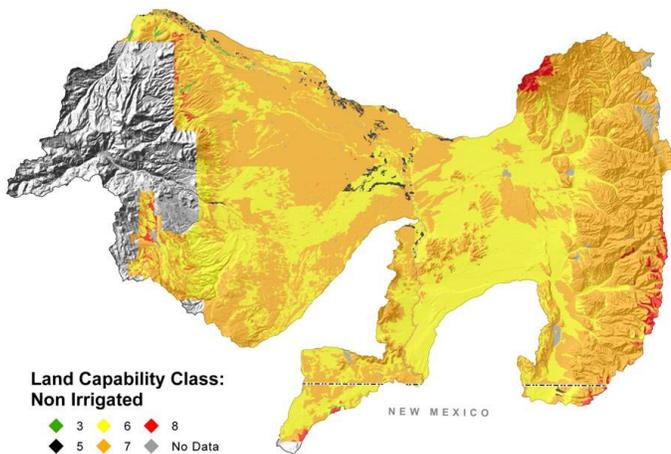
Class 4 - soils have very severe limitations that reduce the choice of plants or that require very careful management, or both.

Class 5 - soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 6 - soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 7 - soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.

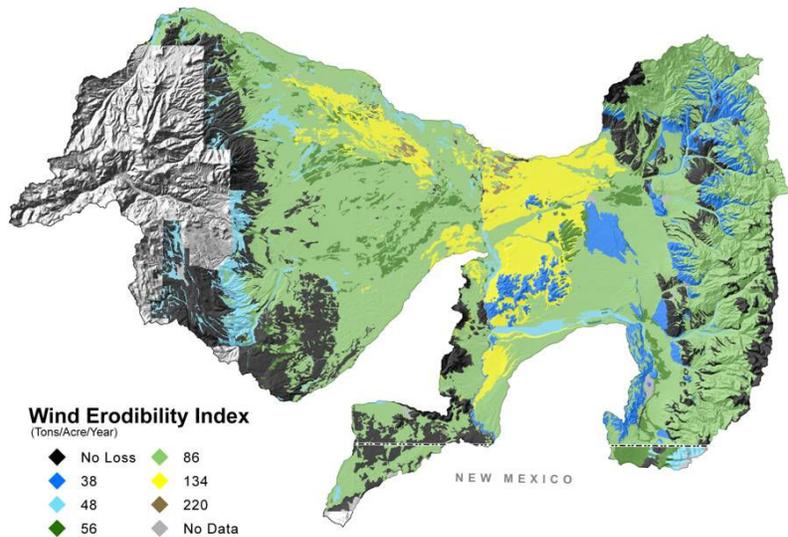
Class 8 - soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or aesthetic purposes.



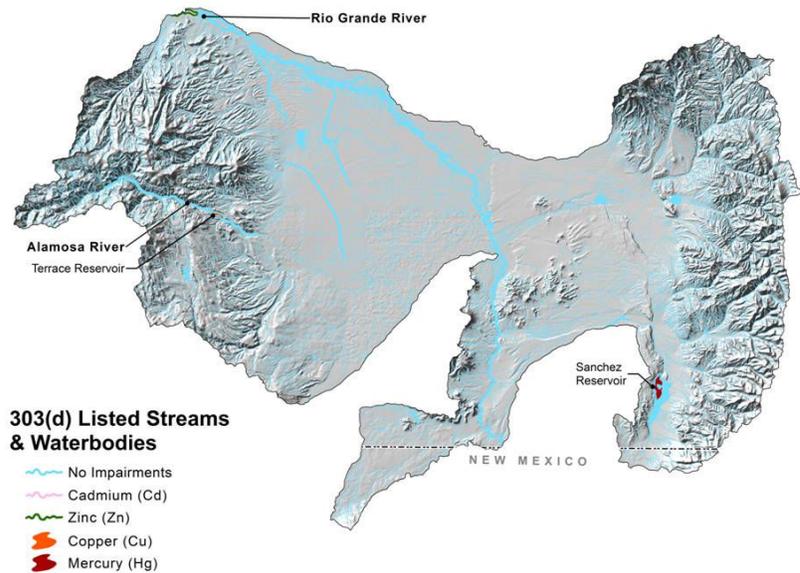
The Wind Erodibility Index (WEI), is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion if it is assumed there is no vegetative cover or management.

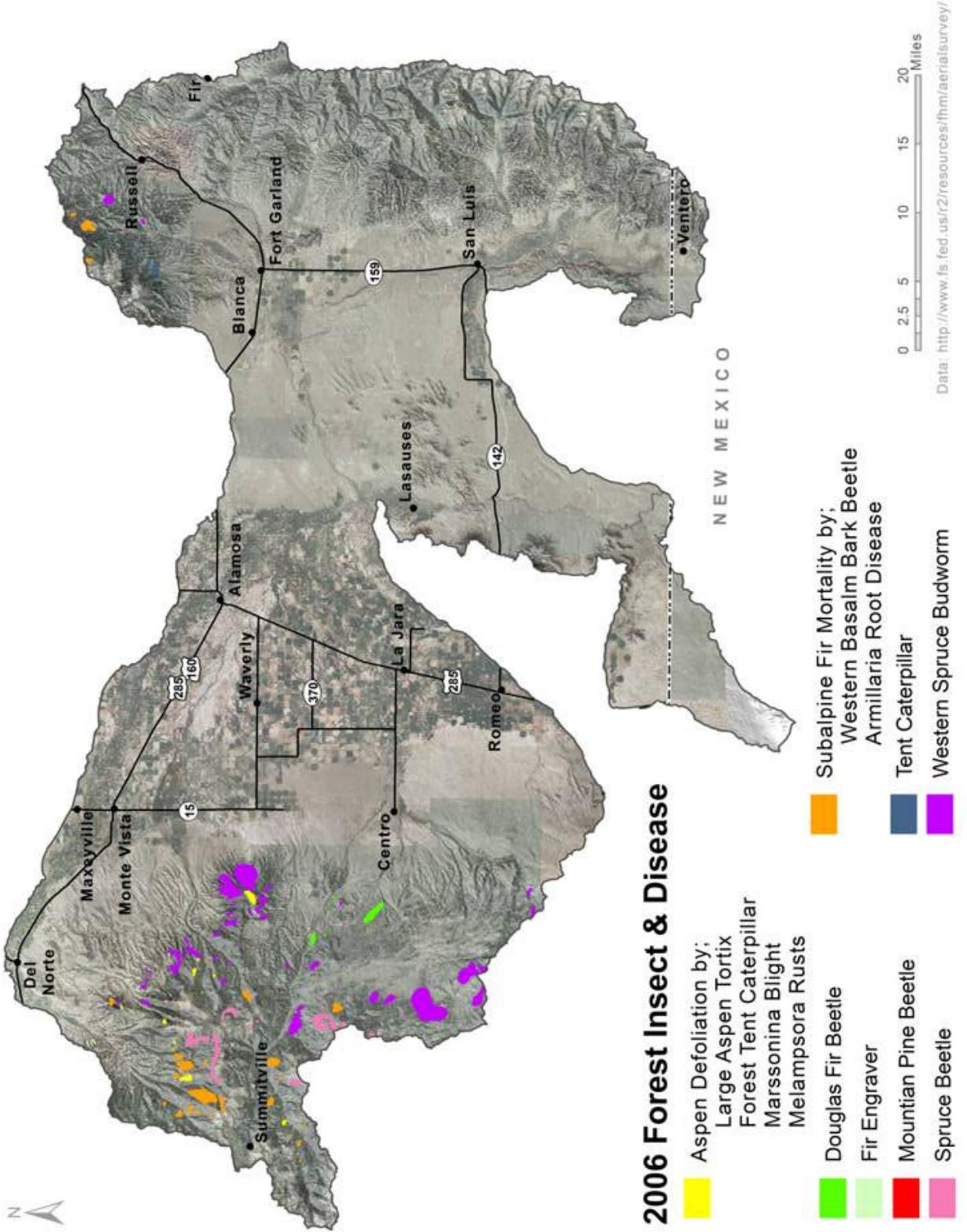
Soils with an erodibility index equal to or greater than 8 are considered highly erodible.

As shown on the Wind Erodibility Index map below, most soils in the Alamosa-Trinchera Watershed are highly erodible.



This map shows stream locations within the watershed that are listed on the 303d list. Section 303(d) of the Clean Water Act requires states to identify and list all water bodies where state water quality standards are not being met. Thereafter, TMDLs compromising quantitative objectives and strategies have been or will be developed for these impaired waters within the watershed in order to achieve their water quality standards.





State and Federal Threatened, Endangered, and Candidate Species and Species of Special Concern in
Alamosa-Trinchera Watershed

Common Name	Scientific Name	Class	State Status/Federal	Comments
American Peregrine	<i>Falco peregrinus</i>	Birds	Concern/None	Occurs in the watershed
Bald Eagle	<i>Haliaeetus leucocephala</i>	Birds	Threatened/None	Winters and nests in the watershed
Black-footed Ferret	<i>Mustela nigripes</i>	Mammals	Endangered/Endangered	Suitable habitat in watershed; Extirpated
Burrowing Owl	<i>Athene cunicularia</i>	Birds	Threatened/None	Occurs in the watershed
Canada Lynx	<i>Lynx canadensis</i>	Mammals	Endangered/Threatened	May occur in the watershed
Ferruginous Hawk	<i>Buteo regalis</i>	Birds	Concern/None	Occurs in the watershed
Greater Sandhill	<i>Grus canadensis tabida</i>	Birds	Concern/None	Occurs in the watershed
Gunnison's Prairie Dog	<i>Cynomys gunnisoni</i>	Mammals	None/Candidate	Occurs in the watershed
Long-billed Curlew	<i>Numenius americanus</i>	Birds	Concern/None	Occurs in the watershed
Mexican Spotted Owl	<i>Strix occidentalis lucida</i>	Birds	Threatened/Threatened	May occur in the watershed
Mountain Plover	<i>Charadrius montanus</i>	Birds	Concern/None	Occurs in the watershed
Northern leopard frog	<i>Rana pipiens</i>	Amphibians	Concern/None	Occurs in the watershed
Rio Grande Chub	<i>Gila pandora</i>	Fish	Concern/None	Occurs in the watershed
Rio Grande Cutthroat	<i>Oncorhynchus clarki</i>	Fish	Concern/None	Occurs in the watershed
Rio Grande Sucker	<i>Catostomus plebeius</i>	Fish	Endangered/None	Occurs in the watershed
Southwestern Willow	<i>Empidonax traillii ex-</i>	Birds	Endangered/Endangered	Occurs in the watershed
Townsend's big-	<i>Corynorhinus town-</i>	Mammals	Concern/None	Occurs in the watershed
Western Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	Birds	Concern/Candidate	May occur in the watershed
Wolverine	<i>Gulo gulo</i>	Mammals	Endangered/None	Suitable habitat in watershed; No current records of occurrence

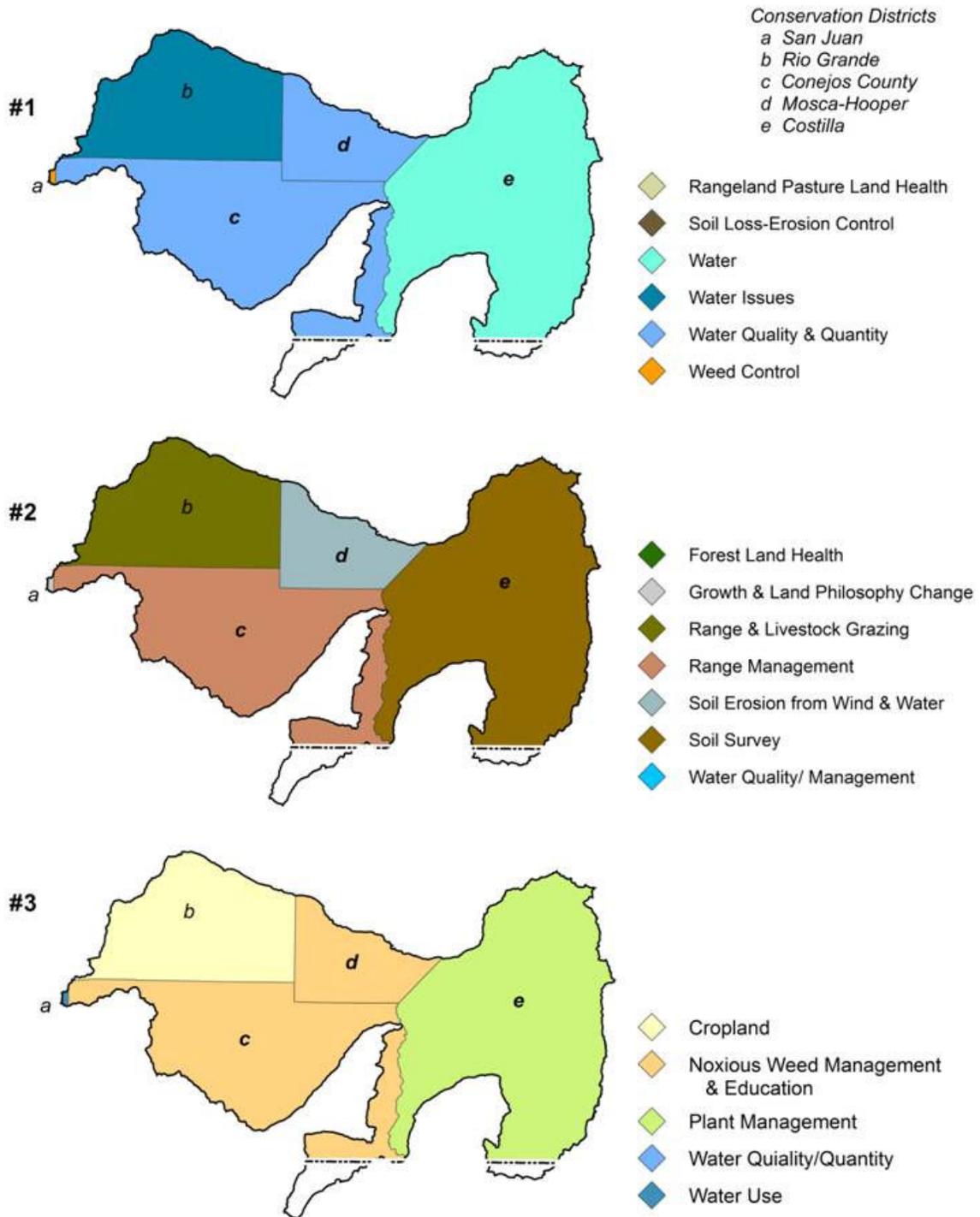
The terrestrial habitats in this watershed include desert shrub and grassland; cropland; foothills, montane, sub-alpine shrub and forest; and alpine tundra. Riparian areas and wetlands provide important aquatic habitats for a number of species providing food, cover, or water at some life stage.

Wildlife found at the highest elevations in the watershed include pika, marmot, lynx, bighorn sheep, and white-tailed ptarmigan.

Economically important species in the watershed include: black bear, elk, mule deer, mountain lion, and trout, throughout most of the watershed and pronghorn (antelope) in lower elevation shrub and grasslands. Moose are found on the west side of the watershed. Wild turkey are found along the north edge of the watershed. Irrigated cropland areas in the eastern part of the watershed provide winter and breeding habitat for snow geese and important stop over areas for migrating sandhill cranes. Even though they are a non-game species, sandhill cranes are economically important because of the tourism dollars they attract to the San Luis Valley.

Social Data	Alamosa	Archuleta	Conejos	Costilla	Rio Grande
Demographics (US Census, American Factfinder)					
Total population	14,966	9,898	8,400	3,663	12,413
Male	7446	5,016	4,169	1,830	6,116
Female	2520	4,882	4,231	1,833	6,297
Median age (years)	30.6	40.8	34.2	42.1	37.3
White	10,654	8,743	6,112	2,231	9,177
Black or African American	145	35	18	29	43
American Indian and Alaska Native	350	139	142	91	157
Asian	122	31	13	37	28
Native Hawaiian and Other Pacific Islander	28	3	6	5	3
Some other race	623	690	1806	1079	2662
Hispanic or Latino (of any race)	6197	1659	4949	2476	5172
Economic Characteristics (US Census, American Factfinder)					
In labor force (population 16 years and over)	7507	4,891	3,326	1,312	5,732
Median household income (dollars)	29,447	37,901	24,744	19,531	31,836
Median family income (dollars)	38,389	45,259	29,066	25,509	36,809
Per capita income (dollars)	15,037	21,683	12,050	10,748	15,650
Families below poverty level	580	261	414	219	385
Individuals below poverty level	2992	1148	1918	978	1769
X means that value is not applicable or not available					
County Agricultural Characteristics (Colorado Agricultural Census, county data tables)					
Farms (number)	318	258	494	205	344
Land in farms/ranches (acres)	204,640	103,075	267,708	354,067	170,999
Average size farm/ranch (acres)	644	400	542	1,727	497
Median size farm (acres)	320	177	240	170	280
Average age of farmer or rancher	51.7	55.1	53.9	53.7	54.2
Net cash return from ag sales (\$1,000)	33426	504	4,882	10,117	25,647
Cattle and calves (number)	9,500	5,000	27,000	6,500	12,000

Identified Long Range Resource Concerns Top Three Concerns within Conservation Districts



Selected Conservation Application Data							
	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	Total
Total Conservation Systems Planned (Acres)	66,290	150,239	Not Avail.	120,875	163,594	185,914	686,912
Total Conservation Systems Applied (Acres)	55,511	64,689	Not Avail.	118,379	145,883	170,743	555,205
Practices Applied							
Prescribed Grazing	9,373	21,061	113,204	99,085	115,284	164,353	522,360
Upland Wildlife Habitat Management	8,737	13,587	8,291	10,282	3,551	8,715	53,163
Conservation Cropping System	Not Avail.	Not Avail.	8,834	4,136	4,476	3,635	21,081
Residue Management	769	655	4,398	2,893	1,805	160	10,680
Irrigation Water Management	8,589	9,297	1,839	5,909	3,214	4,771	33,619

Conservation Systems to Address Major Resource Concerns

Primary Resource Concern: Rangeland Health				
Conservation System Description:	Prescribed Grazing—planned management that provides adequate recovery opportunity between grazing events and proper stocking of animals. Estimate 300,000 acres need to be treated on median sized ranches of 2,000 acres.			Based on Conservation System Guide Code: CO 51.1-GR-01-R-Grazing
Practices	Unit	Quantity	Cost/Unit (\$)	Estimated Cost per Median Sized Ranch (\$)
Prescribed Grazing				
Fence (382)	Ft.	8,000	0.6	4,800
Pest Management (595)	Ac.	600	15	9,000
Pipeline (516)	Ft.	12,000	1.05	12,600
Upland Wildlife Habitat Management (645)	Ac.	300	na	0
Watering Facility (614)	No.	2	500	1,000
Windbreak/Shelterbelt Establishment (380)	Ft.	2,000	.35	700
Subtotal: Costs to apply prescribed grazing based on median sized ranch of 2000 acres	No.	150	28,100	Est. Total Rangeland Costs: \$4,215,000

Conservation Systems to Address Major Resource Concerns (cont'd)

Primary Resource Concern: Water Quality				
Conservation System Description:		Upgrading Sprinkler irrigation system with IWM, Crop rotation, Nutrient and Pest Mgt.		Reference Conservation System Guide Code: CO 51.1-CR-Sprinkler-R-2
Practices	Unit	Quantity	Cost/Unit (\$)	Estimated Cost (\$)
Irrigation Water Management (449)* * includes re-bowl, renozzle, and IWM	Ac	65,000	10.20	663,000
Nutrient Management (590)	Ac	70,000	5	350,000
Pest Management (595)	Ac	70,000	15	1,050,000
Conservation System Description:		Surface irrigation converted to sprinkler system. Sprinkler irrigation system with IWM, Crop rotation, Nutrient and Pest Mgt.		Reference Conservation System Guide Code: CO 51.1-CR-Gravity-R-2
Practices	Unit	Quantity	Cost/Unit (\$)	Estimated Cost (\$)
Irrigation System, Sprinkler (442)	Ac	12,000	600	7,200,000
Irrigation Water Management (449)	Ac	7,000	5	35,000
Nutrient Management (590)	Ac	24,000	5	120,000
Land Leveling (464)	Ac	10,000	300	3,000,000
Pest Management (595)	Ac	24,000	15	360,000
Streambank and Shoreline Protection (580)	Ft	105,600	50	5,280,000
Subtotal Irrigated Crops:				\$18,058,000

General Effects, Impacts, and Estimated Costs of Application of Conservation Systems

Landuse	Resource Concern	Measurable Effects	Non-measurable Effects	Estimated Cost (\$)
Rangeland	Plants		Improved plant condition, productivity, health and vigor. Grazing animals have adequate feed, forage, and shelter.	4,215,000
Irrigated Crop	Water		Nutrients and organics are stored, handled, disposed of, and managed so that surface water uses are not adversely affected.	18,058,000
Estimated Total Costs to Address Major Resource Concerns:				\$22,273,000

References Not Cited in Document

303(d) listed streams within Big Sandy Watershed were created using data from Colorado Department of Public Health & Environments' Water Quality & Control Commission. Impaired streams are current as of April 30, 2006. For a list of all Colorado impaired streams, locations and priority ratings, visit <http://www.cdphe.state.co.us/regulations/wqccregs/100293wqlimitedsegtmdls.pdf>.

Threatened and Endangered Species information was gathered using data from the Colorado Division of Wildlife (CDOW) Natural Diversity Information Source (NDIS).

Resource Concerns were identified using the Colorado Association of Conservation Districts' (CACD) long range (10 year) plans from the period of 1996-2000. For more information on Colorado's Conservation Districts, visit <http://www.cacd.us>.

Maps were generated using Soil Survey Geographic Database (SSURGO) tabular and spatial data. SSURGO data was downloaded for the following Colorado surveys:

Costilla County Area (CO023)	Published 01/20/2006
Conejos County Area (CO630)	Published 01/08/2007
Rio Grande County Area (CO631)	Published 01/16/2007
Alamosa Area (CO632)	Published 01/08/2007
Taos & parts of Rio Arriba & Mora Counties, NM (NM670)	Published 04/15/2007

Vegetation data was generated using the Colorado Division of Wildlife's "Colorado Vegetation Classification Project" (CVCP) data. visit <http://ndis.nrel.colostate.edu/coveg>.

Common Resource Area (CRA), a subdivision of the Major Land Resource Area (MLRA), is a geographical area where resource concerns, problems, or treatment needs are similar. For more information on Common Resource Areas visit <http://soils.usda.gov/survey/geography/cra.html>.

Average Annual Precipitation data was developed through a partnership between the Natural Resources Conservation Service's (NRCS) National Water and Climate Center (NWCC), the National Cartography and Geospatial Center (NCGC), and the PRISM (the Parameter-elevation Regressions on Independent Slopes Model) group at Oregon State University (OSU), developers of PRISM. Mean annual precipitation maps were developed calculating averages of rainfall for the period of 1961-1990. For more information visit <http://www.ncgc.nrcs.usda.gov/products/datasets/climate/docs/fact-sheet.html> or <http://www.ocs.orst.edu/prism>.

Land Ownership (status, 2004 dataset) data was obtained from the Colorado Department of Transportation (CDOT). For more information, visit <http://www.dot.state.co.us>.

Relief & Elevation maps were created using the National Elevation Dataset (NED), 30m Digital Elevation Model (DEM) raster product assembled by the U.S. Geological Survey (USGS). The data was downloaded from the NRCS Geospatial Data Gateway at <http://datagateway.nrcs.usda.gov>.

Conservation Systems to address major resource concerns were extracted from the Conservation Systems Guides (CSG) compiled from local conservationists by the NRCS Ecological Sciences Section at the Lakewood State Office.

Effects and Impacts of application of conservation systems were extracted from Colorado eFOTG, Section III, Resource Quality Criteria, NRCS, Colorado, March 2005.