



United States Department
of Agriculture



Natural Resources
Conservation Service

Lakewood, Colorado

RWA 14010006

January 2009

Parachute-Roan Watershed

Hydrologic Unit Code 14010006

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.

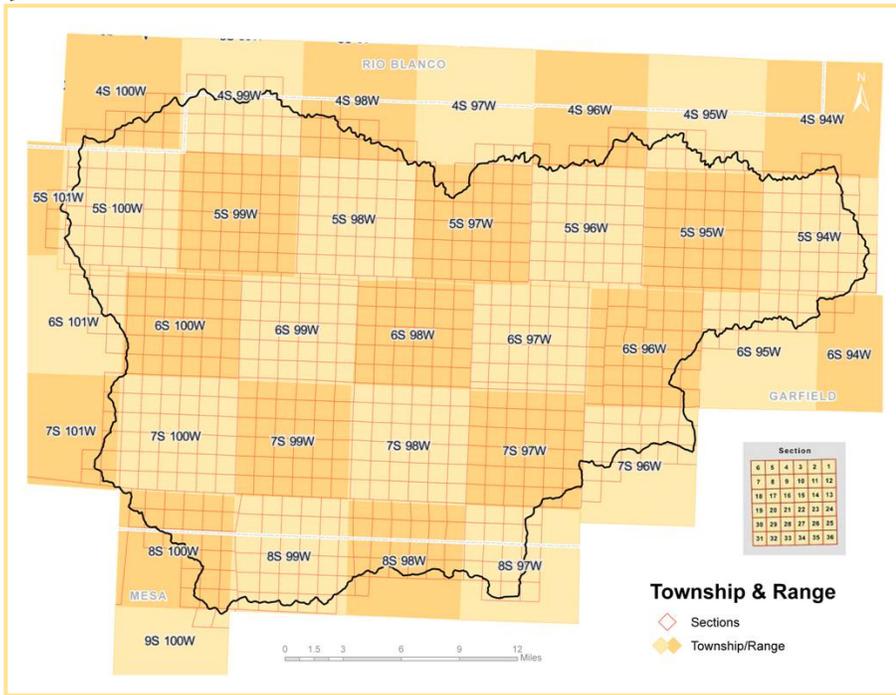
Rapid watershed assessments provide initial estimates of where conservation investments would best address the concerns of landowners, conservation districts, and other community organizations and stakeholders. These assessments help landowners and local leaders set priorities and determine the best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

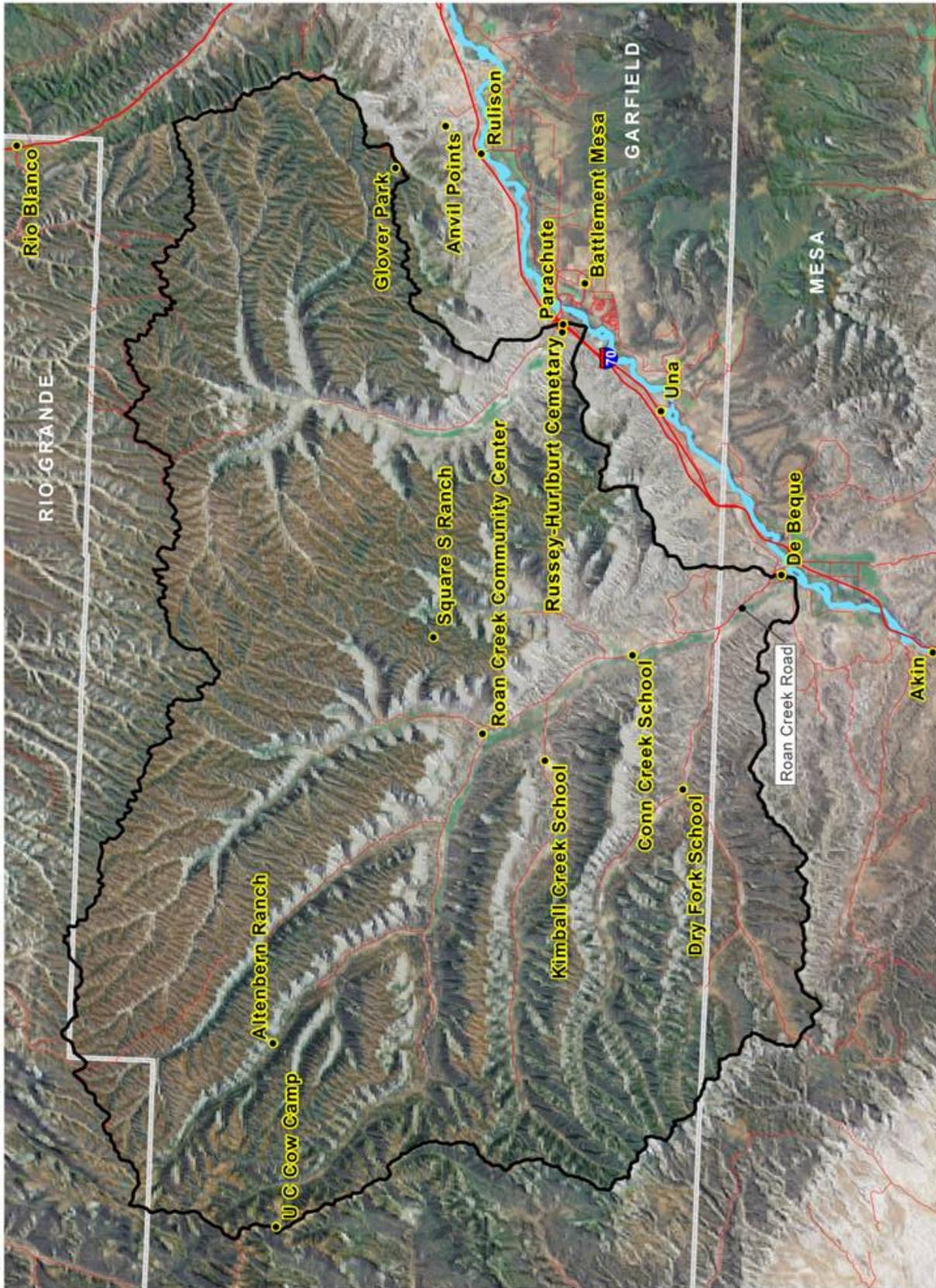
- Quick and inexpensive tools for setting priorities and taking action
- Providing a level of detail that is sufficient for identifying actions that can be taken with no further watershed-level studies or analyses
- Actions to be taken may require further Federal or State permits or ESA or NEPA analysis 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 land-owners and local leaders set conservation priorities.

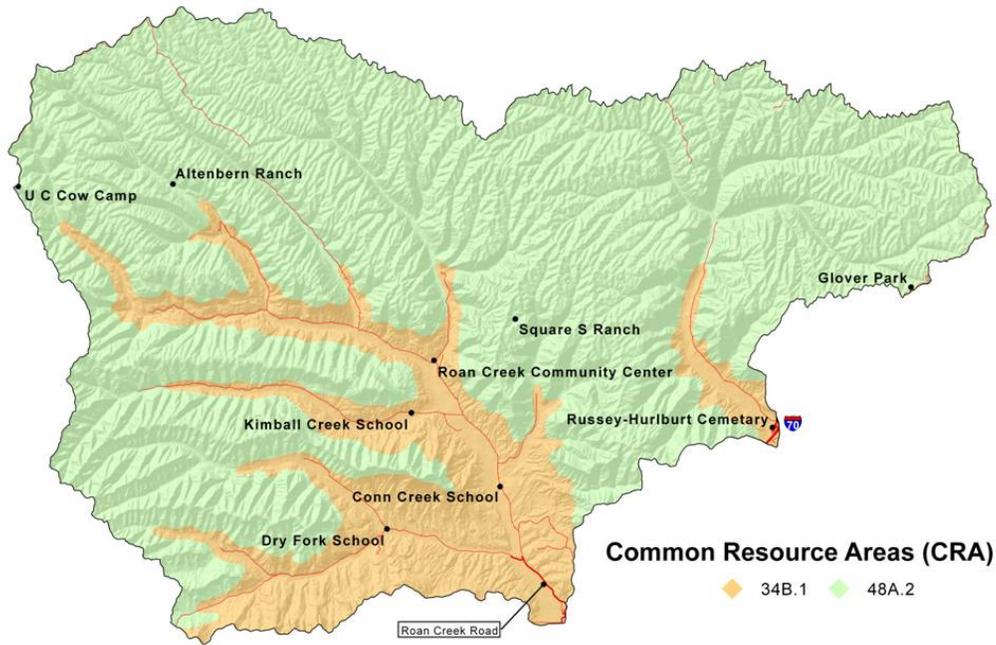


County	County Acres	County Acres in PARACHUTE-ROAN Watershed	% of County in the Watershed	% of Watershed in the County
Garfield	1,893,489	419,435	22.2%	92.5%
Mesa	2,140,130	28,714	1.3%	6.3%
Rio Blanco	2,064,823	5,092	0.2%	1.1%
		453,241		

Parachute-Roan Watershed - 14010006

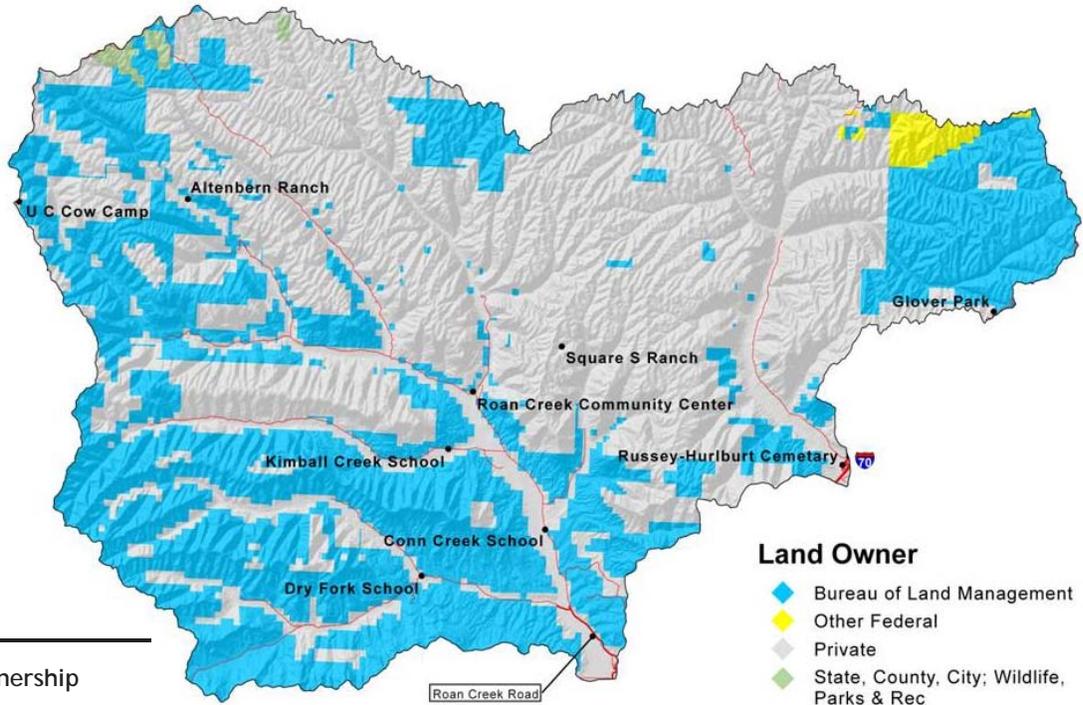


Satellite Imagery: ArcIMS Server - Geography Network Services hosted by ESRI



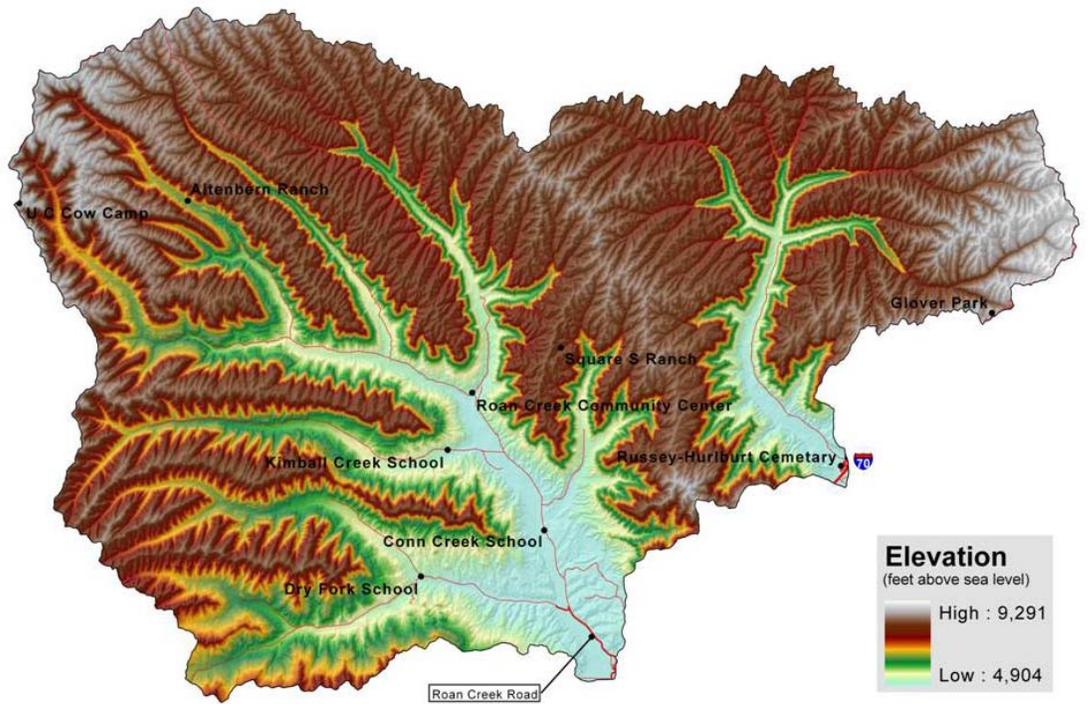
Common Resource Areas (CRA): Geographical areas where resource concerns, problems, and treatment needs are similar. Landscape conditions, soil, climate, human considerations, and other natural resource information are used to determine the geographical boundaries of the common resource area.

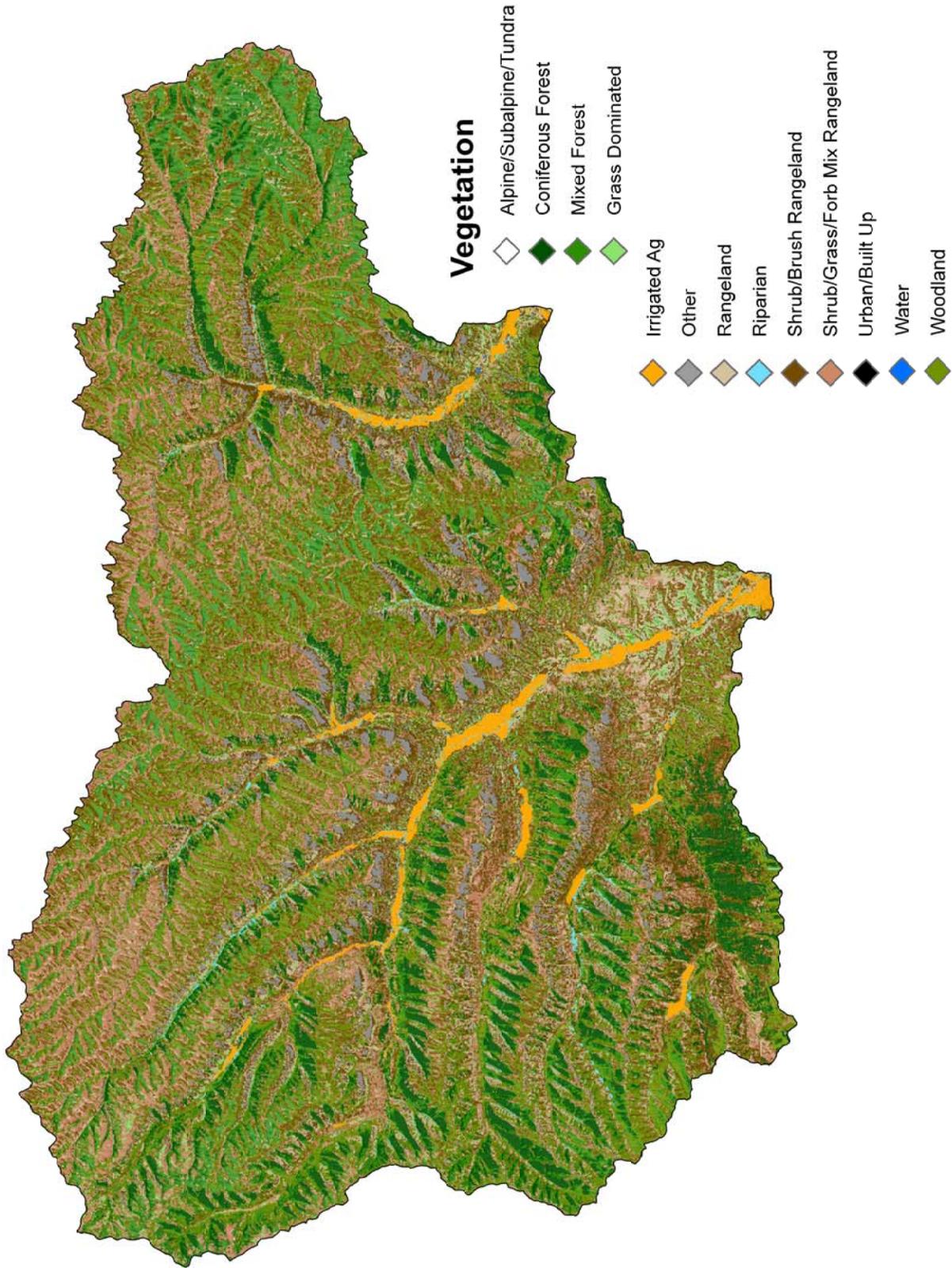
<u>MLRA</u>	<u>CRA</u>	<u>CRA NAME</u>	<u>CRA DESCRIPTION</u>
34B	34B.1	Warm Central Desertic Basins and Plateaus - Semiarid Plateaus and Low Mountains	This area is on broad plateaus and in narrow saline basins in Colorado and Utah. Soils have an aridic moisture regime and a mesic temperature regime. Natural vegetation is typically big sagebrush and bunchgrasses. Major use is range. Precipitation ranges from 5 to 16 inches. Elevations range from about 4,500 to 6,000 feet.
48A	48A.2	Southern Rocky Mountains - Semiarid High Plateaus, Utah and Colorado	This area is a dissected high plateau. The temperature regime is frigid or cryic, and the moisture regime is ustic. Characteristic native vegetation is sagebrush, aspen, and Rocky Mountain Douglas fir. Elevations range from 5,000 to 9,500 feet.



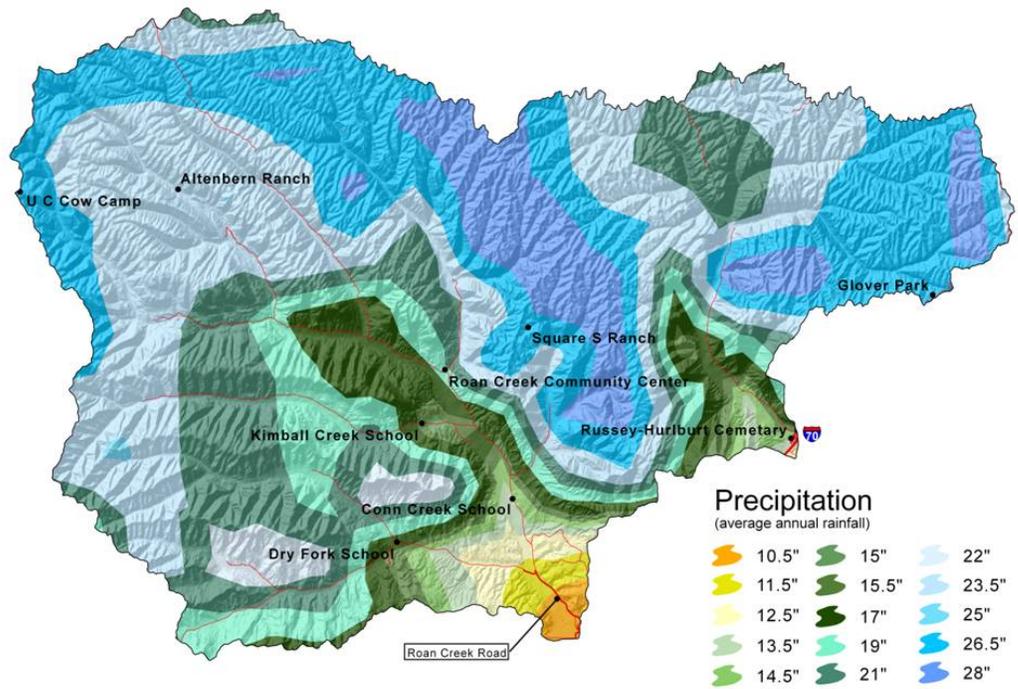
Parachute-Roan Land Ownership

Bureau of Land Management	182,483
Other Federal	3,700
Private	264,994
State, County, City; Wildlife, Parks & Rec	2,063





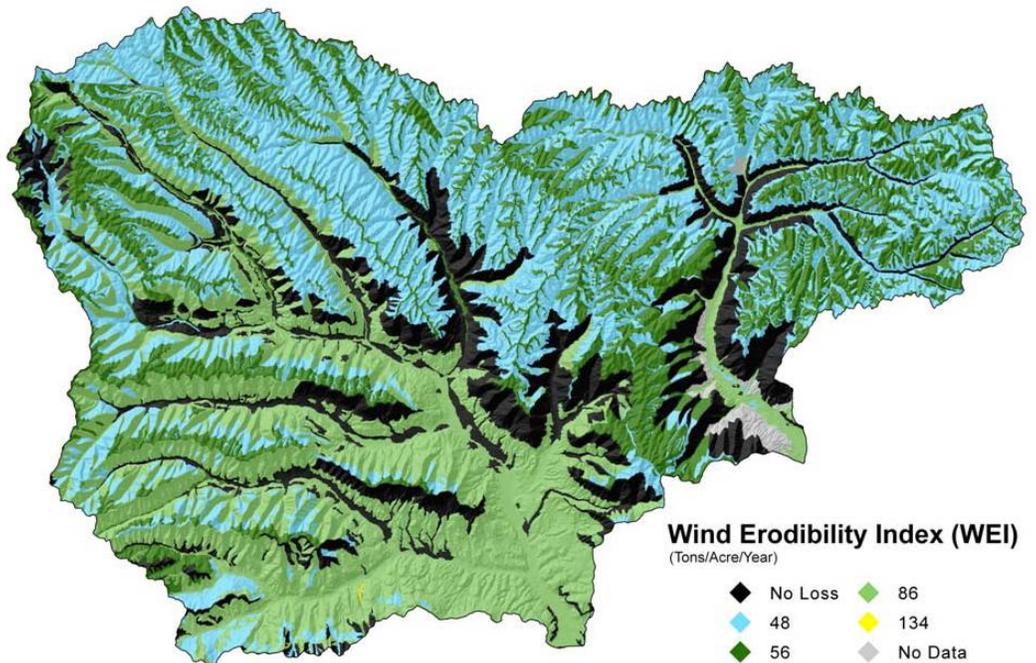
PARACHUTE-ROAN Land Use	Total Acreage	Vegetation	Acreage
Cropland	6,767	Irrigated Ag*	6,767.0
Grassland	5	Foothill and Mountain Grasses	5.2
Rangeland	353,647	Disturbed Rangeland	41.6
		Gambel Oak	26,974.6
		Grass Dominated	9,515.7
		Grass/Forb Mix	34,205.3
		Greasewood	5,150.4
		Juniper/Sagebrush Mix	96.8
		Mesic Mountain Shrub Mix	39,822.1
		PJ-Mtn Shrub Mix	3,764.7
		PJ-Oak Mix	2,807.3
		PJ-Sagebrush Mix	7,507.4
		Pinon-Juniper	14,719.0
		Rabbitbrush/Grass Mix	1.8
		Sagebrush Community	31,413.4
		Sagebrush/Grass Mix	56,346.5
		Sagebrush/Mesic Mtn Shrub Mix	17,476.4
		Saltbush Community	18,336.6
		Sedge	3.5
		Serviceberry/Shrub Mix	30,050.1
		Shrub Riparian	2,787.0
		Shrub/Brush Rangeland	0.5
Shrub/Grass/Forb Mix	5,055.9		
Snakeweed/Shrub Mix	0.3		
Snowberry	134.6		
Snowberry/Shrub Mix	44,087.3		
Sparse Juniper/Shrub/Rock Mix	163.1		
Sparse PJ/Shrub/Rock Mix	3,178.5		
Subalpine Grass/Forb Mix	6.2		
Forest	75,491	Aspen	31,083.0
		Aspen/Mesic Mountain Shrub Mix	226.4
		Cottonwood	12.1
		Douglas Fir	20,446.2
		Douglas Fir/Aspen Mix	12,648.0
		Douglas Fir/Englemann Spruce Mix	25.0
		Englemann Spruce/Fir Mix	34.4
		Juniper	102.5
		Spruce/Fir/Aspen Mix	4,327.2
		Sub-Alpine Fir	6,586.6
Riparian	1,393	Conifer Riparian	0.3
		Exotic Riparian Shrubs	0.6
		Herbaceous Riparian	1,372.7
		Willow	19.7
Water	28	Water	27.9
Other	16,156	No Data	51.2
		Commercial	0.2
		Rock	9,045.9
		Soil	6,837.6
		Talus Slopes & Rock Outcrops	221.0
~Total Watershed Acres			453,487



The Wind Erodibility Index (WEI): 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.

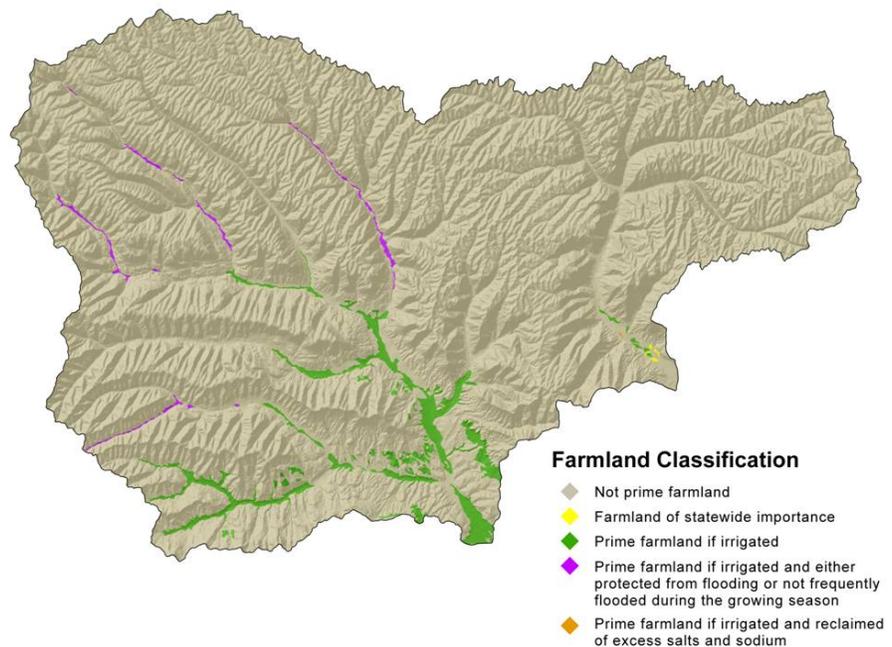
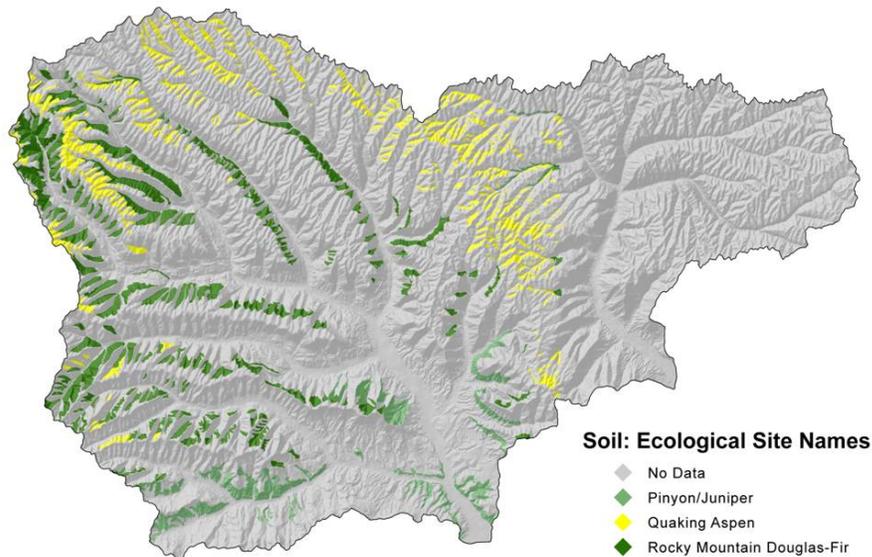
As shown on the Wind Erodibility Index map below, most cropland soils in the Parachute-Roan Watershed are considered highly erodible.

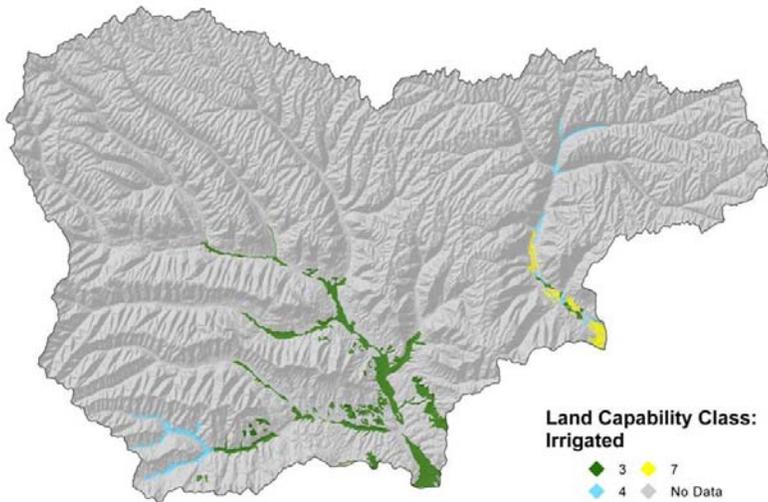


Ecological Sites

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/>.





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 landforming 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 wood land, 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.

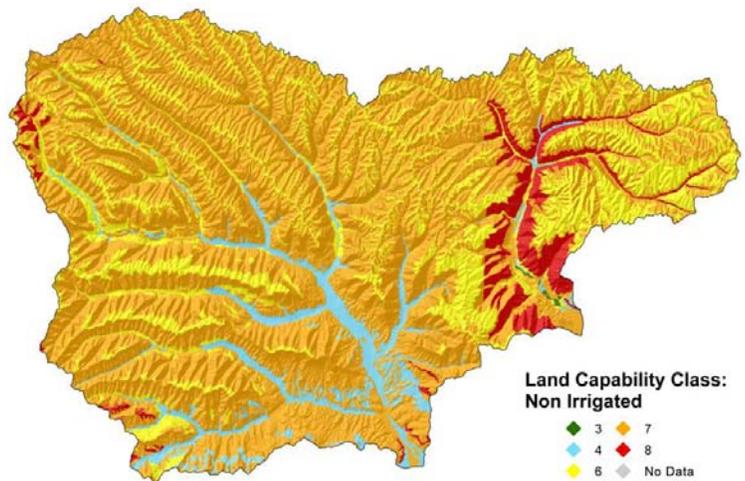
Class 4 - soils have very severe limitations that reduce the choice of plants or that require very careful management, or both.

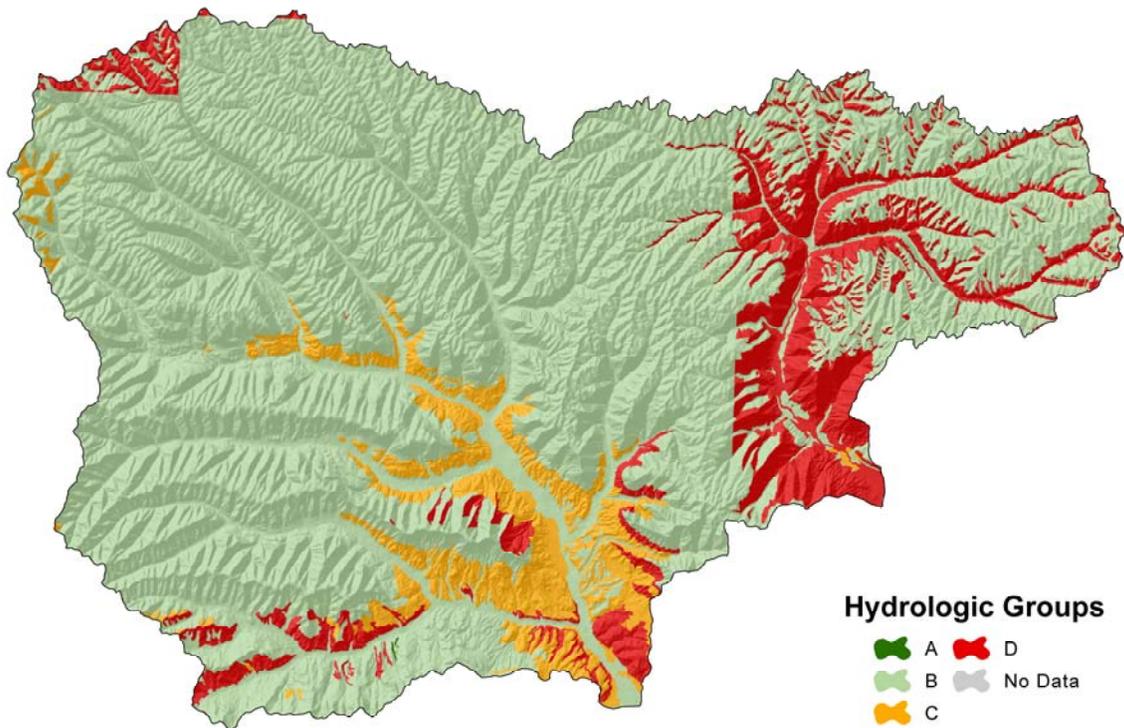
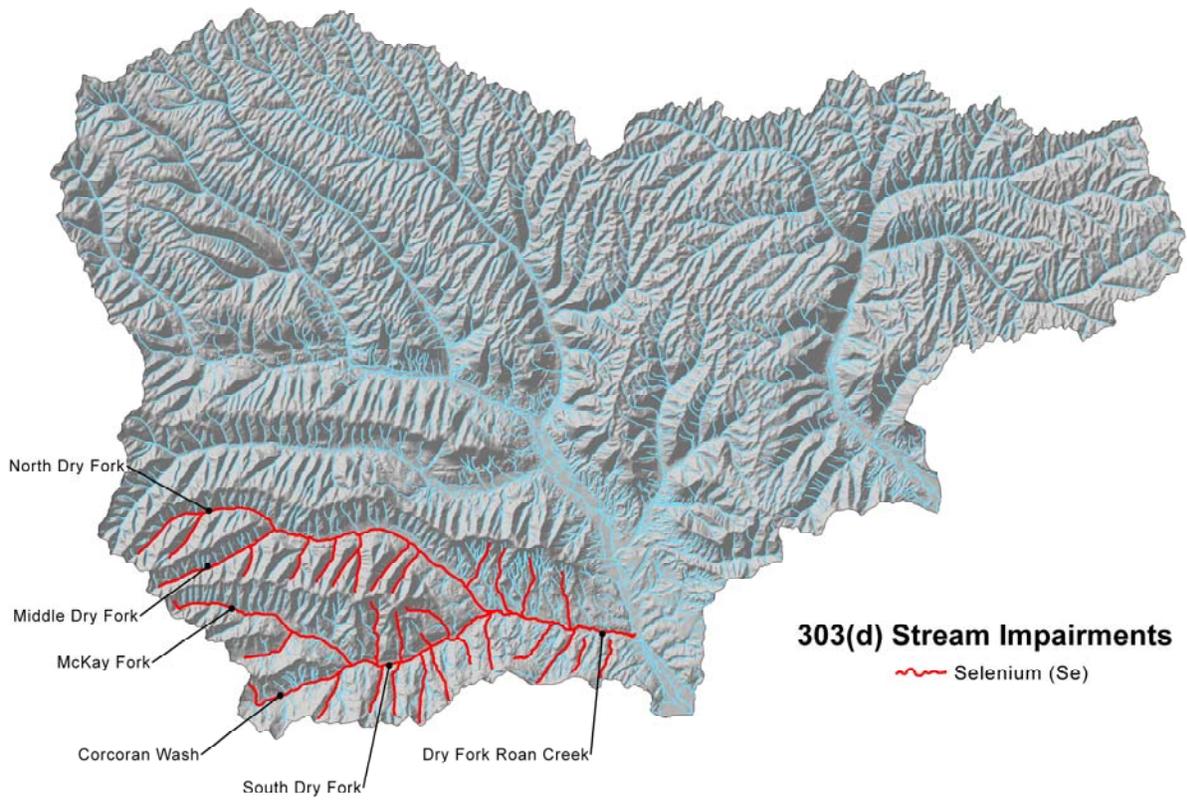
Class 5 - soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

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.





Social Data	Garfield	Mesa	Rio Blanco
Demographics (US Census, American Factfinder)			
Total population	43,791	126,588	5,986
Male	22,489	61,566	3,021
Female	21,302	65,022	2,965
Median age (years)	34.2	36.9	37.5
White	39,394	114,662	5,687
Black or African American	196	670	11
American Indian and Alaska Native	310	734	46
Asian	191	955	17
Native Hawaiian and Other Pacific Islander	35	161	0
Some other race	2861	6852	121
Hispanic or Latino (of any race)	7300	13718	296
Economic Characteristics (US Census, American Factfinder)			
In labor force (population 16 years and over)	23,562	66,835	3,143
Median household income (dollars)	47,016	39,487	37,711
Median family income (dollars)	53,840	46,858	44,425
Per capita income (dollars)	21,341	21,318	17,344
Families below poverty level	522	x	112
Individuals below poverty level	3206	x	556
X means that value is not applicable or not available			
County Agricultural Characteristics (Colorado Agricultural Census, county data tables)			
Farms (number)	499	1599	245
Land in farms/ranches (acres)	404,335	385,255	376,509
Average size farm/ranch (acres)	810	241	1,537
Median size farm (acres)	110	24	305
Average age of farmer or rancher	54	55.2	56.5
Net cash return from ag sales (\$1,000)	-1,364	4,746	2,081
Cattle and calves (number)	22,000	39,000	21,000

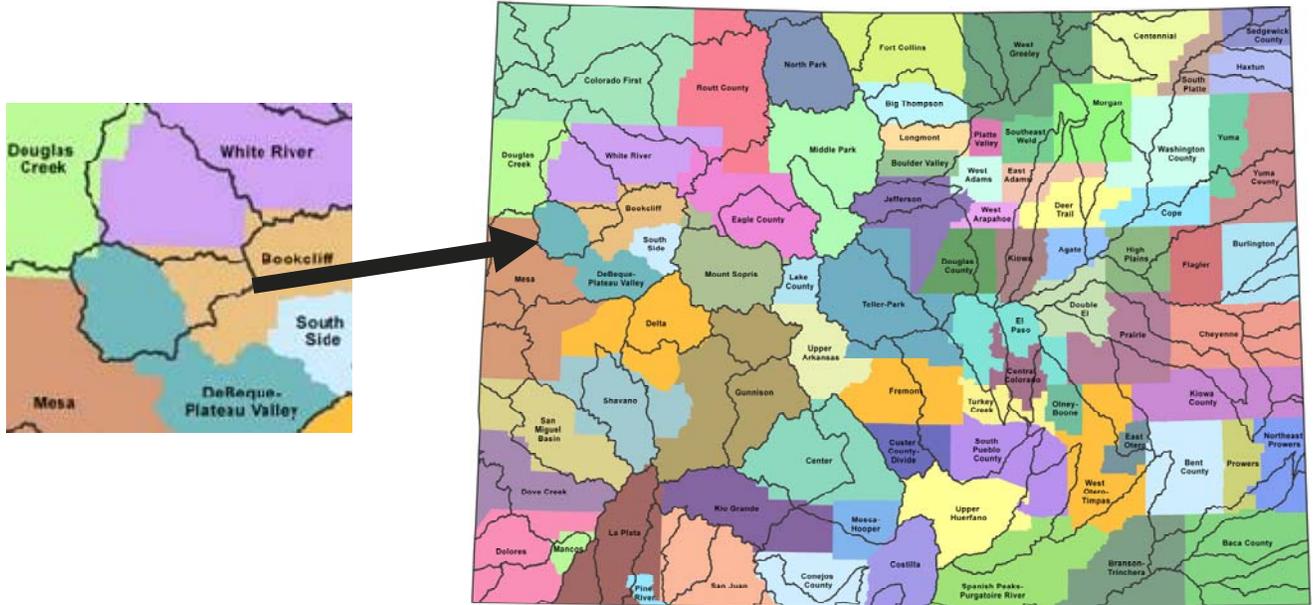
State and Federal Threatened, Endangered, Candidate Species, and Species of Special Concern

Common Name	Scientific Name	Class	State Status/Federal Status	Comments
Arkansas Darter	<i>Etheostoma cragini</i>	Fish	Threatened/Candidate	Occurs in the watershed
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Birds	Threatened/None	May migrate through watershed and may winter near Arkansas River
Black-footed Ferret	<i>Mustela nigripes</i>	Mammals	Endangered/Endangered	No current records of occurrence
Black-tailed Prairie Dog	<i>Cynomys ludovicianus</i>	Mammals	Concern/None	Occurs in the watershed
Burrowing Owl	<i>Athene cunicularia</i>	Birds	Threatened/None	Occurs in the watershed
Couch's Spadefoot Toad	<i>Scaphiopus couchii</i>	Amphibians	Concern/None	May occur in the watershed
Ferruginous Hawk	<i>Buteo regalis</i>	Birds	Concern/None	Occurs in the watershed
Lesser Prairie Chicken	<i>Tympanuchus pallidicinctus</i>	Birds	Threatened/Candidate	Not currently known in the watershed
Long-Billed Curlew	<i>Numenius americanus</i>	Birds	Concern/None	Occurs in the watershed
Massasauga	<i>Sistrurus catenatus</i>	Reptiles	Concern/None	Occurs 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
Plains Leopard Frog	<i>Rana blairi</i>	Amphibians	Concern/None	Occurs in the watershed
Swift fox	<i>Vulpes velox</i>	Mammals	Concern/None	Occurs in the watershed
Yellow mud turtle	<i>Kinosternon flavescens</i>	Reptiles	Concern/None	Occurs in the watershed
Suckermouth minnow	<i>Phenacobius mirabilis</i>	Fish	Endangered/None	May occur in the watershed
Flathead chub	<i>Platygobio gracilus</i>	Fish	Concern/None	May occur in the watershed

Shortgrass prairie is the dominant terrestrial habitat type in this watershed. Burrowing owl, mountain plover, black-tailed prairie dog, massasauga, and swift fox are representative species for this habitat. Water is scarce and the native species in this watershed are those that can survive without abundant water supplies. Riparian areas, playa lakes, and the occasional stock pond provide seasonal to intermittent aquatic habitats. Economically important wildlife species that occur in the watershed include black bullhead, sunfish, pronghorn (antelope), mule and white-tailed deer, and scaled quail.

Parachute-Roan Watershed Natural Resource Concerns

Colorado Conservation Districts



Conservation District’s Natural Resource Concerns, *extracted from their Long Range Plans*

	DeBeque-Plateau Valley	Bookcliff	Total
Water Quality and Quantity	5	4	16
Noxious Weeds	4	3	15
Range Health	2		4
Agriculture Sustainability			3
Urban/Rural Interface	3		11

From NRCS Field Office Survey July 2008

- Water Quality
- Water Quantity
- Range Health
- Resource Management on Small Farms and Ranchettes

Selected Conservation Application Data		Parachute-Roan Watershed—14010006			
	FY 2004	FY 2005	FY 2006	FY 2007	Total
Practices					
Prescribed Grazing	0	0	0	0	0
Upland Wildlife Habitat Management	0	9,596	0	0	9,596
Irrigation Water Management	0	0	0	0	0

Conservation Systems to Address Major Resource Concerns

Primary Resource Concern: Rangeland Health				
Conservation System Description:		Based on Conservation System Guide Code: CO 34A.1-GR-01-R-Grazing		
Practices	Unit	Quantity	Cost/Unit (\$)	Estimated Cost per Median Sized Ranch (\$)
Prescribed Grazing				
Fence (382)	Ft.	3,100	1.60	4,960
Pest Management (595)	Ac.	300	15.00	4,500
Pipeline (516)	Ft.	2,000	3.40	6,800
Upland Wildlife Habitat Management (645)	Ac.	200	na	
Irrigation Water Management (predominately side roll)	Ac.	85	850.00	51,850
Watering Facility (614)	No.	2	610	1,220
Costs to apply prescribed grazing per median sized ranch of 400 acres	No.	100	69,330	6,933,000
Subtotal Rangeland costs:				\$6,933,000

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

Conservation System Description:		Surface irrigation converted to more efficient systems with IWM, Nutrient and Pest Mgt.		Reference Conservation System Guide Code: CO 34A-CR-R-2
Practices	Unit	Quantity	Cost/Unit (\$)	Estimated Cost (\$)
Irrigation Water Management (449)	Ac	4,000	1200	4,800,000
Nutrient Management (590)	Ac	4,000	5	20,000
Pest Management (595)	Ac	4,000	15	60,000
Subtotal Irrigated Crops:				\$4,880,000

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. Wildlife habitat is sustained or improved.	6,933,000
Dryland Crop	Water Quality		Improved water use	4,880,000
Estimated Total Costs to Address Major Resource Concerns:				\$11,813,000

References Not Cited in Document

303(d) listed streams were created using data from Colorado Department of Public Health & Environment's 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/100293wqlimitedsegmdls.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:

Douglas Plateau Area (CO682)	Published 12/05/2006	Rifle Area (CO683)	Published 01/10/2006
Rio Blanco County Area (CO685)	Published 01/11/2006		

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.