



United States Department
of Agriculture

Clear Watershed



Hydrologic Unit Code 10190004

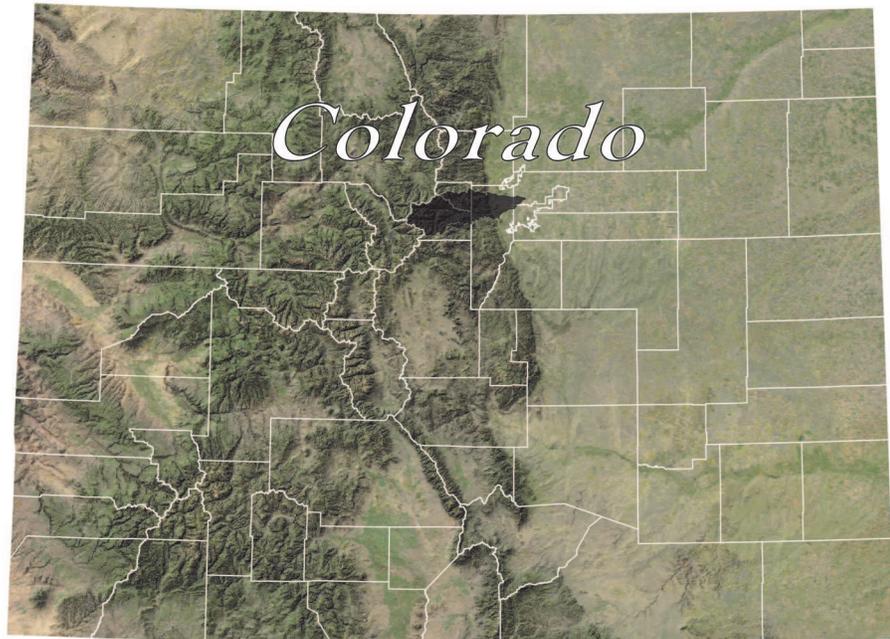
Natural Resources
Conservation Service

Lakewood, Colorado

Rapid Assessment

RWA 10190004

February 2010



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.

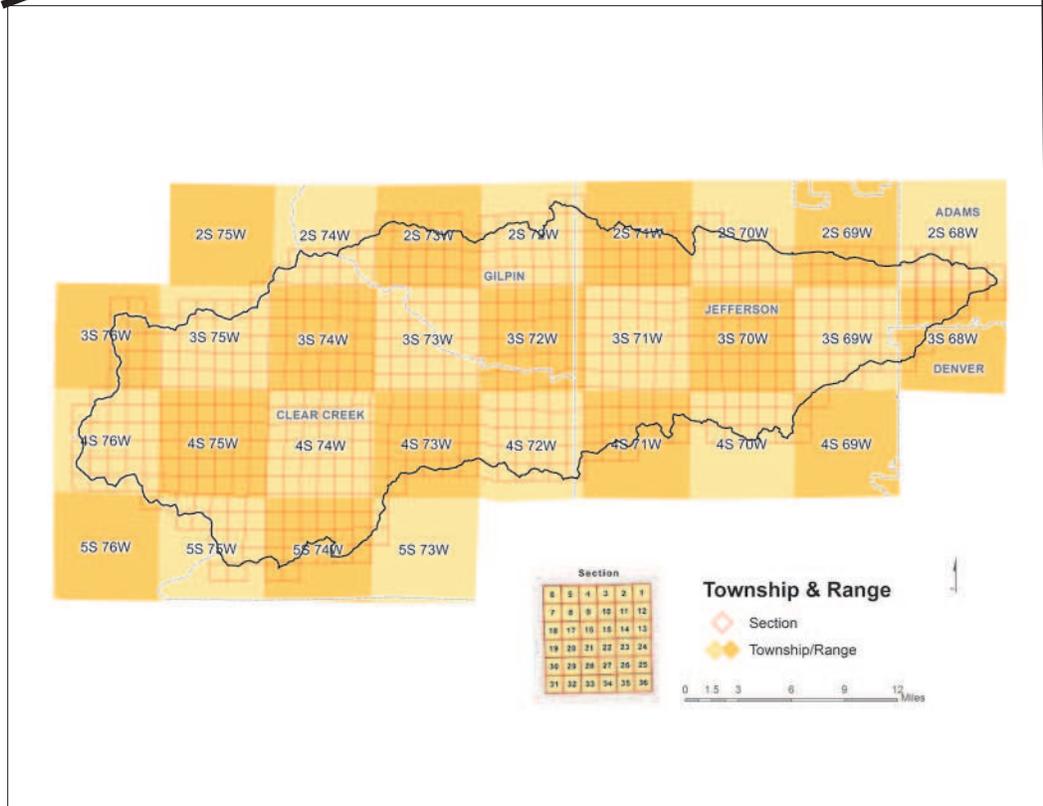
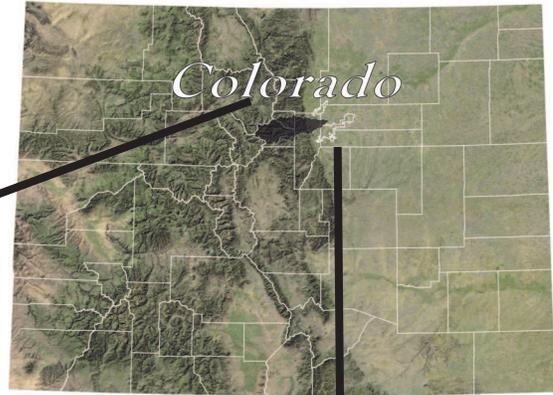
Rapid watershed assessments provide initial estimates of where conservation investments would best address the concerns of landowners, conservation districts, and other community organizations and stakeholders. These assessments help landowners and local leaders set priorities and determine the best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



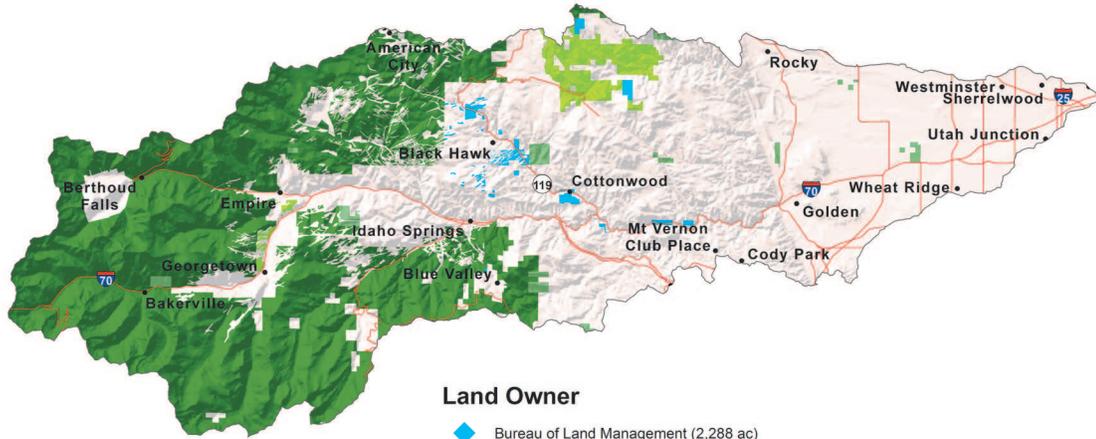
County	County Acres	County Acres in CLEAR Watershed	% of County in the Watershed	% of Watershed in the County
Adams	756,499	9,766	1.3%	2.7%
Clear Creek	253,843	183,892	72.4%	50.8%
Denver	99,723	1,785	1.8%	0.5%
Gilpin	96,045	51,137	53.2%	14.1%
Jefferson	494,626	115,205	23.3%	31.8%

361,785



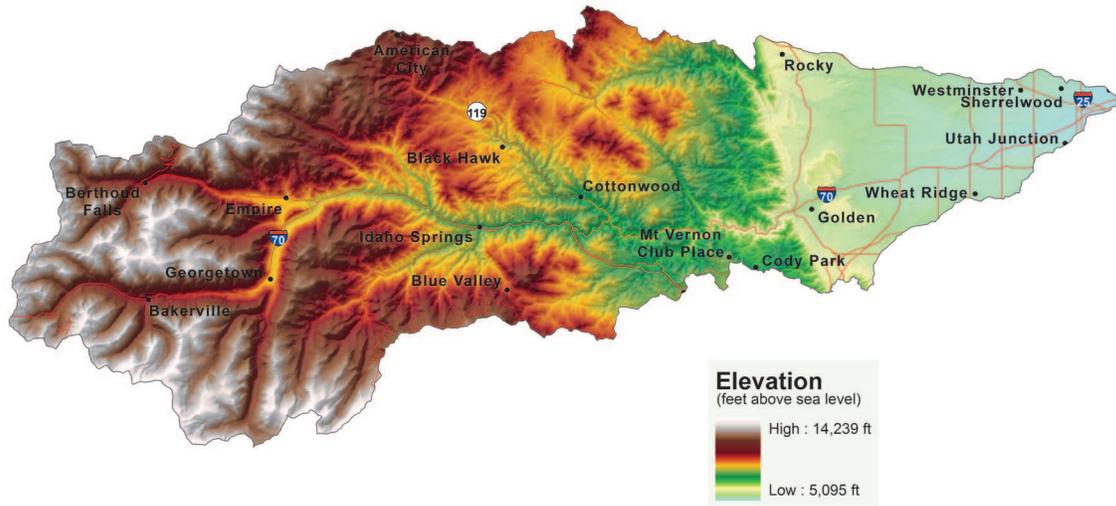
Common Resource Areas (CRA): Geographical areas where resource concerns, problems, and treatment needs are similar. Landscape conditions, soil, climate, human considerations, and other natural resource information are used to determine the geographical boundaries of the common resource area.

MLRA	CRA	CRA NAME	CRA DESCRIPTION
48A	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.
49	49.1	Southern Rocky Mountain Foothills	This area is generally a transition between the Great Plains and the Southern Rocky Mountains. The temperature regime is mesic or frigid, and moisture regime is ustic. Characteristic native vegetation ranges from grasslands and shrubs to ponderosa pine and Rocky Mountain Douglas fir forest.
67B	67B.1	Central Great Plains, Southern Part	The Central High Plains, Southern Part CRA is broad, undulating to rolling plains dissected by streams and rivers. Local relief is measured in tens of feet on the plains. Soils are deep and formed in eolian and alluvial materials. Presettlement vegetation was short grass prairies. Nearly all of this area in fallow cropland rotations or rangeland. Some cropland areas are irrigated.



Land Owner

- ◆ Bureau of Land Management (2,288 ac)
- ◆ Private (206,486 ac)
- ◆ State (2,983 ac)
- ◆ State, County, City; Wildlife, Parks & Rec (7,908 ac)
- ◆ U.S. Forest Service (142,160 ac)

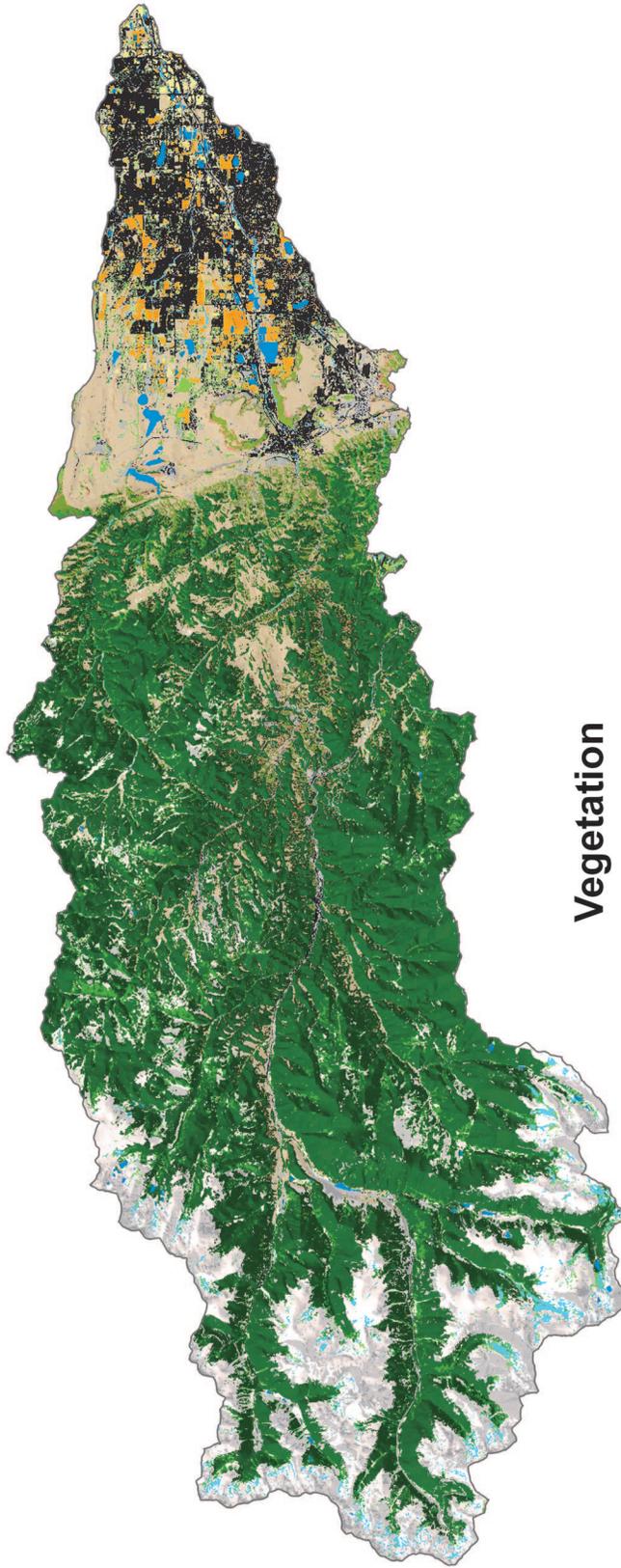


Elevation

(feet above sea level)

High : 14,239 ft

Low : 5,095 ft



Vegetation

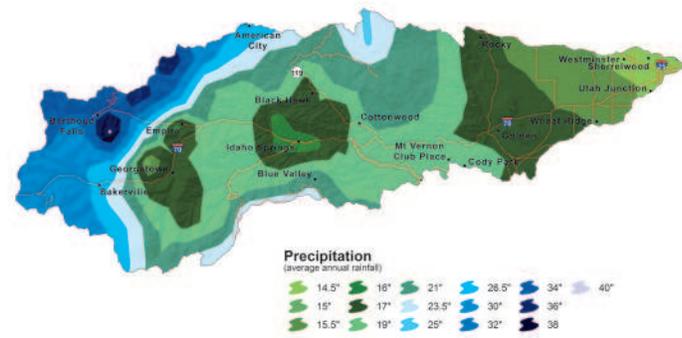
Alpine/Subalpine/Tundra	Rangeland
Coniferous Forest	Riparian
Mixed Forest	Shrub/Brush Rangeland
Dryland Ag	Shrub/Grass/Forb Mix Rangeland
Grass Dominated	Urban/Built Up
Irrigated Ag	Water
Other	Woodland

CLEAR Land Use	Total Acreage	Vegetation	Acreage
Cropland	3,863	Dryland Ag	1,825.72
		Irrigated Ag*	2,037.00
Rangeland/Grassland	100,632	Alpine Grass/Forb Mix	34,278.77
		Alpine Meadow	95.44
		Gambel Oak	107.18
		Grass Dominated	6,799.11
		Grass/Forb Mix	39,117.87
		Mesic Mountain Shrub Mix	2,721.40
		Sagebrush Community	1.08
		Sagebrush/Grass Mix	6.80
		Shrub/Grass/Forb Mix	4,909.83
		Sparse PJ/Shrub/Rock Mix	1,785.65
		Subalpine Grass/Forb Mix	6,355.24
		SubAlpine Shrub Community	4.02
		Upland Willow/Shrub Mix	63.01
		Xeric Mountain Shrub Mix	4,386.74
Forest	203,051	Aspen	10,125.45
		Aspen/Mesic Mountain Shrub Mix	1,581.32
		Douglas Fir	4,406.51
		Douglas Fir/Aspen Mix	583.01
		Englemann Spruce/Fir Mix	24,904.83
		Fir/Lodgepole Pine Mix	70.89
		Limber Pine	1,382.25
		Lodgepole Pine	57,947.76
		Lodgepole Pine/Aspen Mix	7,012.08
		Lodgepole/Spruce/Fir Mix	28,592.26
		P. Pine/Gambel Oak Mix	143.78
		Ponderosa Pine	42,939.20
		Ponderosa Pine/Aspen Mix	686.64
		Ponderosa Pine/Douglas Fir Mix	12,959.91
		Ponderosa Pine/Mesic Mtn. Shrub	1,747.81
		Spruce/Fir/Aspen Mix	2,282.64
		Spruce/Fir/Lodgepole/Aspen Mix	4,803.27
Spruce/Lodgepole Pine Mix	880.93		
Riparian	5,232	Cottonwood	236.14
		Herbaceous Riparian	259.31
		Riparian	886.49
		Shrub Riparian	262.55
		Willow	3,587.51
Water	2,437	Water	2,437.23
Other	45,535	Barren Land	10.81
		Commercial	7,944.59
		Disturbed Soil	3,717.55
		Residential	17,306.49
		Rock	1,738.70
		Snow	1,548.58
		Soil	474.13
		Talus Slopes & Rock Outcrops	12,385.39
		Urban/Built Up	408.65
~Total Watershed Acres			360,749

* Colorado Decision Support Systems Data

Precipitation

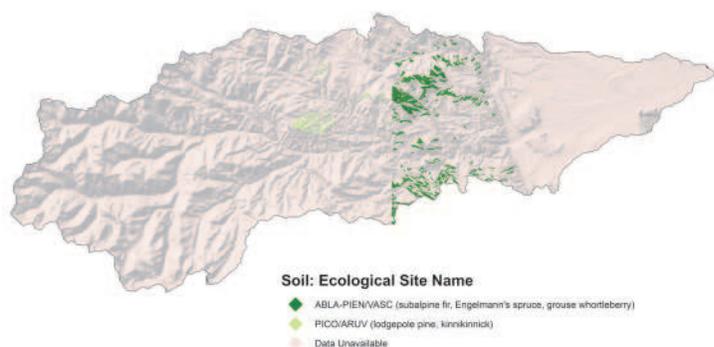
Droughts are regular visitors to the watershed as with the rest of Colorado. Statewide, in the 1900's alone, four prolonged dry spells occurred. There was one in the 1910s. Another, in the '30s, caused the dust-bowl period. The second worst drought on record in the state occurred in the mid-50s. A series 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 late summer. Maximum precipitation is from mid spring through late autumn. Precipitation in winter is snow.

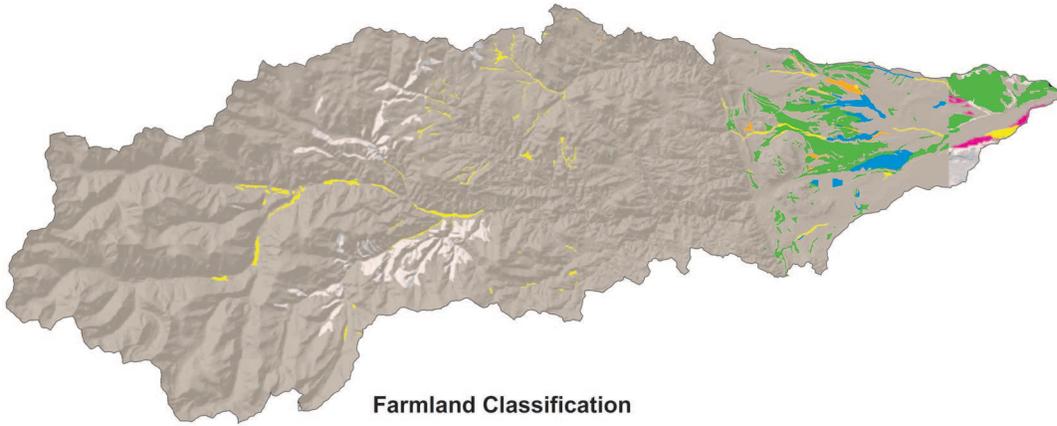


Ecological Sites

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/>.





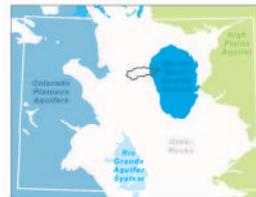
Farmland Classification

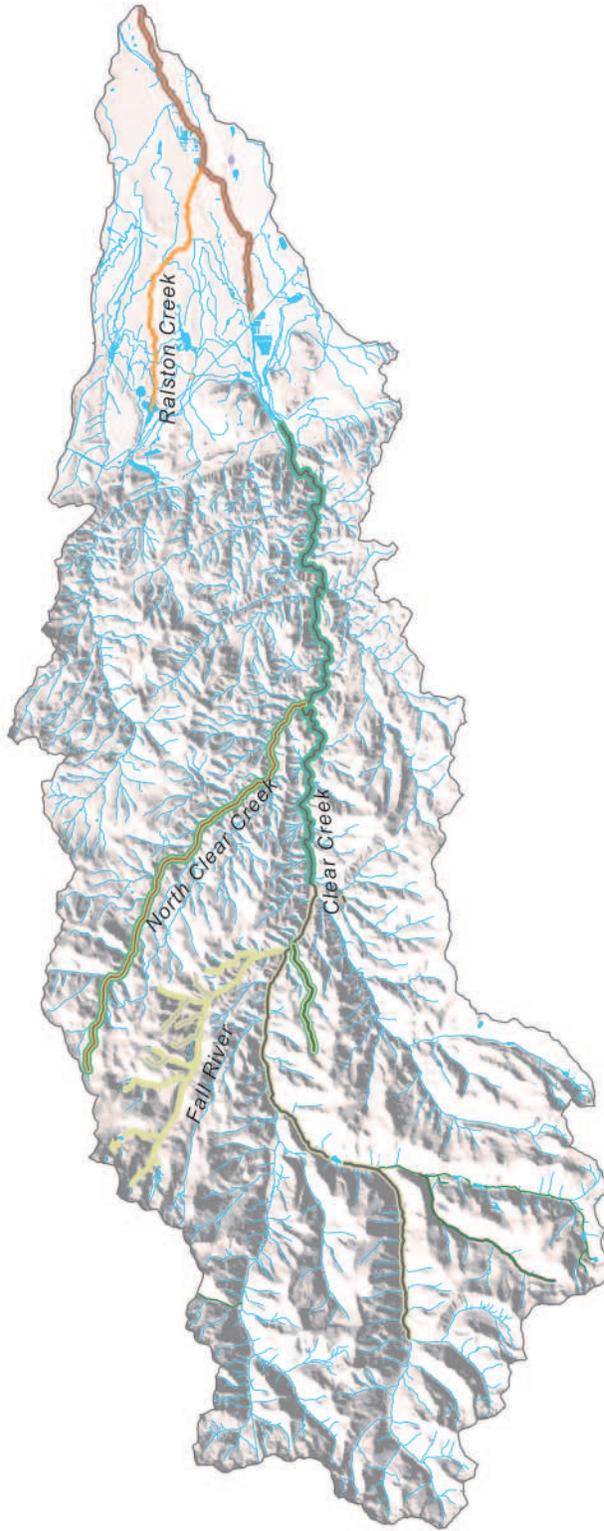
- ◆ Farmland of statewide importance
- ◆ Not prime farmland
- ◆ Prime farmland if irrigated
- ◆ Prime farmland if irrigated and drained
- ◆ Prime farmland if irrigated and reclaimed of excess salts and sodium
- ◆ Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
- ◆ Data Unavailable



Aquifer

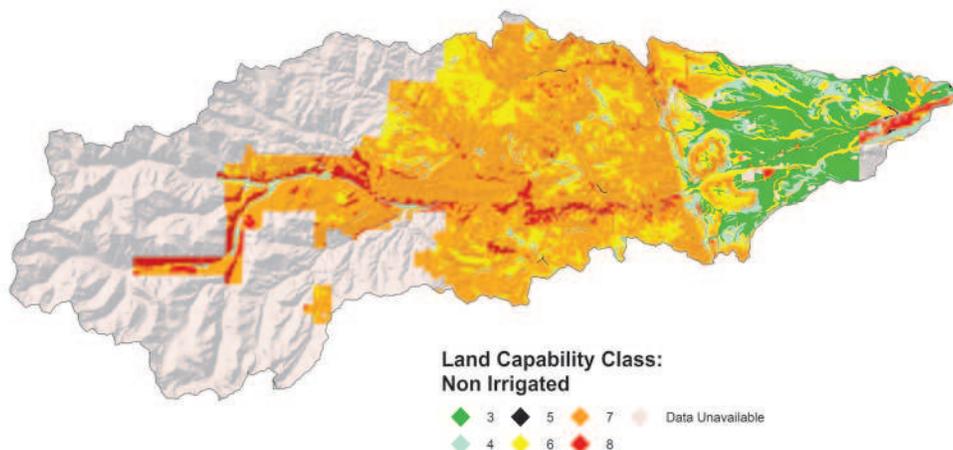
- Denver Basin aquifer system
- Rocks that are generally poorly permeable, but locally may contain productive aquifers





303(d) Listed Streams & Waterbodies





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.

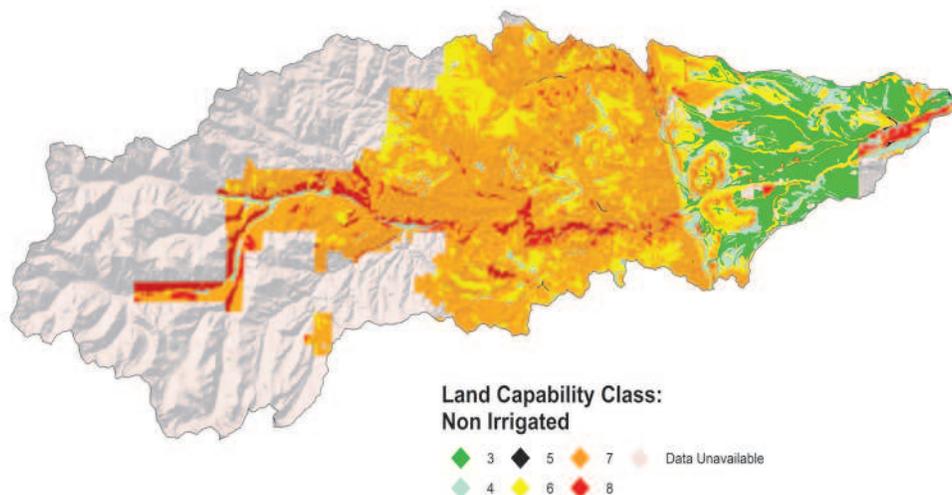
Class 4 - soils have very severe limitations that reduce the choice of plants or that require very careful management, or both.

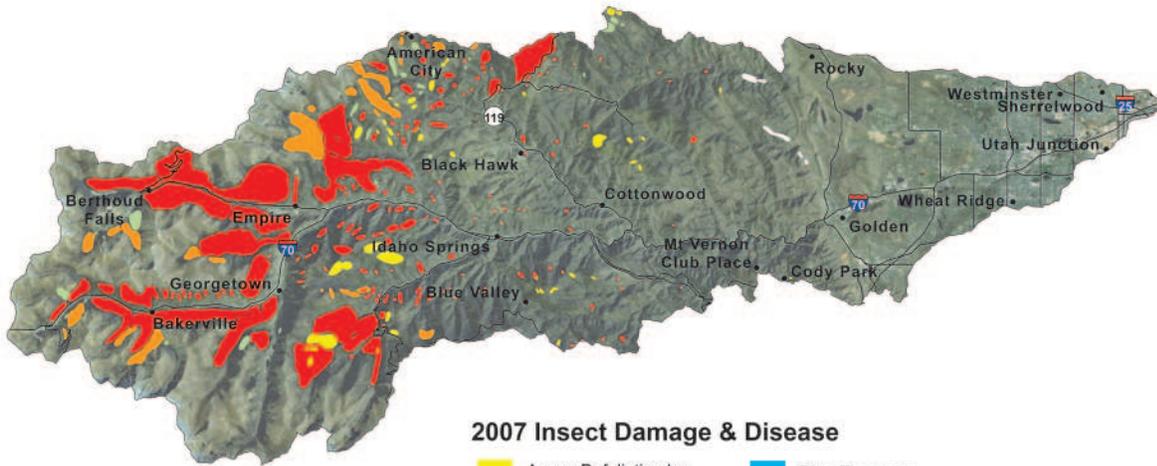
Class 5 - soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

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.

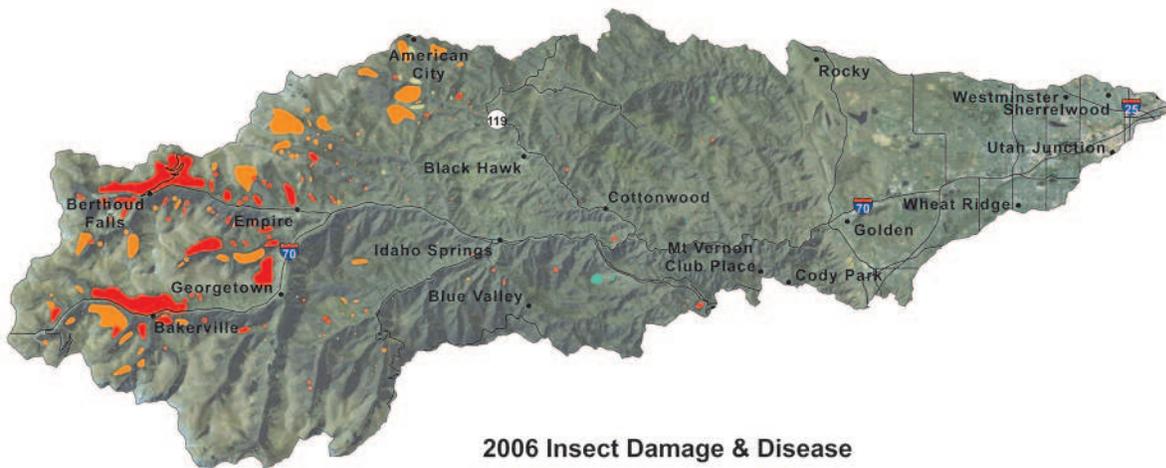
Class 8 - soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or aesthetic purposes.





2007 Insect Damage & Disease

- Aspen Defoliation by; Large Aspen Tortix; Forest Tent Caterpillar; Marssonina Blight; Melampsora Rusts
- Mountain Pine Beetle
- Five-Needle Pine Decline
- Pine Engraver
- Subalpine Fir Mortality by; Western Basalm Bark Beetle; Armillaria Root Disease
- Winter Injury



2006 Insect Damage & Disease

- Douglas Fir Engraver
- Five-needle Pine Decline
- Mountain Pine Beetle
- Pine Engraver
- Spruce Ips
- Subalpine Fir Mortality by; Western Basalm Bark Beetle; Armillaria Root Disease
- Unknown

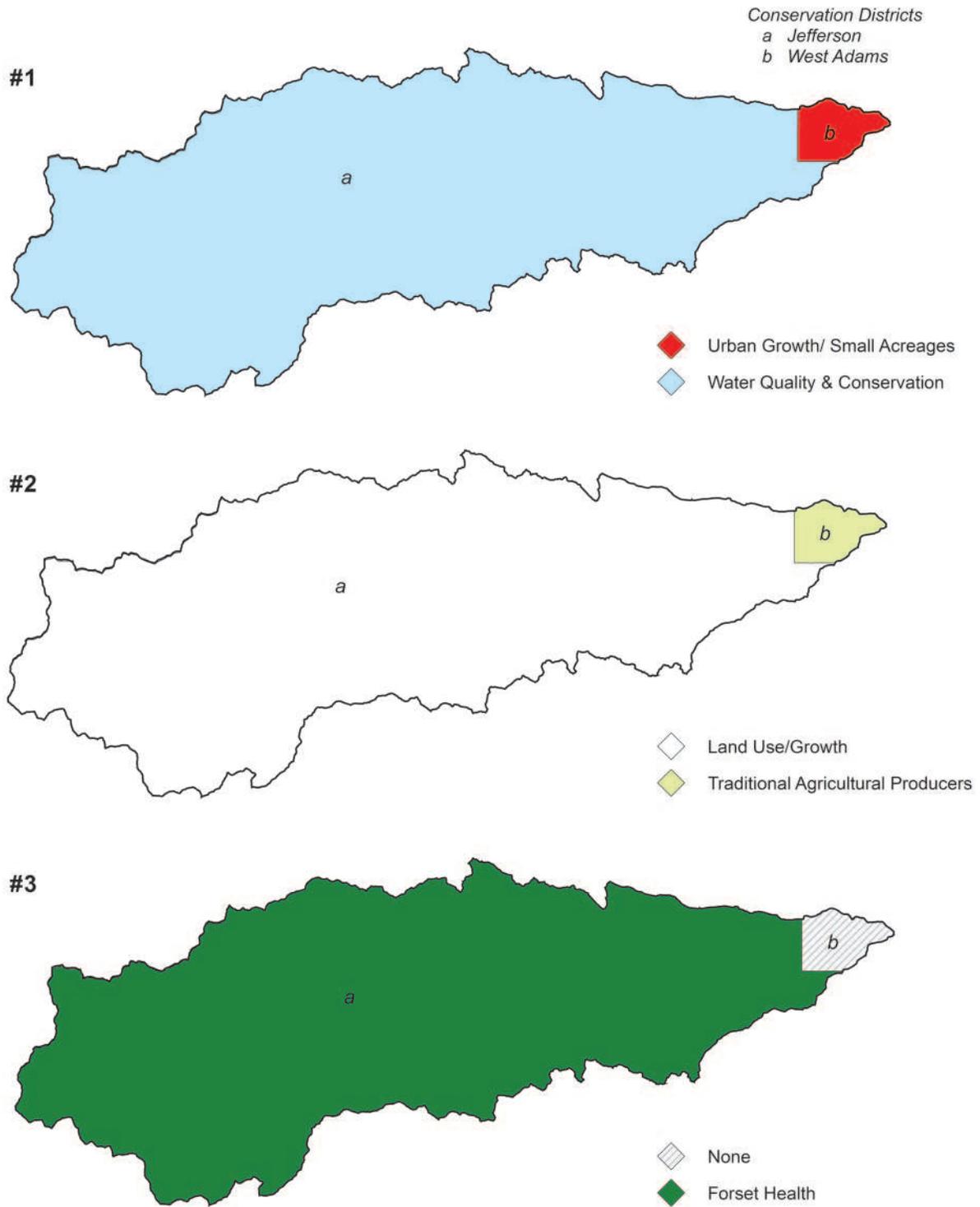


Threatened and Endangered Species and Species of Concern					
Common Name	Scientific Name	Class	State Status	Federal Status	Comments
American peregrine falcon	<i>Falco peregrinus anatum</i>	Birds	Concern	None	Occurs in the watershed
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Birds	Threatened	None	Occurs year round in the watershed
Black-tailed Prairie Dog	<i>Cynomys ludovicianus</i>	Mammals	Concern	None	Occurs in the watershed
Boreal Toad	<i>Bufo boreas boreas</i>	Amphibians	Endangered	None	Occurs in the watershed
Least Tern	<i>Sterna antillarum</i>	Birds	Endangered	Endangered	Occurs downstream of watershed; Depletions are a concern here.
Northern Leopard Frog	<i>Rana pipiens</i>	Amphibians	Concern	None	Occurs in the watershed
Pallid Sturgeon	<i>Scaphirhynchus albus</i>	Fish	None	Endangered	Occurs downstream of watershed; Depletions are a concern here.
Piping Plover	<i>Charadrius melodus</i>	Birds	Threatened	Threatened	Occurs downstream of watershed; Depletions are a concern here.
Townsend's Big-Eared Bat	<i>Corynorhinus townsendii pallescens</i>	Mammals	Concern	None	Occurs in the watershed
Ute ladies'-tresses orchid	<i>Spiranthes diluvialis</i>	Plants	None	Threatened	Occurs in the watershed
Whooping Crane	<i>Grus Americana</i>	Birds	Endangered	Endangered	Occurs downstream of watershed; Depletions are a concern here.

Social Data	Adams	Clear Creek	Denver	Gilpin	Jefferson
Total population	396,032	9,322	545,198	4,757	519,071
Male	200,836	4,857	276,183	2,521	257,684
Female	195,196	4,465	269,015	2,236	261,387
Median age (years)	31.2	40.2	34.3	38.3	38.8
White	297,986	8,984	392,164	4,489	461,995
Black or African American	12,092	26	54693	25	4380
American Indian and Alaska Native	3945	68	6627	39	2457
Asian	14,128	34	15905	33	13581
Native Hawaiian and Other Pacific Islander	66	3	108	9	65
Some other race	55,810	95	61464	73	22965
Hispanic or Latino (of any race)	138,940	361	191510	202	66263
In labor force (population 16 years and over)	213,189	5,776	297,292	3,150	293,688
Median household income (dollars)	50,650	50,997	42,370	51,942	60,944
Median family income (dollars)	56,053	61,400	52,139	61,859	73,355
Per capita income (dollars)	22,228	28,160	27,715	26,148	30,163
Families below poverty level	x	79	x	13	x
Individuals below poverty level	x	501	x	191	x
X means that value is not applicable or not available					
Farms (number)	728		10	26	457
Land in farms/ranches (acres)	701,471		40	6,045	90,366
Average size farm/ranch (acres)	964		4	233	198
Median size farm (acres)	159		2	154	35
Average age of farmer or rancher	54.6			55.6	55.1
Net cash return from ag sales (\$1,000)	6,721	-81		-94	6,568
Cattle and calves (number)	10,000				2,000

Identified Long Range Resource Concerns

Top Three Concerns within Conservation Districts



Selected Conservation Application Data		Big Thompson Watershed – 10190006			
	FY 2004	FY 2005	FY 2006	FY 2007	Total
Practices Applied					
Prescribed Grazing	0	0	0	1,644	1,644
Forest Stand Improvement	0	2	4	16	22

FOOTNOTES/ BIBLIOGRAPHY

303(d) listed streams within the 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>.

Stream data from National Hydrologic Dataset <http://nhd.usgs.gov>

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

Resource Concerns were identified using the Colorado Association of Conservation Districts' (CACD) long range (10 year) plans from the period of 1996-2000. Only the top three environmental resource concerns for each district were used. 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:

Adams County Area (CO001) Published 1/11/2008

Golden Area (CO641) Published 12/15/2005

RooseveltArapahoeRoutt (CO645) Published 2/4/2008

Georgetown Area (CO653) Published 1/8/2007

Vegetation data was generated using the Colorado Division of Wildlife's "Colorado Vegetation Classification Project" (CVCP) data. Completed in 2003, the CVCP is a landscape level vegetation dataset created using Landsat TM imagery and then formatted for GIS use. The species identified are an overview of the most common species associated in each cover type, in order of greatest occurrence. For more information on the Colorado Vegetation Classification Project, visit <http://ndis.nrel.colostate.edu/coveg>.

All border state (if applicable) vegetation data courtesy of the National Land Cover Dataset (NLCD). For more information visit http://www.mrlc.gov/mrlc2k_nlcd.asp

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. Geographic boundaries of a CRA are determined by landscape conditions, soil, climate, human considerations and other natural resource information. 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 on PRISM data visit <http://www.ncgc.nrcs.usda.gov/products/datasets/climate/docs/fact-sheet.html> or for more information about technical aspects of PRISM, visit the PRISM website at <http://www.ocs.orst.edu/prism>.

Land Ownership (status,07/22/2006 dataset) data was obtained from the Bureau of Land Management, Colorado State Office. For more information, visit http://www.blm.gov/co/st/en/BLM_Programs/geographical_sciences/gis.html

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). A hillshade grid was created from the 30m DEM to create a 3D effect. For more information about the NED visit <http://ned.usgs.gov>. The data was downloaded from the NRCS Geospatial Data Gateway at <http://datagateway.nrcs.usda.gov>.

Forest Insect & Disease data obtained from the U.S. Forest Service annual aerial survey. For more information visit <http://www.fs.fed.us/r2/resources/fhm/aerialsurvey/>