



United States Department
of Agriculture



Natural Resources
Conservation Service

Lakewood, Colorado

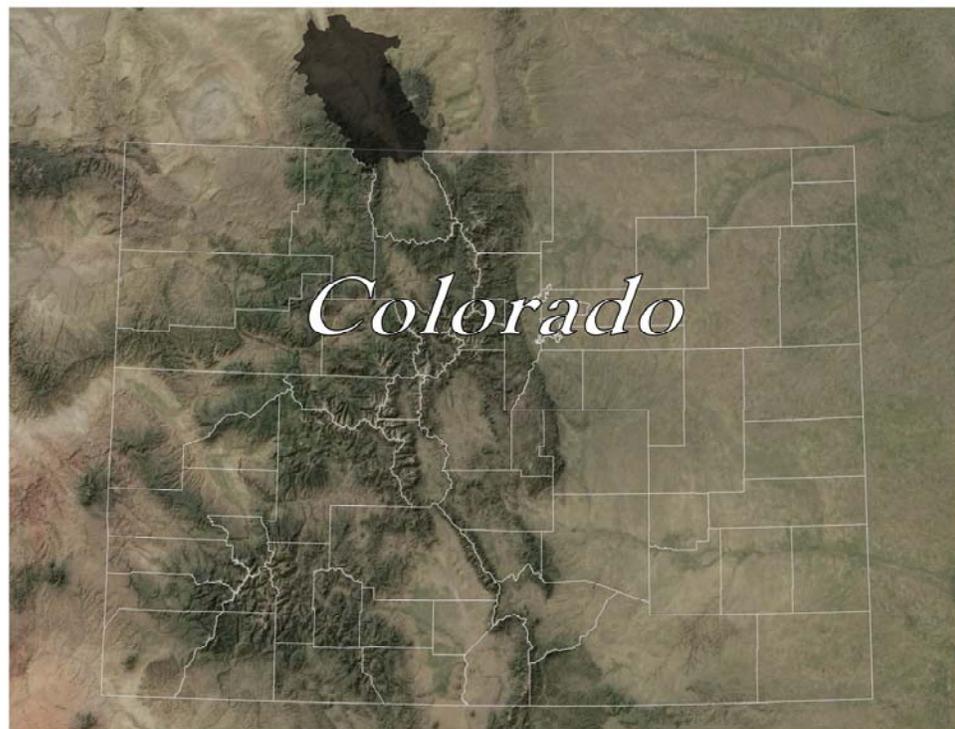
RWA 10180002

July 2010

Upper North Platte Watershed

Hydrologic Unit Code 10180002

Rapid Assessment



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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.

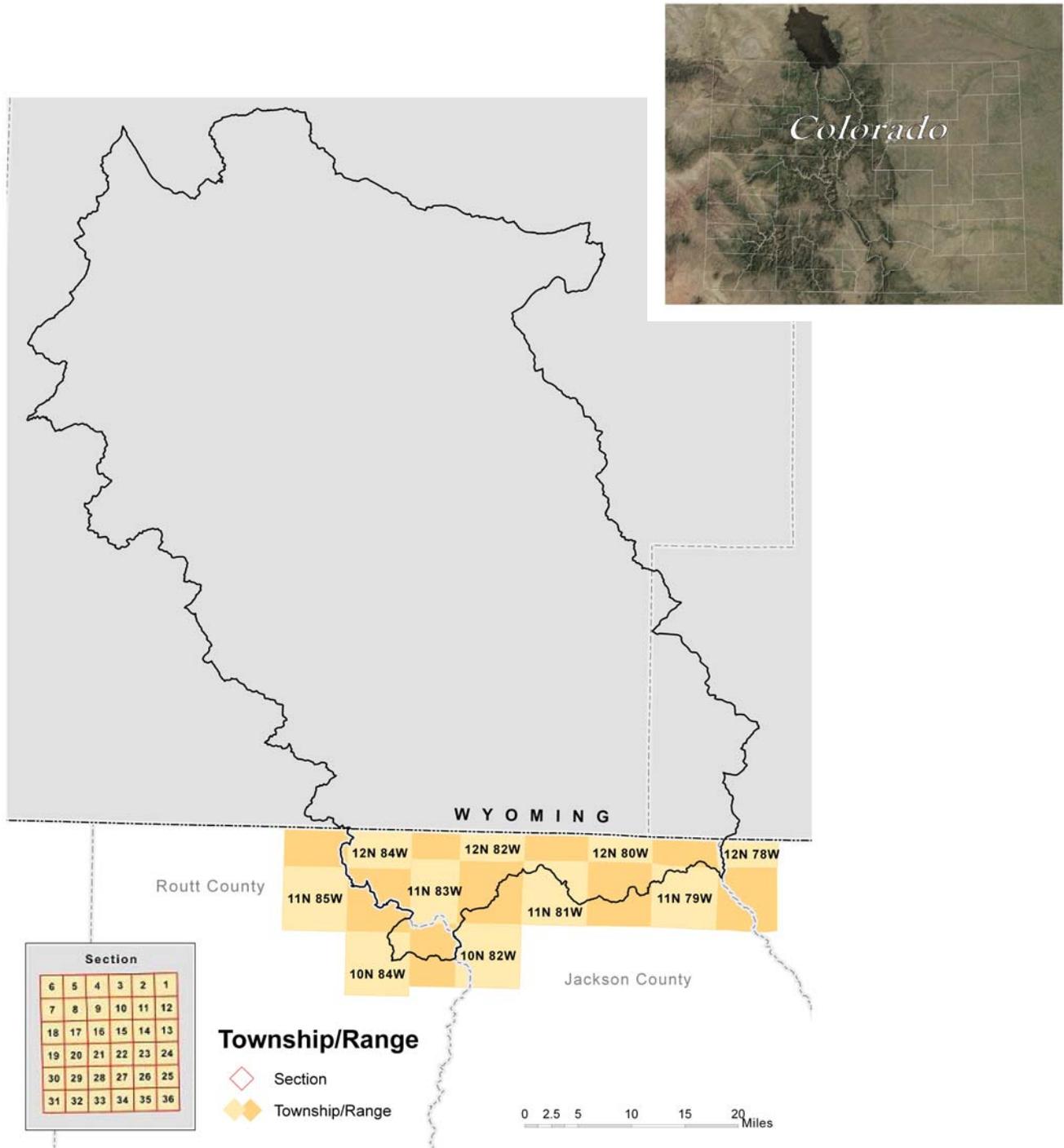
Rapid watershed assessments provide initial estimates of where conservation investments would best address the concerns of landowners, conservation districts, and other community organizations and stakeholders. These assessments help landowners and local leaders set priorities and determine the best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

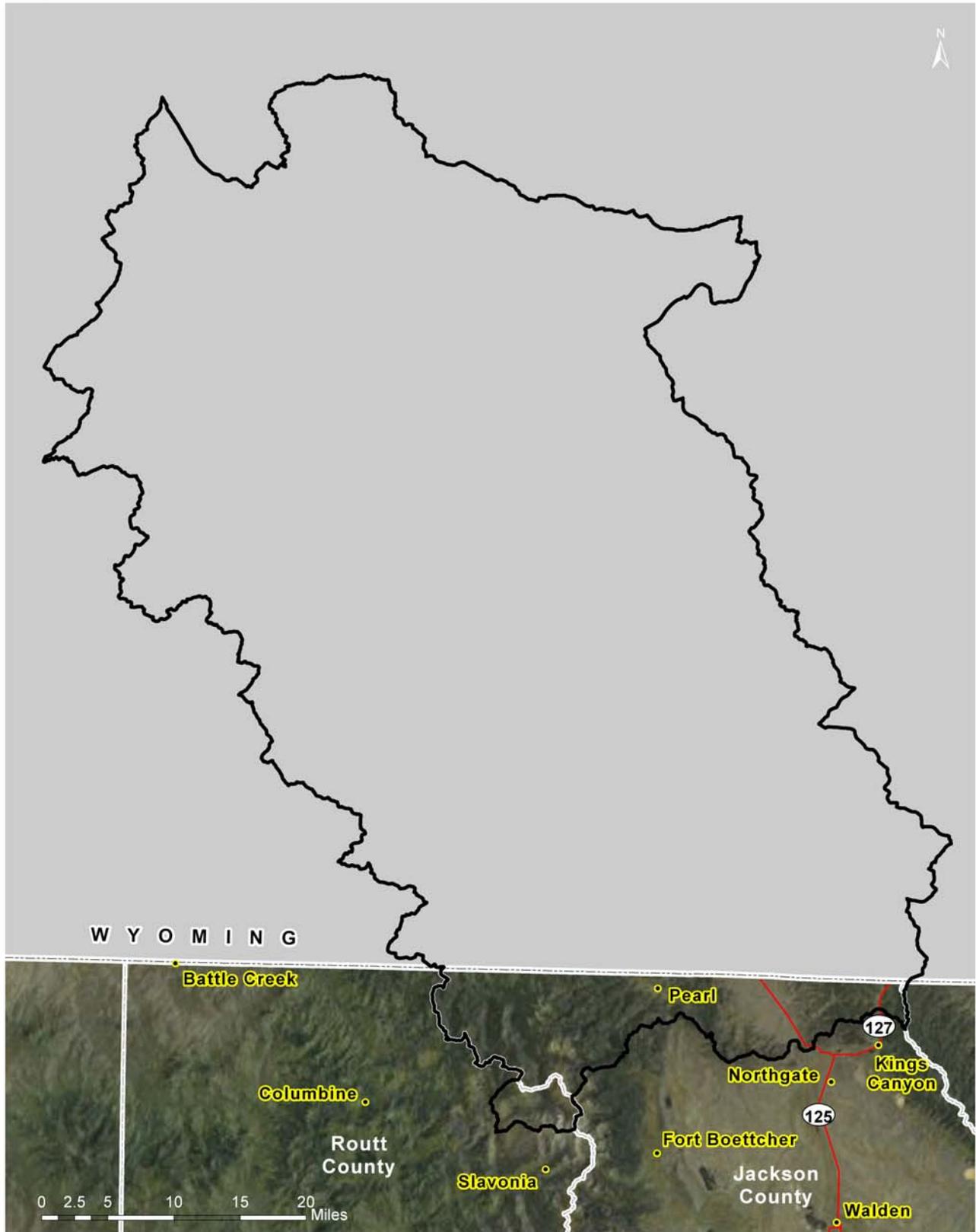


County	County Acres	County Acres in UPPER NORTH PLATTE Watershed	% of County in the Watershed	% of Watershed in the County
Jackson	1,036,272	125,778	12.1%	6.6%
Larimer	1,684,449	169	0.01%	0.01%
Routt	1,515,381	12,482	0.8%	0.7%

138,429

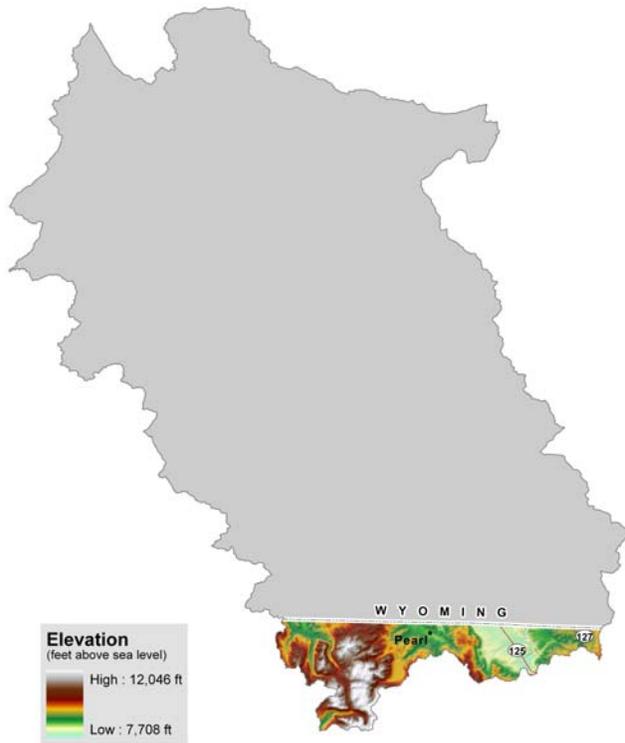
Total Watershed Acres: 1,906,251

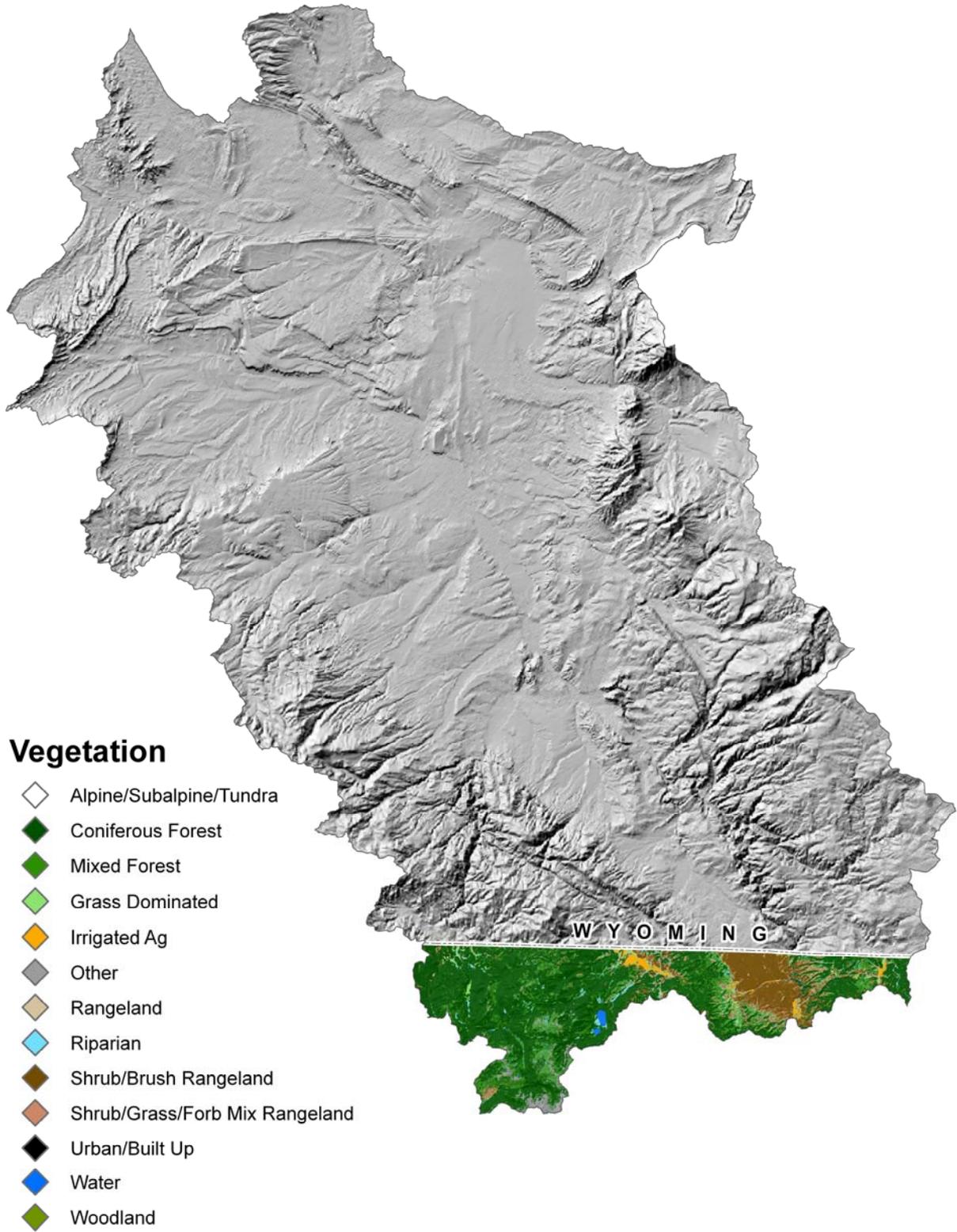
Upper North Platte Watershed - 10180002





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.
48B	48B.1	Southern Rocky Mountain Parks	This is an area of high elevation intermontane valleys surrounded by the Southern Rocky Mountains. The temperature regimes are mainly cryic, moisture regimes are aridic and ustic. Characteristic vegetation is big sagebrush-grass or grassland. Grazing is the dominant land use.



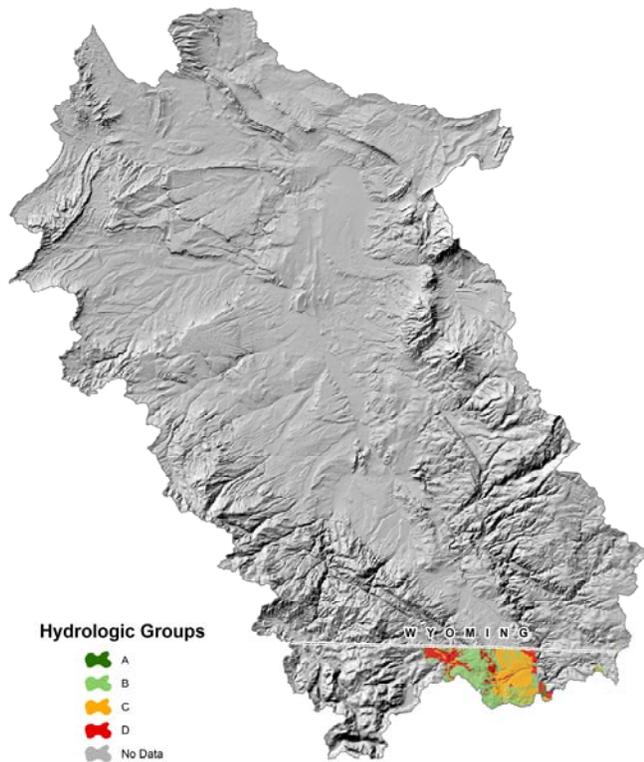
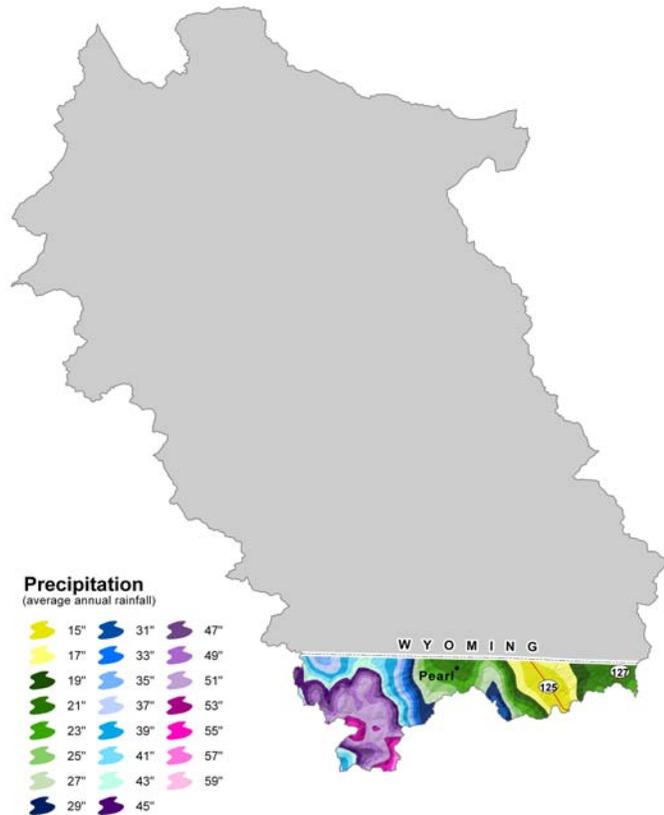


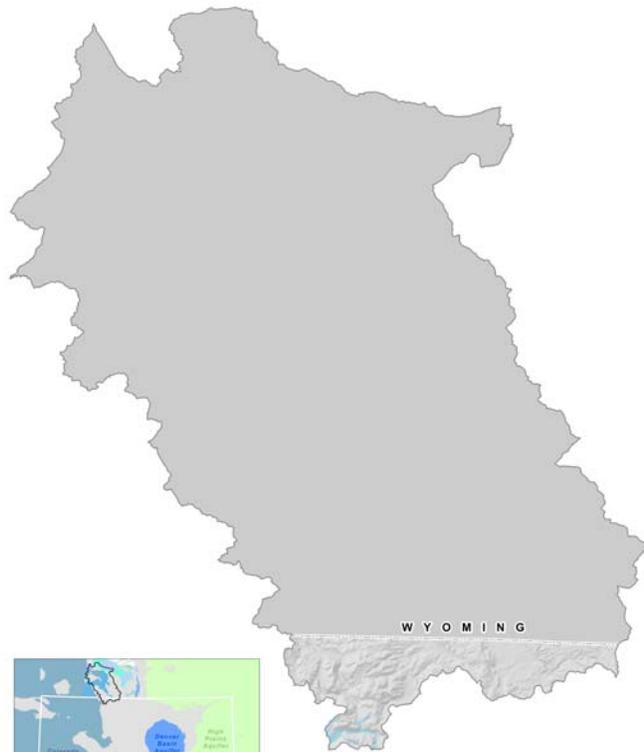
UPPER NORTH PLATTE WATER-SHED Land Use	Total Acreage	Vegetation	Acreage
Cropland	1,372	Irrigated Ag*	1,372.0
Rangeland/Grassland	25,580	Grass Dominated Grass/Forb Mix Mesic Mountain Shrub Mix Sagebrush Community Sagebrush/Grass Mix Sagebrush/Mesic Mtn Shrub Mix Shrub/Grass/Forb Mix Snowberry/Shrub Mix Sparse Grass (Blowouts) Upland Willow/Shrub Mix	3,200.5 965.1 2.9 15,910.2 4,945.0 242.6 0.9 7.4 277.5 27.8
Forest	94,570	Aspen Aspen/Mesic Mountain Shrub Mix Douglas Fir Englemann Spruce/Fir Mix Lodgepole Pine Lodgepole Pine/Aspen Mix Lodgepole/Spruce/Fir Mix Mixed Forest Land Spruce/Fir/Aspen Mix Spruce/Fir/Lodgepole/Aspen Mix Spruce/Lodgepole Pine Mix	7,344.1 212.4 1,430.9 19,968.6 54,850.6 6,110.6 1,679.4 223.5 2,217.0 407.0 126.3
Riparian	2,754	Conifer Riparian Herbaceous Riparian Shrub Riparian Willow	1.4 990.7 6.3 1,755.2
Water	659	Water	658.7
Other	9,803	Alpine Grass Dominated Alpine Grass/Forb Mix SubAlpine Shrub Community Subalpine Grass/Forb Mix Rock Soil Talus Slopes & Rock Outcrops Unknown	153.5 1,432.1 18.8 4,984.9 1,812.8 81.5 1,319.5 3,660.0
~Total Watershed Acres			138,398.0

* Colorado Decision Support Systems Data

Precipitation

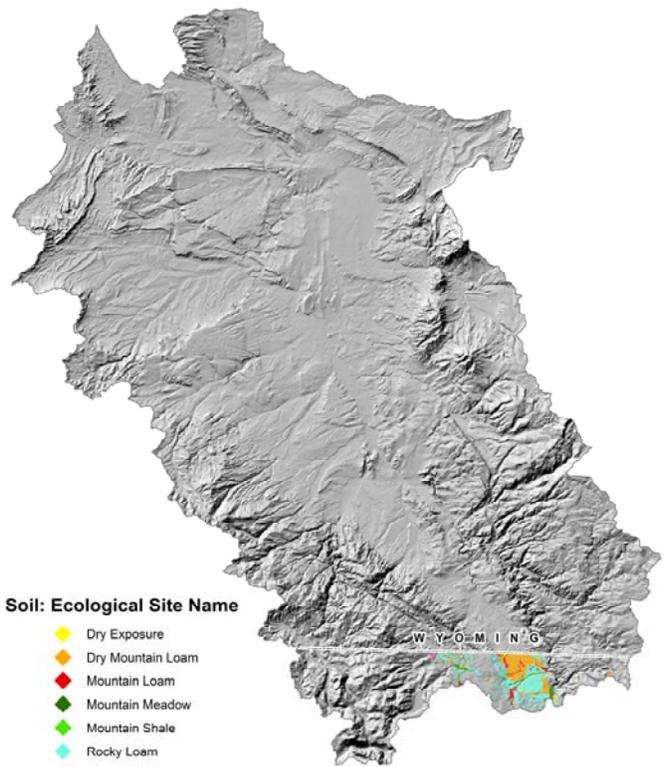
Droughts are regular visitors to the watershed as with the rest of Colorado. Statewide, in the 1900's alone, four prolonged dry spells occurred. There was one in the 1910s. Another, in the '30s, caused the dust-bowl period. The second worst drought on record in the state occurred in the mid-50s. A series 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.





Aquifer

 Rocks that are generally poorly permeable, but locally may contain productive aquifers



Soil: Ecological Site Name

-  Dry Exposure
-  Dry Mountain Loam
-  Mountain Loam
-  Mountain Meadow
-  Mountain Shale
-  Rocky Loam
-  Sandy Bench
-  Valley Bench
-  No Data

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.

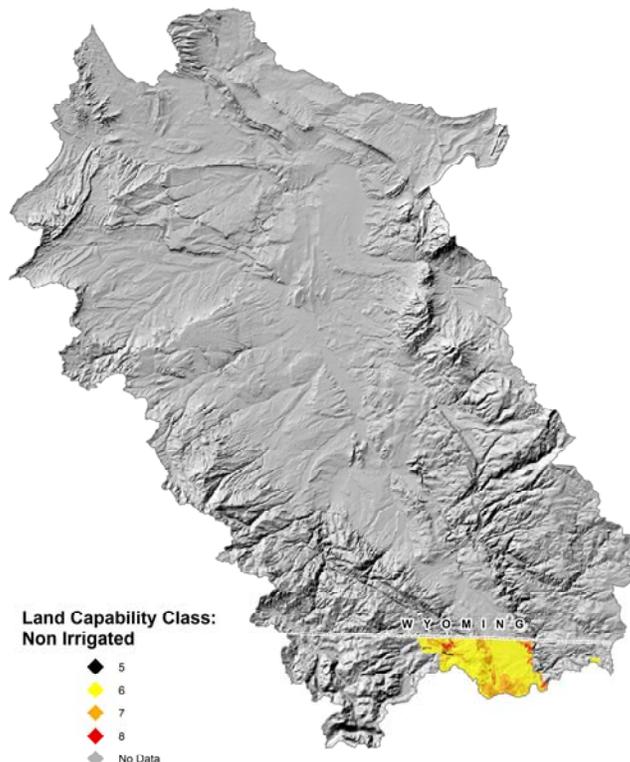
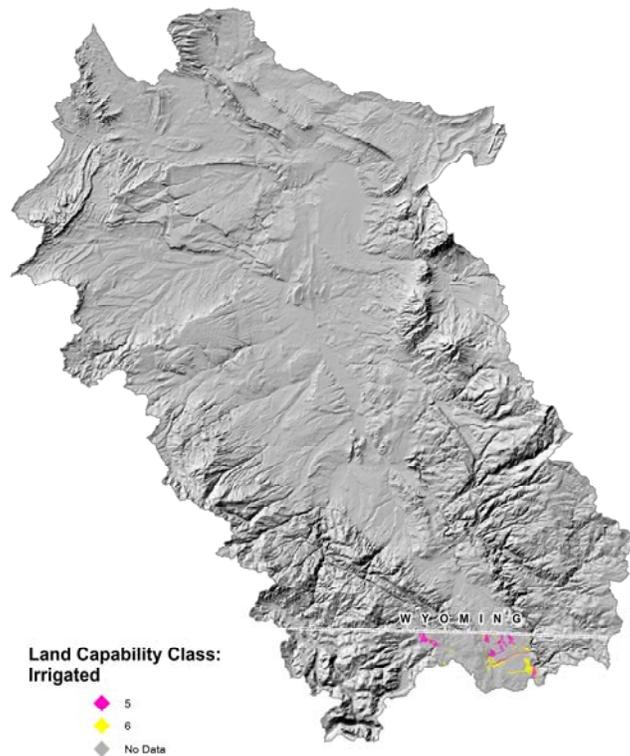
Class 4 - soils have very severe limitations that reduce the choice of plants or that require very careful management, or both.

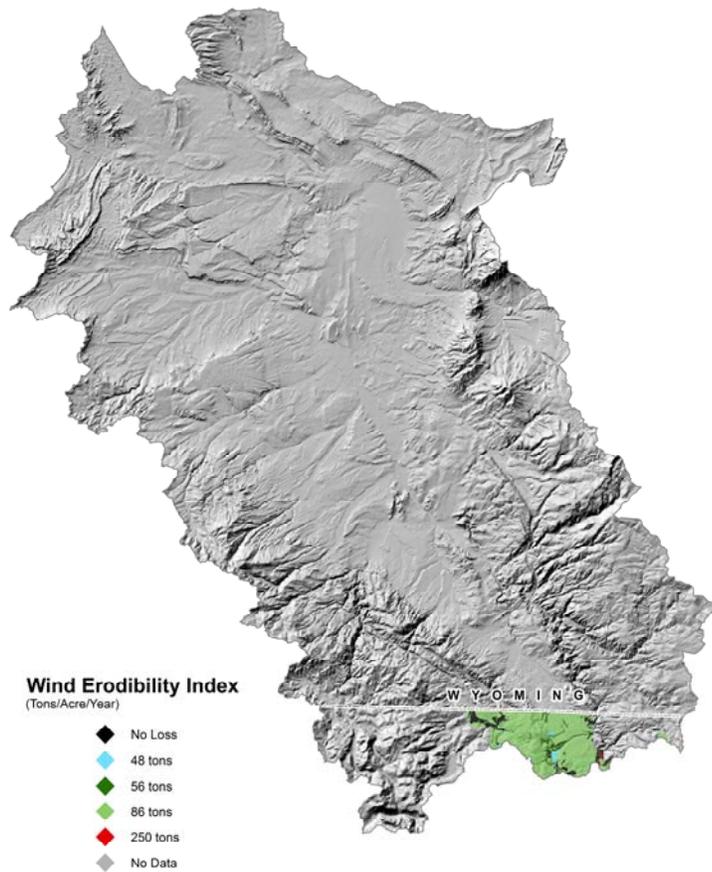
Class 5 - soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

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.

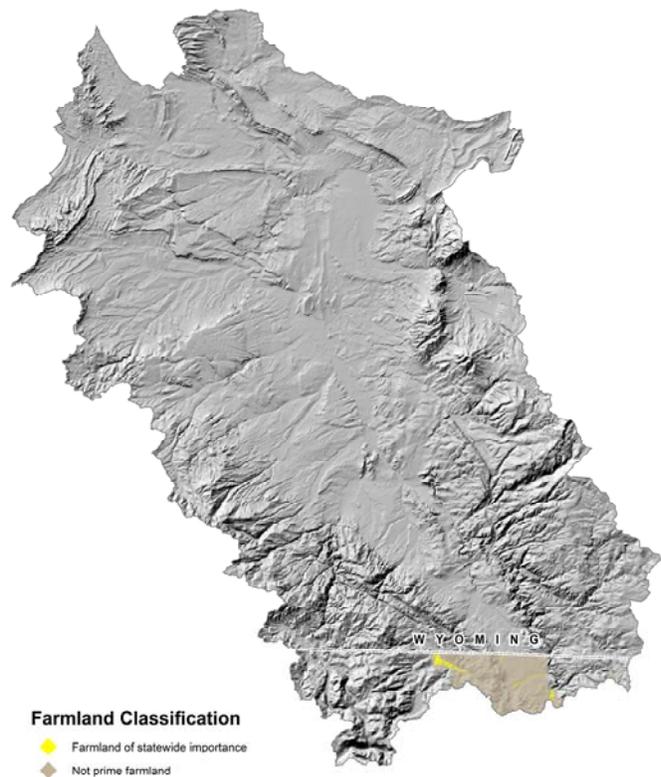
Class 8 - soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or aesthetic purposes.

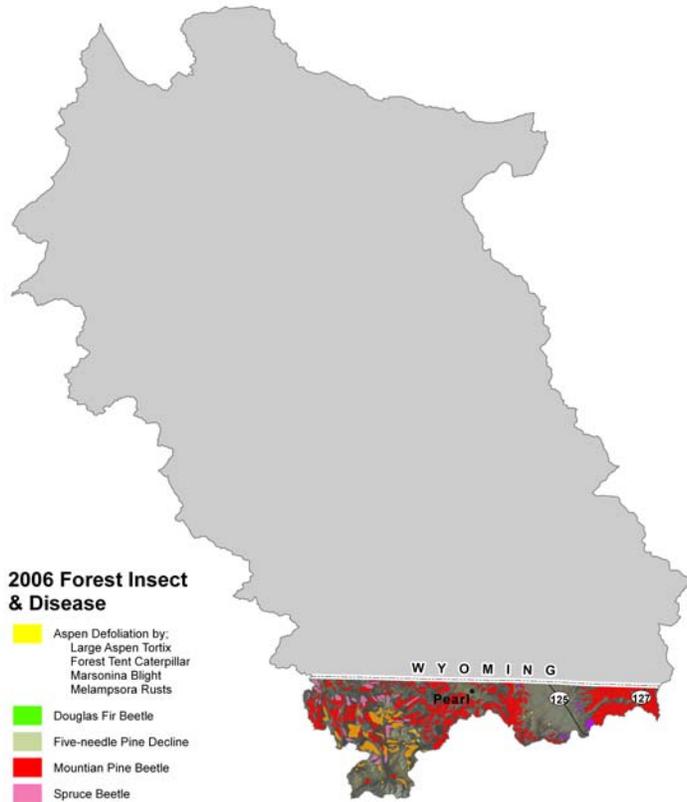




The Wind Erodibility Index (WEI): numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion if it is assumed there is no vegetative cover or management.

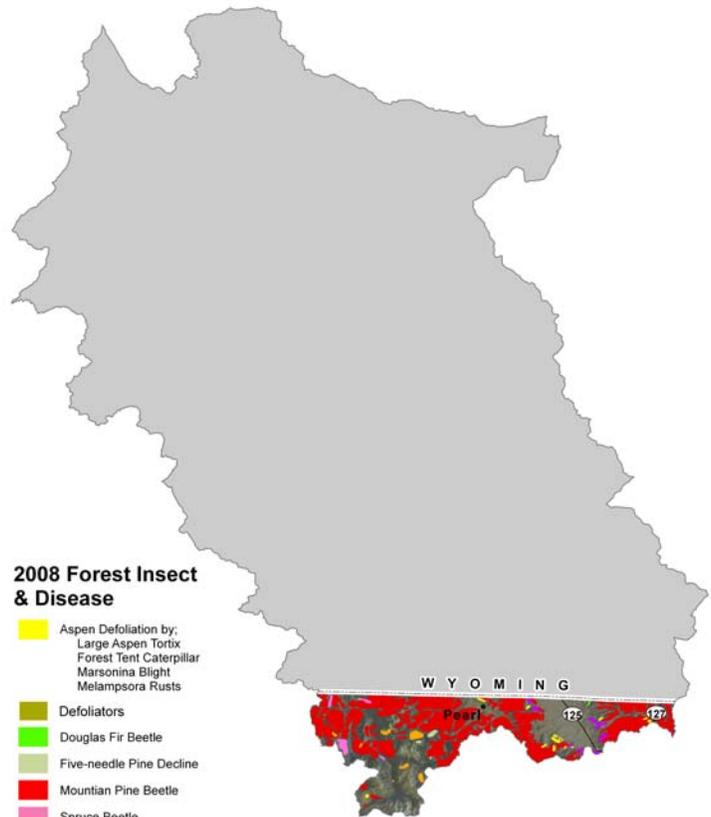
Soils with an erodibility index equal to or greater than 8 are considered highly erodible.





2006 Forest Insect & Disease

- Aspen Defoliation by:
Large Aspen Tortix
Forest Tent Caterpillar
Marsonina Blight
Melampsora Rusts
- Douglas Fir Beetle
- Five-needle Pine Decline
- Mountain Pine Beetle
- Spruce Beetle
- Subalpine Fir Mortality by:
Western Basalm Bark Beetle
Armillaria Root Disease
- Western Spruce Budworm



2008 Forest Insect & Disease

- Aspen Defoliation by:
Large Aspen Tortix
Forest Tent Caterpillar
Marsonina Blight
Melampsora Rusts
- Defoliators
- Douglas Fir Beetle
- Five-needle Pine Decline
- Mountain Pine Beetle
- Spruce Beetle
- Subalpine Fir Mortality by:
Western Basalm Bark Beetle
Armillaria Root Disease
- Western Spruce Budworm

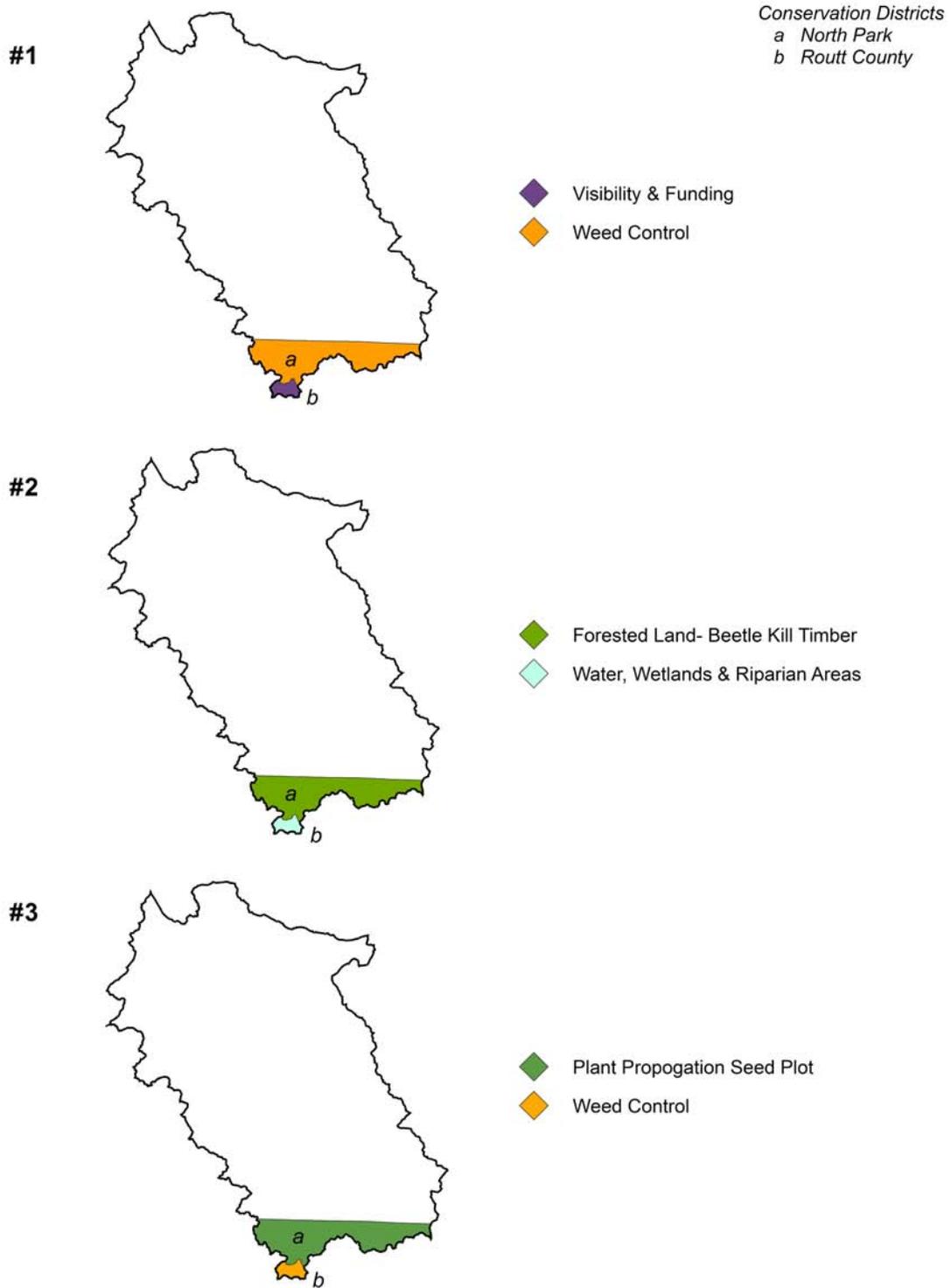
State and Federal Threatened, Endangered, and Candidate Species and Species of Special Concern in Upper North Platte Watershed

Common Name	Scientific Name	Class	State Status/Federal Status	Comments
American peregrine falcon	<i>Falco peregrinus anatum</i>	Birds	Concern/None	May occur in the watershed
Boreal toad	<i>Bufo boreas boreas</i>	Amphibians	Endangered/None	May occur in the watershed
Canada lynx	<i>Lynx Canadensis</i>	Mammals	Endangered/Threatened	Occurs in the watershed
Greater Sandhill Crane	<i>Grus canadensis tabida</i>	Birds	Concern/None	May occur in the watershed
Greenback cutthroat trout	<i>Oncorhynchus clarki stomias</i>	Fish	Threatened/Threatened	May occur in the watershed
Greater Sage Grouse	<i>Centrocercus urophasianus</i>	Birds	Concern/None	Occurs in the watershed
Least Tern	<i>Sterna antillarum</i>	Birds	Endangered/Endangered	Occurs downstream of watershed; Depletions are a concern here.
North Park Phacelia	<i>Phacelia formosula</i>	Plants	None/Endangered	Occurs in the watershed
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.
River Otter	<i>Lontra canadensis</i>	Mammals	Threatened/None	Occurs in the watershed
Townsend's big-eared bat	<i>Corynorhinus townsendii pallescens</i>	Mammals	Concern/None	Occurs in the watershed
Whooping Crane	<i>Grus Americana</i>	Birds	Endangered/Endangered	Occurs downstream of watershed; Depletions are a concern here.
Wolverine	<i>Gulo gulo</i>	Mammals	Endangered/None	May occur in the watershed
Wood Frog	<i>Rana sylvatica</i>	Amphibians	Concern/None	Occurs in the watershed

Terrestrial habitat types in this watershed include big sagebrush shrublands; aspen, lodgepole, and spruce-fir forest; and a small amount of tundra. Riparian areas, natural wetlands, and ponds provide significant aquatic habitats. Species found in the watershed include bighorn sheep, black bear, elk, moose, mountain lion, pika, pronghorn, marmot, mule deer, and white-tailed ptarmigan.

Social Data	Jackson	Routt
Demographics (US Census, American Factfinder)		
Total population	1,577	19,690
Male	794	10,599
Female	783	9,091
Median age (years)	40.5	35
White	1,517	19,079
Black or African American	4	25
American Indian and Alaska Native	12	96
Asian	1	76
Native Hawaiian and Other Pacific Islander	0	18
Some other race	23	144
Hispanic or Latino (of any race)	103	634
Economic Characteristics (US Census, American Factfinder)		
In labor force (population 16 years and over)	829	12,687
Median household income (dollars)	31,821	53,612
Median family income (dollars)	37,361	61,927
Per capita income (dollars)	17,826	28,792
Families below poverty level	46	135
Individuals below poverty level	220	1183
County Agricultural Characteristics (Colorado Agricultural Census, county data tables)		
Farms (number)	89	593
Land in farms/ranches (acres)	437,630	450,239
Average size farm/ranch (acres)	4,917	759
Median size farm (acres)	2,000	188
Average age of farmer or rancher	54.5	52.1
Net cash return from ag sales (\$1,000)	4,355	1,626
Cattle and calves (number)	24,000	26,000

Identified Long Range Resource Concerns Top Three Concerns within Conservation Districts



Conservation Systems to Address Major Resource Concerns *from the Field Office Technical Guide*

Grazed Rangeland—The grazing Resources need improved plant condition (similarity index), productivity, health and vigor. Animals need feed, forage, and shelter. The animals are adapted to the climatic and ecological condition of the resources.

CO 48.1-GR-01

<i>Practices</i>	<i>Description</i>	<i>Resource Concerns Addressed</i>
314 Brush Management	This area encompasses the lower elevation mesas and Plateaus that represent the transition to the Southern Rocky Mountains. The typical vegetation is a scattered overstory of two needle pinyon and Utah juniper with a understory of big sagebrush and perennial bunch-grasses. In some areas pinyon and juniper can increase and become a dominant species.	Fish and Wildlife - T&E Species: Declining Species, Species of Concern
338 Prescribed Burning		
378 Pond		Plant Condition - Productivity, Health and Vigor
382 Fence		Soil Erosion - Sheet and Rill
528 Prescribed Grazing		Soil Erosion - Wind
574 Spring Development		
595 Pest Management		
614 Watering Facility		
645 Upland Wildlife Habitat Management		
666 Forest Stand Improvement		

Hayland—Wild flood irrigation system converted to Structure for Water Control, Underground & Gated Pipeline, IWM, and Forage Harvest Mgt.

CO 48.1-HY-Pipe—R-1

<i>Practices</i>	<i>Description</i>	<i>Resource Concerns Addressed</i>
430DD Irr. Water Conveyance, Pipeline, H	Cool season grasses, alfalfa, or alfalfa/grass hay. Annual precipitation ranges from 8 - 20". Moisture usually lacking in the summer during peak ET and supplemented with gravity irrigation, the water source may be ground or surface water; rainfall often comes in short intense spring and early summer storms and as snowfall in the winter. Wildlife potential for use by elk, deer and other wildlife.	Soil Erosion - Sheet and Rill
431 Above Ground, Multi-Outlet Pipeline		Soil Erosion - Wind
443 Irrigation System, Surface and Subsurface		Water Quantity - Inefficient Water Use on Irrigated Land
449 Irrigation Water Management		
511 Forage Harvest Management		
587 Structure for Water Control		

Estimated Costs of Application of Conservation Systems

Landuse	Estimated Acres Need to be Treated	Estimated Average Cost per Acre (\$)	Costs (\$)
Range	10,000	30	300,000
Hayland	1,000	880	880,000
Total Costs:			\$1,180,000

FOOTNOTES/ BIBLIOGRAPHY

Threatened and Endangered Species information was gathered using data from the Colorado Division of Wildlife (CDOW) Natural Diversity Information Source (NDIS). NDIS GIS data may be downloaded at <http://ndis.nrel.colostate.edu>. For more information on Colorado's Endangered & Threatened Species, as well as Species of Concern, visit <http://wildlife.state.co.us/WildlifeSpecies/SpeciesOfConcern/ThreatenedEndangeredList/ListOfThreatenedAndEndangeredSpecies.htm> or <http://mountainprairie.fws.gov/endspp/CountyLists/COLORADO.htm>

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:

Roosevelt Arapahoe Routt (CO645) Published 2/4/2008

Jackson County Area CO646) Published 1/30/2008

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/>