

This resource assessment is designed to gather and display information specific to Summit County, Utah. This report will highlight the natural and social resources present in the county, detail specific concerns, and be used to aid in resource planning and target conservation assistance needs. This document is dynamic and will be updated as additional information is available through a multi-agency partnership effort. The general observations and summaries are listed first, followed by the specific resource inventories.

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## Introduction

Summit County has played a pivotal role in the settlement of Utah and the Western United States being on the route of the first Mormon pioneers as they made their way to Utah. Summit County, the 13th county in the territory, was first recognized by the Utah Legislature Friday, January 13, 1854.

The high alpine valleys tucked between the Uinta and Wasatch Mountains served as traditional hunting grounds for the Shoshone and Ute tribes for thousands of years, before the arrival of the white man. The natural riches of the mountains continue to supply much needed water for the area and the Wasatch front from the numerous mountain springs, four rivers, and two major storage reservoirs at Echo and Rockport. Minerals from the mines have produced silver, gold, lead and zinc worth millions of dollars that helped build the state and Intermountain west. Timber and coal have been an economic resource; however there are no coal mines currently in operation.

Agriculture has been a prominent industry with irrigated hay fields and pastures in the valleys. Sheep and cattle are raised in the valleys and utilize the rangeland in the mountains in the summer. In recent years a new trend in land ownership has changed the nature of agriculture in some areas from large scale full-time livestock operations to small 10 to 20 acre properties owned by retirees and businessmen who value a pastoral lifestyle.

Equal Opportunity Providers and Employers.



## General Land Use Observations

### Cropland / Pasture / Hay Lands

- Complications related to overgrazing include poor pasture condition, soil compaction and water quality issues.
- Control of noxious plants is an ever increasing problem.
- The small, part-time farms are less likely to adopt conservation due to cost and difficulty of NRCS outreach due to their numbers. They have limited knowledge of conservation programs.
- Open spaces are diminishing as the area becomes more developed.
- Residue, nutrient and pest management are continually needed to control erosion and to protect water quality.

### Rangeland

- Sediment in the streams coming from eroding rangeland is a serious problem.
- Overgrazing of riparian corridors is resulting in stream bank degradation and erosion.
- Grazing styles on rangeland are resulting in declining range condition in many areas.
- New and invading weeds are introduced and spread through recreation and livestock/wildlife movement. Summit County is the top of the Jordan River Watershed and the Weber Watershed; therefore, these new and invading plants have the potential of being spread throughout the watersheds.

### Wildlife

- Numbers of the elk herds are increasing and should be accommodated in grazing plans.
- Range management needs to encourage a mosaic pattern of shrubs, forbs and grasses to facilitate wildlife needs and enhance wildlife use especially by sage grouse.

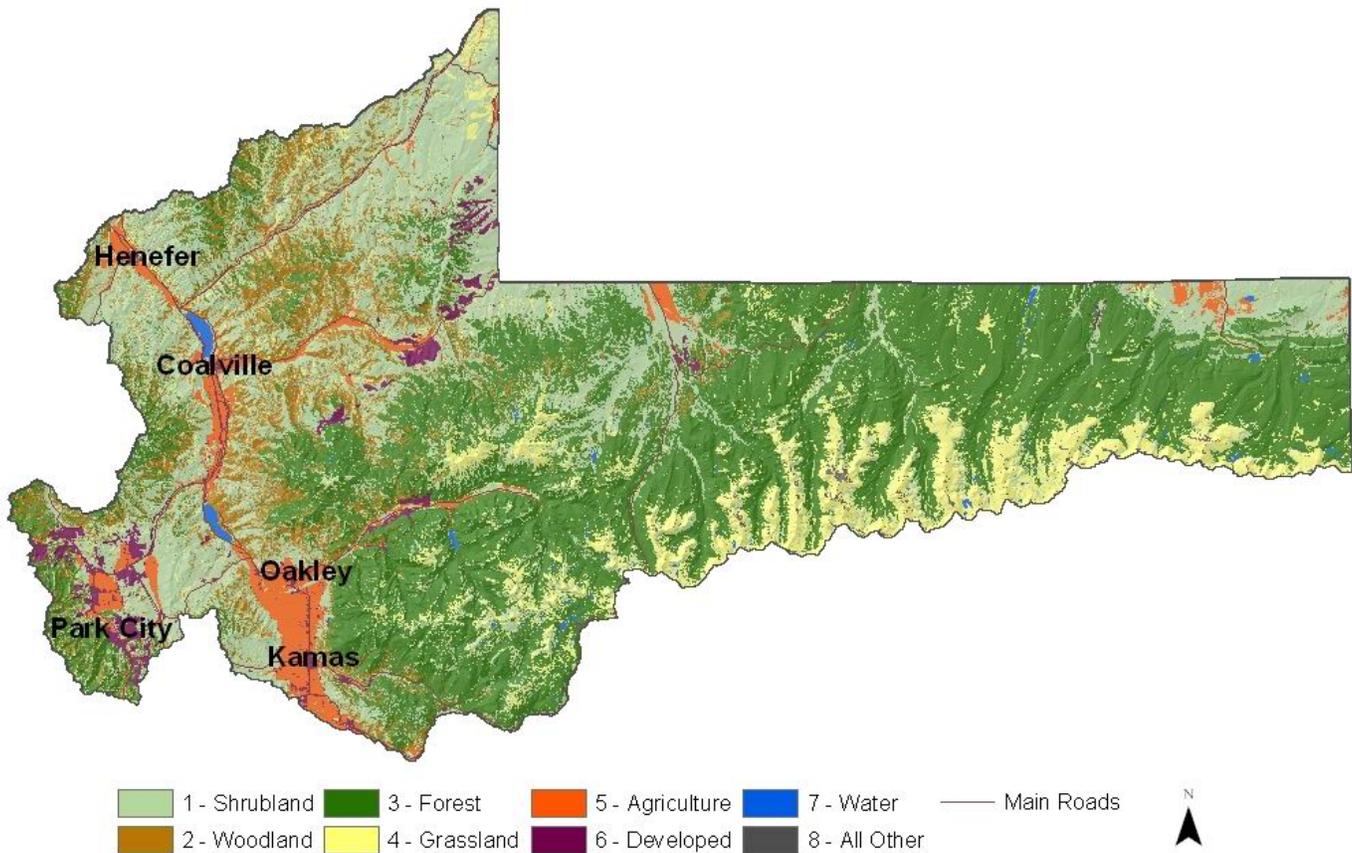
### Forest

- Increased percentages of evergreen species and diminished deciduous trees are resulting in a change in ground water hydrology, species diversity, and reduced forage production.
- Higher percentage of evergreen trees increases the potential for catastrophic, high-intensity fires.
- On private forest land, landowners often are not actively managing the land for timber production. Land use and/or geographical constraints and the lack of economic incentives further discourage timber harvesting resulting in decadent stands.

**Resource Assessment Summary**

<b>Categories</b>	<b>Concern high, medium, or low</b>	<b>Description and Specific Location (quantify where possible)</b>
Soil	MEDIUM	SHEET EROSION ON SOME RANGE AREAS
Water Quantity	HIGH	EXCESSIVE CONSUMPTIVE USE BY CONIFERS
Water Quality Ground Water	LOW	
Water Quality Surface Water	HIGH	EXCESS SUSPENDED SEDIMENT IN ECHO CREEK AND OTHERS
Air Quality	LOW	
Plant Suitability	LOW	
Plant Condition	MEDIUM	SOME EXCESSIVE GRAZING
Fish and Wildlife	MEDIUM	
Domestic Animals	HIGH	LACK OF PRESCRIBED GRAZING IN PASTURE AND RANGELAND
Social and Economic	LOW	

Land Cover



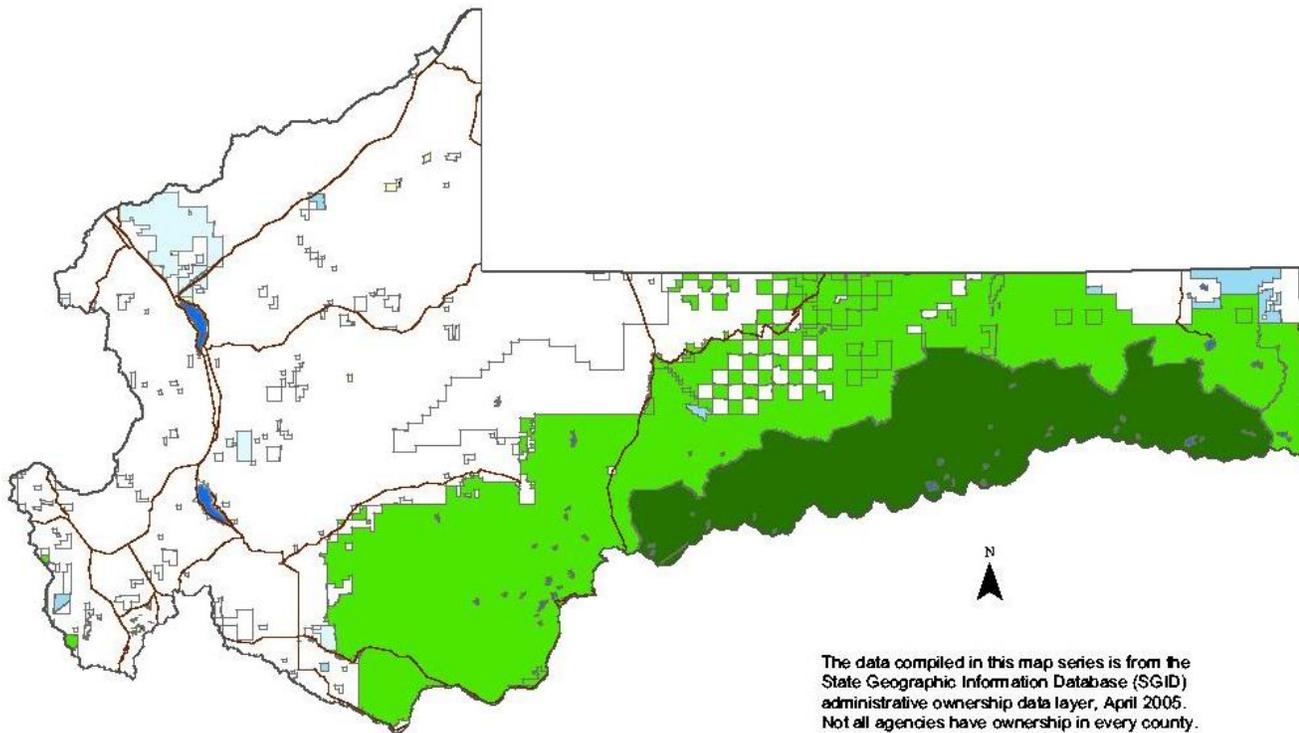
Land Cover/Land Use		
	Acres	%
Forest	469,034	42%
Grain Crops	749	0%
Conservation Reserve Program <i>*a</i>	0	0%
Grass/Pasture/Haylands	47,904	4%
Orchards/Vineyards	5	0%
Cropland	1,163	0%
Shrub/Rangelands	505,114	45%
Water	9,501	1%
Wetlands	46,090	4%
Developed	39,610	4%
<b>Summit County Totals <i>*b</i></b>	<b>1,119,170</b>	<b>100%</b>

*\*a: Estimate from Farm Service Agency records and include CRP/CREP.    \*b: Totals may not add due to rounding and small unknown acreages.*

## Special Considerations for Summit County:

- 90% of rangeland is privately owned.
- Farmland is limited to valley bottoms.
- Due to high elevations, there is a short, cool growing season so crops are limited to alfalfa with two cuttings, small grains harvested for forage, and irrigated pasture.
- Private forest land is harvested but may not have a forestry plan.
- Public recreation on forest land has impacts increasing erosion, spread of noxious weeds and water quality.
- Due to low acreage of grain, there is very little infrastructure for grain harvest.
- Primarily consists of cow/calf operations. Feeder livestock, including lambs and calves, are exported.
- There are less than ten dairies in the county.
- There is a significant amount of rangeland that is grazed by sheep.

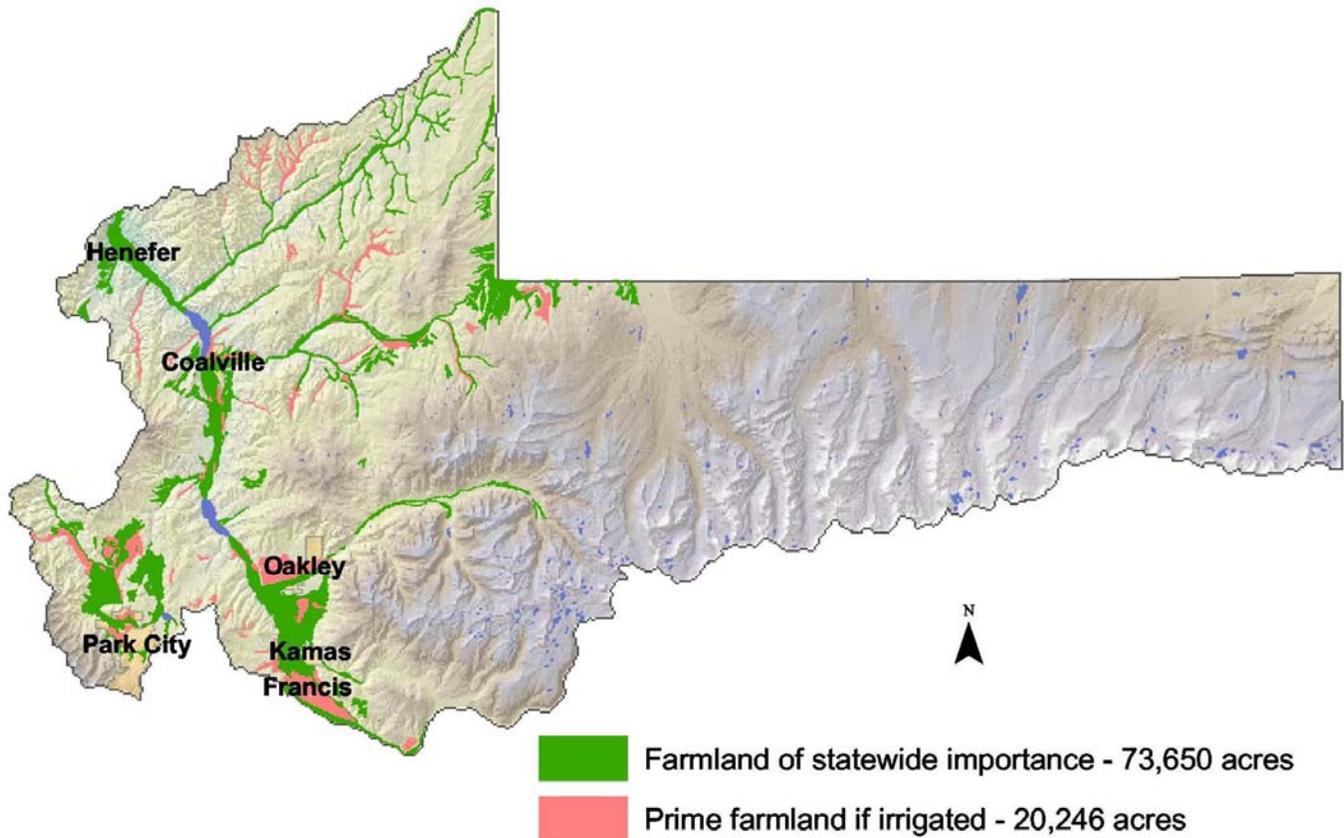
## Land Ownership



The data compiled in this map series is from the State Geographic Information Database (SGID) administrative ownership data layer, April 2005. Not all agencies have ownership in every county.

State	BLM Wilderness Area	National Park Service (NPS)
Private	USFS Wilderness Area	State, County, City; Wildlife, Park and Outdoor Recreation Areas
US Forest Service (USFS)	Bankhead-Jones Land Use Lands	US Fish and Wildlife (USFWS) National Wildlife Refuge
Bureau of Land Management (BLM)	Indian Reservation (IR)	Military Reservations and Corps of Engineers
		Water

## Prime & Unique Farm Land



### Prime farmland

land that has the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, oilseed, and other agricultural crops with minimum inputs of fuel, fertilizer, pesticides, and labor, and without intolerable soil erosion.

### Unique farmland

land other than prime farmland that is used for the production of specific high-value food and fiber crops...such as, citrus, tree nuts, olives, cranberries, fruits, and vegetables

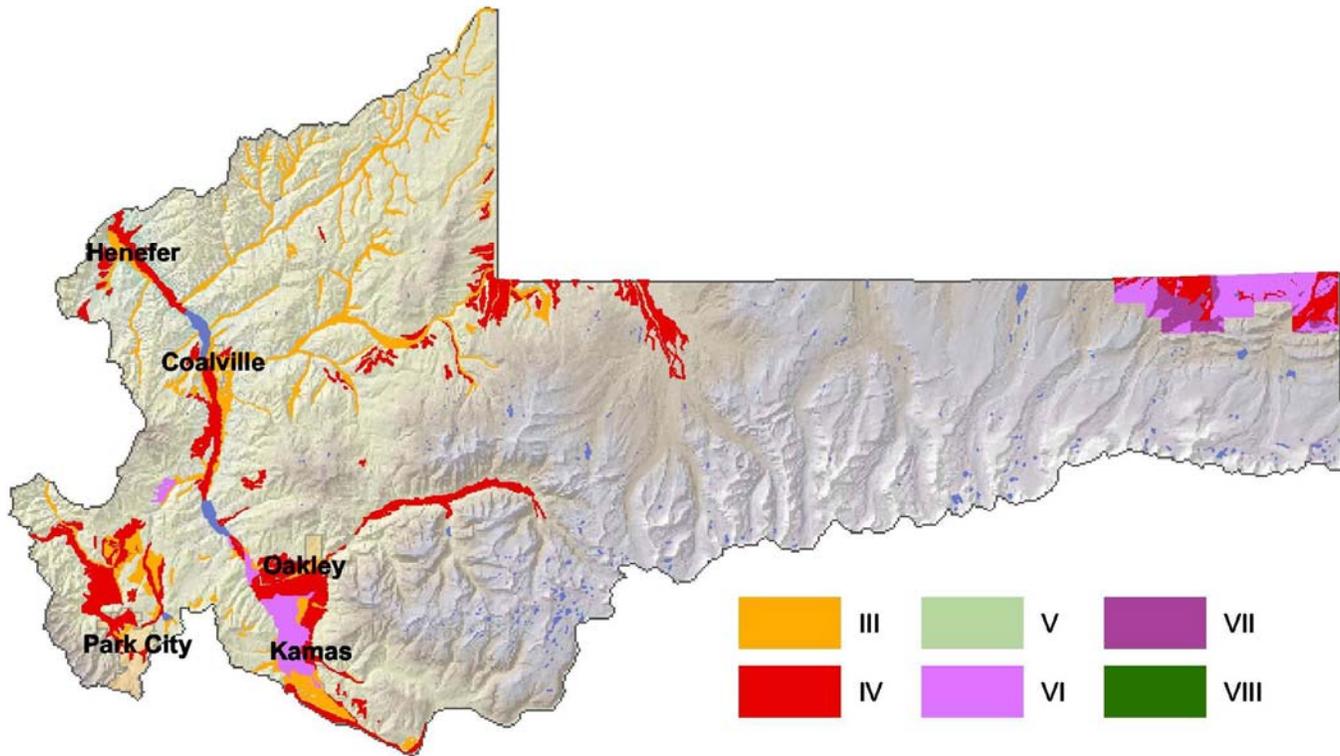
### Additional farmland of statewide or local importance

land identified by state or local agencies for agricultural use, but not of national significance

**Resource Concerns – SOILS**

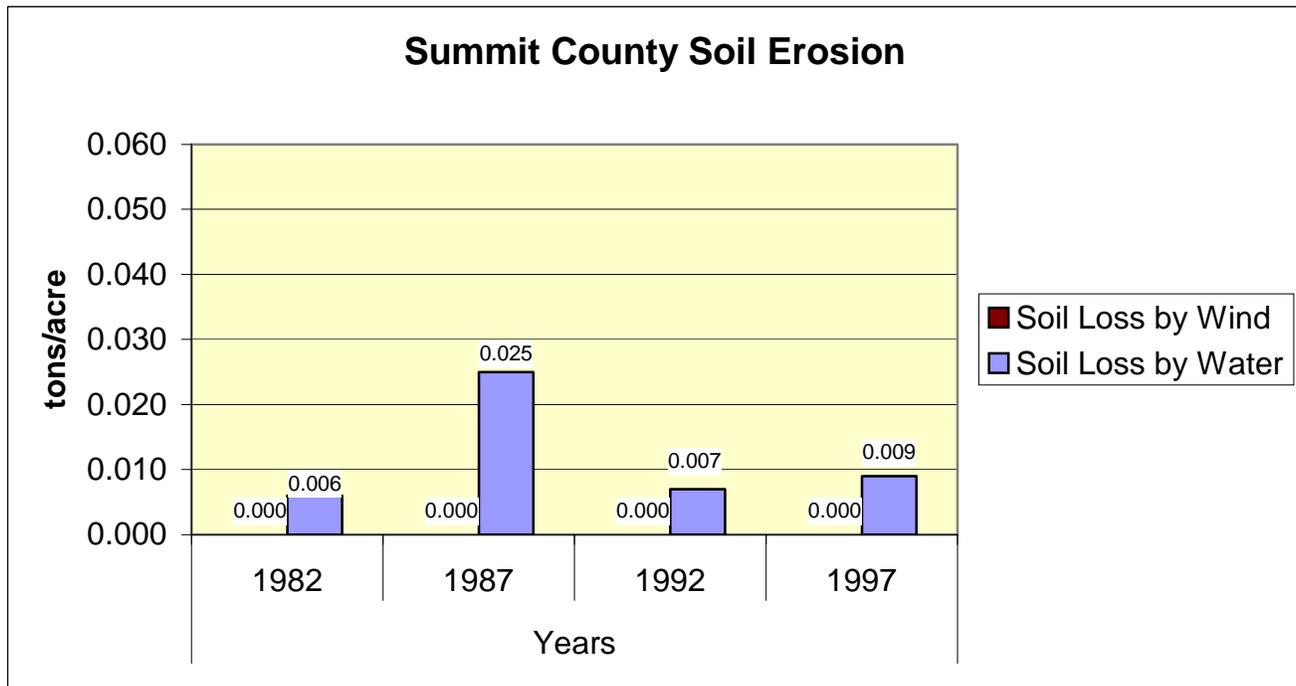
Categories	Specific Resource Concern / Issue	Crop	Hay	Pasture	Grazed Range	Grazed Forest	Pasture Native/Naturalized	Wildlife	Watershed Protection	Forest	Headquarters	Urban	Recreation	Water	Mined	Natural Area	
Soil Erosion	Sheet and Rill																
	Wind												X				
	Ephemeral Gully																
	Classic Gully																
	Streambank			X	X			X	X					X			
	Shoreline								X					X			
	Irrigation-induced	X	X														
	Mass Movement				X												
	Road, roadsides and Construction Sites																
Soil Condition	Organic Matter Depletion																
	Rangeland Site Stability				X	X	X										
	Compaction																
	Subsidence																
	Contaminants: Salts and Other Chemicals													X			
	Contaminants: Animal Waste and Other Organics: N																
	Contaminants: Animal Waste and Other Organics: P	X	X														
	Contaminants: Animal Waste and Other Organics: K																
	Contaminants : Commercial Fertilizer: N																
	Contaminants : Commercial Fertilizer: P																
	Contaminants : Commercial Fertilizer: K																
	Contaminants: Residual Pesticides																
	Damage from Sediment Deposition	X												X			

**Land Capability Class on Cropland and Pastureland**



		Acres	Percentage
<b>Land Capability Class</b> (Irrigated Cropland & Pastureland Only)	I - slight limitations	0	0%
	II - moderate limitations	0	0%
	III - severe limitations	35,335	21%
	IV - very severe limitations	93,200	56%
	V - no erosion hazard, but other limitations	28	0%
	VI - severe limitations, unsuited for cultivation, limited to pasture, range, forest	30,489	18%
	VII - very severe limitations, unsuited for cultivation, limited to grazing, forest, wildlife	7,034	4%
	VIII - misc areas have limitations, limited to recreation, wildlife, and water supply	4	0%

## Soil Erosion on Cropland

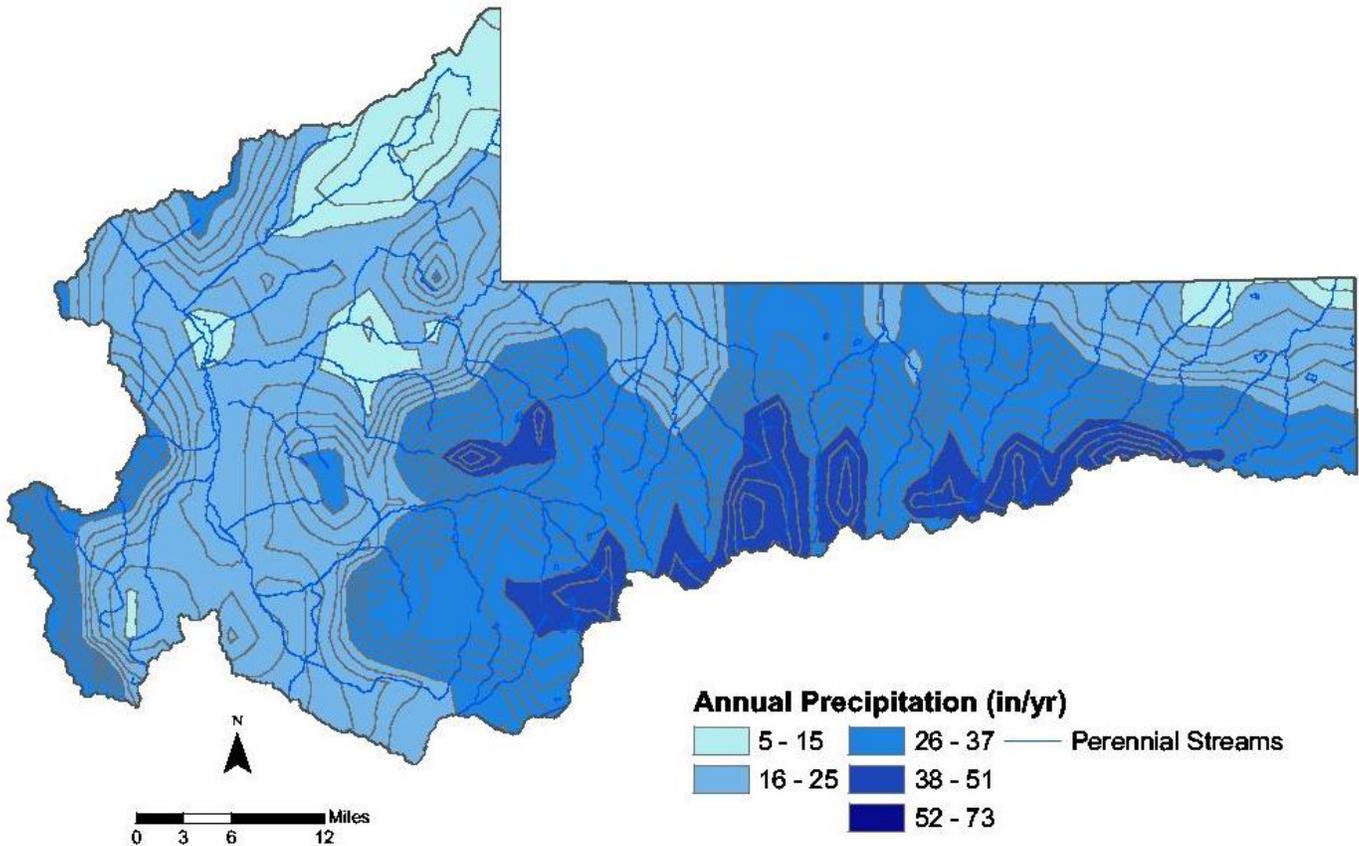


- ❖ Controlling erosion not only sustains the long-term productivity of the land, but also affects the amount of soil, pesticides, fertilizer, and other substances that move into the nation's waters.

**Resource Concerns – WATER**

Categories	Specific Resource Concern / Issue	Crop	Hay	Pasture	Grazed Range	Grazed Forest	Pasture Native/Naturalized	Wildlife	Watershed Protection	Forest	Headquarters	Urban	Recreation	Water	Mined	Natural Area
Water Quantity	Water Quantity – Rangeland Hydrologic Cycle	X	X	X	X	X	X							X		X
	Excessive Seepage															
	Excessive Runoff, Flooding, or Ponding				X	X	X					X	X	X		
	Excessive Subsurface Water		X	X		X	X									
	Drifted Snow					X					X	X	X			
	Inadequate Outlets															
	Inefficient Water Use on Irrigated Land	X	X	X												
	Inefficient Water Use on Non-irrigated Land															
	Reduced Capacity of Conveyances by Sediment Deposition												X		X	
	Reduced Storage of Water Bodies by Sediment Accumulation														X	
	Aquifer Overdraft															
	Insufficient Flows in Watercourses	X	X	X	X	X	X	X	X	X	X			X	X	
Water Quality, Groundwater	Harmful Levels of Pesticides in Groundwater															
	Excessive Nutrients and Organics in Groundwater															
	Excessive Salinity in Groundwater															
	Harmful Levels of Heavy Metals in Groundwater	X														
	Harmful Levels of Pathogens in Groundwater															
	Harmful Levels of Petroleum in Groundwater															
Water Quality, Surface	Harmful Levels of Pesticides in Surface Water															
	Excessive Nutrients and Organics in Surface Water															
	Excessive Suspended Sediment and Turbidity in Surface Water	X	X	X	X	X	X									
	Excessive Salinity in Surface Water															
	Water Quality – Colorado River Excessive Salinity															
	Harmful Levels of Heavy Metals in Surface Water															
	Harmful Temperatures of Surface Water	X	X	X	X	X										
	Harmful Levels of Pathogens in Surface Water															
Harmful Levels of Petroleum in Surface Water																

**Precipitation and Streams**



		ACRES	ACRE-FEET
<b>Irrigated Adjudicated Water Rights</b>	Surface		
	Well		
	<b>Total Irrigated Adjudicated Water Rights</b>	0.00	0.00
<b>Stream Flow Data</b>	USGS 10129500 WEBER RIVER NEAR WANSHIP, UT	Total Avg. Yield	24,889
		May-Sept Yield	9,975
<b>Stream Data</b>		<b>MILES</b>	<b>PERCENT</b>
	<b>Total Miles - Major (100K Hydro GIS Layer)</b>	2,372	n/a
	303d (DEQ Water Quality Limited Streams)	1,385	58%

		<b>Irrigation Efficiency:</b>	<b>&lt;40%</b>	<b>40 - 60%</b>	<b>&gt;60%</b>
<b>Percentage of Total Acreage</b>	Cropland		70%	25%	5%
	Pastureland		70%	30%	0%

**Watersheds & Total Maximum Daily Load (TMDL)**

<b>Plans, Studies and</b>			
<b>NRCS Watershed Projects</b>		<b>NRCS Watershed Plans, Studies &amp; Assessments</b>	
<b>Name</b>	<b>Status</b>	<b>Name</b>	<b>Status</b>
East Canyon	Implementation phase	Echo Watershed	Planning phase
<b>DEQ TMDL's</b>		<b>NRCS Comprehensive Nutrient Management Plans</b>	
<b>Name</b>	<b>Status</b>	<b>Number</b>	<b>Status</b>
East Canyon	EPA Approved - 2000		Planned
Silver Creek	In Progress		Implemented

**AFO/CAFO**

<b>Animal Feeding Operations (AFO)</b>						
<b>Animal Type</b>	<b>Dairy</b>	<b>Feed Lot (Cattle)</b>	<b>Poultry</b>	<b>Swine</b>	<b>Mink</b>	<b>Other</b>
<b>No. of Farms</b>	3	60	0	0	7	10
<b>No. of Animals</b>	300	900	0	0	7000	200

<b>Potential Confined Animal Feeding Operations (PCAFO)</b>						
<b>Animal Type</b>	<b>Dairy</b>	<b>Feed Lot (Cattle)</b>	<b>Poultry</b>	<b>Swine</b>	<b>Mink</b>	<b>Other</b>
<b>No. of Farms</b>	5	12	0	0		
<b>No. of Animals</b>	800	500	0	0		

<b>Confined Animal Feeding Operations - Utah CAFO Permit</b>					
<b>Animal Type</b>	<b>Dairy</b>	<b>Feed Lot (Cattle)</b>	<b>Poultry</b>	<b>Swine</b>	<b>Other</b>
<b>No. of Permitted Farms</b>	0	0	0	0	0
<b>No. of Permitted Animals</b>	0	0	0	0	0

**Resource Concerns – AIR, PLANTS, ANIMALS**

Categories	Specific Resource Concern / Issue	Crop	Hay	Pasture	Grazed Range	Grazed Forest	Pasture Native/Naturalized	Wildlife	Watershed Protection	Forest	Headquarters	Urban	Recreation	Water	Mined	Natural Area
Air Quality	Particulate matter less than 10 micrometers in diameter (PM 10)															
	Particulate matter less than 2.5 micrometers in diameter (PM 2.5)															
	Excessive Ozone															
	Excessive Greenhouse Gas: CO2 (carbon dioxide)															
	Excessive Greenhouse Gas: N2O (nitrous oxide)															
	Excessive Greenhouse Gas: CH4 (methane)															
	Ammonia (NH3)															
	Chemical Drift															
	Objectionable Odors															
	Reduced Visibility															
	Undesirable Air Movement															
	Adverse Air Temperature															
Plant Suitability	Plants not adapted or suited	X	X	X												
Plant Condition	Plant Condition – Productivity, Health and Vigor	X	X	X												
	Threatened or Endangered Plant Species: Plant Species Listed or Proposed for Listing under the Endangered Species Act															
	Threatened or Endangered Plant Species: Declining Species, Species of Concern															
	Noxious and Invasive Plants	X	X	X	X	X								X		
	Forage Quality and Palatability	X	X	X	X											
	Plant Condition – Wildfire Hazard				X	X										
Fish and Wildlife	Inadequate Food															
	Inadequate Cover/Shelter															
	Inadequate Water															
	Inadequate Space															
	Habitat Fragmentation											X				
	Imbalance Among and Within Populations															
	Threatened and Endangered Species: Species Listed or Proposed for Listing under the Endangered Species Act															
Domestic Animals	Inadequate Quantities and Quality of Feed and Forage	X	X	X												
	Inadequate Shelter	X	X	X												
	Inadequate Stock Water															
	Stress and Mortality															

## Noxious Weeds

### Utah Noxious Weed List

The following weeds are officially designated and published as noxious for the State of Utah, as per the authority vested in the Commissioner of Agriculture under Section 4-17-3, Utah Noxious Weed Act:

- Bermudagrass\*\* (*cynodon dactylon*)
- Canada thistle (*cirsium arvense*)
- Diffuse knapweed (*centaurea diffusa*)
- Dyers woad (*isatis tinctoria* L)
- Field bindweed (Wild Morning Glory) (*convolvulus arvensis*)
- Hoary cress (*cardaria drabe*)
- Johnsongrass (*sorghum halepense*)
- Leafy spurge (*euphorbia esula*)
- Medusahead (*taeniatherum caput-medusae*)
- Musk thistle (*carduus mutans*)
- Perennial pepperweed (*lepidium latifolium*)
- Perennial sorghum (*sorghum halepense* L & *sorghum almum*)
- Purple loosestrife (*lythrum salicaria* L.)
- Quackgrass (*agropyron repens*)
- Russian knapweed (*centaurea repens*)
- Scotch thistle (*onopordum acanthium*)
- Spotted knapweed (*centaurea maculosa*)
- Squarrose knapweed (*centaurea squarrosa*)
- Yellow starthistle (*centaurea solstitialis*)

There are no additional noxious weeds declared by Summit County (2003).

## Wildlife Species of Greatest Conservation Need

The Utah Comprehensive Wildlife Conservation Strategy (CWCS) prioritizes native animal species according to conservation need. At-risk and declining species in need of conservation were identified by examining species biology and life history, populations, distribution, and threats. The following table lists species of greatest conservation concern in the county.

AT-RISK SPECIES				
	Common Name	Group	Primary Habitat	Secondary Habitat
<b>FEDERALLY-LISTED</b>				
<b>Endangered:</b>	Black-footed Ferret (extirpated)	Mammal	Grassland	High Desert Scrub
<b>Threatened:</b>	Bald Eagle	Bird	Lowland Riparian	Agriculture
	Canada Lynx	Mammal	Sub-Alpine Conifer	Lodgepole Pine
	Brown (Grizzly) Bear (extirpated)	Mammal	Mixed Conifer	Mountain Shrub
<b>Candidate:</b>	Yellow-billed Cuckoo	Bird	Lowland Riparian	Agriculture
<b>Proposed:</b>	(None)			
<b>STATE SENSITIVE</b>				
<b>Conservation Agreement Species:</b>	Columbia Spotted Frog	Amphibian	Wetland	Wet Meadow
	Northern Goshawk	Bird	Mixed Conifer	Aspen
	Bonneville Cutthroat Trout	Fish	Water - Lotic	Mountain Riparian
	Colorado River Cutthroat Trout	Fish	Water - Lotic	Mountain Riparian
	Bluehead Sucker	Fish	Water - Lotic	Mountain Riparian
<b>Species of Concern:</b>	Bobolink	Bird	Wet Meadow	Agriculture
	Deseret Mountainsnail	Mollusk	Mountain Shrub	Rock
	Ferruginous Hawk	Bird	Pinyon-Juniper	Shrubsteppe
	Greater Sage-grouse	Bird	Shrubsteppe	
	Leatherside Chub	Fish	Water - Lotic	Mountain Riparian
	Lewis's Woodpecker	Bird	Ponderosa Pine	Lowland Riparian
	Long-billed Curlew	Bird	Grassland	Agriculture
	Smooth Greensnake	Reptile	Mountain Riparian	Wet Meadow
	Three-toed Woodpecker	Bird	Sub-Alpine Conifer	Lodgepole Pine
	Western Pearlshell	Mollusk	Water - Lotic	Mountain Riparian
Western Toad	Amphibian	Wetland	Mountain Riparian	

\*Definitions of habitat categories can be found in the Utah Comprehensive Wildlife Conservation Strategy.

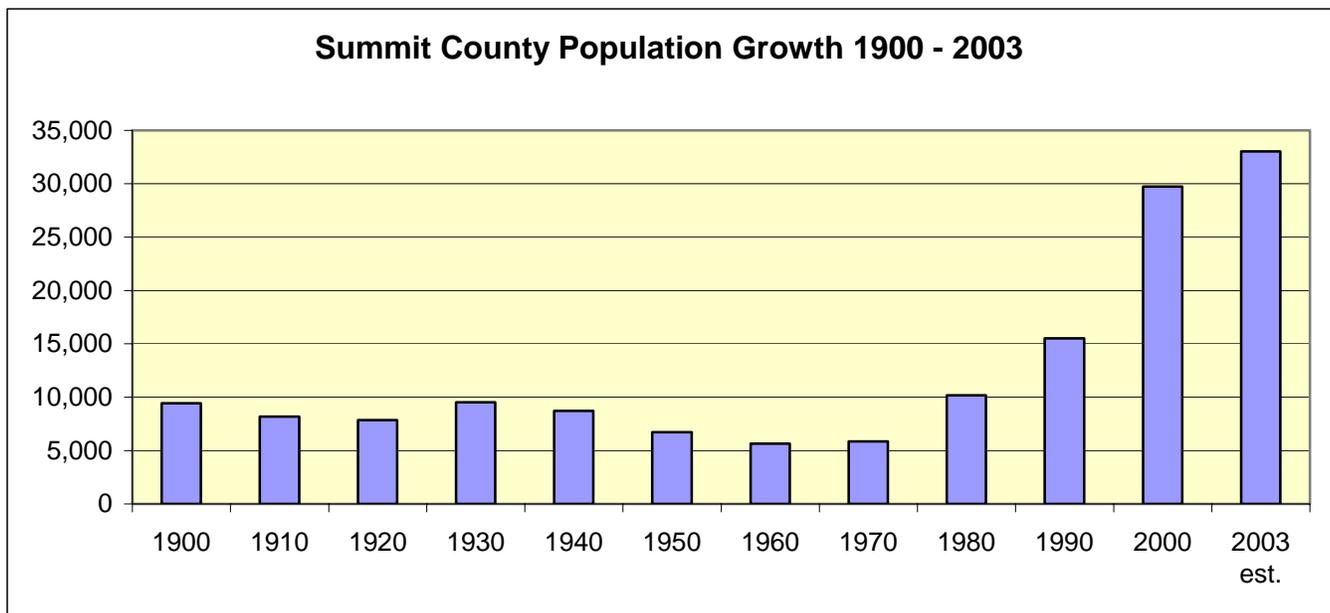
The Utah CWCS also prioritizes habitat categories based on several criteria important to the species of greatest conservation need. The top ten key habitats state-wide are (in order of priority):

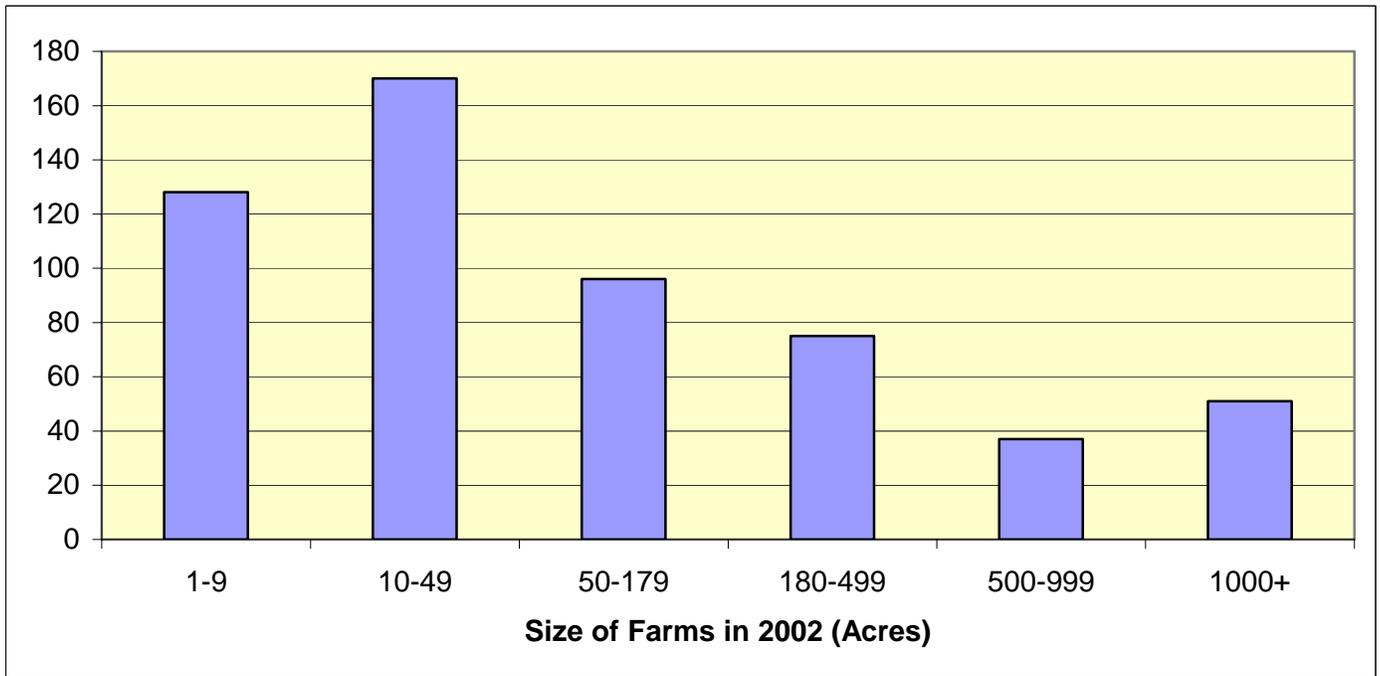
- 1) **Lowland Riparian** (riparian areas <5,500 ft elevation; principal vegetation: Fremont cottonwood and willow)
- 2) **Wetland** (marsh <5,500 ft elevation; principal vegetation: cattail, bulrush, and sedge)
- 3) **Mountain Riparian** (riparian areas >5,500 ft elevation; principal vegetation: narrowleaf cottonwood, willow, alder, birch and dogwood)
- 4) **Shrubsteppe** (shrubland at 2,500 - 11,500 ft elevation; principal vegetation: sagebrush and perennial grasses)
- 5) **Mountain Shrub** (deciduous shrubland at 3,300 - 9,800 ft elevation; principal vegetation: mountain mahogany, cliff rose, bitterbrush, serviceberry, etc.)
- 6) **Water - Lotic** (open water; streams and rivers)
- 7) **Wet Meadow** (water saturated meadows at 3,300 - 9,800 ft elevation; principal vegetation: sedges, rushes, grasses and forbs)
- 8) **Grassland** (perennial and annual grasslands or herbaceous dry meadows at 2,200 - 9,000 ft elevation)
- 9) **Water - Lentic** (open water; lakes and reservoirs)
- 10) **Aspen** (deciduous aspen forest at 5,600 - 10,500 ft elevation)

**Resource Concerns – SOCIAL AND ECONOMIC**

Categories	Specific Resource Concern / Issue															
		Crop	Hay	Pasture	Grazed Range	Grazed Forest	Pasture Native/Naturalized	Wildlife	Watershed Protection	Forest	Headquarters	Urban	Recreation	Water	Mined	Natural Area
Social and Economic	Non-Traditional Landowners and Tenants	X	X	X												
	Urban Encroachment on Agricultural Land	X	X	X												
	Marketing of Resource Products															
	Innovation Needs															
	Non-Traditional Land Uses							X	X	X			X			
	Population Demographics, Changes and Trends	X	X	X								X				
	Special Considerations for Land Mangement (High State and Federal Percentage)				X	X		X	X	X			X	X		X
	Active Resource Groups (CRMs, etc)	X	X	X	X	X	X	X	X	X			X	X		X
	Full Time vs Part Time Agricultural Communities	X	X	X	X	X	X									
	Size of Operating Units	X	X	X												
	Land Removed from Production through Easments															
	Land Removed from Production through USDA Programs															
	Other															

**Census and Social Data**





**Number of Farms:** 557

**Number of Operators:**

- Full-Time Operators: 277
- Part-Time Operators: 280

**Public Survey/Questionnaire Results:**

## Footnotes / Bibliography

1. General information about Summit County obtained from the official Summit County website:  
<http://utahreach.org/summit/visitor/HISTORY.HTM>
2. Location and land ownership maps made using GIS shapefiles from the Automated Geographical Reference Center (AGRC), a Utah State Division of Information Technology. Website: <http://agrc.utah.gov/>
3. Land Use/Land Cover layer developed by the Utah Department of Water Resources. A polygon coverage containing water-related land-use for all 2003 agricultural areas of the state of Utah. Compiled from initial USGS 7.5 minute Digital Raster Graphic waterbodies, individual farming fields and associated areas are digitized from Digital Orthophotos, then surveyed for their land use, crop type, irrigation method, and associated attributes.
4. Prime and Unique farmlands derived from SURGO Soils Survey UT607 and Soil Data Viewer. Definitions of Prime and Unique farmlands from U.S. Geological Survey, [http://water.usgs.gov/eap/env\\_guide/farmland.html#HDR5](http://water.usgs.gov/eap/env_guide/farmland.html#HDR5)
5. Land Capability Classes derived from SURGO Soils Survey UT607 and Soil Data Viewer.
6. Tons of Soil Loss by Water Erosion data gathered from National Resource Inventory (NRI) data. Estimates from the 1997 NRI Database (revised December 2000) replace all previous reports and estimates. Comparisons made using data published for the 1982, 1987, or 1992 NRI may produce erroneous results. This is due to changes in statistical estimation protocols, and because all data collected prior to 1997 were simultaneously reviewed (edited) as 1997 NRI data were collected. In addition, this December 2000 revision of the 1997 NRI data updates information released in December 1999 and corrects a computer error discovered in March 2000. For more information: <http://www.nrcs.usda.gov/technical/NRI/>
7. Precipitation data was developed by the Oregon Climate Service at Oregon State University using average monthly or annual precipitation from 1960 to 1990. Publication date: 1998. Data was downloaded from the Resource Data Gateway, <http://dgateway-wb01.lighthouse.itc.nrcs.usda.gov/lighthouse>
8. Irrigated Adjudicated Water Rights obtained from the Utah Division of Water Rights.
9. Stream Flow data from USGS Utah Water Science Center Surface-water data found at <http://waterdata.usgs.gov/ut/nwis/sw>.
10. Stream length data calculated using ArcMap and 100k stream data from AGRC and 303d waters from the Utah Department of Environmental Quality.
11. Watershed information from Natural Resources Conservation Service Ogden Service Center Office staff.
12. The 2003 noxious weed list was obtained from the State of Utah Department of Food and Agriculture. For more information contact Steve Burningham, 801-538-7181 or visit their website at [http://ag.utah.gov/plantind/noxious\\_weeds.html](http://ag.utah.gov/plantind/noxious_weeds.html)

13. Wildlife information derived from the Utah Division of Wildlife Resources' Comprehensive Wildlife Conservation Strategy (CWCS) ( <http://wildlife.utah.gov/cwcs/> ) and from the Utah Conservation Data Center ( <http://dwrcdc.nr.utah.gov/ucdc/> ).
14. County population data from the U.S. Census Bureau, Utah Quick Facts, <http://quickfacts.census.gov/qfd/states/49000.html>
15. Farm information obtained from the National Agricultural Statistics Service, 2002 Census of Agriculture. <http://www.nass.usda.gov/census/census02/volume1/index2.htm>