

This resource assessment is designed to gather and display information specific to Sevier 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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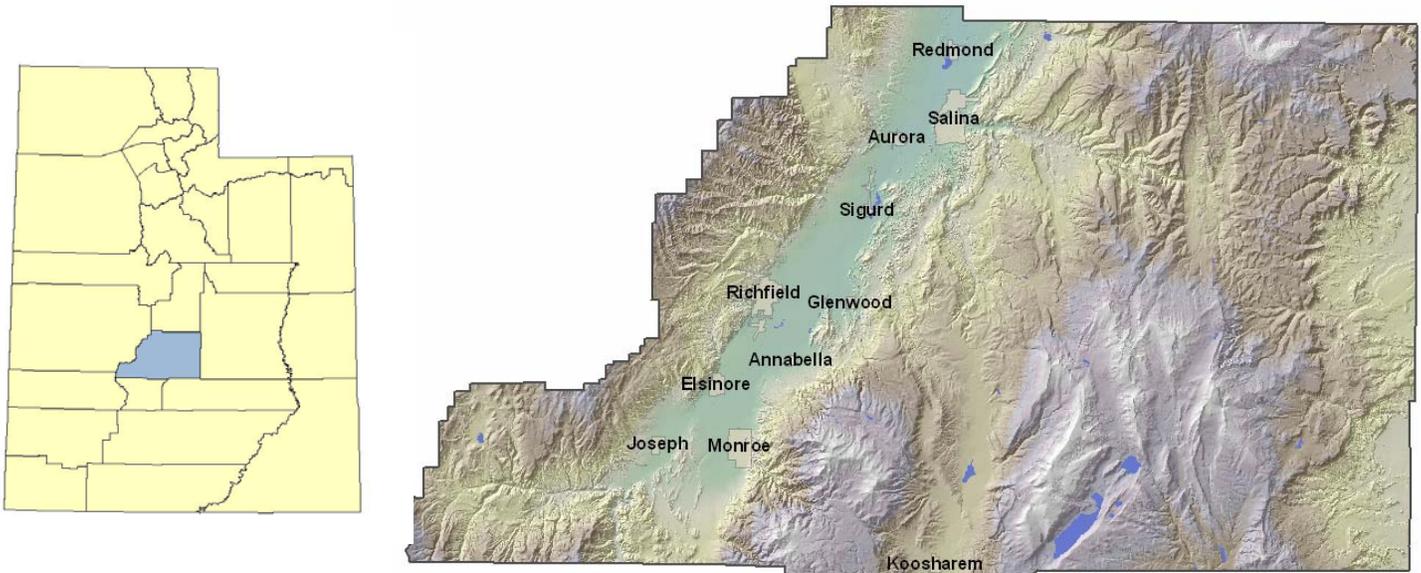
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## Introduction

Sevier County is located in south-central Utah and is the commercial hub of this area. Richfield draws many people from the surrounding counties to do their shopping and other business. Agriculture is the main income for the people living in the county. Fishlake is a major attraction in the state and brings in many visitors.

Sevier County consists of 1,234,560 acres 76% is federal lands and 20% private. Resource decisions and issues that affect the federal lands have a major impact on the people in the county.

Average low winter temperatures: 28 degrees; average high summer temperatures: 90 degrees; average precipitation: 9 inches in the valleys and 40+ in the high mountains.

Equal Opportunity Providers and Employers.



## General Land Use Observations

### Pasture

- Low pasture condition, soil compaction, poor quality of feed and water quality issues
- Control of noxious weed and invasive plants

### Haylands

- Adequate water supply and quality for agricultural uses
- Marketing for agricultural products
- Invasive plants and noxious weeds

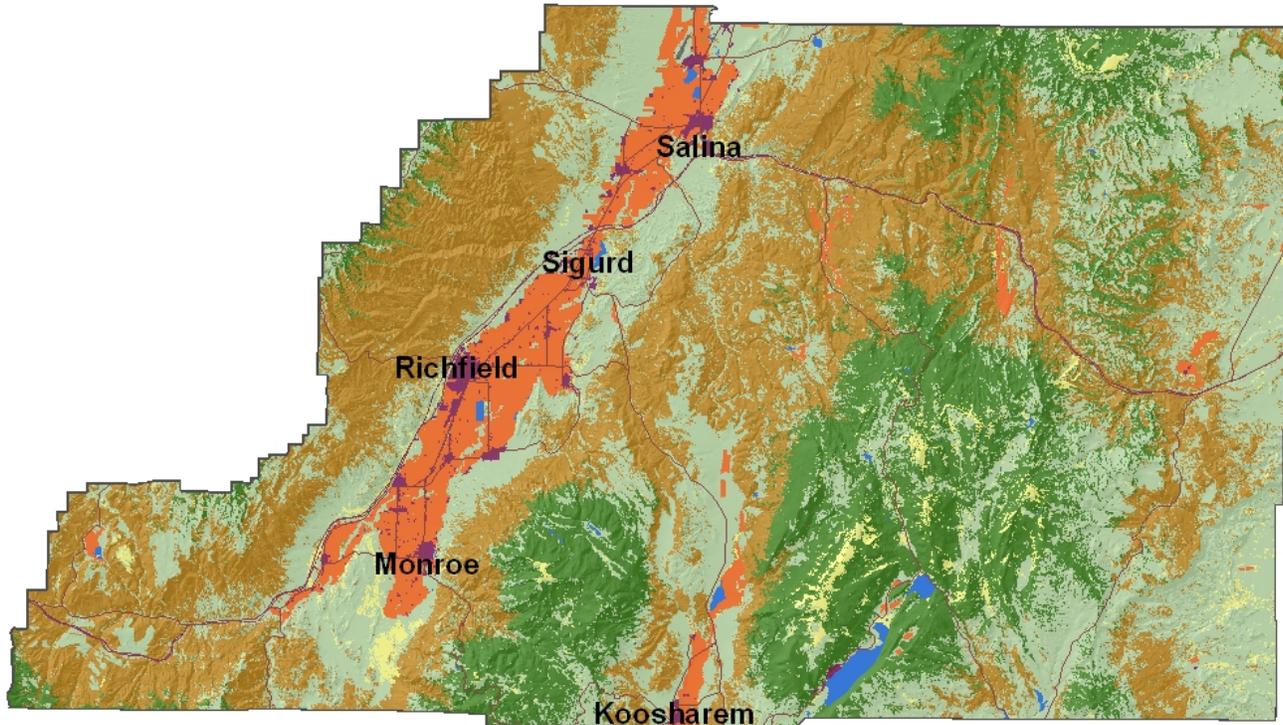
### Rangelands

- Rangeland health to improve watershed values
- Rangeland health to provide adequate food, water, and cover for livestock
- Invasive species and noxious weeds
- Wildlife species of special concern including threatened and endangered species

## Resource Assessment Summary

Categories	Concern high, medium, or low	Description and Specific Location (quantify where possible)
Soil	High	Sheet&rill, gully erosion along the alluvial fans are excessive and delivering sediments and phosphorus that is identified in the TMDL's for the county. This erosion is also effecting the range health by reducing the water holding capability of these fans and one of the major causes of desertification and the lowering of the range health. Estimated critically eroding range 95,460 acres range in at risk health 334,114 acres
Water Quantity	High	Improvements in the irrigation efficiencies to make the best use of the water available. Much of the irrigated ground in the county is flood irrigated and irrigation induced erosion is a problem improvements to these systems will reduce sedimentation and make the best use of the available water resource. Hayland flood irrigated 52,981 ac. 50% less than 40% efficient, 9350 ac. sprinkler 75% less than 60%
Water Quality Ground Water	Medium	over irrigation could have an impact on the ground water supplies through deep percolation of pesticides and nutrients. This is also the source of other users water rights down stream.
Water Quality Surface Water	High	The TMDL's have identified sediment and phosphorus as the primary sources of water quality coming from irrigated lands, rangelands and streambank. BMP's to correct the problem are improved irrigation efficiencies and improved range health. See soils for rangeland needs. pastures 13087 ac. 75% need improvements about 9800 ac.
Air Quality	Low	This is in good condition due to rural nature of the area. The major sources of pollutants are from outside the area and beyond their control.
Plant Suitability	Medium	Operator in the county are using the new varieties of hay and grain and are willing to experiment. Range seedlings are multi varieties and no long use monoculture seed mixes.
Plant Condition	High	Rangeland health in the shrub-steppe is declining which has increased the erosion off the range lands and lowered the productive potential of these lands for livestock and wildlife. Thousands of acres of closed sagebrush stands have lost species diversity. Pasturelands in the county are in poor to fair condition. Species have gone from high valued species to low value. Compaction has reduced infiltration and increased runoff and reduced the filtering capacity of these lands. Lands needing improvemnts Range: 795,500 ac. Pasture:13,087 ac. Haylands: 62,331 ac.
Fish and Wildlife	High	Most of the operators use the federal lands for part of their operations and the possibility of a species at risk or listed species with the added regulation greatly concerns them.
Domestic Animals	High	Finding good markets for their products and developing new markets
Social and Economic	High	Agriculture does not pay all of the bills many of the operators have other jobs and many of their wife's work outside the home. People moving in from outside the area with differing ideas of how things should be is a concern.

Land Cover

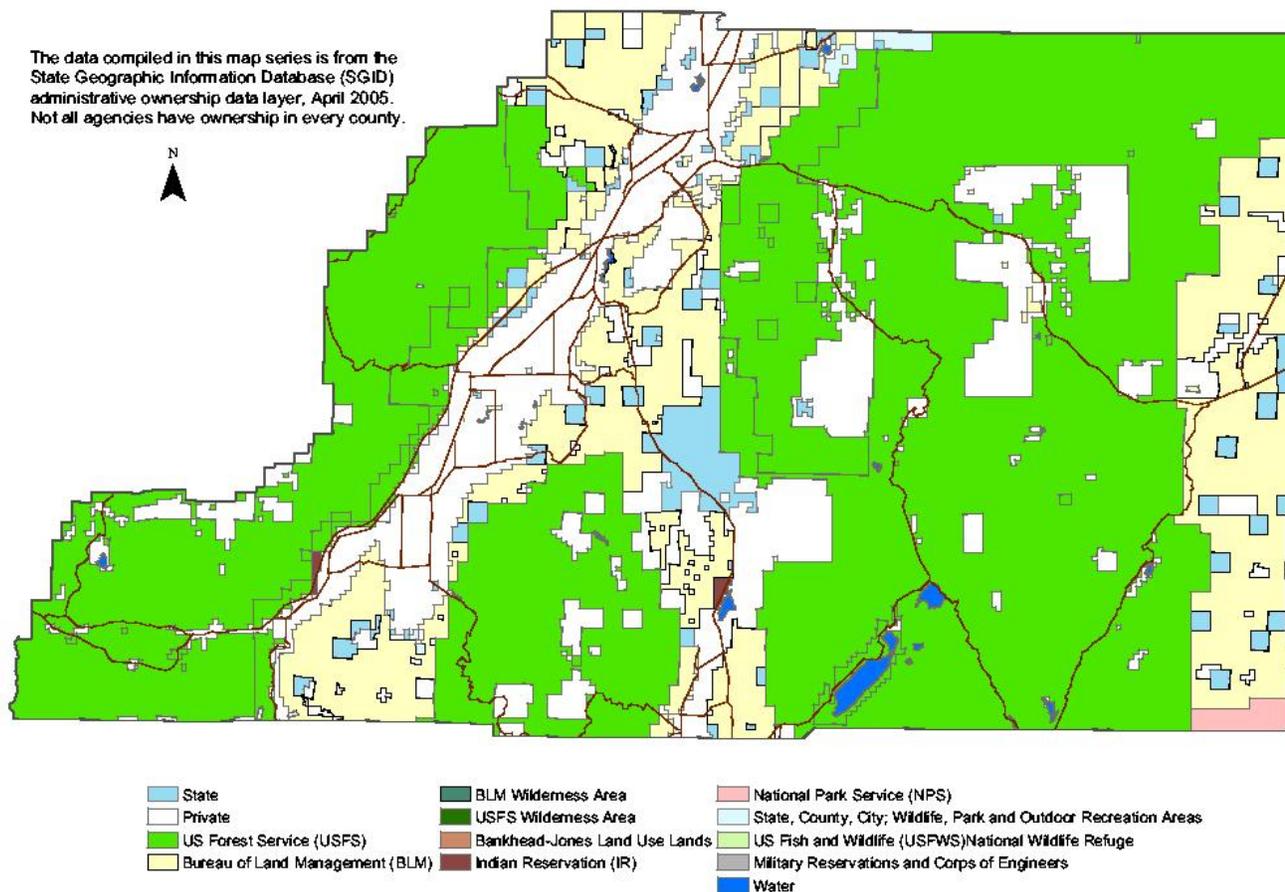


Land Cover/Land Use		
	Acres	%
Forest	370,094	30%
Small Grains	10,299	1%
Hayland	27,035	2%
Pasture	25,277	2%
Rangeland	795,124	64%
Water	1,379	0%
Wetlands	2,973	0%
Developed	7,995	1%
Other	188	0%
<b>Piute County Totals *b</b>	<b>1,234,560</b>	<b>100%</b>
<i>*a: Estimate from Farm Service Agency records and include CRP/CREP. *b: Totals may not add due to rounding and small unknown acreages.</i>		

## Special Considerations for Sevier County:

- 76% of the county is in federal ownership and subject to federal regulation
- 90% of the family income comes from agriculture
- Livestock production including hay and grazing is the major agricultural product
- Rangeland health on federal, state and private land to improve watershed values, feed and forage for livestock and wildlife
- Pasture condition and forage quality for livestock, wildlife, and water quality benefits
- Streambank erosion and riparian health to improve water quality and quantity
- Water quality and quantity
- Improve irrigation efficiencies to reduce irrigation induced erosion and sedimentation on flood irrigated lands

## Land Ownership

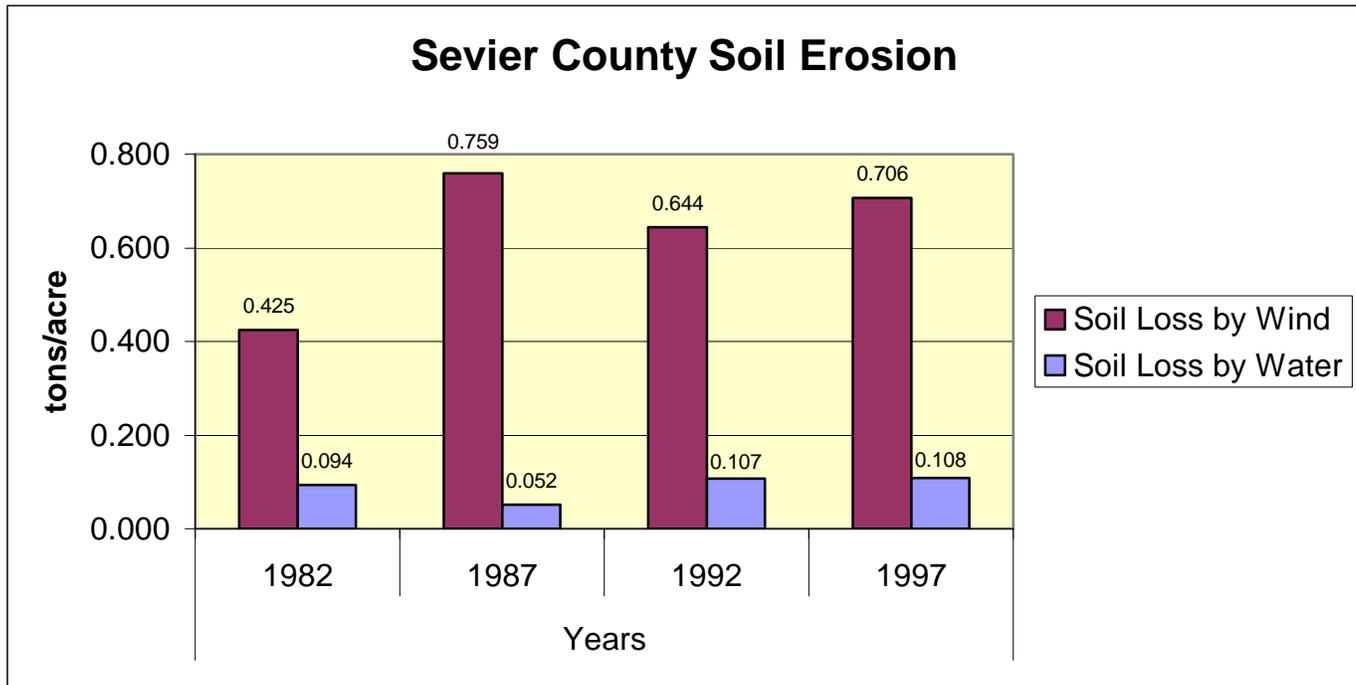


**There are no digitized soil surveys for Sevier County; therefore, Prime & Unique Farm Land and Land Capability on Cropland and Pasture will not be determined.**

**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		X	X	X	X		X	X							
	Wind		X	X	X	X		X	X							
	Ephemeral Gully			X	X	X		X	X							
	Classic Gully				X	X		X	X							
	Streambank		X	X	X	X		X	X							
	Shoreline															
	Irrigation-induced		X	X												
	Mass Movement				X	X		X	X	X						
	Road, roadsides and Construction Sites															
Soil Condition	Organic Matter Depletion				X	X		X	X							
	Rangeland Site Stability				X	X		X	X							
	Compaction			X	X	X		X	X							
	Subsidence															
	ContaminantsSalts and Other Chemicals		X	X	X	X										
	Contaminants: Animal Waste and Other OrganicsN		X	X												
	Contaminants: Animal Waste and Other OrganicsP		X	X												
	Contaminants: Animal Waste and Other OrganicsK															
	Contaminants : Commercial FertilizerN		X	X												
	Contaminants : Commercial FertilizerP		X	X												
	Contaminants : Commercial FertilizerK															
	ContaminantsResidual Pesticides		X	X												
	Damage from Sediment Deposition		X	X												

**Soil Erosion**

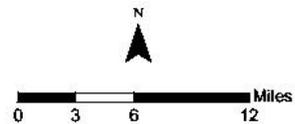
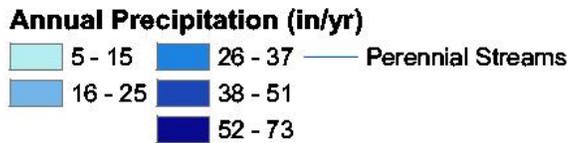
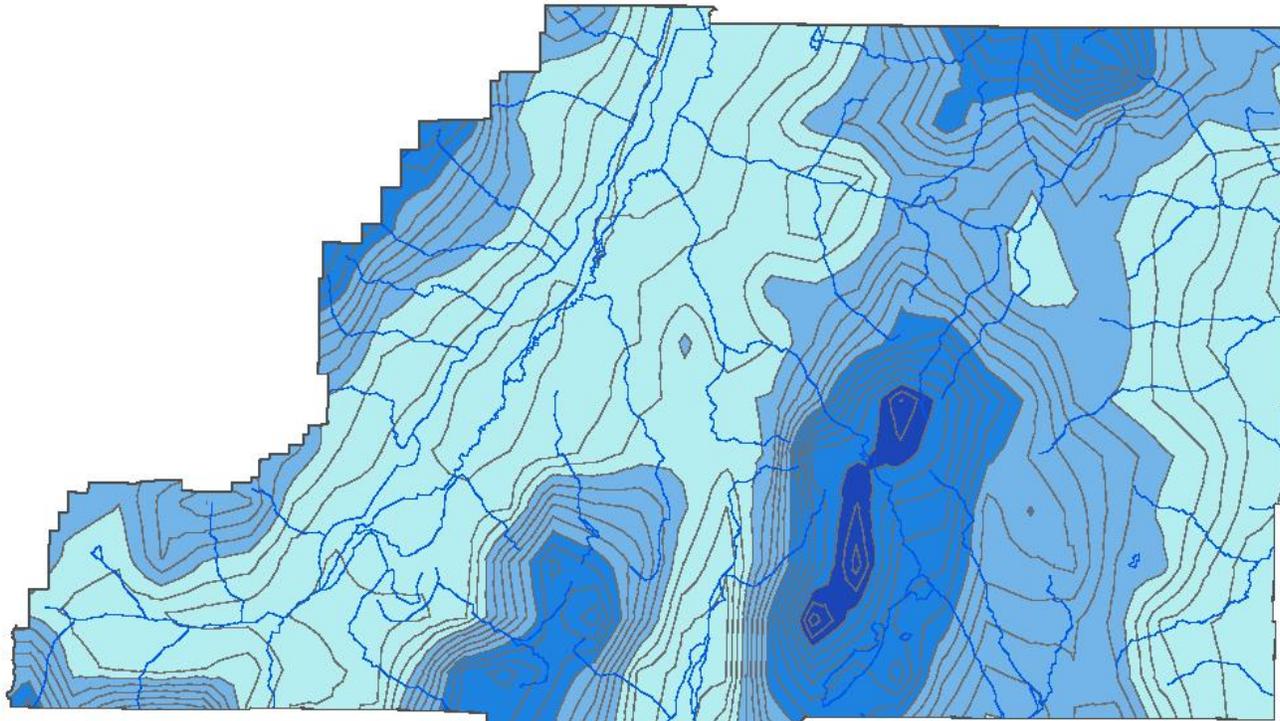


- ❖ Controlling erosion not only sustains the long-term productivity of the land, but also affects the amount of soil, pesticides, fertilizer, and other substances that move into the nation’s waters.

**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						
	Excessive Seepage															
	Excessive Runoff, Flooding, or Ponding		X	X	X	X		X	X	X						
	Excessive Subsurface Water															
	Drifted Snow															
	Inadequate Outlets															
	Inefficient Water Use on Irrigated Land		X	X												
	Inefficient Water Use on Non-irrigated Land															
	Reduced Capacity of Conveyances by Sediment Deposition		X	X	X	X		X	X	X					X	
	Reduced Storage of Water Bodies by Sediment Accumulation		X	X	X	X		X	X	X					X	
	Aquifer Overdraft															
	Insufficient Flows in Watercourses		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															
	Harmful Levels of Pathogens in Groundwater															
	Harmful Levels of Petroleum in Groundwater															
Water Quality, Surface	Harmful Levels of Pesticides in Surface Water		X	X												
	Excessive Nutrients and Organics in Surface Water		X	X												
	Excessive Suspended Sediment and Turbidity in Surface Water		X	X	X	X		X	X	X				X		
	Excessive Salinity in Surface Water		X	X	X	X		X								
	Water Quality – Colorado River Excessive Salinity															
	Harmful Levels of Heavy Metals in Surface Water															
	Harmful Temperatures of Surface Water		X	X	X	X										
	Harmful Levels of Pathogens in Surface Water															
	Harmful Levels of Petroleum in Surface Water															

**Precipitation and Streams**

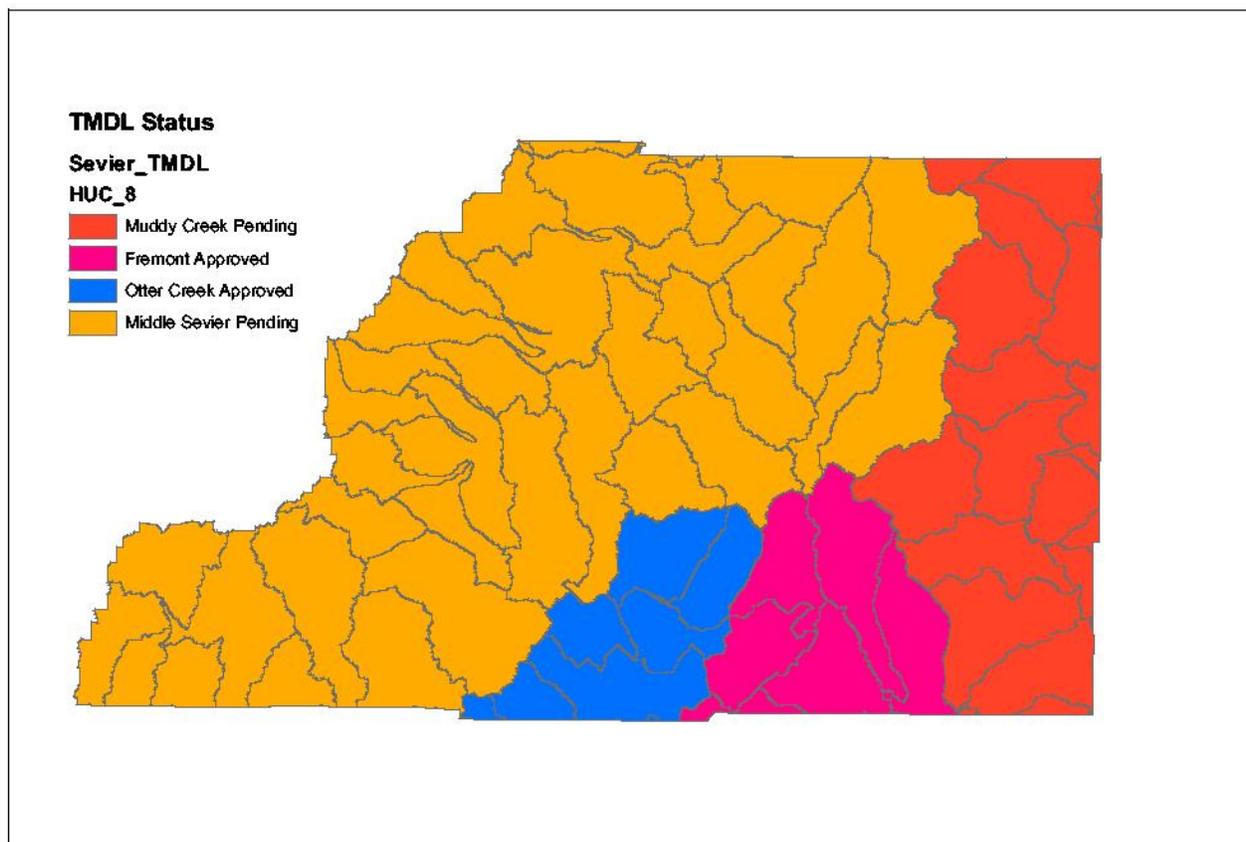


		ACRES	ACRE-FEET
<b>Irrigated Adjudicated Water Rights</b>	Surface	60000.00	188433.00
	Well	2811.00	8433.00
	<b>Total Irrigated Adjudicated Water Rights</b>	62811.00	196866.00
<b>Stream Flow Data</b>	USGS Water Data	Total Avg. Yield	176,740
		May-Sept Yield	2,756
<b>Stream Data</b>		<b>MILES</b>	<b>PERCENT</b>
	Total Miles - Major (100K Hydro GIS Layer)	55.00	n/a
	303d (DEQ Water Quality Limited Streams)	15.00	27%

		<b>Irrigation Efficiency:</b>		
		<40%	40 - 60%	>60%
<b>Percentage of Total Acreage</b>	Hayland flood/sprinkler	50% / 0%	50% / 75%	0% / 95%
	Pastureland flood/sprinkler	80% / 0%	205 / 100%	0% / 0%

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

Watershed Projects, Plans, Studies and Assessments			
NRCS Watershed Projects		NRCS Watershed Plans, Studies & Assessments	
Name	Status	Name	Status
Otter Creek/Koosharem	complete	Otter Creek/Koosharem HUA	complete
DEQ TMDL's		NRCS Comprehensive Nutrient Management Plans	
Name	Status	Number	Status
Middle Sevier	pending	4	Planned
Otter Creek TMDL	approved	2	Implemented



**AFO/CAFO**

AFO/CAFO						
Animal Type	Dairy	Feed Lot (Cattle)	Poultry	Swine	Mink	Other
No. of Farms	9	30	5	1	1	9
No. of Animals	600	4500	5000	200	400	1800

Potential Confined Animal Feeding Operations (PCAFO)						
Animal Type	Dairy	Feed Lot (Cattle)	Poultry	Swine	Mink	Other
No. of Farms	2	7				
No. of Animals	1000	3500				

Confined Animal Feeding Operations - Utah CAFO Permit					
Animal Type	Dairy	Feed Lot (Cattle)	Poultry	Swine	Other
No. of Permitted Farms	1	4			
No. of Permitted Animals	400	8000			

**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	X		X	X							
Plant Condition	Plant Condition – Productivity, Health and Vigor		X	X	X	X		X	X							
	Threatened or Endangered Plant Species: Plant Species Listed or Proposed for Listing under the Endangered Species Act		X	X	X	X		X	X	X						
	Threatened or Endangered Plant Species: Declining Species, Species of Concern		X	X	X	X		X	X	X						
	Noxious and Invasive Plants		X	X	X	X		X	X	X						
	Forage Quality and Palatability		X	X	X	X		X								
	Plant Condition – Wildfire Hazard				X	X		X	X	X						
Fish and Wildlife	Inadequate Food			X	X	X		X								
	Inadequate Cover/Shelter				X	X		X	X	X						
	Inadequate Water		X	X	X	X			X	X						
	Inadequate Space															
	Habitat Fragmentation			X	X	X		X								
	Imbalance Among and Within Populations				X	X		X								
	Threatened and Endangered Species: Species Listed or Proposed for Listing under the Endangered Species Act		X	X	X	X		X	X	X						
Domestic Animals	Inadequate Quantities and Quality of Feed and Forage			X	X	X		X								
	Inadequate Shelter			X	X	X		X	X							
	Inadequate Stock Water			X	X	X			X	X						
	Stress and Mortality				X	X										

## 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*)

Additional noxious weeds declared by Sevier County (2003): Russian Olive

## 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>				
Endangered:	(None)			
Threatened:	Utah Prairie-dog	Mammal	Grassland	Agriculture
	Bald Eagle	Bird	Lowland Riparian	Agriculture
Candidate:	Yellow-billed Cuckoo	Bird	Lowland Riparian	Agriculture
Proposed:	(None)			
<b>STATE SENSITIVE</b>				
Conservation Agreement Species:	Northern Goshawk	Bird	Mixed Conifer	Aspen
	Bonneville Cutthroat Trout	Fish	Water - Lotic	Mountain Riparian
Species of Concern:	California Floater	Mollusk	Water - Lotic	Water - Lentic
	Ferruginous Hawk	Bird	Pinyon-Juniper	Shrubsteppe
	Greater Sage-grouse	Bird	Shrubsteppe	
	Leatherside Chub	Fish	Water - Lotic	Mountain Riparian
	Long-billed Curlew	Bird	Grassland	Agriculture
	Otter Creek Pyrg	Mollusk	Wetland	
	Pygmy Rabbit	Mammal	Shrubsteppe	
	Short-eared Owl	Bird	Wetland	Grassland
	Three-toed Woodpecker	Bird	Sub-Alpine Conifer	Lodgepole Pine
	Townsend's Big-eared Bat	Mammal	Pinyon-Juniper	Mountain Shrub
	Utah Physa	Mollusk	Wetland	
Western Toad	Amphibian	Wetland	Mountain Riparian	

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

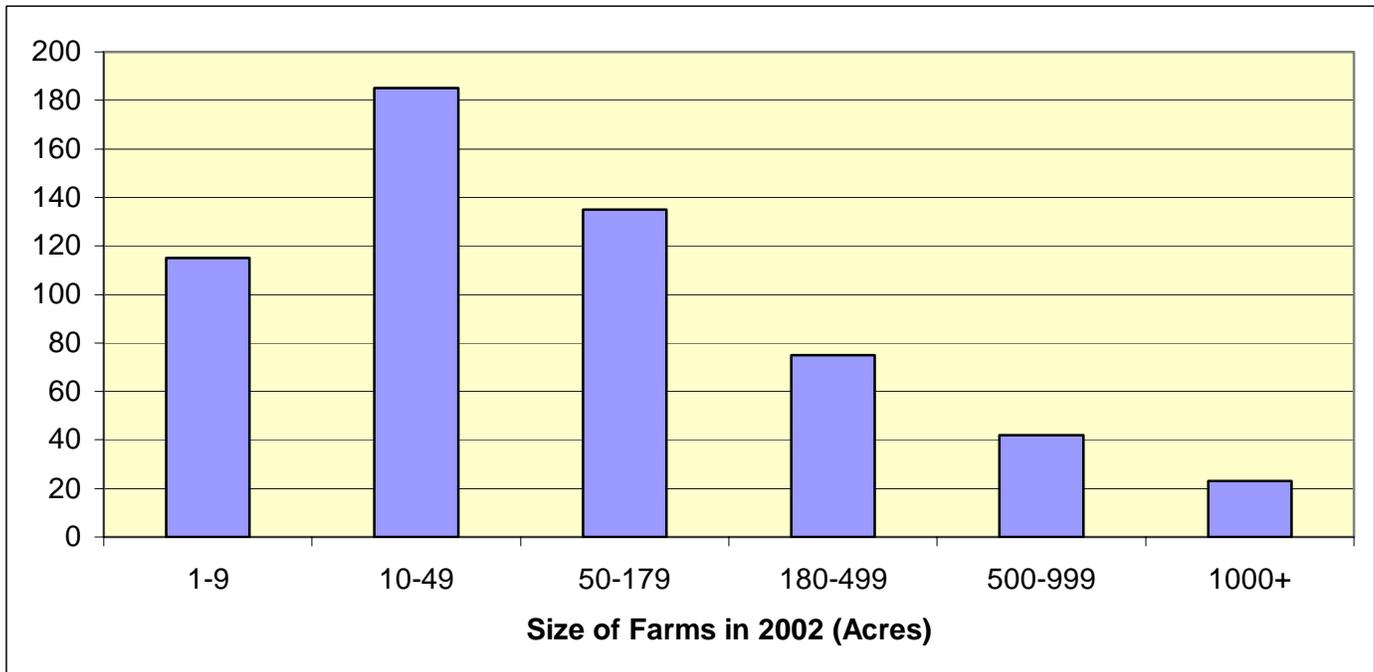
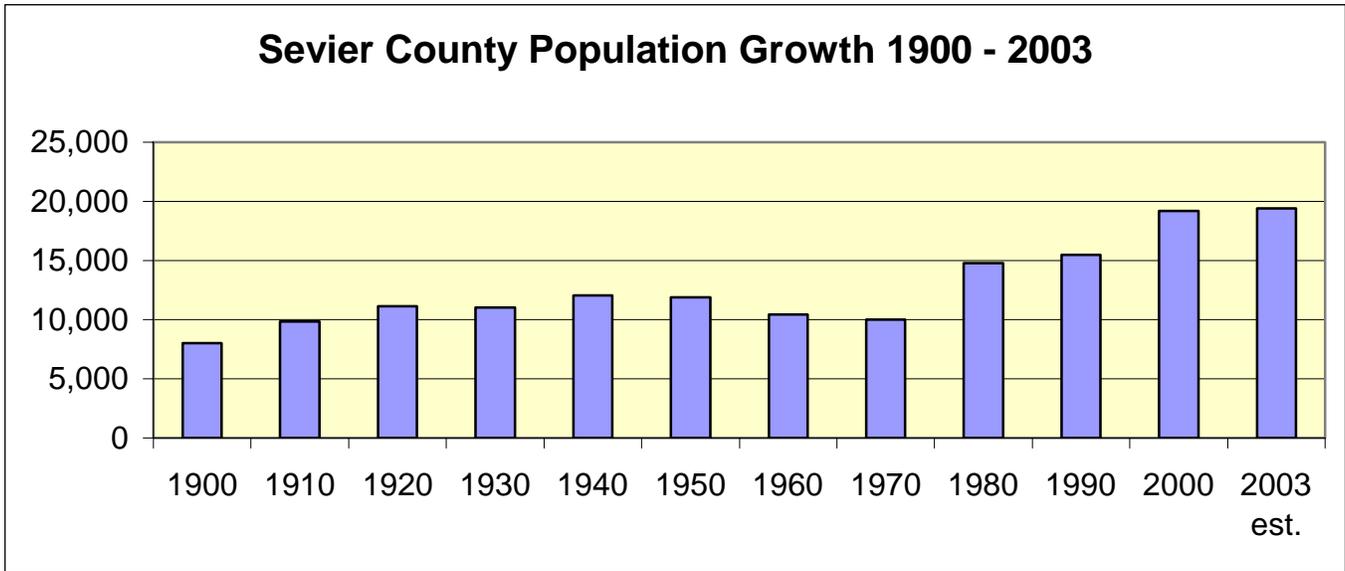
The Utah CWCS also prioritizes habitat categories based on several criteria important to the species of greatest conservation need. The top ten key habitats state-wide are (in order of priority):

- 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	X										
	Urban Encroachment on Agricultural Land		X	X												
	Marketing of Resource Products		X	X	X	X										
	Innovation Needs															
	Non-Traditional Land Uses															
	Population Demographics, Changes and Trends															
	Special Considerations for Land Mangement (High State and Federal Percentage)			X	X	X	X									
	Active Resource Groups (CRMs, etc)			X	X	X	X		X	X	X					
	Full Time vs Part Time Agricultural Communities															
	Size of Operating Units															
	Land Removed from Production through Easments															
	Land Removed from Production through USDA Programs															
	Other															

**Census and Social Data**



**Number of Farms:**

**Number of Operators:**

- Full-Time Operators:
- Part-Time Operators:

**Public Survey/Questionnaire Results:**

**#4 Zone Natural Resources Conservation Concerns Survey Results**

(including mailed surveys & surveys in public meetings & outreach efforts)

Date: May & June 2005

County/Soil Conservation District: SEVIER Co./ SEVIER SCD

Total Number of Respondents:

**SCORING:**

3 = a concern that should be addressed immediately

2 = a concern that should be addressed in the future

1 = a minor concern

0 = not a concern

Topic of Concern	3	2	1	0
Soil loss or erosion on land or along stream channels	15	32	12	7
Soil condition due to compaction or other changes	8	17	34	8
Soil contamination due to salts, chemicals or other materials	12	31	19	6
Adequate water supply for desired uses	50	14	2	2
Available water is clean enough for desired uses	31	27	7	2
Ground water quality and quantity	34	22	9	2
Storm runoff or flooding	26	24	14	3
Air quality, including blowing dust, smells and other pollutants	21	22	20	5
Plant health, production and adequate quantities	14	28	15	11
Presence of invasive plants including noxious weeds	32	27	5	4
Wildfire hazard	19	25	22	2
Adequate food, water and cover available for livestock	28	28	8	4
Adequate food, water and cover available for wildlife	21	24	18	4
Wildlife species of special concern including threatened & endangered	10	18	28	11
Loss of open space or agricultural lands	30	21	11	5
Urban/suburban growth	29	22	13	3
Adequate energy sources available	28	25	14	1
Recreation opportunities	10	31	22	5
Adequate support of historic/prehistoric resources	10	31	22	5
Adequate marketing for agricultural products	36	24	8	5

**Remarks: Top 5 concerns (Immediate, Future, Minor)**

**Immediate**

	Demographics		
	Gender:		
	# males	# females	no response
1-Adequate water supply for desired uses			
2-Adequate marketing for agricultural products			
3-Ground water quality and quantity			
4-Presence of invasive plants including noxious weeds	53	10	2
5-Available water is clean enough for desired uses			

**Future**

	Ethnicity/Race:			
	Hispanic	Native American	Asian	Caucasian
1-Soil loss or erosion on land or along stream channels				
2-Soil contamination due to salts, chemicals or other materials				
Recreation opportunities				
Adequate support of historic/prehistoric resources				63
3-Plant health, production and adequate quantities				
Adequate food, water and cover available for livestock	African			

4-Available water is clean enough for desired uses	American	Other	no response	
Presence of invasive plants including noxious weeds			2	
5-Wildfire hazard				
Adequate energy sources available	<b>Age:</b>			
<b>Minor</b>	18-24	25-38	39-50	51-65
1-Soil condition due to compaction or other changes	1	3	19	24
2-Wildlife species of special concern including threatened & endangered				
3-Wildfire hazard	66+	no response		
Recreation opportunities	16	2		
Adequate support of historic/prehistoric resources				
4-Air quality, including blowing dust, smells and other pollutants				
5-Soil contamination due to salts, chemicals or other materials				

## Footnotes / Bibliography

1. General information about Sevier County obtained from a Sevier County website and the NRCS office.
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 Gauging Stations.
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 NRCS and Utah DEQ records.
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>