

This resource assessment is designed to gather and display information specific to Salt Lake 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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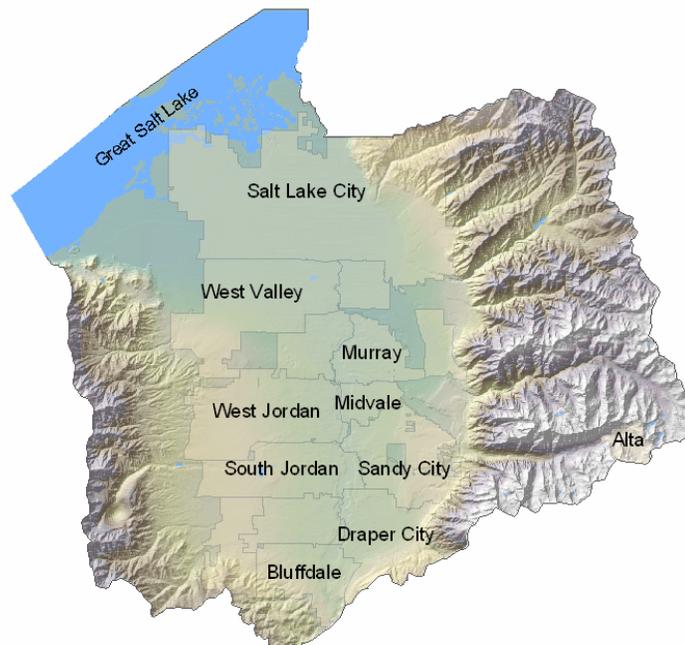
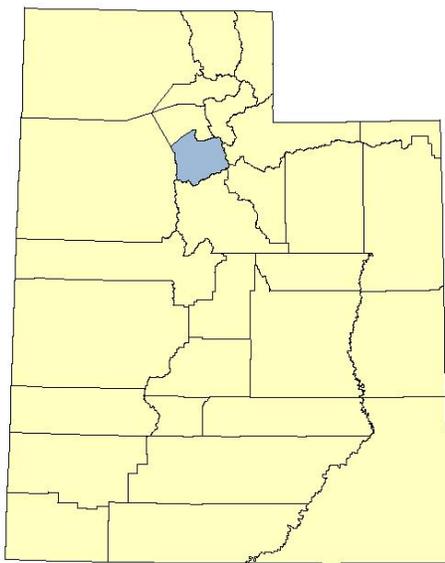
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Introduction

The fertile Salt Lake Valley lies between the Wasatch Mountains on the east and the Oquirrh Mountain Range to the west. The active Wasatch Fault runs through the eastern part of the county. The Jordan River flows north through the valley to the Great Salt Lake, and canyon streams provide culinary and agricultural water.

Salt Lake County is home to 16 incorporated cities ranging in size from nearly 182,000 people to less than 400. Salt Lake County consists of 764 square miles with a population of approximately 910,000 people. There are 15 canyons and 4 world class ski resorts.

January is the coldest month in the city, with an average temperature of 29.1 °F (-1.6 °C). The warmest month is July, with an average temperature of 77.0 °F (25.0 °C). The airport averages 16.50 in (419 mm) of precipitation per year, with bench areas receiving up to 20 inches (500 mm), mostly due to increased snowfall.

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.
- Farm ground purchased for future development is often left unused. 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 urbanized.
- Residue, nutrient and pest management are continually needed to control erosion and to protect water quality.

Wildlife

- Great Salt Lake is one of North America's most important habitat destinations for migratory waterfowl and other migratory birds.
- Existing wildlife corridors need to be maintained.
- Educational efforts to homeowners to use landscape plants with structure, cover and food to improve wildlife habitat

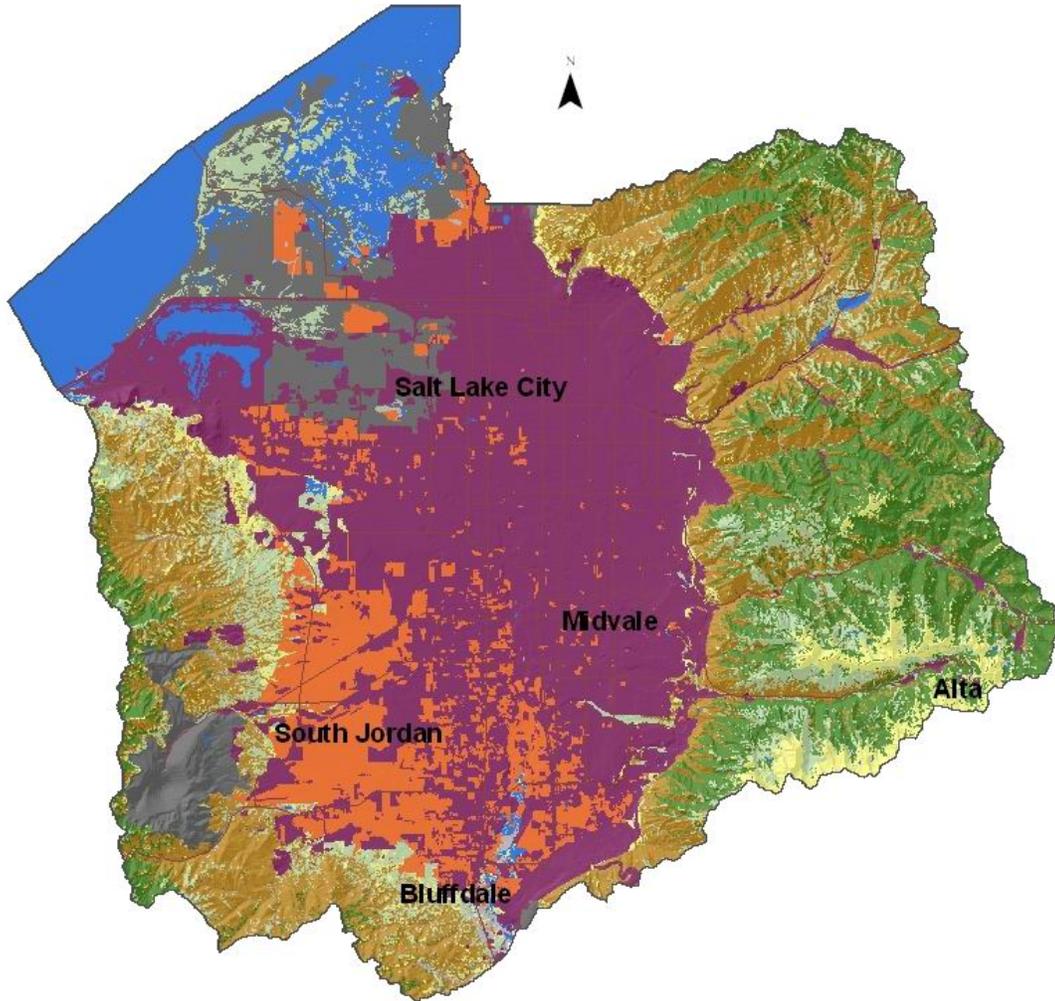
Urban Conservation

- Waterwise landscaping, xeriscaping and water management need to be utilized.
- Rapid development sometimes overlooks potential mass movement or other geologic hazards. Growth continues to put demands on local water quantity and quality.
- Transportation needs and expansion may impact open space values.

Resource Assessment Summary

Categories	Concern high, medium, or low	Description and Specific Location (quantify where possible)
Soil	Medium	Erosion on construction sites may now be a greater concern than agricultural fields.
Water Quantity	High	Municipal and industrial sectors will probably be a bigger target for water conservation efforts and generate bigger savings than agriculture. sector.
Water Quality Ground Water	Medium	A significant number of residents are served by wells. Contamination from bacteria and mining has shown up in monitoring.
Water Quality Surface Water	High	The Jordan River is a primary concern to many groups and agencies as well as a focus from improvement efforts.
Air Quality	Medium	Air quality is greatly reduced during smoggy inversions.
Plant Suitability	Medium	Xeriscaping may be more appropriate than suburban landscaping. Weeds on idle lots, recreation areas, and ranchettes is a concern.
Plant Condition		
Fish and Wildlife	Low	Impacts are greatest in the urban-wildland interface where most habitat is being lost.
Domestic Animals	Low	With the exception of pleasure horses there has been a great reduction of livestock in Salt Lake County.
Social and Economic		

Land Cover

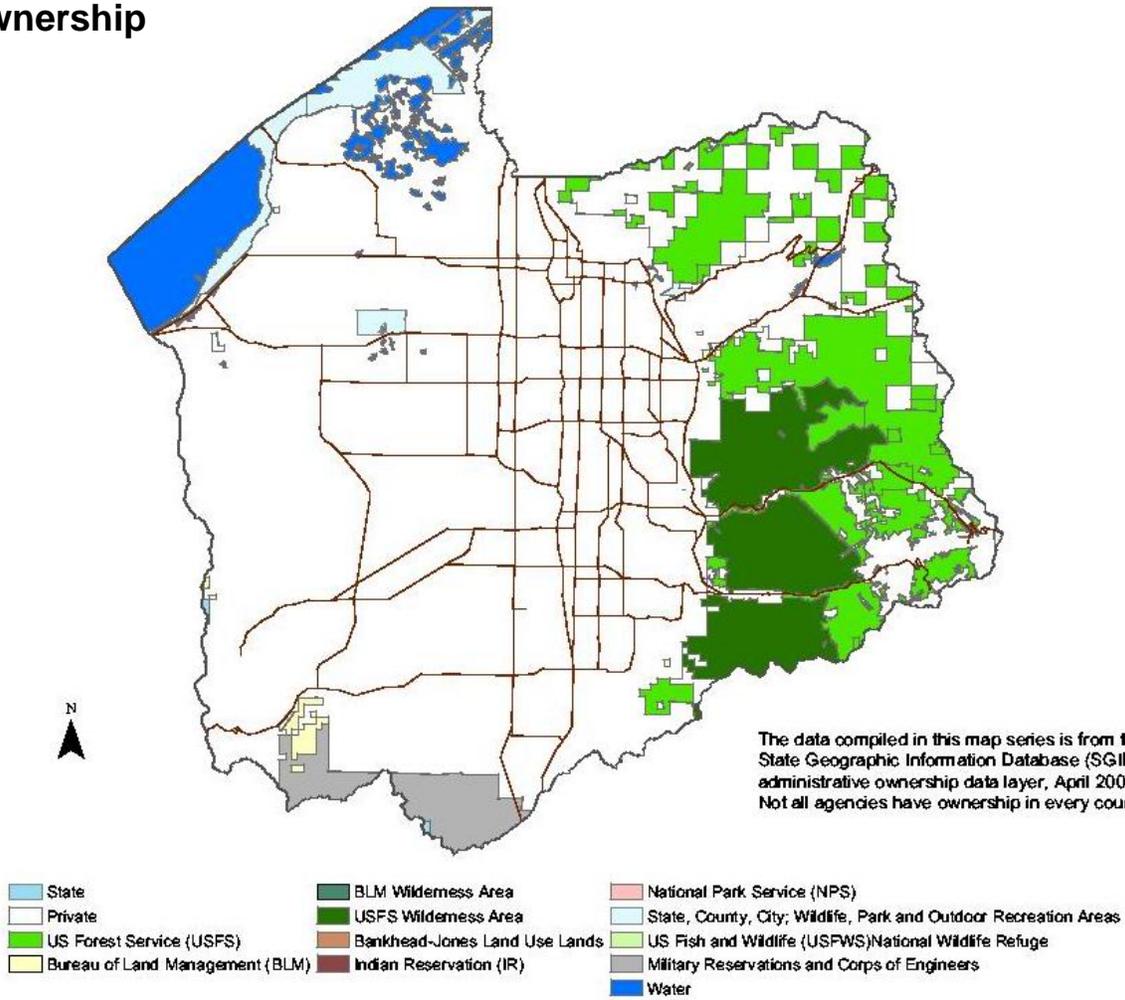


Land Cover/Land Use		
	Acres	%
Forest		0%
Grain Crops	6,500	2%
Conservation Reserve Program <i>*a</i>		0%
Grass/Pasture/Haylands	7,500	3%
Orchards/Vineyards	43	0%
Row Crops	9,854	4%
Shrub/Rangelands		0%
Water	44,511	16%
Wetlands	1,511	1%
Developed	209,710	75%
Salt Lake County Totals <i>*b</i>	279,629	100%
<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>		

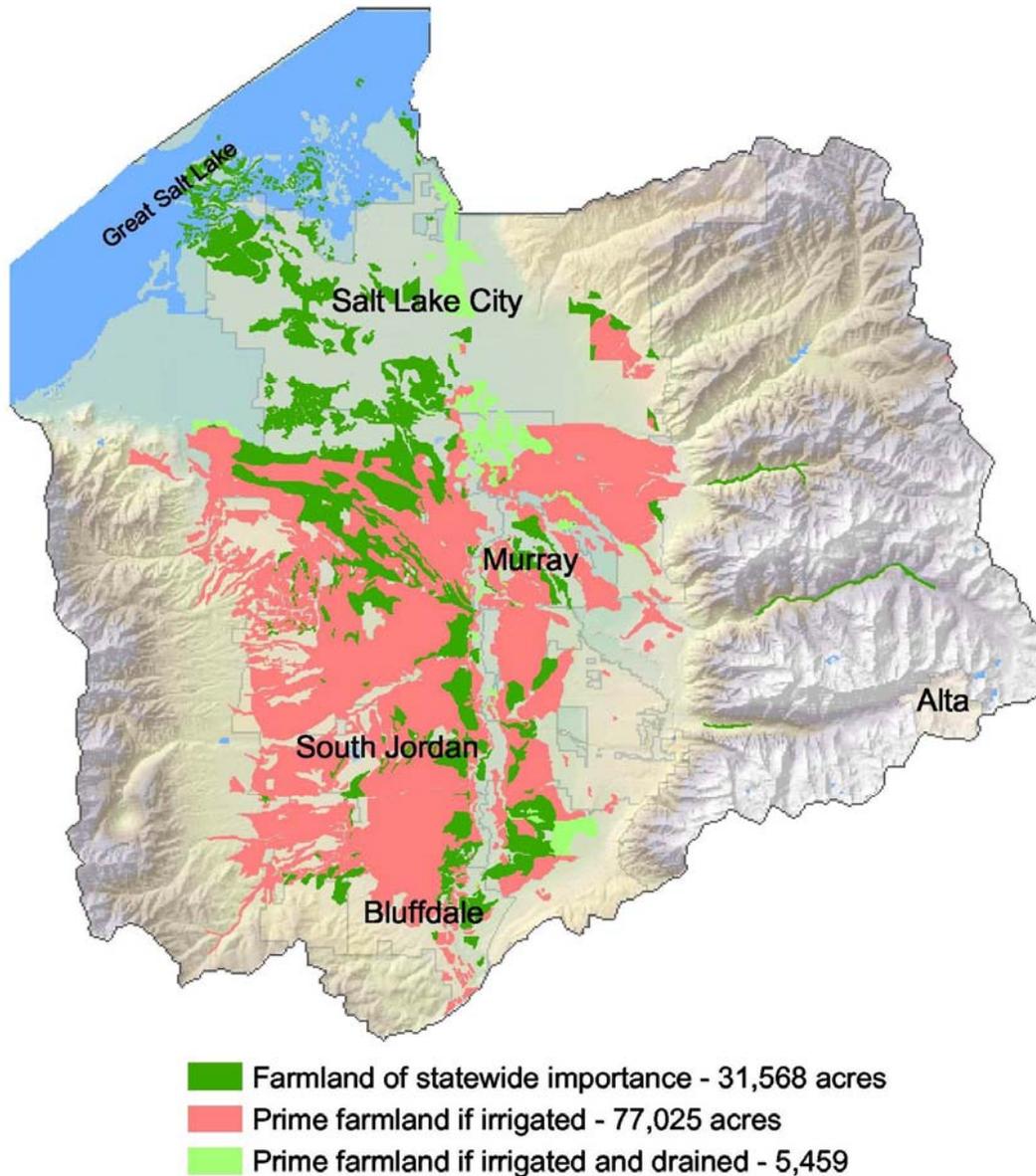
Special Considerations for Salt Lake County:

- Orchards/Nurseries include other perennial crops such as nursery stock and sod.
- Row crops include a variety of field and vegetable crops grown for the fresh market.
- There are approximately 6,500 acres of grain (Utah Ag Statistics, 2002 Census)
- Seventy-five percent of the county consists of urban land uses within metropolitan areas.
- Lakeshore wetlands provide habitat for a large number of waterfowl, shorebirds, neo-tropical migratory birds and other wetland dependant species.
- Over 10 privately owned Duck Clubs (approx. 18,000 acres) are committed to waterfowl habitat improvement. NRCS currently has contracts with four of the Duck Clubs.
- Kennecott Copper has over 3000 acres of settlement ponds creating potential groundwater contamination.
- The restoration of the Jordan River riparian corridor is currently in the planning process and will provide habitat, recreation, and water quality improvement.

Land Ownership



Prime & Unique Farm Land



Prime farmland

Prime farmland includes those lands with soils that are best suited to produce 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

Unique farmlands are those lands other than prime farmland, with soils best suited to produce specific high-value food or fiber crops, such as orchards or row crops.

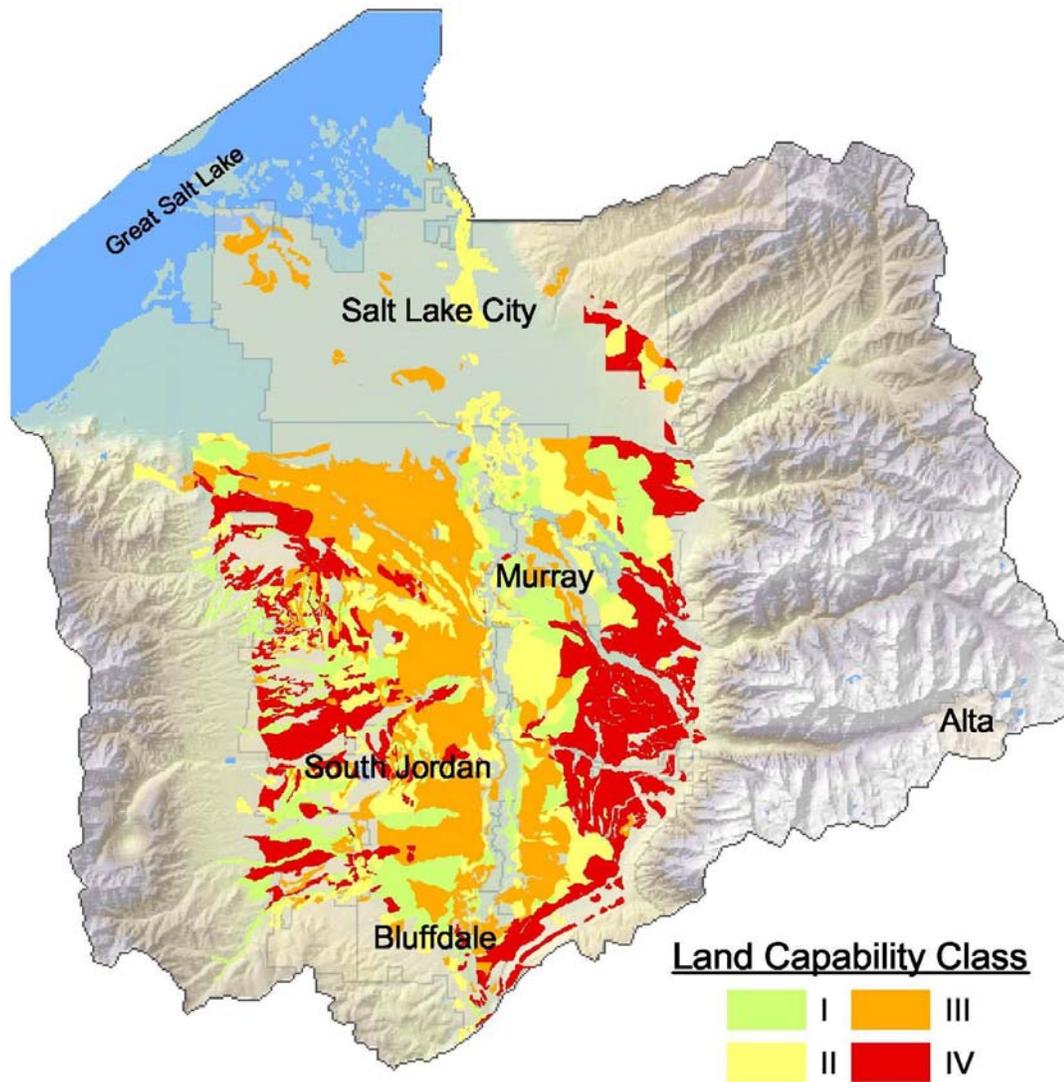
Additional farmland of statewide or local importance

Additional farmland or state or local importance are those lands identified by state or local agencies for agricultural use, but not of national significance.

Resource Concerns – SOILS

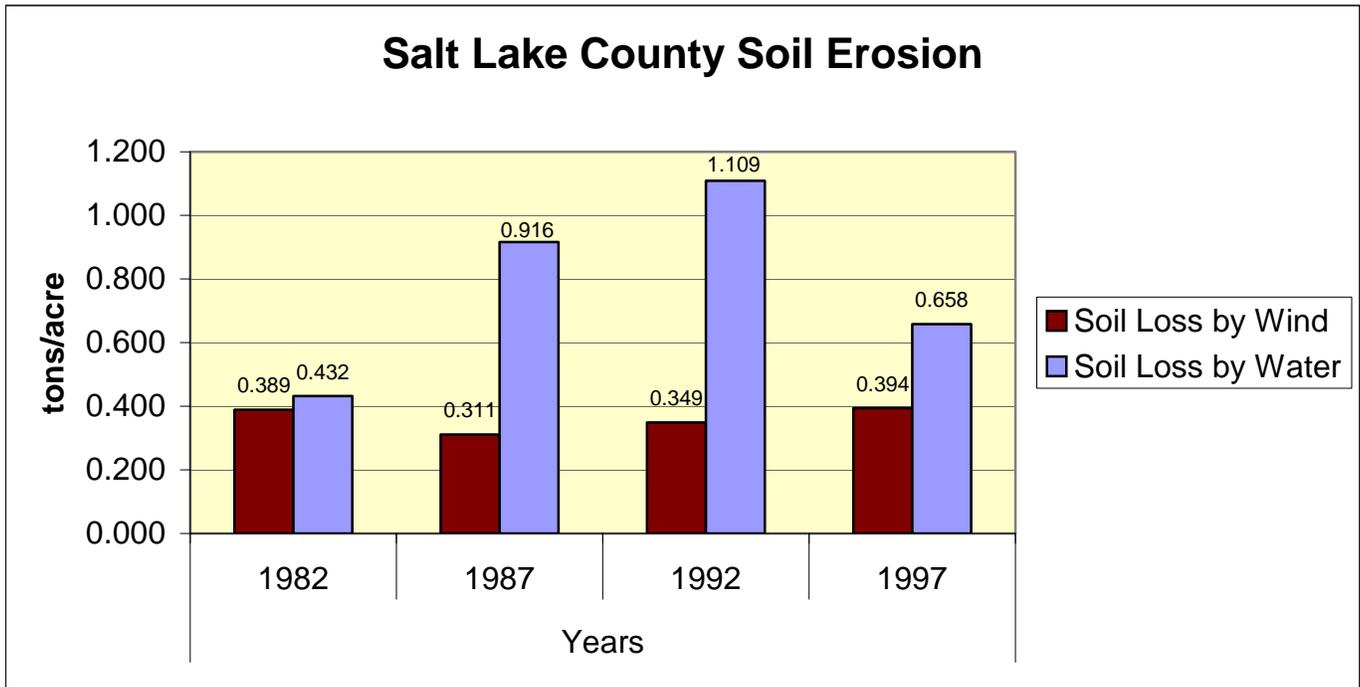
Categories	Specific Resource Concern / Issue	Crop	Hay	Pasture	Grazed Range	Grazed Forest	Pasture Native/Naturalized	Wildlife	Watershed Protection	Forest	Headquarters	Urban	Recreation	Water	Mined	Natural Area
Soil Erosion	Sheet and Rill	X									X	X	X		X	
	Wind	X									X	X	X		X	
	Ephemeral Gully		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

Land Capability Class on Cropland and Pastureland



		Acres	Percentage
Land Capability Class (Irrigated Cropland & Pastureland Only)	I - slight limitations	20,052	6%
	II - moderate limitations	262,464	74%
	III - severe limitations	39,857	11%
	IV - very severe limitations	32,625	9%
	V - no erosion hazard, but other limitations	0	0%
	VI - severe limitations, unsuited for cultivation, limited to pasture, range, forest	0	0%
	VII - very severe limitations, unsuited for cultivation, limited to grazing, forest, wildlife	0	0%
	VIII - some areas have limitations, limited to recreation, wildlife, and water supply	0	0%

Soil Erosion

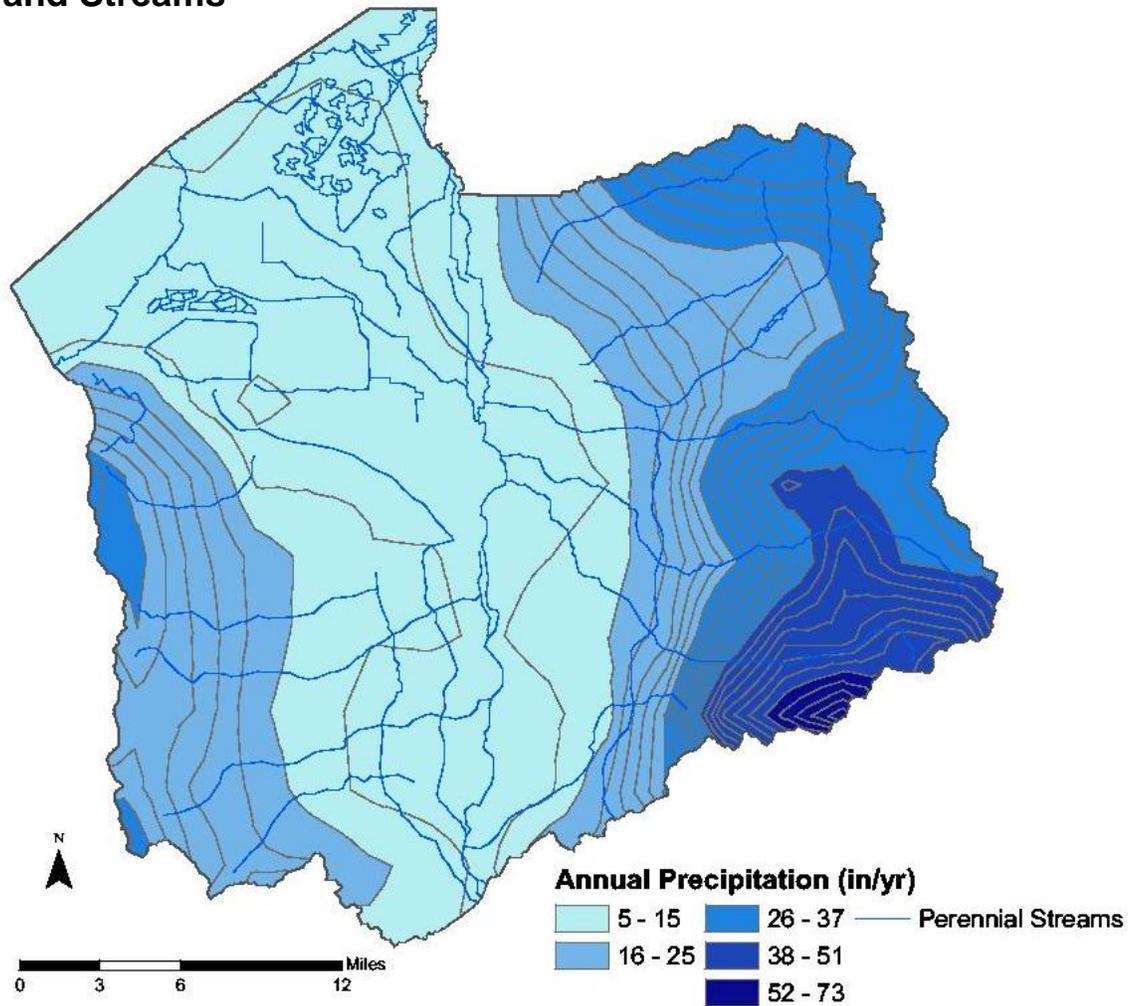


- ❖ Controlling erosion not only sustains the long-term productivity of the land, but also affects the amount of soil, pesticides, fertilizer, and other substances that move into the nation's waters.

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

Precipitation and Streams



		ACRES	ACRE-FEET
Irrigated Adjudicated Water Rights	Surface		
	Well		
	Total Irrigated Adjudicated Water Rights	0.00	0.00
		MILES	PERCENT
Stream Data	Total Miles - Major (100K Hydro GIS Layer)	1,245	n/a
	303d (DEQ Water Quality Limited Streams)	242	19%

	Irrigation Efficiency:	<40%	40 - 60%	>60%
Percentage of Total Acreage	Cropland			
	Pastureland			

Watersheds & Total Maximum Daily Load (TMDL)

Watershed Projects, Plans, Studies and Assessments			
NRCS Watershed Projects		NRCS Watershed Plans, Studies & Assessments	
Name	Status	Name	Status
DEQ TMDL's		NRCS Comprehensive Nutrient Management Plans	
Name	Status	Number	Status
			Planned Implemented

AFO/CAFO

Animal Feeding Operations (AFO)						
Animal Type	Dairy	Feed Lot (Cattle)	Poultry	Swine	Mink	Other
No. of Farms	0	10	0	0	6	90
No. of Animals	0	500	0	0	8,000	1,000

Potential Confined Animal Feeding Operations (PCAFO)						
Animal Type	Dairy	Feed Lot (Cattle)	Poultry	Swine	Mink	Other
No. of Farms	1	5	0	0	5	5
No. of Animals	200	100	0	0	8,000	100

Confined Animal Feeding Operations - Utah CAFO Permit					
Animal Type	Dairy	Feed Lot (Cattle)	Poultry	Swine	Other
No. of Permitted Farms	0	0	0	0	1
No. of Permitted Animals	0	0	0	0	1,500

Data for these tables was provided by the Utah Animal Feeding Operation (AFO) Strategy 2000-2002.

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											X					
	Undesirable Air Movement											X					
Adverse Air Temperature																	
Plant Suitability	Plants not adapted or suited											X					
Plant Condition	Plant Condition – Productivity, Health and Vigor																
	Threatened or Endangered Plant Species: Plant Species Listed or Proposed for Listing under the Endangered Species Act									X		X				X	
	Threatened or Endangered Plant Species: Declining Species, Species of Concern									X		X				X	
	Noxious and Invasive Plants	X	X	X			X	X	X	X	X	X	X	X	X	X	
	Forage Quality and Palatability			X			X	X									
Plant Condition – Wildfire Hazard									X		X	X			X		
Fish and Wildlife	Inadequate Food																
	Inadequate Cover/Shelter																
	Inadequate Water																
	Inadequate Space											X	X			X	
	Habitat Fragmentation											X	X			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					
	Inadequate Shelter																
	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:

- Bermuda grass (*Cynodon dactylon*)
- Canada thistle (*Cirsium arvense*)
- Diffuse knapweed (*Centaurea diffusa*)
- Dyers woad (*Isatis tinctoria*)
- Field bindweed or wild morning glory (*Convolvulus arvensis*)
- Hoary cress (*Cardaria draba*)
- Johnson grass (*Sorghum halepense*)
- Leafy spurge (*Euphorbia esula*)
- Medusahead (*Taeniatherum caput-medusae*)
- Musk thistle (*Carduus nutans*)
- Perennial pepperweed (*Lepidium latifolium*)
- Purple loosestrife (*Lythrum salicaria*)
- Quackgrass (*Elytrigia repens*)
- Russian knapweed (*Centaurea repens*)
- Scotch thistle (*Onopordum acanthium*)
- Spotted knapweed (*Centaurea maculosa*)
- Squarrose knapweed (*Centaurea virgata*)
- Yellow starthistle (*Centaurea solstitialis*)

There are no additional noxious weeds declared by Salt Lake 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
FEDERALLY-LISTED				
Endangered:	June Sucker (introduced)	Fish	Water - Lentic	Water - Lotic
Threatened:	Bald Eagle	Bird	Lowland Riparian	Agriculture
Candidate:	Yellow-billed Cuckoo	Bird	Lowland Riparian	Agriculture
Proposed:	(None)			
STATE SENSITIVE				
Conservation Agreement Species:	Columbia Spotted Frog	Amphibian	Wetland	Wet Meadow
	Northern Goshawk	Bird	Mixed Conifer	Aspen
	Bonneville Cutthroat Trout	Fish	Water - Lotic	Mountain Riparian
	Least Chub	Fish	Water - Lentic	Wetland
Species of Concern:	American White Pelican	Bird	Water - Lentic	Wetland
	Black Swift	Bird	Lowland Riparian	Cliff
	Bobolink	Bird	Wet Meadow	Agriculture
	Burrowing Owl	Bird	High Desert Scrub	Grassland
	Ferruginous Hawk	Bird	Pinyon-Juniper	Shrubsteppe
	Grasshopper Sparrow	Bird	Grassland	
	Greater Sage-grouse	Bird	Shrubsteppe	
	Kit Fox	Mammal	High Desert Scrub	
	Lewis's Woodpecker	Bird	Ponderosa Pine	Lowland Riparian
	Long-billed Curlew	Bird	Grassland	Agriculture
	Lyrate Mountainsnail	Mollusk	Mountain Shrub	Rock
	Short-eared Owl	Bird	Wetland	Grassland
	Smooth Greensnake	Reptile	Mountain Riparian	Wet Meadow
	Spotted Bat	Mammal	Low Desert Scrub	Cliff
	Three-toed Woodpecker	Bird	Sub-Alpine Conifer	Lodgepole Pine
	Townsend's Big-eared Bat	Mammal	Pinyon-Juniper	Mountain Shrub
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):

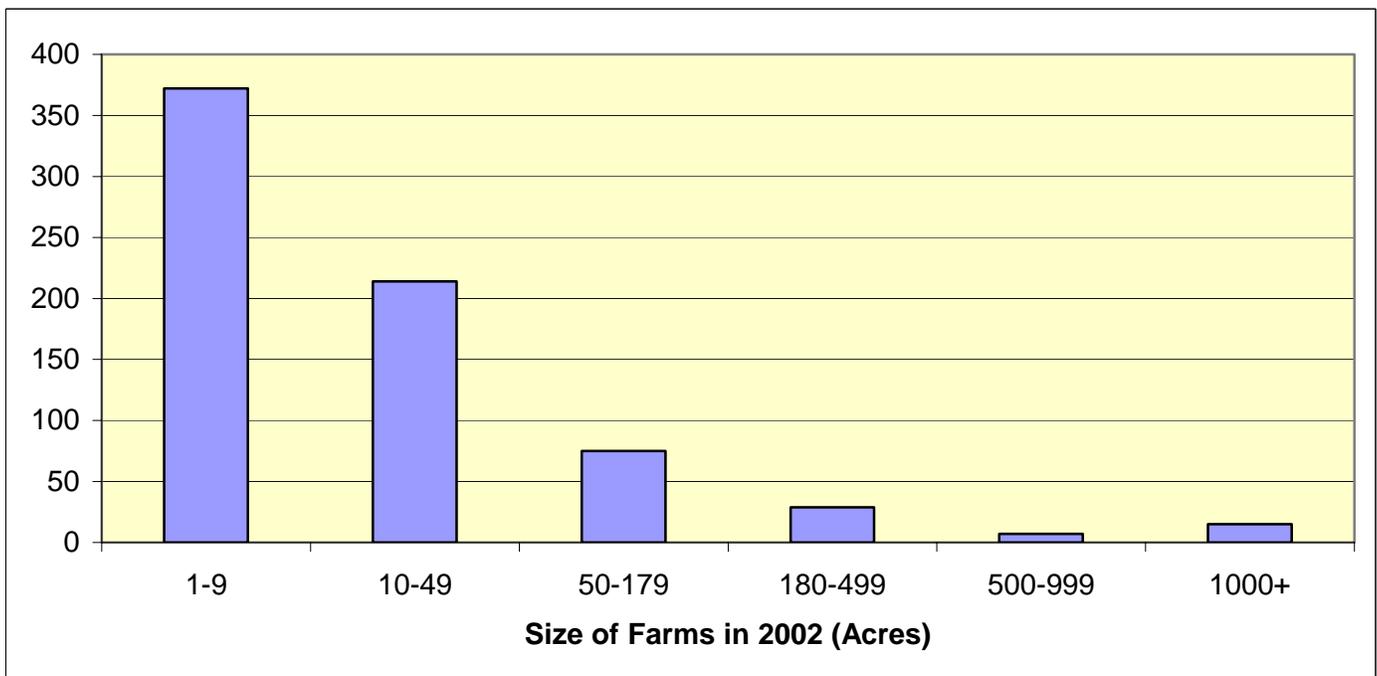
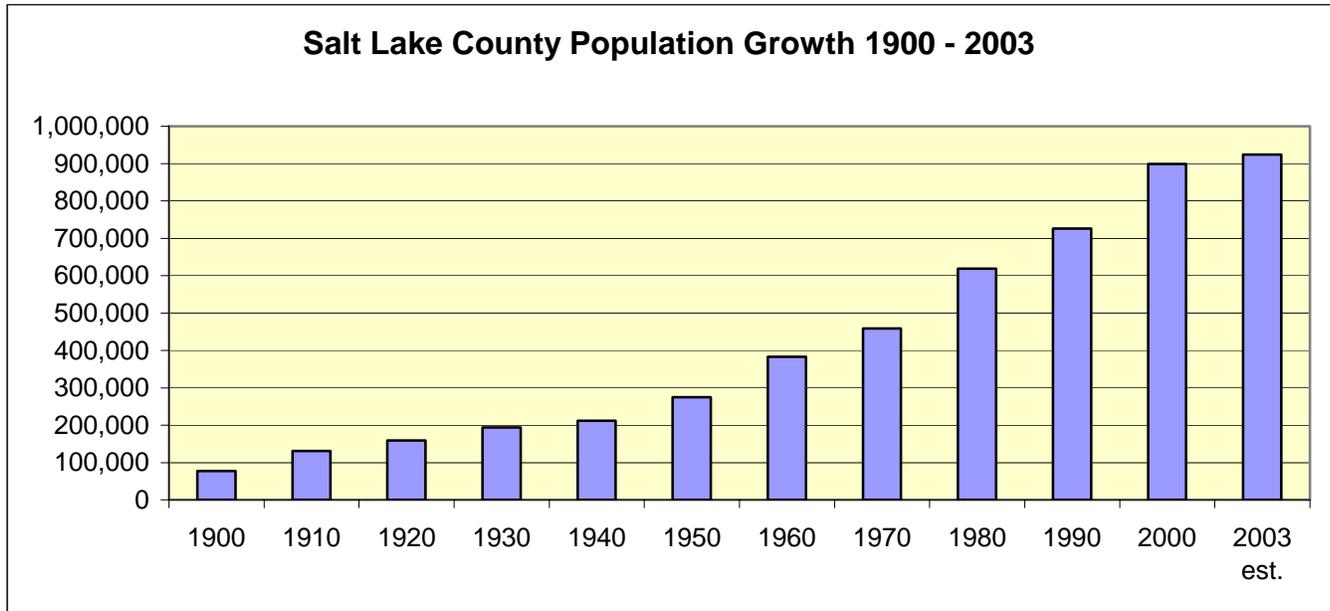
1. **Lowland Riparian** (riparian areas <5,500 ft elevation; principal vegetation: Fremont cottonwood and willow)
2. **Wetland** (marsh <5,500 ft elevation; principal vegetation: cattail, bulrush, and sedge)
3. **Mountain Riparian** (riparian areas >5,500 ft elevation; principal vegetation: narrowleaf 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; 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																
	Urban Encroachment on Agricultural Land	X	X	X			X	X	X	X	X	X	X	X	X	X	
	Marketing of Resource Products	X	X	X													
	Innovation Needs																
	Non-Traditional Land Uses																
	Population Demographics, Changes and Trends								X			X	X			X	
	Special Considerations for Land Mangement (High State and Federal Percentage)							X		X			X			X	
	Active Resource Groups (CRMs, etc)							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: 712
Full time operators: 290
Part time operators: 422

Public Survey/Questionnaire Results:

The Salt Lake Soil Conservation District sponsored a questionnaire in 2005 in order to gather input on the public's level of concern about natural resources. People were asked to provide input by taking an online survey, returning a paper copy of the survey, voicing their opinion at an SCD meeting, or talking directly to an SCD Board member. A news release was sent to the newspaper inviting people to take the online survey. Community and organization leaders were invited to take the survey by e-mail where possible and by regular mail when no e-mail was available. In addition, some 100 surveys were mailed to Salt Lake County residents, mostly to people that voted in the last SCD election.

Fifty-two responded by taking the online survey or returning the questionnaire. Only 10% percent of the respondents indicated that they farm or ranch, on a part-time basis or full-time basis and only six percent considered themselves water users. Forty-three percent represent local, state, or federal government. Ten percent represented environmental groups and 24% were urban or suburban citizens. Most of the respondents were male Caucasians over 50 years old. Eleven percent thought of themselves as agricultural producers. Fifty-three percent of the respondents were male and 47% were female. Most were under 51 years old and 89% were Caucasians.

Questionnaire respondents were asked to rate the urgency of addressing 41 natural resource concerns. Over 60% of the respondents thought that eleven of these concerns should be addressed immediately. Water conservation and supply, water quality, open space, land conversion to development, and loss of agricultural land were viewed as the five most pressing natural resource concerns in Salt Lake County. Over 70% of the respondents listed these as concerns that should be addressed immediately. The rest of the top eleven concerns are air quality, agricultural sustainability, groundwater, urban land use, energy conservation and supply, and invasive species. See the table below for a complete listing of the results for all the natural resources concerns. Earthquakes and the urban-Wildland interface were suggested as an additional natural resource concerns.

Thirty-two people were concerned enough to clarify why their concerns are critical. It would be difficult to come up with a predominant theme but many comments dealt with the accelerating nature of change in the area and the correlated need to do something now as well as plan for the future. Many people seem to feel that change starts with the attitudes and awareness of the residents. Thirty-six people commented on the geographical areas of the County needing the most attention. Undeveloped areas and areas connected with waterbodies probably received the most comments though there were several that indicated the whole county is in need and a couple that thought the urban area was the place to start.

Respondents were also asked to rank the importance of five different roles of the Soil Conservation District. Providing technical assistance to landowners was perceived as the most important role. Scores for the different roles were:

162	Technical Assistance to Landowners
145	Intermediary between Landowners and Regulatory Agencies
141	Data Collection
133	Natural Resources Education
96	Financial Assistance to Landowners

It was also thought that the SCD should advocate conservation and responsible, wise use of natural resources; work with and inform local governments, facilitate partnership efforts, and lead by example.

Salt Lake County Natural Resource Concerns Questionnaire	A concern that should be addressed immediately	A concern that should be addressed in the future	A minor concern or not a concern	No Opinion
Water Conservation and Supply	88%	8%	2%	2%
Water Quality	86%	12%	0%	2%
Open Space	80%	20%	0%	0%
Land Conversion to Development	73%	22%	4%	2%
Loss of Agricultural Land	71%	12%	14%	4%
Air Quality	69%	25%	4%	2%
Agricultural Sustainability	65%	22%	12%	2%
Groundwater	65%	29%	4%	2%
Urban Land Use	63%	18%	10%	10%
Energy Conservation and Supply	63%	27%	6%	4%
Invasive Species	61%	29%	2%	8%
Fish and Wildlife Habitat	59%	29%	10%	2%
Riparian Corridors (waterways)	59%	29%	10%	2%
Wetlands	59%	27%	12%	2%
Urban Water Pollution	57%	35%	6%	2%
Forest Health	53%	31%	12%	4%
Weeds	49%	29%	12%	10%
Fish and Wildlife Populations	47%	37%	12%	4%
Surface Water	45%	35%	8%	12%
Biological Diversity	43%	29%	20%	8%
Flooding	43%	31%	20%	6%
Public Land Management	41%	35%	18%	6%
Landfills and Waste Disposal	39%	33%	16%	12%
Threatened/Endangered or State-Sensitive Species	39%	41%	18%	2%
Rangeland Health	35%	25%	31%	8%
Grazing Lands	35%	24%	31%	10%
Soil Erosion	35%	45%	14%	6%
Recreation	33%	41%	16%	10%
Rural Land Use	33%	33%	18%	16%
Irrigation Water Management	31%	39%	16%	14%
Soil Quality/Soil Health	31%	41%	18%	10%
Wildfire	31%	45%	14%	10%
Cultural Resources	27%	33%	24%	16%
Mined Land Reclamation	27%	31%	27%	14%
Nutrient/Fertilizer Management	27%	37%	14%	22%
Pesticide Management	27%	37%	22%	14%
Food and Fiber Production	24%	31%	33%	12%
Landslides	22%	35%	25%	18%
Small-Acreage Management	22%	41%	24%	14%
Timber Production	16%	25%	47%	12%
Manure Management	10%	41%	31%	18%

*Complete results will be posted on <http://www.uacd.org/>

Footnotes / Bibliography

1. General information about Salt Lake County obtained from two website:
<http://www.slco.org/cities/cities.html> &
http://en.wikipedia.org/wiki/Climate_of_Salt_Lake_City#Precipitation
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 (wrlu2003) 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. Land Use/Land Cover acreages derived from the Water Related Land Use GIS layer developed by the Utah Department of Water Resources.
5. 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
6. Land Capability Classes derived from SURGO Soils Survey UT607 and Soil Data Viewer.
7. Tons of Soil Loss by Water Erosion data gathered from National Resource Inventory (NRI) data. Estimates from the 1997 NRI Database (revised December 200) replace all previous reports and estimates. For more information: <http://www.nrcs.usda.gov/technical/NRI/>
8. Precipitation data was developed by the Oregon Climate Service at Oregon State University using average monthly or annual precipitation from 1960 to 1990, published in 1988. Data was downloaded from the Resource Data Gateway, <http://dgateway-wb01.lighthouse.itc.nrcs.usda.gov/lighthouse>
9. Irrigated Adjudicated Water Rights obtained from the Utah Division of Water Rights.
10. Stream length data calculated using ArcMap and 100k stream data from AGRC and 303d waters from the Utah Department of Environmental Quality.
11. 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
12. 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/>).
13. County population data from the U.S. Census Bureau, Utah Quick Facts, <http://quickfacts.census.gov/qfd/states/49000.html>

14. Farm information obtained from the National Agricultural Statistics Service, 2002 Census of Agriculture.
<http://www.nass.usda.gov/census/census02/volume1/index2.htm>
15. Utah Animal Feeding Operation (AFO) information was obtained from "Utah Animal Feeding Operation Strategy: Five Years of Progress 1999-2004".