

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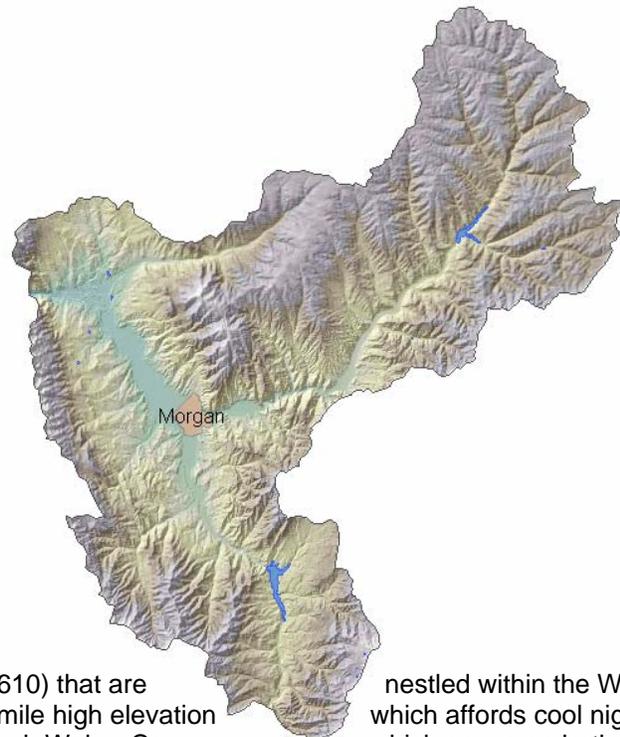
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Introduction

Morgan County consists of six hundred ten square miles (610) that are nestled within the Wasatch Mountains. The 7129 (2000) inhabitants enjoy the almost mile high elevation which affords cool nights in the hot summer. The main entrance to Morgan County is through Weber Canyon which opens on both the east and northwest sides of the county. The Weber River flows from the east to the west through this canyon. Morgan provides thirteen tributary creeks that add to the flow of the river as it leads its way to the Great Salt Lake. Several world class ski resorts are located within a 35 minute to an hour's drive from Morgan. Bicyclists enjoy touring throughout Morgan County which is known for its spectacular scenery and wildlife.

Two dams, East Canyon and Lost Creek, are situated within Morgan's boundaries. These provide both irrigation and culinary water for the lower counties. Summer recreation is also provided at the designated State Parks surrounding the East Canyon and Lost Creek Reservoirs.

Equal Opportunity Providers and Employers.



General Land Use Observations

Grass / Pasture / Hay Lands

- Complications related to overgrazing include poor pasture condition, soil compaction and water quality issues.
- Control of noxious and invasive plants is an ever increasing problem.
- The small, part-time farms are less likely to adopt conservation due to cost and low farm income.

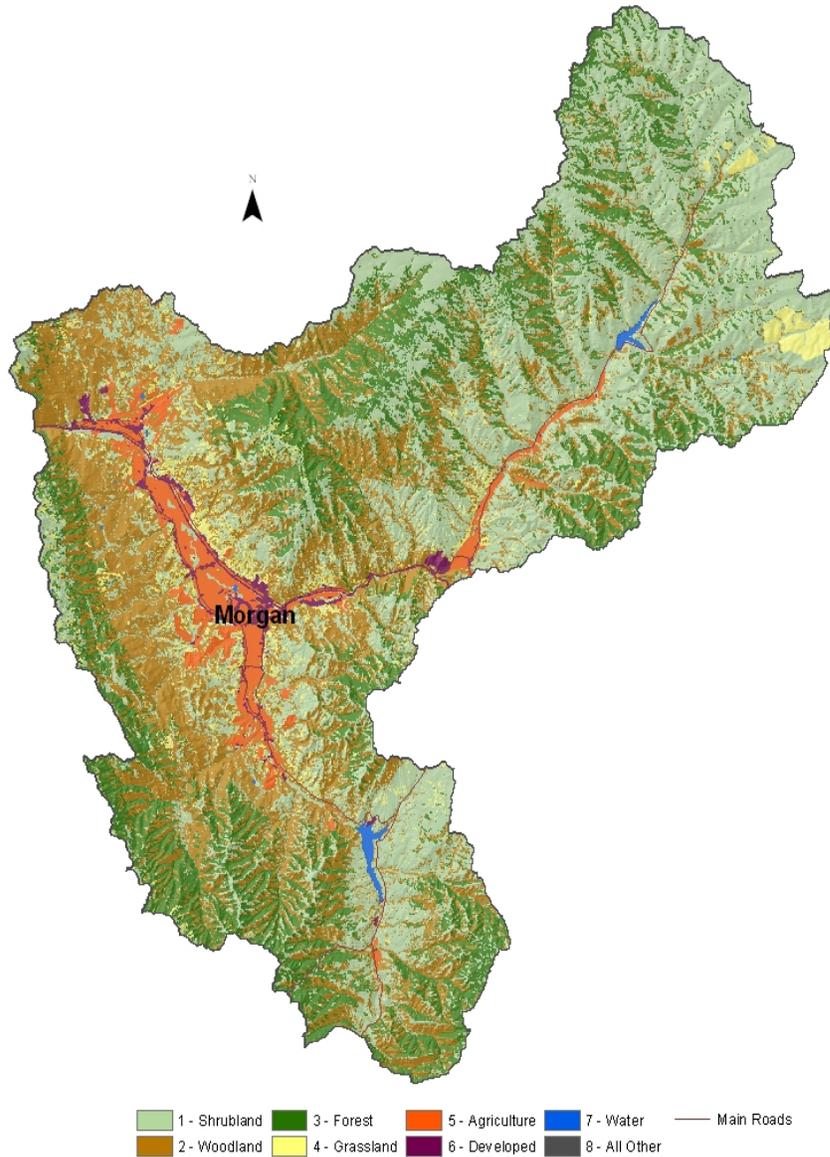
Row & Perennial Crops

- Residue, nutrient and pest management are needed to control erosion and to protect water quality.
- The small, part-time farms are less likely to adopt conservation due to cost and low farm income.

Resource Assessment Summary

Categories	Concern high, medium, or low	Description and Specific Location (quantify where possible)
Soil	medium	Sheet and rill erosion on non-irrigated cropland.
Water Quantity	high	On low water years, production is reduced.
Water Quality Ground Water	low	Prevent contamination.
Water Quality Surface Water	medium	Restrict pollutants from entering.
Air Quality	low	Air drainage is good.
Plant Suitability	high	Primarily range and pasture in poor condition. 80,000ac.
Plant Condition	high	Primarily range and pasture in poor condition. 150,000ac.
Fish and Wildlife	high	T&E species and state sensitive species. Game species that provide added income.
Domestic Animals	medium	West Nile Virus. Mad Cow disease.
Social and Economic	medium	Maintain it as a family farm.

Land Cover



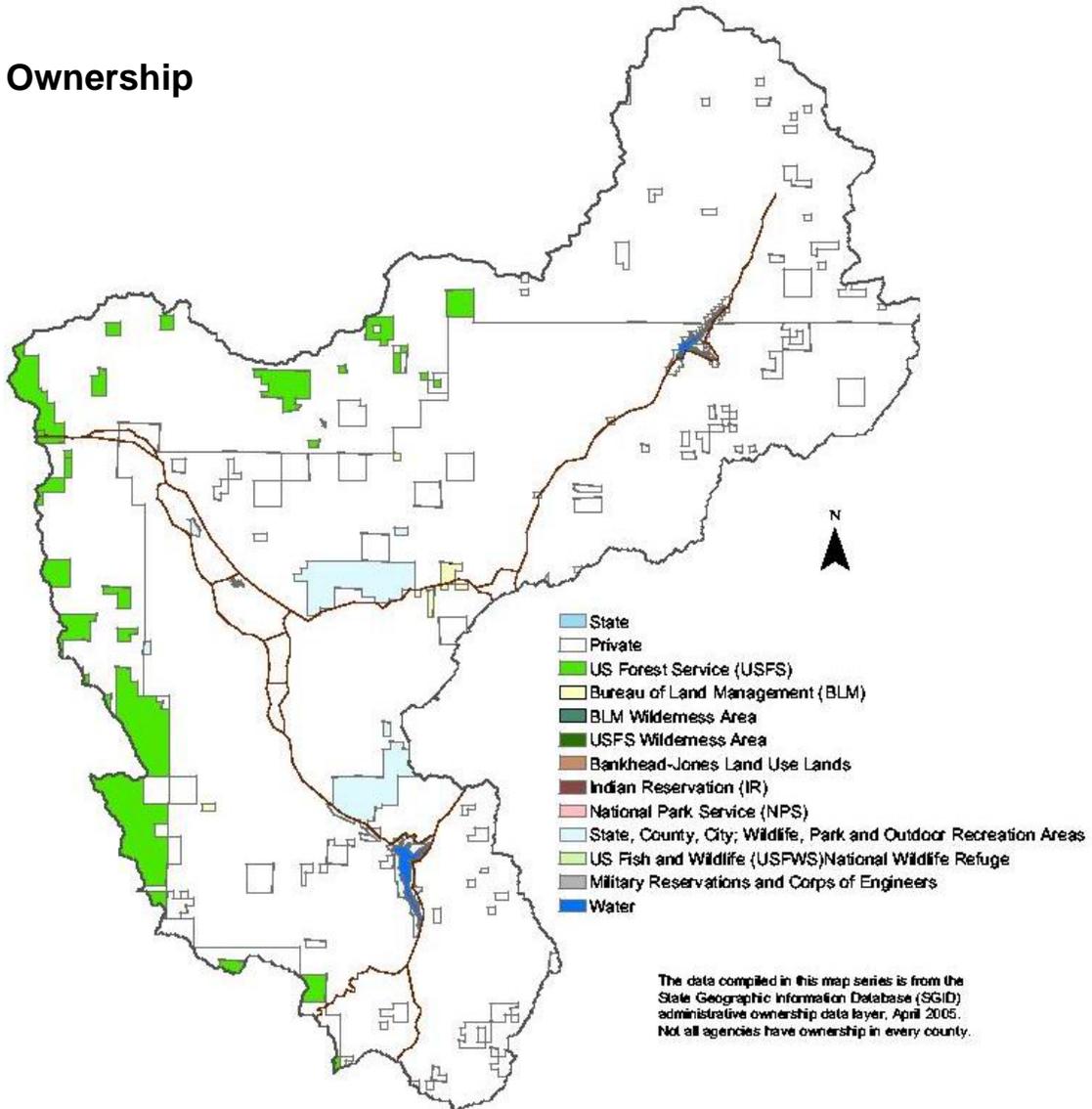
Land Cover/Land Use		
	Acres	%
Forest	0.00	0%
Grain Crops	4000.00	1%
Conservation Reserve Program *a	100.00	0%
Grass/Pasture/Haylands	29000.00	7%
Orchards/Vineyards	0.00	0%
Row Crops	100.00	0%
Shrub/Rangelands	354300.00	90%
Water	5000.00	1%
Wetlands	500.00	0%
Developed	2000.00	1%
Morgan County Totals *b	395000.00	100%

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

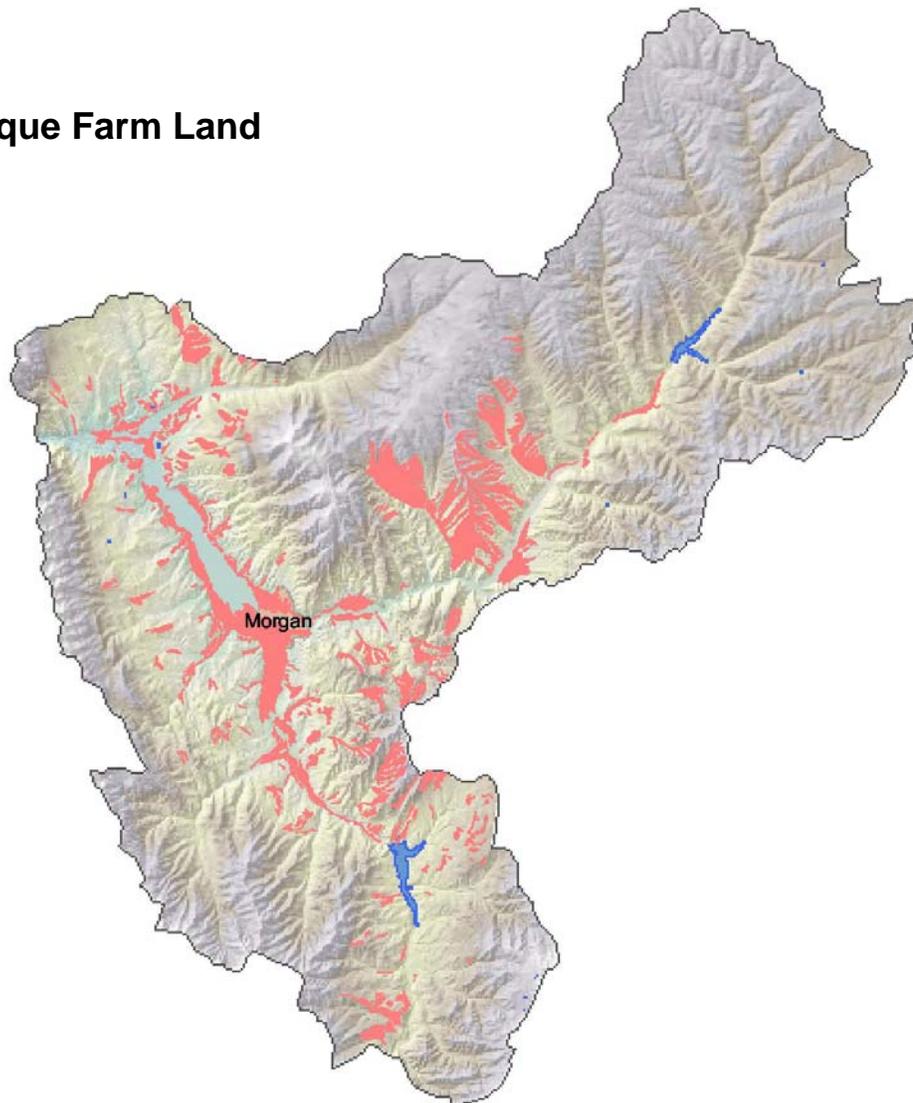
Special Considerations for Morgan County:

- Urban growth is occurring but agriculture is still strong.

Land Ownership



Prime & Unique Farm Land



 Prime farmland if irrigated - 27,818 acres

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

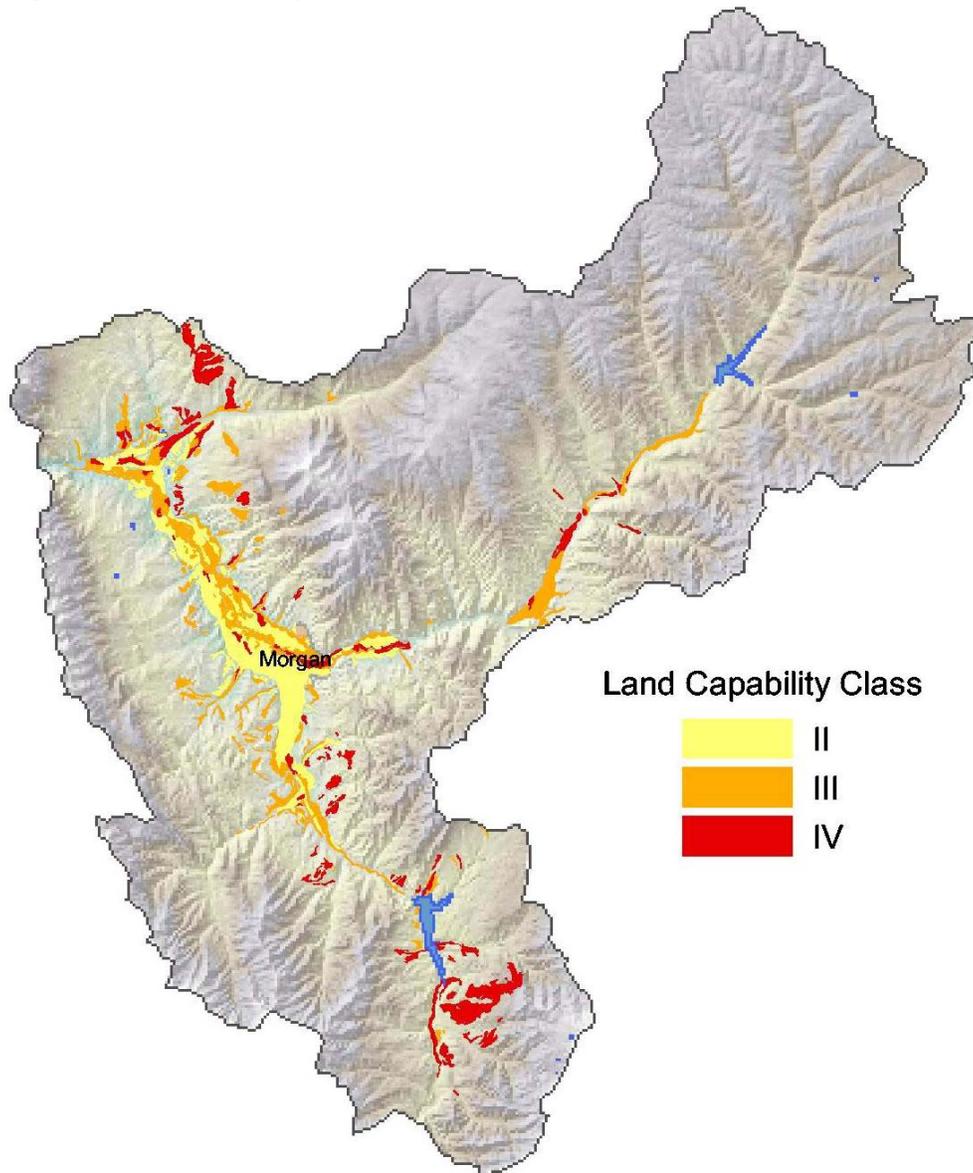
Additional farmland of statewide or local importance

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

Resource Concerns – SOILS

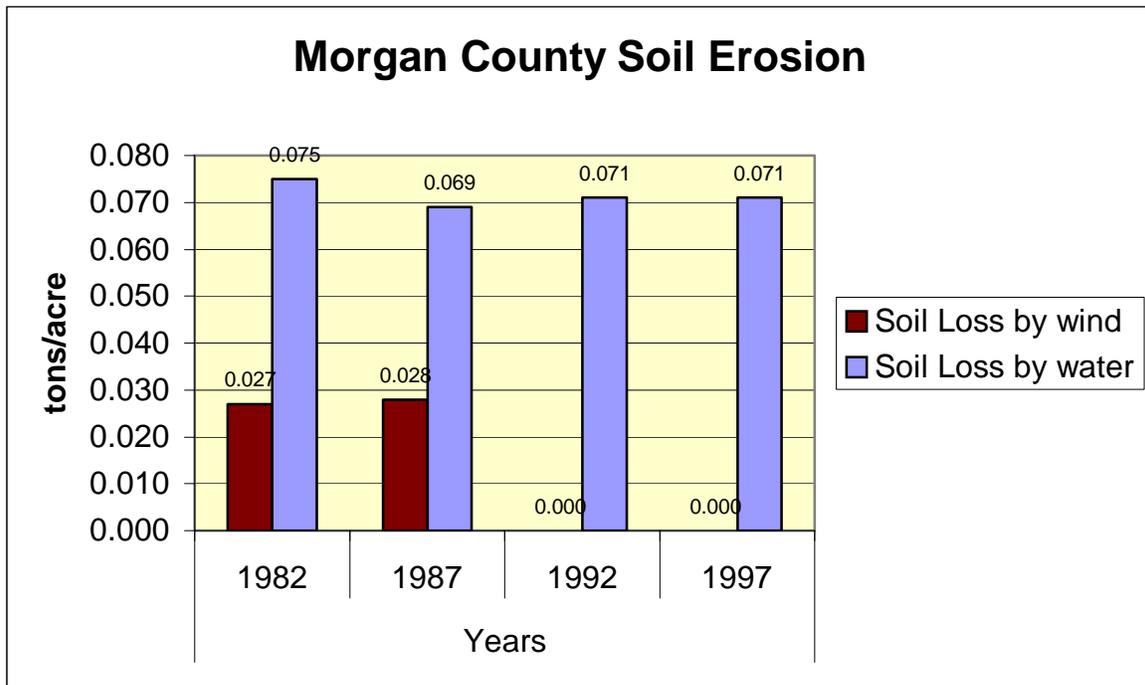
Categories	Specific Resource Concern / Issue	Crop	Hay	Pasture	Grazed Range	Grazed Forest	Pasture Native/Naturalized	Wildlife	Watershed Protection	Forest	Headquarters	Urban	Recreation	Water	Mined	Natural Area
Soil Erosion	Sheet and Rill	x			x						x	x				
	Wind															
	Ephemeral Gully				x											
	Classic Gully				x											
	Streambank	x	x	x	x	x									x	
	Shoreline															
	Irrigation-induced	x	x													
	Mass Movement				x											
	Road, roadsides and Construction Sites				x											
Soil Condition	Organic Matter Depletion	x			x				x							
	Rangeland Site Stability				x	x		x								
	Compaction	x			x											
	Subsidence															
	ContaminantsSalts and Other Chemicals															
	Contaminants: Animal Waste and Other OrganicsN	x									x					
	Contaminants: Animal Waste and Other OrganicsP	x									x					
	Contaminants: Animal Waste and Other OrganicsK	x														
	Contaminants : Commercial FertilizerN	x										x			x	
	Contaminants : Commercial FertilizerP	x													x	
	Contaminants : Commercial FertilizerK	x														
	ContaminantsResidual Pesticides	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	0	0%
	II - moderate limitations	8,381	35%
	III - severe limitations	9,342	39%
	IV - very severe limitations	6,523	27%
	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 - misc areas have limitations, limited to recreation, wildlife, and water supply	0	0%

Soil Erosion

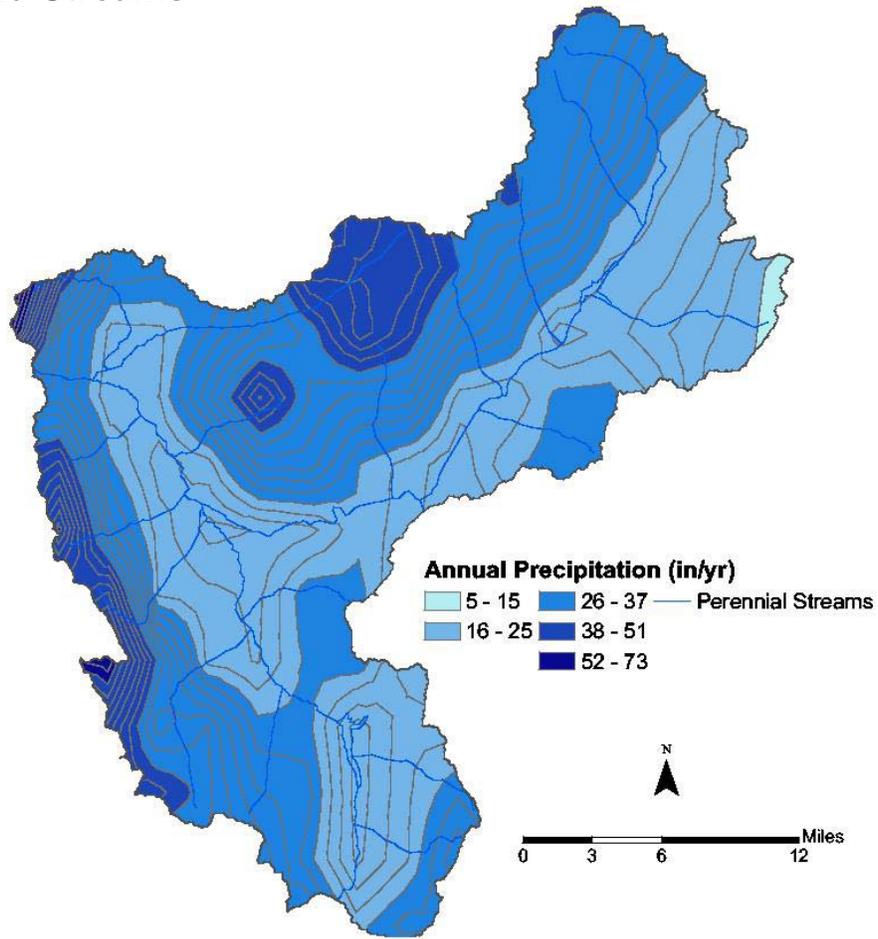


- ❖ The bar graph shown above indicates a large reduction in soil erosion on the total acres in Morgan County. However, there is approximately 132,365 acres of Highly Erodible Land (HEL) existing in the county. Much of the HEL acres are under a HEL conservation plan. The remaining acres still need treatment.
- ❖ The largest amount of total tons of erosion is from rangeland. Given the 80,000 acres of rangeland in poor condition and assuming two tons per acre per year, reduction after treatment equals 160,000 tons per acre per year reduction.

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				X	X			X				X			X	
	Excessive Runoff, Flooding, or Ponding				X	X			X				X			X	
	Excessive Subsurface Water																
	Drifted Snow																
	Inadequate Outlets																
	Inefficient Water Use on Irrigated Land	X	X	X													
	Inefficient Water Use on Non-irrigated Land				X	X			X				X			X	
	Reduced Capacity of Conveyances by Sediment Deposition																
	Reduced Storage of Water Bodies by Sediment Accumulation														X		
	Aquifer Overdraft																
Water Quality, Groundwater	Insufficient Flows in Watercourses				X	X		X	X				X	X		X	
	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																
Water Quality, Surface	Harmful Levels of Petroleum in Groundwater																
	Harmful Levels of Pesticides in Surface Water																
	Excessive Nutrients and Organics in Surface Water	X	X	X													
	Excessive Suspended Sediment and Turbidity in Surface Water	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																
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	9577.00	
	Well	1000.00	
	Total Irrigated Adjudicated Water Rights	10577.00	0.00
Stream Flow Data		Total Avg. Yield	
		May-Sept Yield	
		MILES	PERCENT
Stream Data	Total Miles - Major (100K Hydro GIS Layer)	762.00	n/a
	303d (DEQ Water Quality Limited Streams)	251.00	33%

		Irrigation Efficiency:	<40%	40 - 60%	>60%
Percentage of Total Acreage	Cropland		40%	40%	20%
	Pastureland		50%	45%	5%

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
		7	Planned
		5	Implemented

AFO/CAFO

Animal Feeding Operations (AFO)						
Animal Type	Dairy	Feed Lot (Cattle)	Poultry	Swine	Mink	Other
No. of Farms	4	30	0	0	15	20
No. of Animals	400	1,000	0	0	25,000	800

Potential Confined Animal Feeding Operations (PCAFO)						
Animal Type	Dairy	Feed Lot (Cattle)	Poultry	Swine	Mink	Other
No. of Farms	2	6	0	0	0	4
No. of Animals	400	400	0	0	0	150

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

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)- from AFO's										X					
	Chemical Drift															
	Objectionable Odors												X			
	Reduced Visibility - winter fog												X			
	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	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	X	X	X	X	X	X	X	X
	Threatened or Endangered Plant Species: Declining Species, Species of Concern	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Noxious and Invasive Plants	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Forage Quality and Palatability			X	X	X		X	X							
Plant Condition – Wildfire Hazard			X													
Fish and Wildlife	Inadequate Food	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Inadequate Cover/Shelter	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Inadequate Water	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Inadequate Space	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Habitat Fragmentation	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Imbalance Among and Within Populations	X	X	X	X	X	X	X	X	X	X	X	X	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	X	X	X	X	X	X	X	X
Domestic Animals	Inadequate Quantities and Quality of Feed and Forage			X	X	X		X	X							
	Inadequate Shelter			X	X	X		X	X							
	Inadequate Stock Water			X	X	X		X	X							
	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 alnum)
- 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 Morgan County (2003): Puncturevine, Burdock

Wildlife

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:	(None)			
Threatened:	Bald Eagle	Bird	Lowland Riparian	Agriculture
	Canada Lynx	Mammal	Sub-Alpine Conifer	Lodgepole Pine
Candidate:	Yellow-billed Cuckoo	Bird	Lowland Riparian	Agriculture
Proposed:	(None)			
STATE SENSITIVE				
Conservation Agreement Species:	Northern Goshawk	Bird	Mixed Conifer	Aspen
	Bonneville Cutthroat Trout	Fish	Water - Lotic	Mountain Riparian
	Bluehead Sucker	Fish	Water - Lotic	Mountain Riparian
Species of Concern:	Bobolink	Bird	Wet Meadow	Agriculture
	Deseret Mountainsnail	Mollusk	Mountain Shrub	Rock
	Ferruginous Hawk	Bird	Pinyon-Juniper	Shrubsteppe
	Grasshopper Sparrow	Bird	Grassland	
	Greater Sage-grouse	Bird	Shrubsteppe	
	Lewis's Woodpecker	Bird	Ponderosa Pine	Lowland Riparian
	Lyrate Mountainsnail	Mollusk	Mountain Shrub	Rock
	Sharp-tailed Grouse	Bird	Shrubsteppe	Grassland
	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.

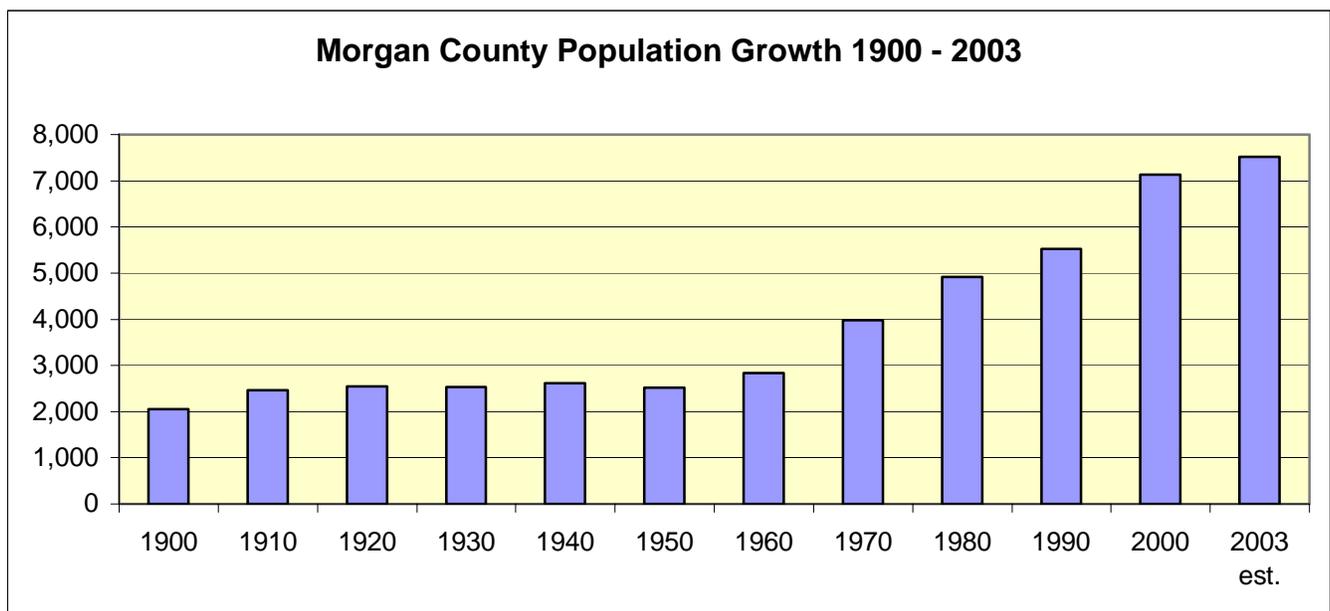
The Utah CWCS also prioritizes habitat categories based on several criteria important to the species of greatest conservation need. The top ten key habitats state-wide are (in order of priority):

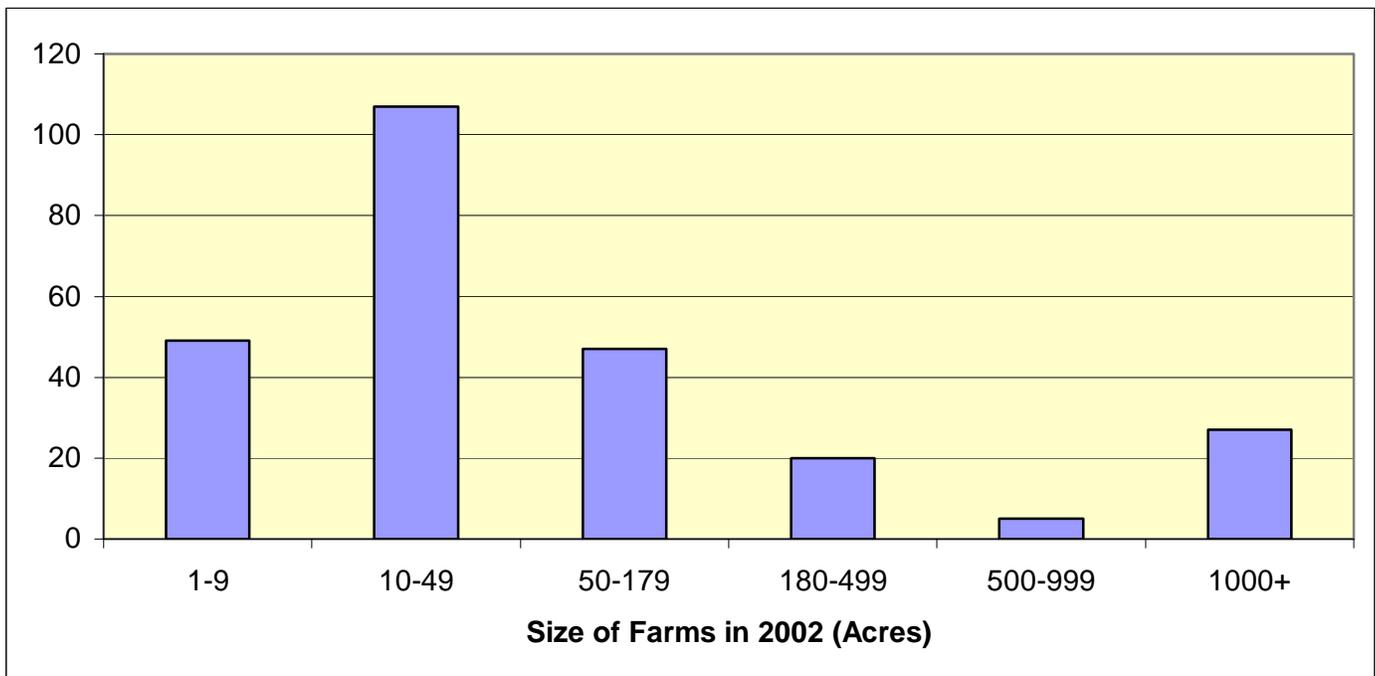
1. **Lowland Riparian** (riparian areas <5,500 ft elevation; principal vegetation: Fremont cottonwood and willow)
2. **Wetland** (marsh <5,500 ft elevation; principal vegetation: cattail, bulrush, and sedge)
3. **Mountain Riparian** (riparian areas >5,500 ft elevation; principal vegetation: narrowleaf 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	X	X		X	X		X	X	X	X	X	X
	Urban Encroachment on Agricultural Land	X	X	X	X	X		X	X				X			X
	Marketing of Resource Products	X	X													
	Innovation Needs	X	X	X	X	X		X	X	X	X	X	X	X	X	X
	Non-Traditional Land Uses															
	Population Demographics, Changes and Trends															
	Special Considerations for Land Mangement (High State and Federal Percentage)					X										
	Active Resource Groups (CRMs, etc)					X										
	Full Time vs Part Time Agricultural Communities	X	X	X	X	X			X	X						
	Size of Operating Units	X	X	X	X	X										
	Land Removed from Production through Easments															
	Land Removed from Production through USDA Programs															
Other																

Census and Social Data





Number of Farms in Morgan County - 255

Public Survey/Questionnaire Results:

The Morgan 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, over 100 surveys were mailed to Morgan County residents, mostly to people that voted in the last SCD election.

Seventeen people responded by taking the online survey or returning the questionnaire. Forty-one percent of the respondents indicated that they farm or ranch, on a part-time or full-time basis. Twenty-three percent represent local, state, or federal government. Thirty-five percent were water users. The rural citizens and business groups also had large representations (18% each). Respondents were free to indicate that they represented more than one group. Sixty-four percent thought of themselves as agricultural producers. Most of the respondents were male Caucasians over 50 years old.

Questionnaire respondents were asked to rate the urgency of addressing 41 natural resource concerns. They chose loss of agricultural land as their top natural resource concern by a wide margin. Agricultural sustainability, weeds, groundwater, and irrigation water management were the other four of the five most pressing natural resource concerns in Weber County. Over 70% of the respondents listed these as concerns that should be addressed immediately. In addition, 65% of the respondents thought that surface water, land conversion to development, soil quality/soil health, water conservation and supply, and water quality concerns should also be addressed immediately. See the table below for a complete listing of the results for all the natural resources concerns.

There were eight individual comments about natural resources with some specific concerns about private land management; wildlife carcasses; weed control enforcement; railway corridor weeds; population growth; homeowner use of water, pesticides, and fertilizer; and air and quality. Six people listed the following areas as needing the most attention: Lost Creek (2), Cottonwood Creek, East Canyon Creek, the valley floor, rivers and streams (2), and the railway corridor.

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:

- 65 Technical Assistance to Landowners
- 45 Financial Assistance to Landowners
Intermediary between Landowners and Regulatory
- 41 Agencies
- 39 Natural Resources Education
- 35 Data Collection

It was also thought that the SCD should provide more weed information as part of its education role.

Morgan 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
Loss of Agricultural Land	88%	12%	0%	0%
Agricultural Sustainability	76%	18%	0%	6%
Weeds	76%	18%	6%	0%
Groundwater	71%	18%	6%	6%
Irrigation Water Management	71%	24%	6%	0%
Surface Water	65%	12%	18%	6%
Land Conversion to Development	65%	24%	6%	6%
Soil Quality/Soil Health	65%	18%	12%	6%
Water Conservation and Supply	65%	24%	12%	0%
Water Quality	65%	29%	0%	6%
Flooding	59%	29%	6%	6%
Urban Water Pollution	59%	18%	18%	6%
Pesticide Management	53%	29%	12%	6%
Rangeland Health	47%	41%	6%	6%
Fish and Wildlife Habitat	47%	18%	29%	6%
Invasive Species	47%	24%	24%	6%
Urban Land Use	47%	29%	24%	0%
Fish and Wildlife Populations	47%	18%	24%	12%
Soil Erosion	47%	47%	0%	6%
Grazing Lands	41%	41%	12%	6%
Open Space	41%	35%	18%	6%
Nutrient/Fertilizer Management	41%	35%	18%	6%
Riparian Corridors (waterways)	41%	29%	24%	6%
Small-Acreage Management	41%	24%	24%	12%
Wildfire	41%	35%	12%	12%
Food and Fiber Production	35%	41%	12%	12%
Biological Diversity	29%	18%	41%	12%
Forest Health	29%	35%	29%	6%
Recreation	29%	29%	29%	12%
Rural Land Use	29%	59%	12%	0%
Energy Conservation and Supply	29%	65%	0%	6%
Wetlands	29%	24%	35%	12%
Public Land Management	24%	29%	47%	0%
Threatened/Endangered or State-Sensitive Species	24%	24%	41%	12%
Air Quality	18%	41%	29%	12%
Manure Management	18%	47%	29%	6%
Landslides	12%	35%	41%	12%
Landfills and Waste Disposal	12%	65%	12%	12%
Timber Production	12%	18%	53%	18%
Mined Land Reclamation	6%	12%	65%	18%
Cultural Resources	0%	35%	41%	24%

* The complete survey will be posted on <http://www.uacd.org/>

Footnotes / Bibliography

1. General information about Morgan County obtained from the official Morgan County website:
<http://utahreach.org/morgan/>
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
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. Irrigated Adjudicated Water Rights obtained from the Utah Division of Water Rights.
8. Stream Flow data from USGS-UTAH website.
9. Stream length data calculated using ArcMap and 100k stream data from AGRC and 303d waters from the Utah Department of Environmental Quality.
10. 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
11. 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/>).
12. County population data from the U.S. Census Bureau, Utah Quick Facts,
<http://quickfacts.census.gov/qfd/states/49000.html>
13. Farm information obtained from the National Agricultural Statistics Service, 2002 Census of Agriculture.
<http://www.nass.usda.gov/census/census02/volume1/index2.htm>
14. Utah Animal Feeding Operation (AFO) information was obtained from "Utah! Animal Feeding Operation Strategy: five Years of Progress 1999-2004".