

This resource assessment is designed to gather and display information specific to Kane 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.

Contents

[Observations and Summary](#)

[Land Use](#)

[Resource Concerns - Soils](#)

[Resource Concerns - Water](#)

[Resource Concerns - Air, Plants, Animals](#)

[Resource Concerns - Social and Economic](#)

[Survey Results](#)

[Footnotes/Bibliography](#)



Introduction

Kane County is located along Utah's southern border with Arizona. Garfield County borders Kane on the north, Iron County borders Kane on the West and San Jaun County borders Kane on the South East. The main Highway running through Kane County is U.S. highway 89. The high desert landscape of Kane County belongs to the Colorado Plateau geographical province. The waters of man-made Lake Powell on the Colorado River form the county's eastern border, and most of the streams in Kane are part of the Colorado River system.

Kane County has an area of about 2,553,375 acres. Of these acres 85% is federally owned, 10% is State owned, and 5% is privately owned. Kane County's population is about 6046. The density of the county is about 1.47 people per square mile.

Average Winter Temperatures: 35 degrees F; average Summer temperatures: 75 degrees F; average precipitation: 10.3 inches. The average growing season is about 183 days. Mostly alfalfa for horses and cattle is grown.

Equal Opportunity Providers and Employers.



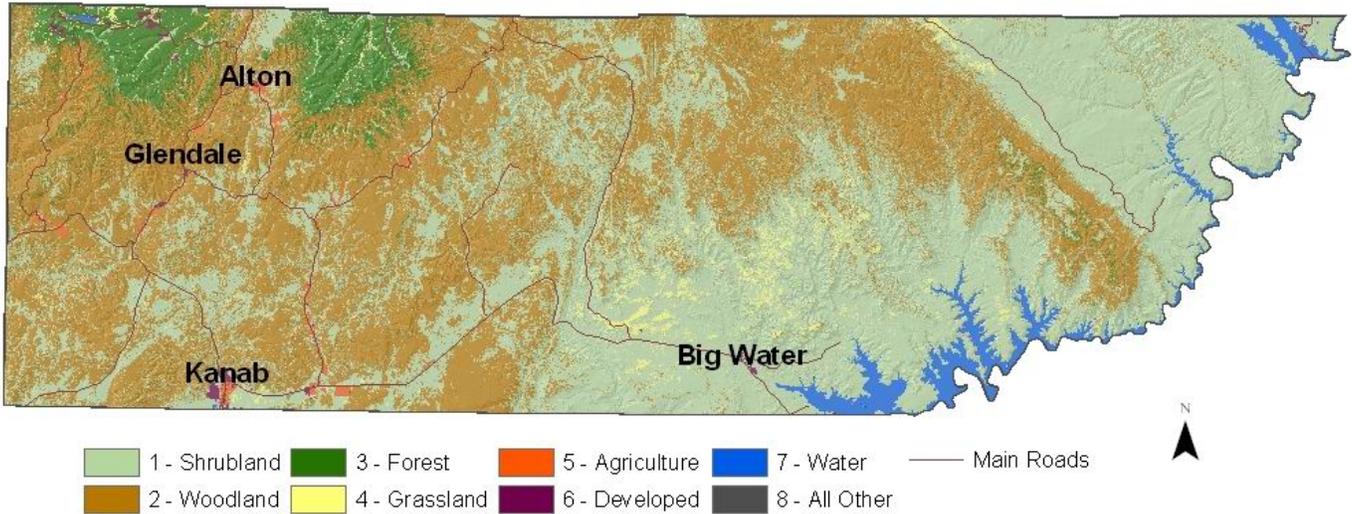
General Land Use Observations

- These areas have a history of over grazing which affects the condition and health of the present rangelands.
- Kane County has many of the listed noxious weeds.
- 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	High	Wind erosion is more of an issue than water erosion. In the valleys and lower areas where the wind is stronger there is a higher occurrence of wind erosion. Water erosion occurs along the Virgin River and Kanab Creek.
Water Quantity	High	The concern over water quantity in Kane county is usually connected to the availability of water. In the past 7 years there has been such a shortage of water due to the drought that it became necessary to implement additional water savings efforts.
Water Quality Ground Water	Medium	Ground Water quality is affected by a number of concerns. Including the ones mentioned in the soil erosion section above.
Water Quality Surface Water	High	Water quality is affected by the soil erosion mentioned above. Sedimentation due to the erosion is always affecting the water quality in this area.
Air Quality	Medium	Air Quality is related to the occurrence of wind erosion in the valleys and lower areas with strong winds.
Plant Suitability	High	Noxious weeds are a concern throughout the county. They adversely affect cropland and range land. The invasion of undesirable plants such as cheat grass and Pinyon/Juniper is an increasingly serious problem
Plant Condition	Medium	There has been a high occurrence of mortality in the sagebrush flats. The sagebrush is rapidly dying off in some areas. Many rangelands in Kane county that have been treated in past years have turned into a monoculture affecting the health of the ranges
Fish and Wildlife	High	In Kane County producers and land managers are working to keep species from being listed as an endangered species.
Domestic Animals	Low	
Social and Economic	Medium	As in many areas throughout the state there is the ever increasing problem of developments. Ranches being broken down into 5-10 acre ranchettes. The Grand Staircase Escalante National Monument close to many producers and many producers run cattle on the monument. As a result there are many restrictions set on these producers by the government management agencies making it harder and harder for them to stay in ranching.

Land Cover



Land Cover/Land Use		
	Acres	%
Forest	548,016	22%
Grain Crops	800	0%
Grass/Pasture/Haylands	11,000	0%
Orchards/Vineyards	17	0%
Shrub/Rangelands	1,890,058	75%
Water/Wetlands	32,049	1%
Developed	22,510	1%
Kane County Totals *b	2,504,450	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 Kane County:

- Orchards/Vineyards/Nurseries include apples
- Pasture/Hay includes approximately:
 - 7000 acres of pasture (FSA/Ag Statistics)
 - 3000 acres of alfalfa hay (FSA/ Ag Statistics)
 - 1000 acres of other hay(FSA/Ag Statistics)
- There are approximately 800 acres of grain (FSA/Ag Statistics)
- Shrub/rangelands consist of oak savannahs and sagebrush flats.
- 85% of Kane County is federally owned, 10% is state owned, and 5% is privately owned.

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.



There are only 16 acres designated as Prime & Unique Farm Land in Kane County with the classification of “Prime Farm Land if Irrigated”.

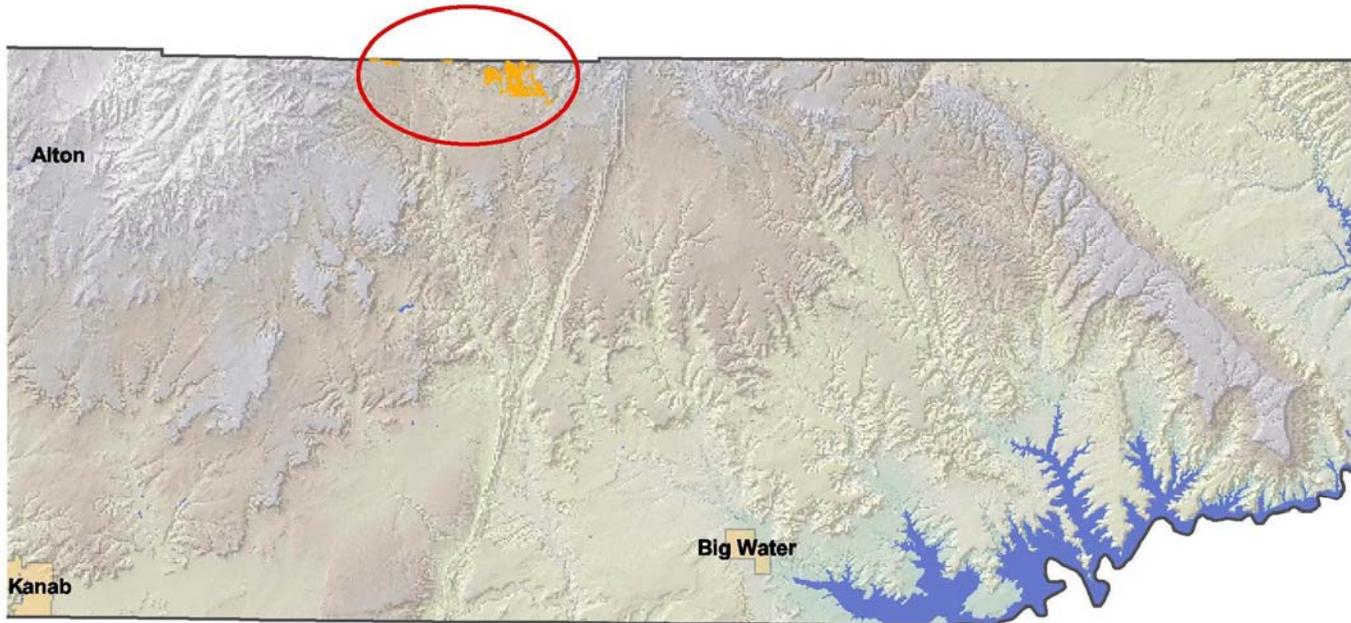
Prime farmland

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.

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

Land Capability Class on Cropland and Pastureland

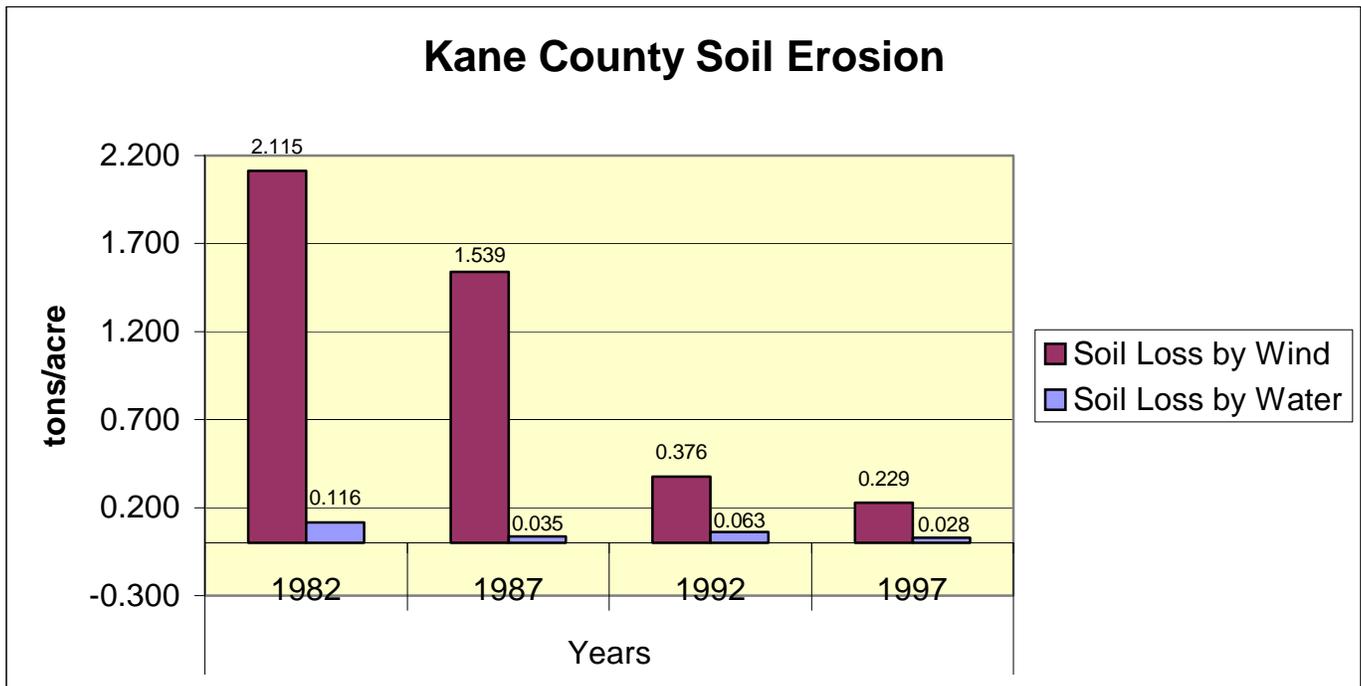


Land Capability Class



		Acres	Percentage
Land Capability Class (Irrigated Cropland & Pastureland Only)	I - slight limitations	0	0%
	II - moderate limitations	16	1%
	III - severe limitations	2,433	99%
	IV - very severe limitations	0	0%
	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

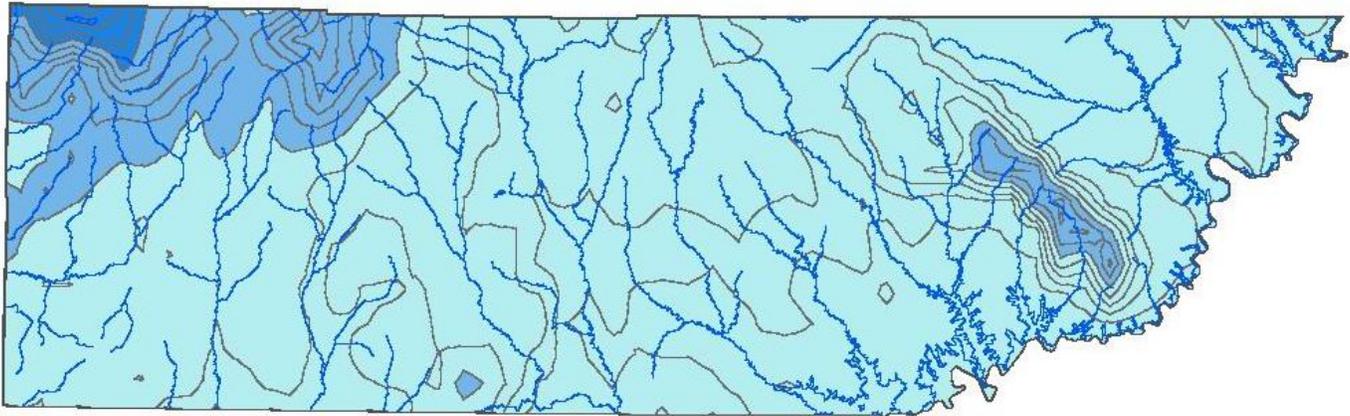


- ❖ Sheet and rill erosion by water on the subbasin croplands and pasturelands have been reduced by more than 50 thousand tons of soil per year from 1982 to 1997.
- ❖ NRI estimates indicate 1,400 acres of the subbasin agricultural lands still had water erosion rates above a sustainable level in 1997.
- ❖ 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.
- ❖ Through NRCS programs many farmers and ranchers have applied conservation practices to reduce the effects of erosion by water. As a result, erosion rates on croplands and pasturelands fell 24 percent from .116 to .028 tons/acre/year from 1982 to 1997.

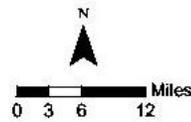
Resource Concerns – WATER

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							
	Excessive Subsurface Water															
	Drifted Snow															
	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															
	Reduced Storage of Water Bodies by Sediment Accumulation			X	X	X	X									
	Aquifer Overdraft															
Water Quality, Groundwater	Insufficient Flows in Watercourses	X	X	X	X	X	X	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 Petroleum in Surface Water															
	Excessive Nutrients and Organics in Surface Water	X	X	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



Annual Precipitation (in/yr)



		ACRES	ACRE-FEET
Irrigated Adjudicated Water Rights	Surface		
	Well		
	Total Irrigated Adjudicated Water Rights	0.00	0.00
Stream Flow Data	USGS 09404450, East Fork Virgin River	April-July Yield	64,000
		MILES	PERCENT
Stream Data	Total Miles - Major (100K Hydro GIS Layer)		n/a
	303d (DEQ Water Quality Limited Streams)		#DIV/0!

		Irrigation Efficiency:	<40%	40 - 60%	>60%
Percentage of Total Acreage	Cropland		10%	50%	40%
	Pastureland		30%	60%	10%

Watersheds & Total Maximum Daily Load (TMDL)

Watershed Projects, Plans, Studies and Assessments			
NRCS Watershed Projects		NRCS Watershed Plans, Studies & Assessments	
Name	Status	Name	Status
		Virgin River Watershed Management Plan	Draft
DEQ TMDL's		NRCS Comprehensive Nutrient Management Plans	
Name	Status	Number	Status

AFO/CAFO

Animal Feeding Operations (AFO)						
Animal Type	Dairy	Feed Lot (Cattle)	Horses	Sheep	Mixed	Other
No. of Farms	0	23	14	0	15	
No. of Animals						

Potential Confined Animal Feeding Operations (PCAFO)						
Animal Type	Dairy	Feed Lot (Cattle)	Horses	Sheep	Mixed	Other
No. of Farms	0	1	1	0	1	0
No. of Animals						

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

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	X	X													
	Objectionable Odors										X					
	Reduced Visibility	X	X										X		X	
	Undesirable Air Movement															
	Adverse Air Temperature															
Plant Suitability	Plants not adapted or suited															
Plant Condition	Plant Condition – Productivity, Health and Vigor				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
	Threatened or Endangered Plant Species: Declining Species, Species of Concern				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						
Plant Condition – Wildfire Hazard				X	X	X			X							
Fish and Wildlife	Inadequate Food				X	X	X	X	X	X						
	Inadequate Cover/Shelter	X	X	X												
	Inadequate Water							X								
	Inadequate Space															
	Habitat Fragmentation	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	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								
	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 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 Kane 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:	California Condor (experimental)	Bird	Cliff	
	Kanab Ambersnail	Mollusk	Water - Lentic	Wetland
	Bonytail	Fish	Water - Lotic	
	Colorado Pikeminnow	Fish	Water - Lotic	
	Humpback Chub	Fish	Water - Lotic	
	Razorback Sucker	Fish	Water - Lotic	
	Southwestern Willow Flycatcher	Bird	Lowland Riparian	Mountain Riparian
Threatened:	Mexican Spotted Owl	Bird	Cliff	Lowland Riparian
	Bald Eagle	Bird	Lowland Riparian	Agriculture
	Utah Prairie-dog	Mammal	Grassland	Agriculture
Candidate:	Coral Pink Sand Dunes Tiger Beetle	Insect		
	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
	Roundtail Chub	Fish	Water - Lotic	
	Flannelmouth Sucker	Fish	Water - Lotic	
Species of Concern:	Allen's Big-eared Bat	Mammal	Lowland Riparian	Pinyon-Juniper
	American White Pelican	Bird	Water - Lentic	Wetland
	Arizona Toad	Amphibian	Lowland Riparian	Wetland
	Big Free-tailed Bat	Mammal	Lowland Riparian	Cliff
	Burrowing Owl	Bird	High Desert Scrub	Grassland
	Common Chuckwalla	Reptile	High Desert Scrub	Low Desert Scrub
	Desert Night Lizard	Reptile	Low Desert Scrub	Pinyon-Juniper
	Desert Sucker	Fish	Water - Lotic	
	Ferruginous Hawk	Bird	Pinyon-Juniper	Shrubsteppe
	Fringed Myotis	Mammal	Northern Oak	Pinyon-Juniper
	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
	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 Toad	Amphibian	Wetland	Mountain Riparian	

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

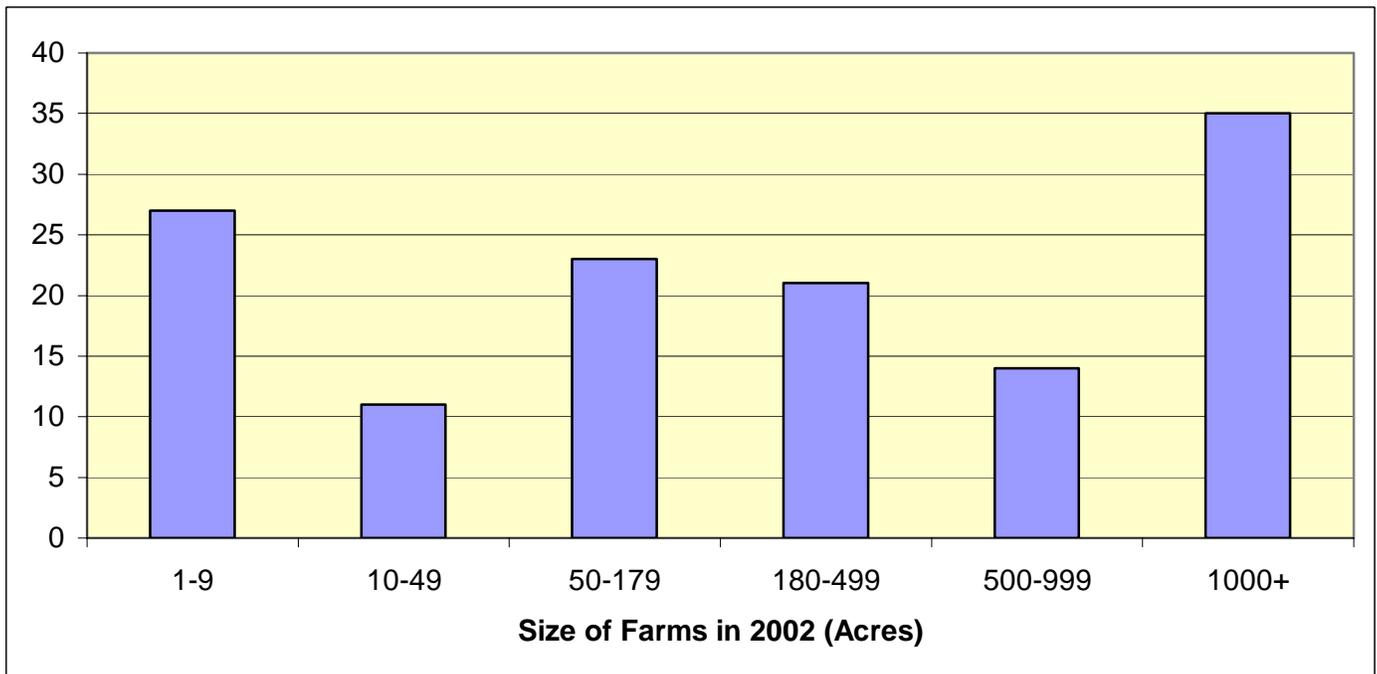
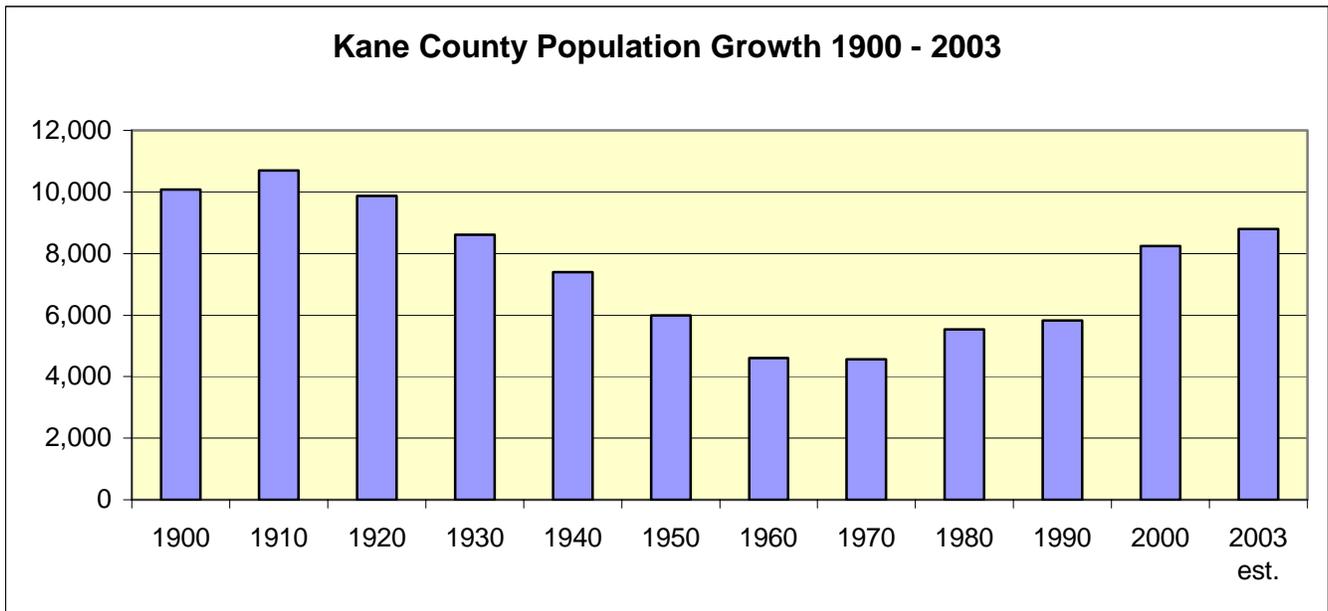
The Utah CWCS also prioritizes habitat categories based on several criteria important to the species of greatest conservation need. The top ten key habitats state-wide are (in order of priority):

- 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										
	Urban Encroachment on Agricultural Land	X	X	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			X						X		
	Special Considerations for Land Mangement (High State and Federal Percentage)				X	X	X			X				X		X
	Active Resource Groups (CRMs, etc)															
	Full Time vs Part Time Agricultural Communities	X	X	X	X	X	X	X	X	X						
	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: 286

Number of Operators:

- Full-Time Operators:57
- Part-Time Operators:229

Public Survey/Questionnaire Results:

Footnotes / Bibliography

1. General information about Kane County obtained from a Kane 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
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 website, <http://www.USGS.gov>
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 Virgin River Watershed management Plan and Office Resources
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

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>