

This resource assessment is designed to gather and display information specific to Box Elder 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](#)

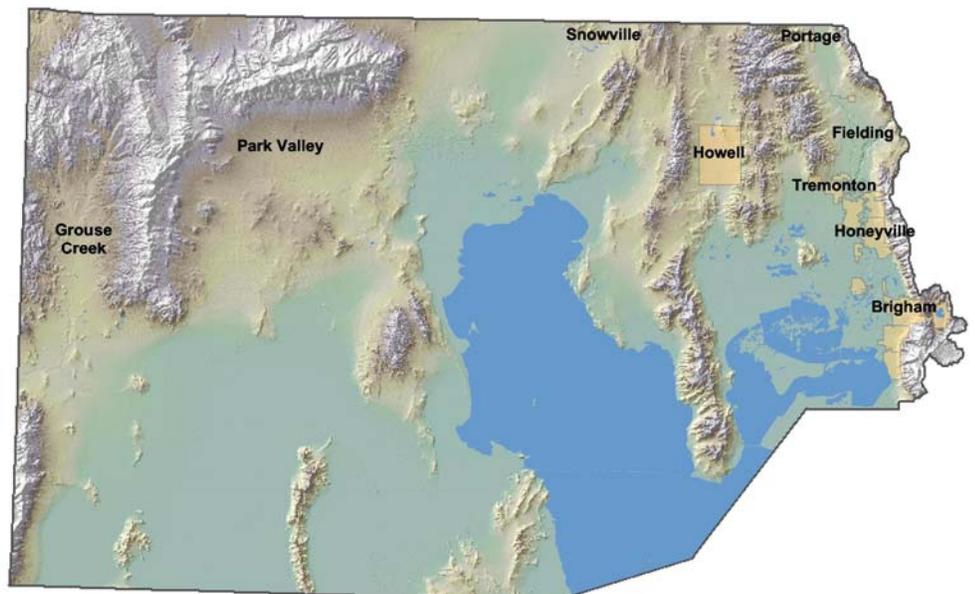
[Resource Concerns - Water](#)

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

[Resource Concerns - Social and Economic](#)

[Survey Results](#)

[Footnotes/Bibliography](#)



## Introduction

Located in the Northwestern corner of state, Box Elder County is the fourth largest county in Utah. It includes rich farmlands, arid deserts, beautiful marshlands and portions of the Great Salt Lake. The county was created by the Territorial Legislature in 1856.

Box Elder towns west of the Wasatch front are small, agriculturally based for the most part and are isolated from the urban portions of the state by several hours driving time: Snowville, Park Valley, Yost, and Grouse Creek comprise the major rural communities of West Box Elder County. In 2003, the population for the county was 44,022. Median family income was \$45,670, or 11% less than the state average of \$51,022. Box Elder is a homogenous white population with

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minority populations significantly less than the state's averages. Hispanics make up the largest minority group in the county (approximately 5% of the total population).

Box Elder County consists of a total land area of 4,603,90 acres, or about 5,308 square miles. There are also 663,453 acres, or 1,037 surface miles of water – the Great Salt Lake. The average freeze free season averages about 125 days (80 to 150 day range). Agriculture has always played an important role in the economy of Box Elder County. In 2003, Box Elder County was second highest county in the state of Utah in cash receipts from farming, according to the Utah Agriculture Statistics Service. In 2004, the county was third in the state.

A significant percentage of the county's land is used for agricultural purposes. Besides the standard crops of hay, grain, and alfalfa, sugar beets were also raised, starting in 1901. The Eastern and Northeastern portion of Box Elder County is rich in cultivated row crops. There is an abundance of both beef and dairy cattle. Orchards also line the eastern side of Box Elder County.

Elevations range from the 2004 Great Salt Lake level of 4,200 feet to 9,764 feet (Willard Peak). Average annual precipitation ranges from 4 inches in the Western (desert) portions of the county to over 30 inches in the higher mountains to the East.

One of the most important events in the history of Box Elder County was the joining of the Central Pacific and Union Pacific rails at Promontory Point. The driving of the Golden Spike on May 10, 1869, marked the completion of the transcontinental railway. The Golden Spike National Historic Museum is located west of Tremonton along with Thiokol, an aerospace technology corporation. Box Elder County also has a rich Native American history: Headquarters for the Northwestern Band of the Shoshone Nation are located in Brigham City.

## General Land Use Observations

### Water Management

- Irrigators in the Eastern portion of the county have adequate water supplies, but efficient delivery systems are lacking. In the Western portion of the county, water delivery systems are needed to efficiently use limited water supplies.
- Agricultural activities continue to impact water quality in the Bear River and its tributaries in the Eastern portion of the county (see Animal Feeding Operations, below).
- Willard Bay and the Great Salt Lake are rich in wildlife habitats and need improved management in order to improve and maintain the resource base.

### Dry Cropland

- Soil erosion continues to be a concern on dry cropland. Structural improvements such as terracing are needed as well as improved crop and land management techniques including proper tillage practices, leaving adequate crop residues, strip cropping, filter strip installation and crop rotation. Cultivation of soils unsuitable for dry cropping is also a concern.

### Range / Pasture / Hay Lands

- Poor range condition, soil compaction, and water quality and drought issues are factors contributing to the degradation of forage.
- Control of noxious and invasive plants is an ever increasing problem.
- Management of forage and cover for wildlife habitats are of continued concern.

### Animal Feeding Operations

- Nutrient management practices are being addressed. A concerted effort will continue to improve water quality and stream bank vegetation but continued financial and technical assistance is needed.
- Improved animal waste management needs implementation in order to address threats to water bodies and keep current operations economically viable.

### Row & Perennial (orchards / nurseries) Crops

- Residue, nutrient, water and pest management are needed to control erosion and to protect water quality.
- Currently, water conserving drip irrigation systems are available and need implementation.

### Urban Development

- Increased urbanization continues to pressure the demand on existing (and limited) water supplies in the Eastern portion of the county.
- Urban construction is steadily destroying existing field drains which results in new home and existing crop field flooding problems. Mapping of these drain pipes and making this information available to contractors is an on-going effort conducted by the local Soil Conservation District.

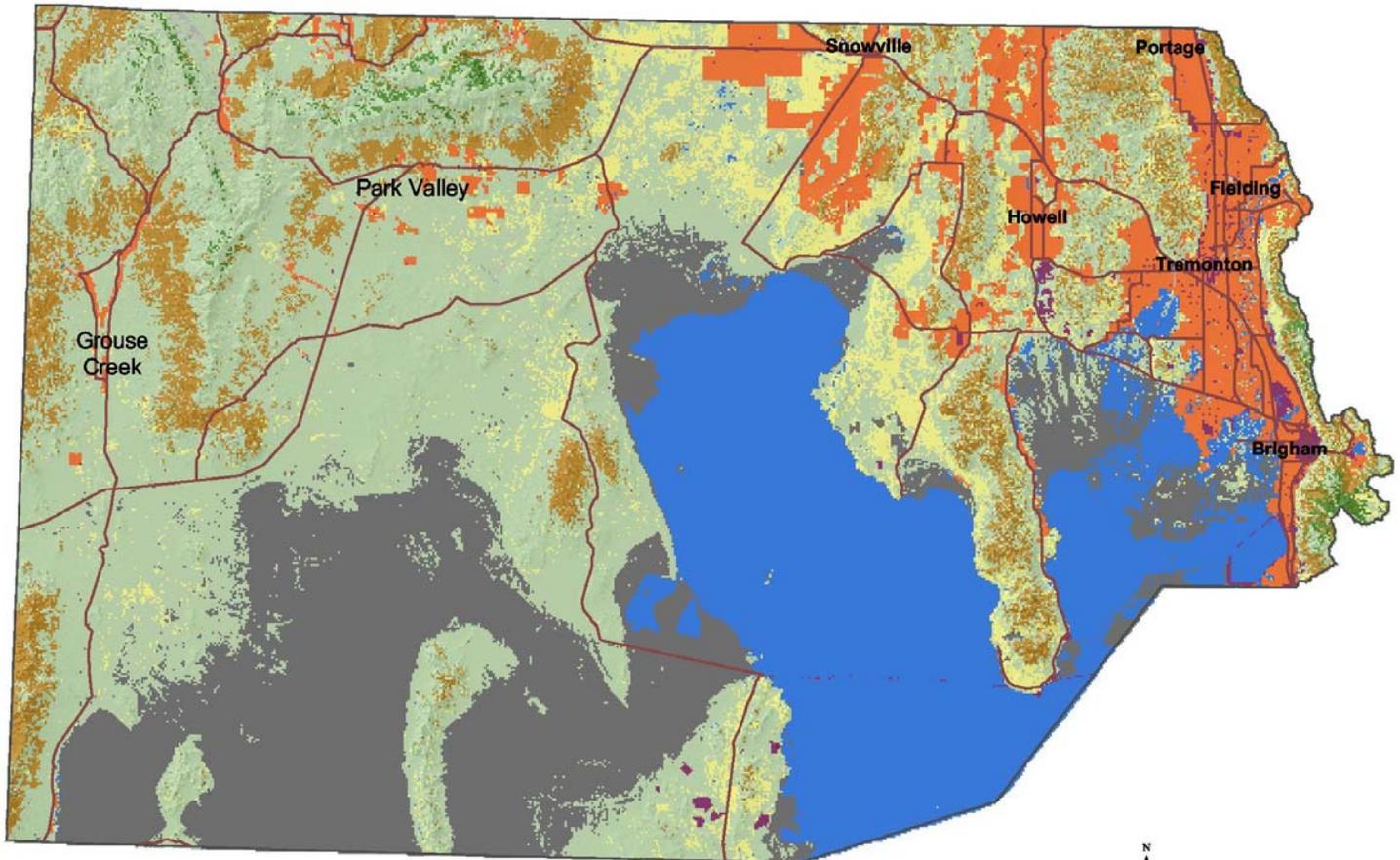
**Resource Assessment Summary**

Categories	Concern high, medium, or low	Description and Specific Location (quantify where possible)
<b>Air</b>		
Air Pollution	Low	Burning of stubble fields continues to raise concerns by the general public.
Air QualityAFO's	Medium	
Regulatory Involvement Concerns	Medium - Low	The strongly rural aspect of the western portion of Box Elder County has fostered an attitude of independence and self-reliance that may run counter to regulatory controls imposed from outside the area.
<b>Agricultural</b>		
Animal Waste	Medium	
Grazing	<b>High</b>	The primary land use county-wide, approximately 1,955,000 acres, or 85% of the 2,300,000 acres, is rangeland. Most is in fair condition or lower and need structural and management practices implemented to maintain the sustainability of the resource. Financial and technical assistance will be needed to accomplish this on-going goal.
Nutrient Management	Medium	
Preservation	Medium	
Productivity	<b>High</b>	All land users are faced with increased regulatory pressures to implement environmentally neutral farming practices in the face of low farm market prices and increasing fuel and other costs.
Protection	<b>High</b>	The destruction of existing tile drain systems during urban construction projects often results in flooding to the new structure and adjacent agricultural lands (Eastern Box Elder County only).
Sustainability	<b>High</b>	With landowners faced with diminished economic returns, higher costs, and increased pressure to clean up non-point-source pollution problems, area producers are struggling to stay in bussiness. Many single- and family-run animal feeding operations are facing difficult decisions as to future viability and existence.
Genetics (seed)	Medium	
Precision Agriculture (GPS)	Medium	

<b>Land Use</b>		
Cultural Resource Conservation Issues	Medium	
Forestry	Medium	
Grazing (Land Use)	<b>High</b>	Conflicts over endangered species vs. grazing rights need thoughtful resolution (primarily in the Western portion of the county).
Open Space	Medium	
Pasture Management	<b>High</b>	There is a need for financial and technical assistance to implement effective grazing systems to ensure sustained use of this resource.
Recreation	Medium	
Urban Development	Medium	Conflicts continue to occur at the agriculture/urban boundaries.
Wetlands	Medium	
Wildfire	<b>High</b>	Hazardous fuels removal, fire break implementation and other measures are needed to protect rural communities from wildfire.
<b>Pest Management</b>		
Insect Pest Control	<b>High</b>	West Nile Virus disease (and therefore mosquito control) is a concern county wide, as is control of Mormon Crickets (on rangeland).
Plant Pest Control	<b>High</b>	Financial and technical assistance is needed to control/eradicate Whitetop, Dyer's Woad, Medusahead, various Thistles, Knapweeds, and other noxious weeds county wide.
Fungus Disease Control	Medium	
Non-Chemical Pest Control Methods	Medium	
Bees (conservation needs)	Medium	
West Nile Virus	<b>High</b>	Mosquito control and subsequent control over the spread of West Nile Virus is a concern county wide.
Weed and Pest Control	<b>Very High</b>	See notes above regarding Pest Management.
<b>Soil</b>		
Erosion	Medium	Soil erosion abatement due to wind and water is an ongoing effort county wide. The extensive terraces on dry cropland need continued maintenance.
Fertility	Medium	Comprehensive Nutrient Management Plans (CNMP's) have increased awareness of the benefits of accurate record keeping in maintaining adequate soil fertility
Mined and Land Reclamation	Low	
Salinity	Medium	Some areas of Box Elder County have saline/sodic soil problems that greatly limit agricultural use. Technical assistance is needed to deal with these problems.
Soil Quality	Medium	
Wildfire Revegetation	High	Some very hot fires will require revegetation to conserve the soil and related resources. Technical and financial assistance is needed when these fires occur.

<b>Water</b>		
Water Conservation (drought)	<b>Very-High</b>	Limited irrigation water resources dictate that water efficient delivery and management systems be installed by land users. Financial and technical assistance is needed in this on-going effort.
Flooding	<b>High-Medium</b>	The destruction of existing tile drain systems during urban construction projects often result in flooding to the new structure and adjacent agricultural lands (Eastern Box Elder County only).
Groundwater	<b>High-Medium</b>	The diminishing (lowering) of irrigation wells in the Snowville Flat area will be alleviated by the formation of formal agreements between water resources personnel in Utah and Idaho.
Irrigation Water Management	<b>Very-High</b>	Technical assistance (coupled with effective water delivery systems) is needed to conserve irrigation water resources county wide.
Riparian Areas	Medium	
Storm Water Management	<b>H-M-L Split</b>	Primarily of concern in the more urbanized areas of Box Elder County (Eastern portion).
Tile Drains	<b>H-M-L Split</b>	The demand for locating field drains is increasing as agricultural areas are converted to urban land use. Drains destroyed during urban construction often result in flooding to both the new structure and adjacent agricultural lands.
Urban Water Conservation	<b>High-Medium</b>	Public education and outreach is needed (and partnering with Extension, NRCS and others) to encourage water conservation in general and household water use in particular.
Water Availability	<b>High</b>	Well efficiency is of special concern during dry years. Financial and technical assistance are required to maintain wells as reliable sources of agricultural water.
Water Rights	<b>Very-High</b>	Urban encroachment vs. agricultural uses of limited water resources. There is a need for public education on these issues by recognized authorities.
Water Quality	<b>High-Medium</b>	Federal programs continue to focus on reducing and eliminating impacts from animal feeding operations. Bear River 319 Projects are helping. The USDA buffer initiative encourages creating and restoring important buffer areas along ponds, streams and other water bodies to reduce impacts from agricultural and other non-point pollution sources.
<b>Wildlife</b>		
Biodiversity	Medium	
Fisheries	Medium	
Threatened and Endangered Species	Medium-Low	
Upland Game	<b>High-Medium</b>	Upland game numbers appear to be diminishing, especially birds. Financial and technical resources are needed to reverse this trend through habitat maintenance and establishment and predator controls
Wetlands	Medium	
Wildlife Habitats	<b>High-Medium</b>	Government funding programs (WHIP, EQIP, etc.,) need to be aggressively pursued to create/sustain wildlife habitat county wide.
Wildlife Population Management	<b>High-Medium</b>	Enforcement of hunting laws and predator management is needed.

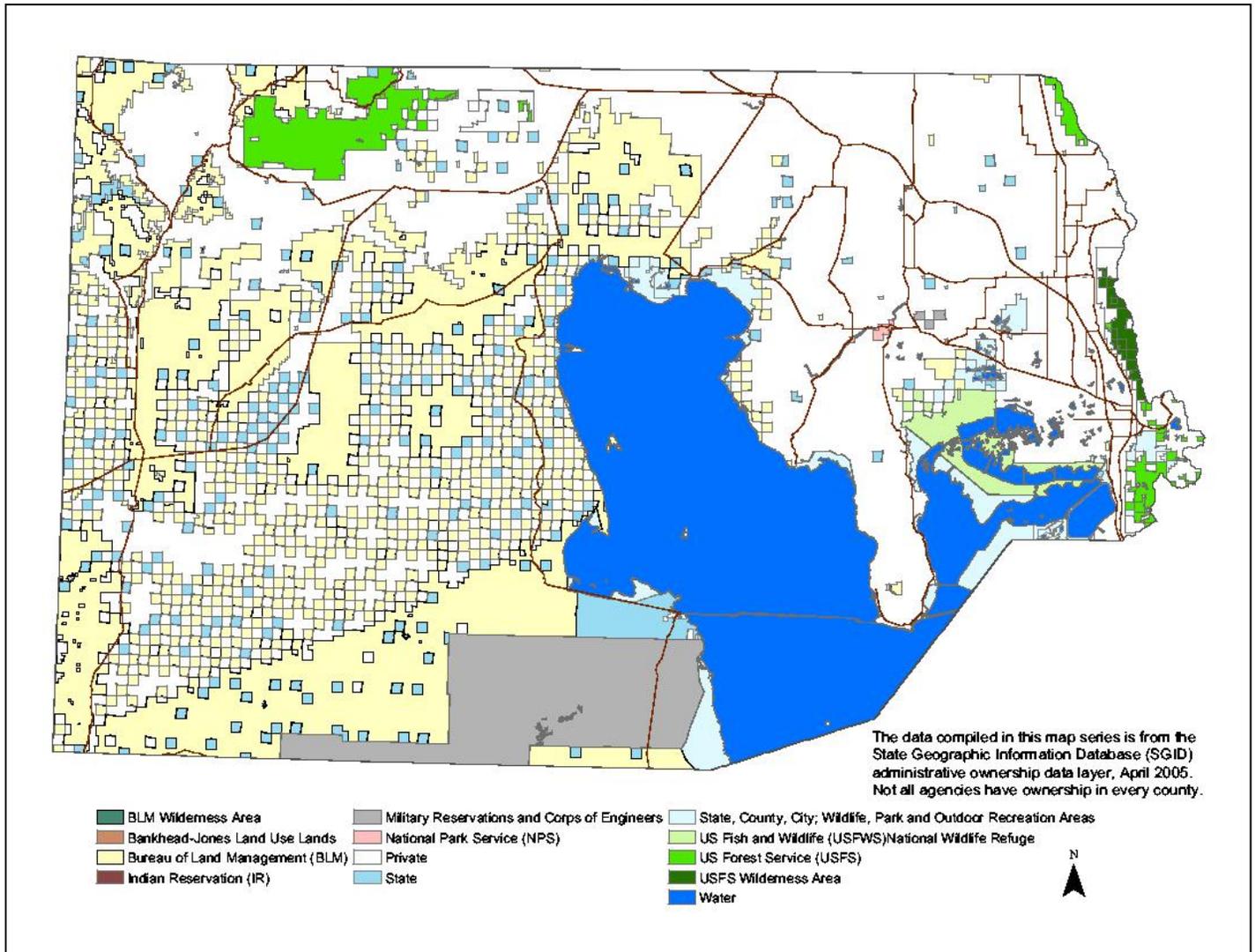
Land Cover



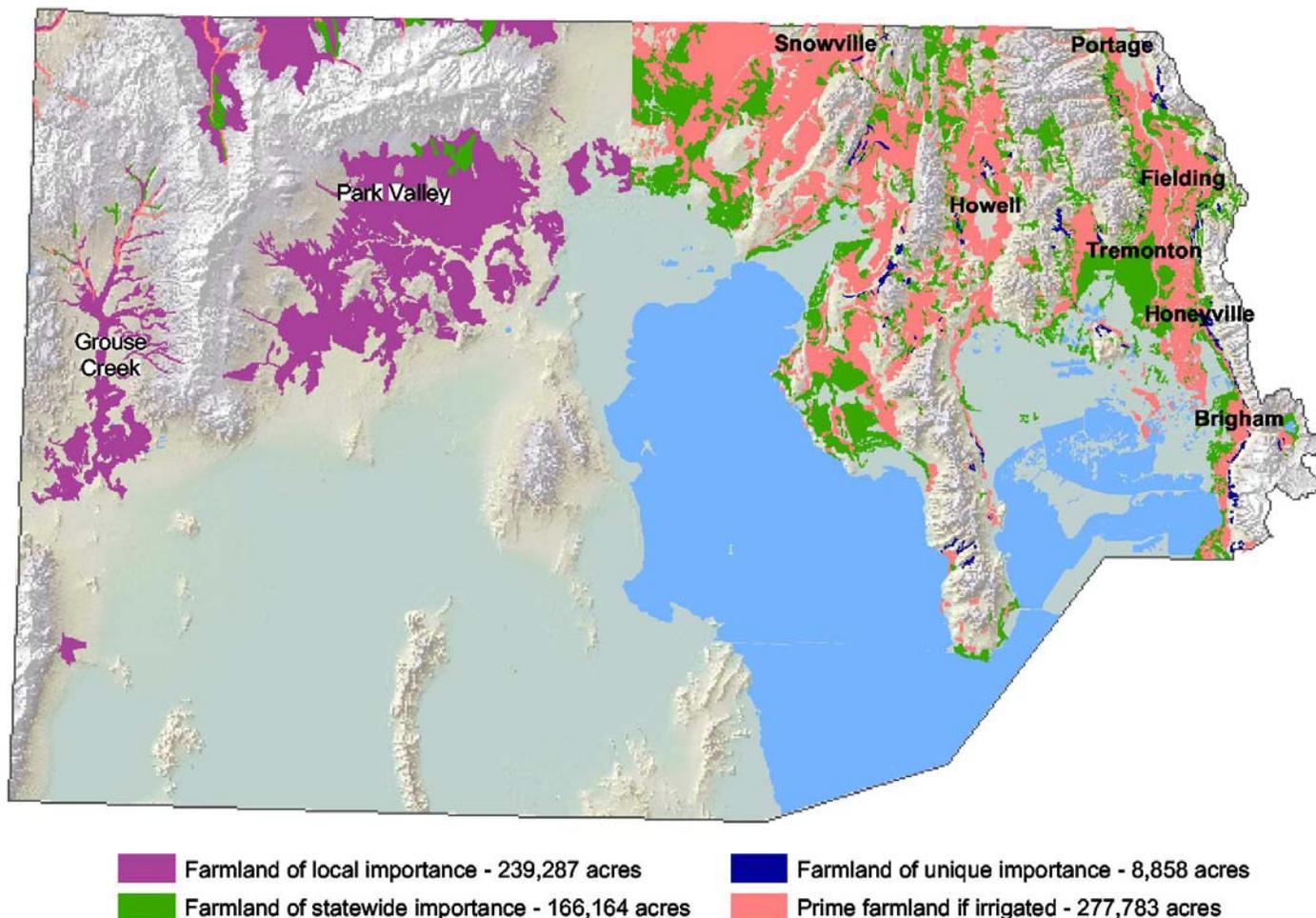
Land Cover/Land Use		
	Acres	%
Forest	200,000	5%
Dry Cropland	145,088	4%
Conservation Reserve Program <i>*a</i>	92,912	2%
Grass/Pasture/Haylands	61,000	2%
Orchards/Vineyards	2,000	0%
Row Crops	43,000	1%
Shrub/Rangelands	2,300,000	57%
Water	663,453	16%
Wetlands	549,937	14%
Developed	3,000	0%
<b>Box Elder County Totals <i>*b</i></b>	<b>4,060,390</b>	<b>100.00%</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 Box Elder County:**

- Continued urban expansion into surrounding wild lands will result in a rise in wildfire threats to human health and property.
- Drip irrigation systems need implementation if the orchard industry is to survive. The primary orchard area of Box Elder County is rapidly giving way to urban encroachment.
- Dry cropland continues to be the second largest single land use in Box Elder County.
- Row crops are grown and sold for fresh market in the Eastern portion of Box Elder County.
- Wetland losses and mitigation are important issues in the county.
- Implementation of range improvements on federal lands is difficult for permit holders due to the fact that federal lands are typically not eligible for most cost-share programs.



## Prime & Unique Farm Land



### Prime farmland

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

### Unique farmland

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

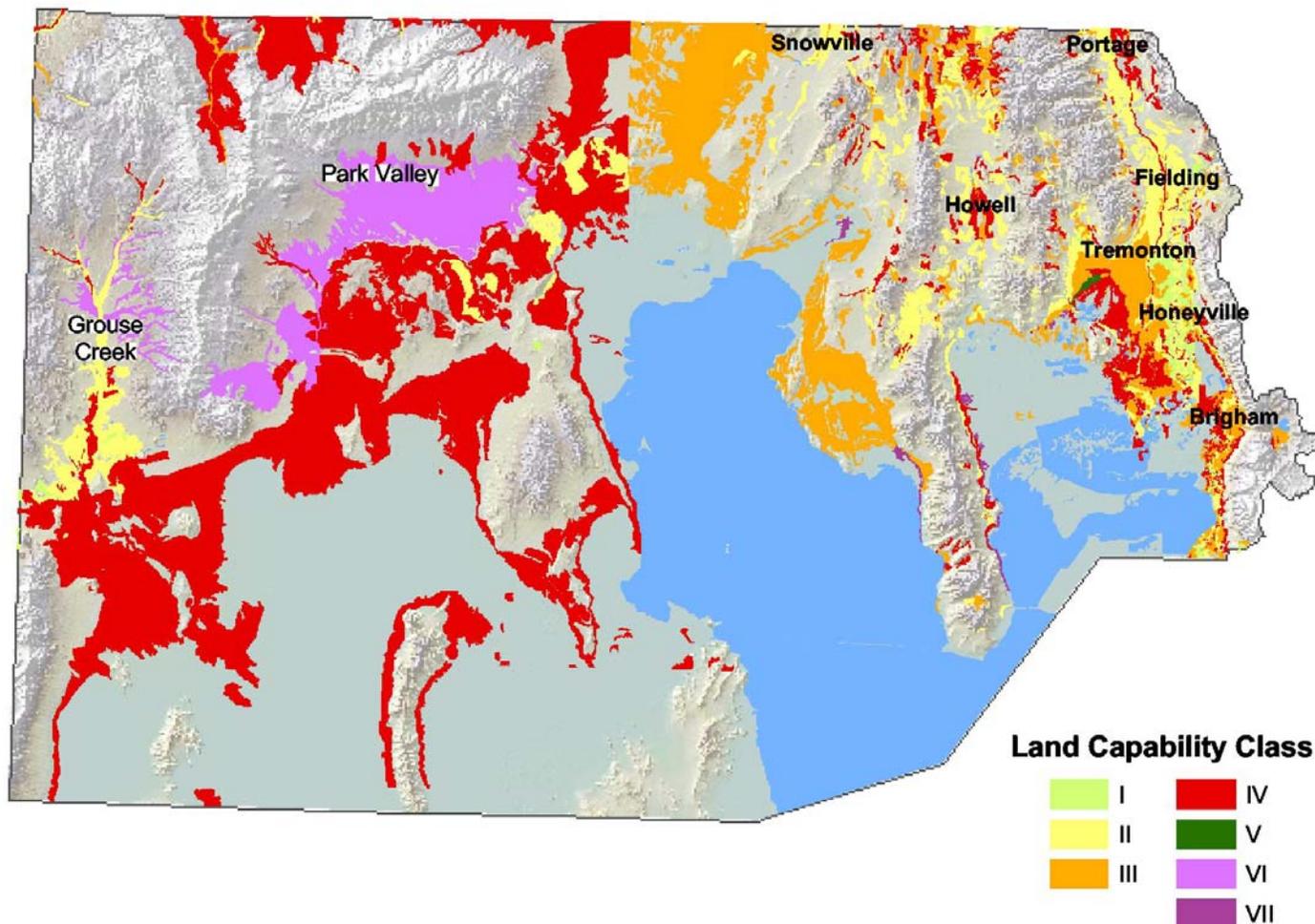
### Additional farmland of statewide or local importance

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

**Resource Concerns – SOILS**

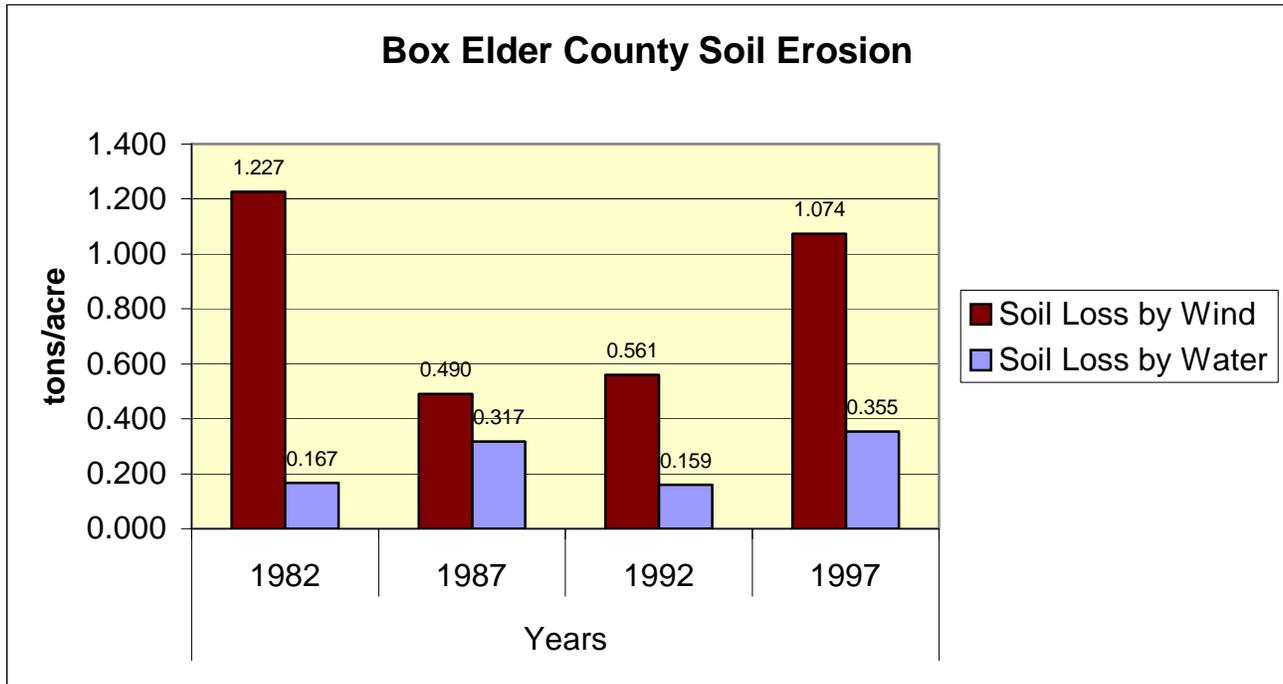
Categories	Specific Resource Concern / Issue	Crop	Hay	Pasture	Grazed Range	Grazed Forest	Pasture Native/Naturalized	Wildlife	Watershed Protection	Forest	Headquarters	Urban	Recreation	Water	Mined	Natural Area
Soil Erosion	Sheet and Rill	x	x													
	Wind	x														
	Ephemeral Gully	x							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

### Land Capability Class on Cropland and Pastureland



		Acres	Percentage
<b>Land Capability Class</b> (Irrigated Cropland & Pastureland Only)	I - slight limitations	12,302	4%
	II - moderate limitations	92,176	27%
	III - severe limitations	182,738	53%
	IV - very severe limitations	55,870	16%
	V - no erosion hazard, but other limitations	858	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	3,469	1%
	VIII - misc areas have limitations, limited to recreation, wildlife, and water supply	0	0%

**Soil Erosion on Cropland**

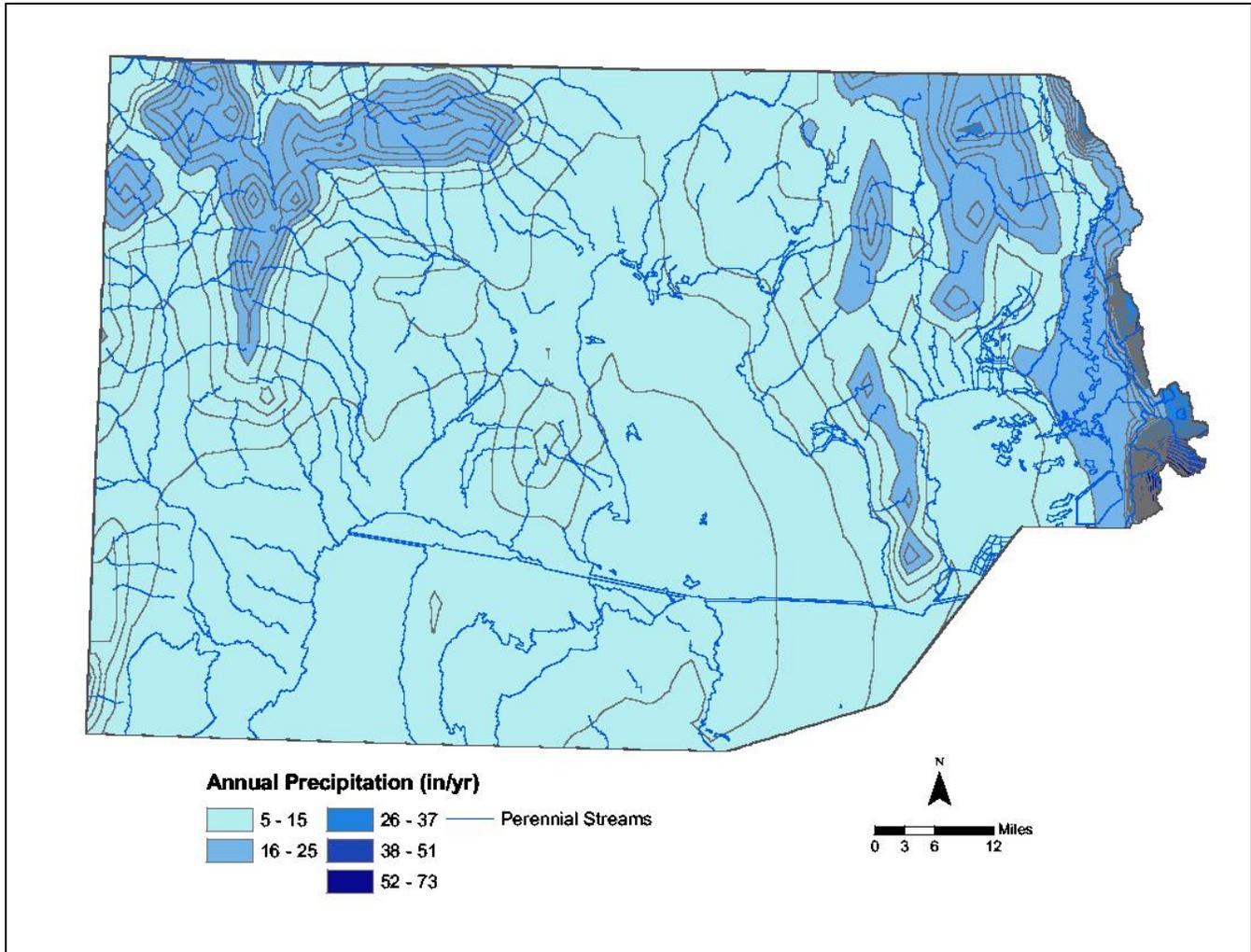


- ❖ Sheet and rill erosion by water on the subbasin croplands and pasturelands have been reduced by more than 50 thousand tons of soil per year from 1982 to 1997.
- ❖ NRI estimates indicate 1,400 acres of the subbasin agricultural lands still had water erosion rates above a sustainable level in 1997.
- ❖ 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 40 percent from 1.6 to 0.9 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			
	Excessive Seepage	X	X	X										X			
	Excessive Runoff, Flooding, or Ponding	X	X	X					X					X			
	Excessive Subsurface Water	X	X	X					X		X	X		X			
	Drifted Snow																
	Inadequate Outlets	X	X	X					X					X			
	Inefficient Water Use on Irrigated Land	X	X	X					X				X	X			
	Inefficient Water Use on Non-irrigated Land				X			X									
	Reduced Capacity of Conveyances by Sediment Deposition	X	X	X				X	X				X	X	X		X
	Reduced Storage of Water Bodies by Sediment Accumulation																
	Aquifer Overdraft	X	X	X	X			X					X	X	X		
	Insufficient Flows in Watercourses	X	X	X				X					X	X	X		X
Water Quality, Groundwater	Harmful Levels of Pesticides in Groundwater																
	Excessive Nutrients and Organics in Groundwater																
	Excessive Salinity in Groundwater	X	X	X	X		X	X	X			X		X		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							X	X			X	X	X			
	Excessive Nutrients and Organics in Surface Water							X	X			X	X	X			
	Excessive Suspended Sediment and Turbidity in Surface Water							X	X			X	X	X			
	Excessive Salinity in Surface Water	X	X	X			X	X	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		
	Well		
	<b>Total Irrigated Adjudicated Water Rights</b>	0.00	0.00
<b>Stream Flow Data</b>	Lower Bear River	Total Avg. Yield	
	Malad River	Total Avg. Yield	
		MILES	PERCENT
<b>Stream Data</b>	<b>Total Miles - Major (100K Hydro GIS Layer)</b>	7,625	n/a
	303d (DEQ Water Quality Limited Streams)	680	9%

		Irrigation Efficiency:	<40%	40 - 60%	>60%
<b>Percentage of Total Acreage</b>	Cropland		20%	40%	40%
	Pastureland		60%	30%	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
BlueCreek/Howell	Maintenance		
DEQ TMDL's		NRCS Comprehensive Nutrient Management Plans	
Name	Status	Number	Status
Bear River	EPA Approved	8 30	Planned Implemented

**AFO/CAFO**

Animal Feeding Operations (AFO)						
Animal Type	Dairy	Feed Lot (Cattle)	Poultry	Swine	Mink	Other
No. of Farms	27	45				20
No. of Animals						

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

Confined Animal Feeding Operations - Utah CAFO Permit					
Animal Type	Dairy	Feed Lot (Cattle)	Poultry	Swine	Other
No. of Permitted Farms	1	5			
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																
	Objectionable Odors																
	Reduced Visibility																
	Undesirable Air Movement																
	Adverse Air Temperature																
	Burning of Ag land Stubble		X	X	X				X				X	X			
Plant Suitability	Plants not adapted or suited			X	X	X	X	X	X	X				X		X	
Plant Condition	Plant Condition – Productivity, Health and Vigor			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	
	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	
	Forage Quality and Palatability			X	X	X	X	X						X		X	
	Plant Condition – Wildfire Hazard				X	X	X	X	X	X			X	X	X	X	
Fish and Wildlife	Inadequate Food			X	X	X	X	X						X		X	
	Inadequate Cover/Shelter			X	X	X	X	X	X	X				X		X	
	Inadequate Water				X	X	X	X	X					X		X	
	Inadequate Space			X				X	X					X		X	
	Habitat Fragmentation	X	X	X	X	X	X	X		X				X		X	
	Imbalance Among and Within Populations				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	
Domestic Animals	Inadequate Quantities and Quality of Feed and Forage	X	X	X	X	X		X	X					X			
	Inadequate Shelter				X			X						X			
	Inadequate Stock Water				X	X		X	X					X			
	Stress and Mortality				X	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 Box Elder County (2003): St. Johnswort

**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
<b>FEDERALLY-LISTED</b>				
Endangered:	June Sucker (introduced)	Fish	Water - Lentic	Water - Lotic
	Gray Wolf (extirpated)	Mammal	Mountain Shrub	Mixed Conifer
Threatened:	Bald Eagle	Bird	Lowland Riparian	Agriculture
	Lahontan Cutthroat Trout (introduced)	Fish	Water - Lotic	Mountain Riparian
Candidate:	Yellow-billed Cuckoo	Bird	Lowland Riparian	Agriculture
	Fat-whorled Pondsnaill	Mollusk	Wetland	
Proposed:	(None)			
<b>STATE SENSITIVE</b>				
Conservation Agreement Species:	Northern Goshawk	Bird	Mixed Conifer	Aspen
	Bonneville Cutthroat Trout	Fish	Water - Lotic	Mountain Riparian
	Bluehead Sucker	Fish	Water - Lotic	Mountain Riparian
	Least Chub	Fish	Water - Lentic	Wetland
Species of Concern:	American White Pelican	Bird	Water - Lentic	Wetland
	Bobolink	Bird	Wet Meadow	Agriculture
	Burrowing Owl	Bird	High Desert Scrub	Grassland
	Deseret Mountainsnail	Mollusk	Mountain Shrub	Rock
	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
	Northwest Bonneville Pyrg	Mollusk	Wetland	
	Pygmy Rabbit	Mammal	Shrubsteppe	
	Sharp-tailed Grouse	Bird	Shrubsteppe	Grassland
	Short-eared Owl	Bird	Wetland	Grassland
	Townsend's Big-eared Bat	Mammal	Pinyon-Juniper	Mountain Shrub
	Utah Physa	Mollusk	Wetland	
	Western Pearlshell	Mollusk	Water - Lotic	Mountain Riparian
Western Toad	Amphibian	Wetland	Mountain Riparian	
Yellowstone Cutthroat Trout	Fish	Water - Lotic	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):

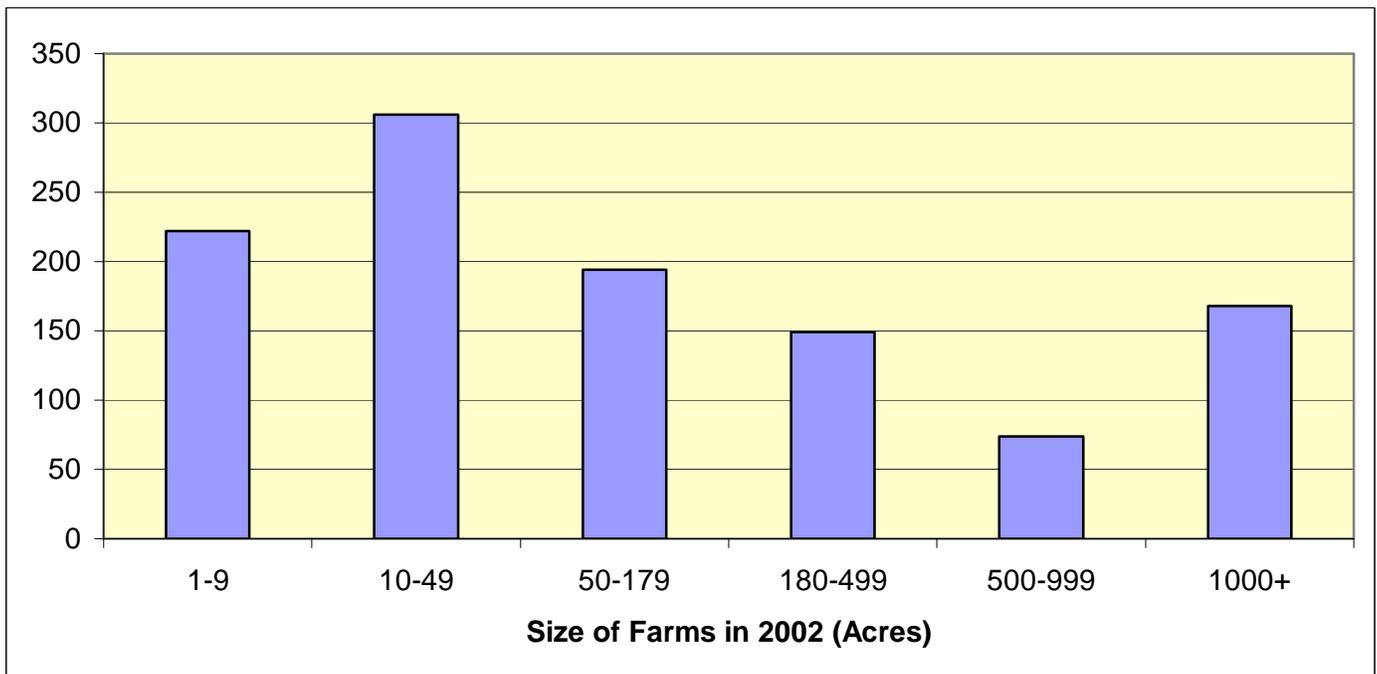
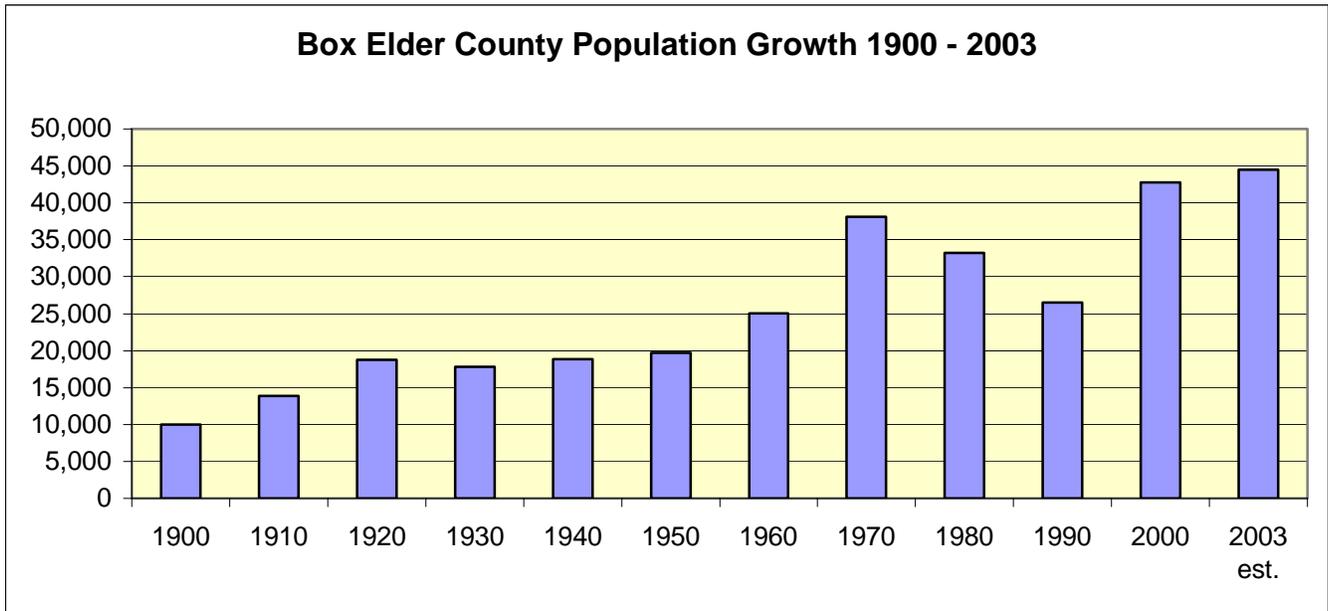
- 1) **Lowland Riparian** (riparian areas <5,500 ft elevation; principal vegetation: Fremont cottonwood and willow)
- 2) **Wetland** (marsh <5,500 ft elevation; principal vegetation: cattail, bulrush, and sedge)
- 3) **Mountain Riparian** (riparian areas >5,500 ft elevation; principal vegetation: narrowleaf 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			X		X		X
	Marketing of Resource Products	X	X					X				X				
	Innovation Needs	X	X											X		
	Non-Traditional Land Uses	X	X	X	X	X	X	X	X				X	X		X
	Population Demographics, Changes and Trends	X	X	X				X	X			X	X	X		X
	Special Considerations for Land Mangement (High State and Federal Percentage)				X	X	X	X	X	X			X			
	Active Resource Groups (CRMs, etc)	X	X	X	X	X	X	X		X			X	X		
	Full Time vs Part Time Agricultural Communities	X	X	X	X	X		X	X		X	X		X		
	Size of Operating Units	X	X	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: 1,113**

**Number of Operators:**

- Full-Time Operators: 602
- Part-Time Operators: 511

## Footnotes / Bibliography

1. General information about Box Elder County obtained from a Box Elder County website:  
<http://utahreach.org/box%20elder/visitor/HISTORY.HTM>
2. Location and land ownership maps made using GIS shape files 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 water bodies, 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 "Lower Bear River Water Quality Management Plan"; 1995, Ecosystems Research Institute, pg. 72
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](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>