

Environment

INDICATORS IN THE YAMPA VALLEY

Our Vision

The Yampa Valley community is dedicated to preserving, protecting and enhancing our natural environment in a sustainable manner for future generations while balancing responsible public and private land use decisions.

We value our land and its resources.

Introduction

The Yampa Valley is unique in the west and in the world for its natural beauty, healthy and diverse ecology, and wealth of natural resources. The Yampa River itself is one of the last remaining tributaries of the Colorado River which is largely undammed and therefore maintains the high spring flows so important to the wildlife and habitats along its length.

Since homesteaders arrived in the late 1800s, the Valley's lands have been primarily dedicated to crop and livestock production.

However, as the abundant and varied resources of the Valley have drawn more and more people, land uses have begun to shift and more areas are dedicated to residential, recreational, commercial and industrial uses.

These changes increase the complexity of the environmental issues facing our Valley. As a result, we must work together to steward each element of the landscape we value including our air, water, wildlife, natural areas, agriculture, and natural resources.

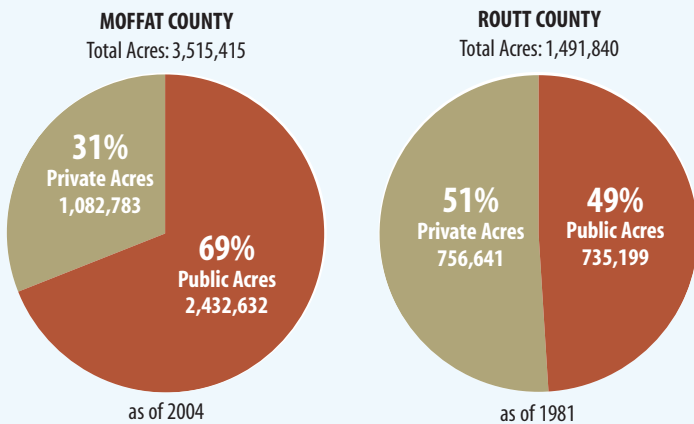
Key Findings and Trends

- The Yampa River is unique in Colorado and the west because as a river system it is not over appropriated, meaning that in most years, not all of the water in the river is legally "spoken for."
- Data on farms by size shows an increase in small or part-time operations. It also indicates a consolidation of commercial operations, i.e. commercial agriculture must get bigger to survive as a sole source of income for a family. This trend is consistent with farms and ranches nationwide.
- The Yampa Valley supports the largest herds of mule deer and elk in Colorado. These herds are a cornerstone of wildlife-related recreation and economic sectors locally and statewide. The upland grasslands and sagebrush/oak shrublands in the Yampa Valley support the only remaining population of Columbian sharptailed grouse and some of the few remaining populations of greater sage grouse in Colorado.
- The majority of Moffat County lands are public and close to half of Routt County lands are public. Public lands are not generally open to subdivision or residential and commercial development and they sustain a large portion of the valley's landscape, productive wildlife habitat, renewable resources, and functioning natural systems.
- Since 1990, the Steamboat Springs area has seen a 46% reduction in average annual PM-10 (particulate matter) levels due to City and County efforts to reduce wood and coal burning and to improvements in street sanding and street cleaning efforts.



Yampa Valley Partners appreciates the assistance of The Nature Conservancy in developing this section.

Percent of Public Land vs. Private Land



Sources: Moffat & Routt County Assessor's Offices

The amount of public versus private land in an area is an indicator of the natural resources available to the people of that area and to visitors. The relative acreage of public versus private land can tell us about the history, the economy and the future of the area. While private land is able to be put to most of the uses that the property owner may desire, at that owners discretion, public land is managed by governments for all constituents, and its uses may be limited or guided by the missions of the managing entities.

Both Routt and Moffat County have significant acreage in public lands. The majority of Moffat County lands are public, while close to half of Routt County's lands are public. The majority of public lands in Moffat County are managed by the US Bureau of Land Management with additional holdings managed by the National Park Service, the Colorado State Land Board, the US Forest Service, the Colorado Division of Wildlife, the US Fish and Wildlife Service, and Colorado State Parks. The majority of public lands in Routt County are managed by the US Forest Service with additional holdings by the US Bureau of Land Management, the Colorado State Land Board, the Colorado Division of Wildlife, and Colorado State Parks. The cities of Craig and Steamboat Springs both hold properties designated for open space and recreation.

Depending on the managing entity, public lands may be open to the public's use and enjoyment through both extractive and non-extractive uses of the natural resources on those lands, including oil, gas, coal, timber, livestock forage, wildlife, recreational opportunities, solitude, and scenic beauty. Public lands are not generally open to subdivision or residential and commercial development and have sustained a large portion of the valley's landscape in a relatively natural condition, supporting productive wildlife habitat, renewable resources, and functioning natural systems over the long term. However, land exchanges and transfers do occur, shifting land ownership between public and private over time. The data presented represents a snapshot of Moffat County as of 2004 and of Routt County as of 1981.

Parcelization of Private Land by County

	5 acres and less	>5 acres & <70 acres	70 to 140 acres	140.1 to 350 acres	>350 acres
MOFFAT COUNTY					
Total Acreage of Parcels	2190.692	44245.9	30330.82	161567.2	844442.6
ROUTT COUNTY					
Total Acreage of Parcels	8,469	51,193	44,646	117,435	540,634

Sources: Routt County Planning Department, Moffat County Assessor's Office

Parcelization is a measure of the distribution of sizes of private land parcels in a county and the degree to which large tracts of land have been divided into smaller tracts. The parcelization of private land parallels increasing demand for residential parcels. As large ranches become divided into smaller pieces, they eventually lose their ability to financially support a family in agriculture. The changes to vegetation, increased roads and utilities, and increased human activity that often accompany subdivision of large properties and development for residential or commercial uses can cause wildlife, such as bald eagles and greater sage grouse to stop using these areas, and generalist wildlife such as raccoons and crows to use the area more. The changes that accompany subdivision can also affect important natural processes such as water runoff, fire, and a river's ability to move and flood.

Private Land with Long-term Protected Status

	Moffat 2004	Routt 1981
Private Acres (deducted from Total and Public)	1,082,783	756,641
Total Private Acreage Protected under Voluntary Land Conservation Agreements	0	46,900
Percent of All Private Land Protected under Voluntary Land Conservation Agreements	0.00%	6.20%

Sources: American Farmland Trust, Colorado Cattlemen's Agricultural Land Trust, Colorado Division of Wildlife, Colorado Open Lands, The Nature Conservancy, Rocky Mountain Elk Foundation, Yampa Valley Land Trust, and Routt County Assessor's Office.

This indicator tells us how much of each county's private land base is currently afforded long term protection from subdivision and residential/commercial development. Open, undeveloped private lands support significant wildlife habitat and sensitive natural areas, and contain the most productive agricultural lands. Private lands are also the places where community residential and commercial growth can occur.

Private lands are generally available to be subdivided and/or developed, unless they are protected by public policies such as zoning and regulations, or long term agreements like conservation easements and Routt County's Land Preservation Subdivision remainder parcels. Conservation easements are voluntary land conservation agreements that private landowners may enter into with qualified land trusts. They are one tool available to landowners who wish to protect their land from subdivision and development permanently.

In 1996, Routt County voters set aside a fund of tax dollars for the purpose of purchasing development rights and establishing conservation easements. This fund, known as the Purchase of Development Rights Program (PDR), has contributed to the permanent conservation of 3,904 acres as of spring 2004.

Annual Snowfall

Source: Western Regional Climate Center

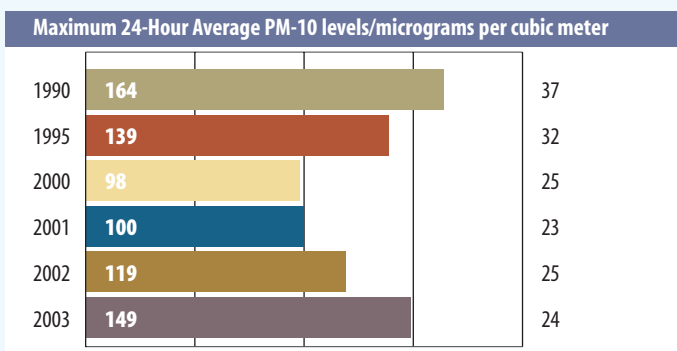
	Craig	Hayden	Steamboat Springs	Yampa	Dinosaur National Monument
Station Number	051932	053867	057936	059265	052286
Station Elevation	6440 ft	6440 ft	6840 ft	7890 ft	5920.00
Year (Jul-Jun)					
1977-1978	77.00	149.80	216.10	121.50	41.30
1978-1979	83.30	166.30	224.00	120.50	68.40
1979-1980	100.40	150.70	179.80	153.00	70.00
1980-1981	47.80	63.20	91.70	87.50	32.40
1981-1982	77.20	139.00	212.10	147.50	52.90
1982-1983	82.10	105.00	157.70	111.60	51.80
1983-1984	119.70	159.80	236.80	171.00	91.50
1984-1985	126.60	145.50	178.70	121.00	55.60
1985-1986	95.60	156.50	138.20	134.00	43.80
1986-1987	87.30	73.00	n/a	111.50	31.30
1987-1988	68.30	105.00	210.50	130.00	48.20
1988-1989	89.50	125.60	135.70	115.00	46.00
1989-1990	61.60	111.50	157.60	95.00	39.60
1990-1991	69.10	103.00	174.70	124.50	27.90
1991-1992	58.40	86.00	n/a	92.00	16.80
1992-1993	95.40	116.50	206.40	115.50	62.90
1993-1994	49.10	87.50	n/a	57.00	21.20
1994-1995	23.00	107.50	170.40	129.10	37.80
1995-1996	61.00	133.00	220.70	178.40	13.50
1996-1997	39.50	149.00	252.50	145.50	30.30
1997-1998	46.60	123.70	142.50	119.50	32.80
1998-1999	32.70	87.80	113.20	101.50	29.90
1999-2000	37.70	96.40	125.60	115.10	11.00
2000-2001	29.10	122.10	n/a	137.00	20.80
2001-2002	37.00	86.80	n/a	88.00	27.70
2002-2003	66.00	128.60	n/a	151.90	17.00
2003-2004	45.90	108.60	n/a	100.00	21.80

Air Quality/PM-10 Monitoring Results

PM-10 is a measure of air quality, and is defined as particulate matter less than 10 micrometers in size. PM-10 is inhalable and can cause respiratory health risks, degraded visibility, climate changes, and damage to soil and vegetation.

An ambient air quality sampling network is operated by the Routt County Department of Environmental Health in downtown Steamboat Springs in cooperation with the Colorado Department of Public Health and Environment. The monitoring site at the Routt County courthouse annex provides an excellent location for monitoring air quality in and around Steamboat Springs, the major population center of Routt County.

Chemical analysis of air quality filter material has shown that most of the particulate matter is generated locally through activities such as street sanding, unpaved roads, and wood and coal burning. Since 1990 the Steamboat Springs area has seen a 46% reduction in average annual PM-10 levels due to City and County efforts to reduce wood and coal burning and to improvements in street sanding and street cleaning efforts.



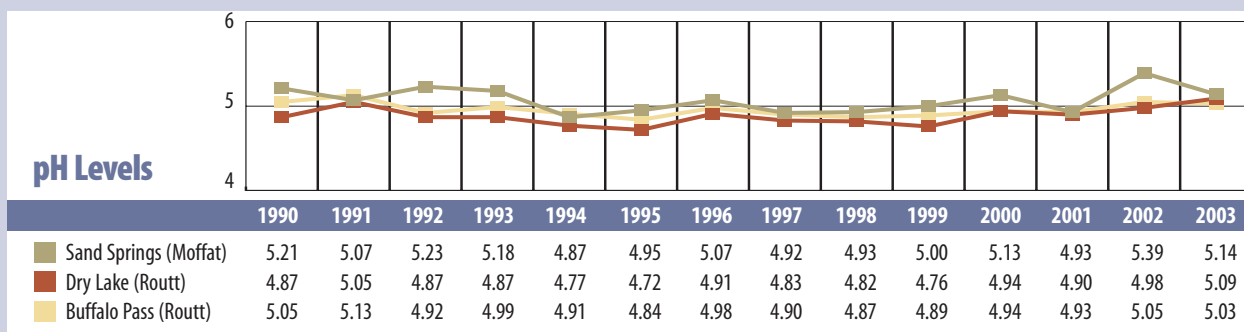
Sources: Colorado Department of Public Health and Environment, Routt County Department of Environmental Health

Acid Levels in Moisture (Rain and Snow)

Both the Upper and Lower Yampa River watersheds received favorable ratings from the Environmental Protection Agency's Index of Watershed Indicators, which measures watershed conditions and vulnerability. The measure of pH in precipitation is a water quality indicator related to

air quality. PH levels at Dry Lake and Buffalo Pass are a concern because at levels below pH 5, scientists have determined impacts to frogs, salamanders, and other amphibians are likely and impacts to vegetation and other aquatic life also possible. Acidic precipitation is often associated with

sulfur dioxide emissions. Sulfur dioxide emissions result from burning wood and fossil fuels. The acid level of precipitation in the Yampa Valley has been at or below the 5.0 level since 1994. However, some improvement in acid levels measured at all three Yampa Valley sites has occurred since 2001.



Sources: Colorado Department of Public Health and Environment, Routt County Department of Environmental Health

Water Quality in Yampa/Green River Basin

Water quality protection establishes designated uses of streams, lakes and ground water including support for aquatic life, water supplies, recreation and agriculture. Standards (allowable concentrations of pollutants) are then adopted to ensure that water quality continues to support designated uses.

The “Status of Water Quality in Colorado – 2004” report by the Water Quality Control Division indicates the Yampa and Green Rivers are among the least developed rivers in Colorado. Water quality in the Yampa/Green Basin fully supports the designated uses for 97% of the basin. Streams and lakes are generally of very good quality. However, some stream segments do not meet all water quality standards and are thus listed as “impaired waters” as required under section 303(d) of the Clean Water Act.

Middle Creek at Road 33 south of Milner has pH levels higher than the allowed standard. The allowable range of pH is 6.5 – 9.0 units and the Middle Creek sampling site has levels up to 9.3 units. This means the water is too alkaline. PH values lower and higher than the acceptable range can impact fish species. The Middle Creek site also had E. coli bacteria of 188 parts per 100 milliliters, compared to the standard of 125 per 100ml. Because there were only two water samples for E. coli, Middle Creek has been placed on the “monitoring and evaluation” list for 303(d), meaning that monitoring is necessary to see if it consistently exceeds the E. coli standard. Other water bodies placed on the “monitoring and evaluation” list include Stagecoach Reservoir, due to low dissolved oxygen levels, and Foidel Creek, due to E. coli bacteria that exceeded standards. The Routt National Forest recommended a number of stream segments be placed on the list in 1998 due to sediment concerns. The Routt National Forest has been monitoring these streams for sediment impacts.

Dry Creek, which starts upstream from and flows through the Town of Hayden, was placed on the impaired list due to high selenium concentrations. The selenium standard to protect aquatic life is 4.6 micrograms per liter (ug/l). The levels in Dry Creek are 59.4 ug/l. Selenium is toxic to fish but is naturally occurring in the shale formations downstream of Steamboat Springs. Activities such as mining, irrigation, and construction may expose soils and cause selenium and other minerals to be picked up by water passing through this geology. Streams listed as impaired on the 303(d) list must be monitored further and a pollution source reduction plan prepared, known as a “total maximum daily load (TMDL)” plan.

Source: Colorado Water Quality Control Division

Yampa River Flows

The Yampa River is an unusual and important river in the west because it still has the ability to produce high, overbank flows during the spring snowmelt. Most of the other tributaries of the Colorado River have main stem dams that control and “flatten” their spring peaks. However, the Yampa’s tributary dams have not greatly impacted its annual flow “signature” or hydrograph.

The intact hydrograph on the Yampa plays a pivotal role in the lifecycle of the species that have evolved with the river, and may have declined on controlled rivers. The high flows in May and June often have the volume and power to move heavy cobbles within the channel, building and cleaning bars critical for the reproduction of species including the Colorado pikeminnow and narrowleaf and Fremont cottonwood trees. These spring flows also produce overbank flows that create and rejuvenate flood-

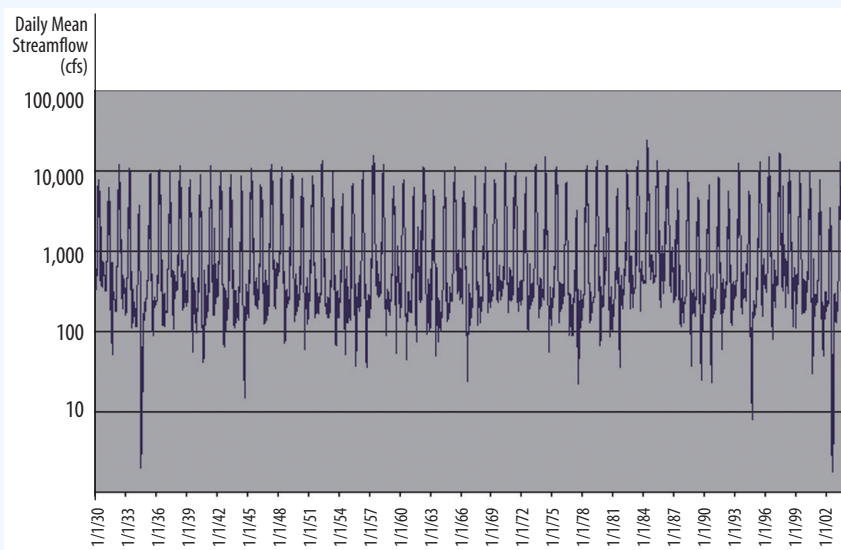
plain habitats.

Low flows are as much a part of the Yampa’s ancient signature as high flows. Naturally low flows can be further reduced by diversions for irrigation, electricity generation, municipal and industrial uses. The U.S. Fish and Wildlife Service (USFWS) recommends daily average base-flows not fall below 93 cubic feet per second (cfs) at Maybell from July 1 through October 31 at any greater frequency than has occurred historically. The biological basis for this recommendation is that the amount of riffle habitat available to support a prey base for native fishes drops quickly at flows below 93 cfs. Some of the storage capacity in the soon to be expanded Elkhead Reservoir will be used to augment base-flows.

While the USFWS makes no specific flow recommendation with respect to spring peak flows, it does recommend that reductions in peak flows be minimized.

Source: Upper Colorado River Endangered Fish Recovery Program (text)

Hydrograph of Yampa River Near Maybell, Jan. 1930 to Sept. 2003



Source: U.S. Geologic Survey

The Yampa Valley is unique in Colorado and the west because as a river system it is not over appropriated, meaning that in most years, not all of the water in the river is legally “spoken for” (decreed) for one of a number of legally defined “Beneficial Uses.”

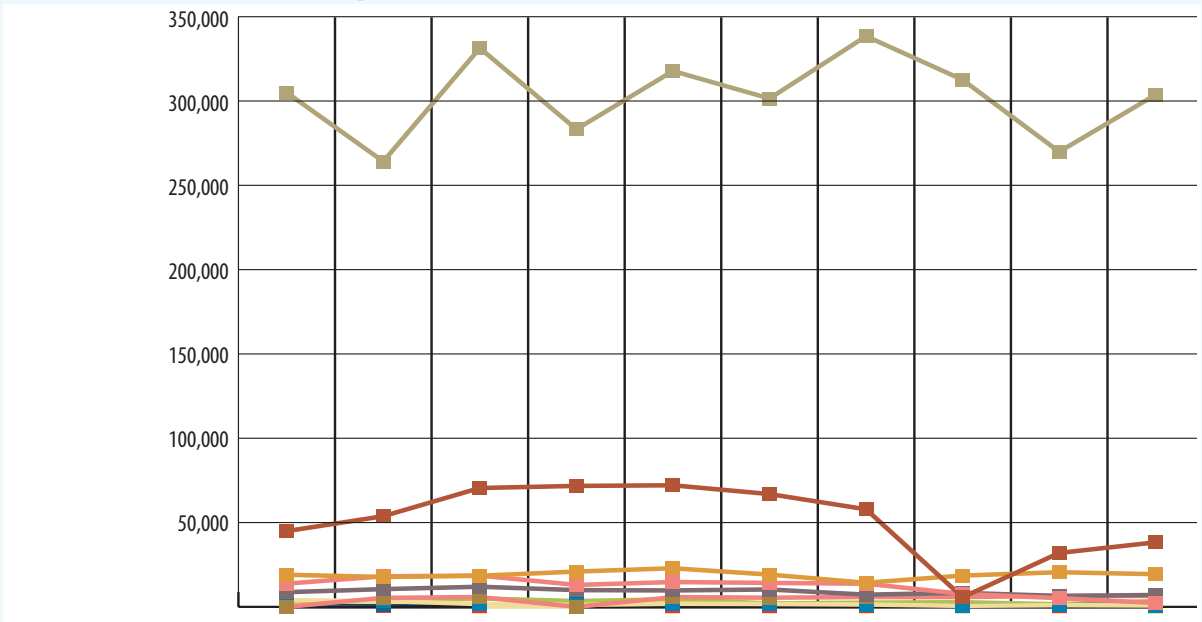
In order to use water for most of the Beneficial Uses, owners must remove (divert) their decreed water right from the stream. However, two other Beneficial Uses exist that involve water remaining in the stream. These are the “Recreational In-Channel Diversion,” and the “Minimum In-stream Flow.”

Once water is diverted from the stream, some portion may flow back to the stream as a “return flow,” and another portion of the water may leave the system as a “Consumptive Use.” Consumptive Use is the part of water diverted that is evaporated, transpired by plants, incorporated into products or crops, consumed by humans or livestock, or otherwise removed from the immediate water environment.

Another way in which water may leave the Yampa system is through a “Transbasin Diversion” where water is moved from one watershed into another, such as from the Yampa River Basin into Eagle River Basin.

All data presented is for Water Districts 44, 57 and 58.

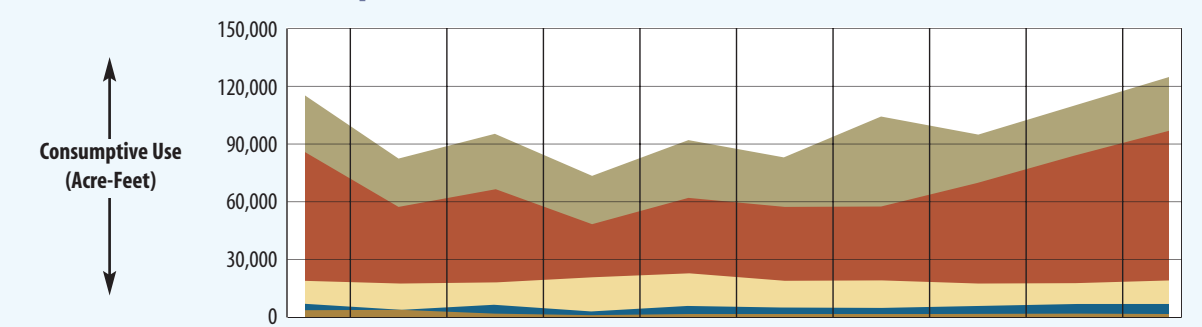
Annual Acre-Feet of Water Diverted for Use Upstream of the Confluence of the Little Snake and Yampa Rivers



Use	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Irrigation	305,031	264,154	331,389	283,252	317,794	301,497	338,445	312,562	269,889	303,777
Power Generation	44,934	53,761	70,500	71,735	72,092	66,896	57,863	5,704	31,979	38,268
Industrial	19,043	17,732	18,440	20,938	22,906	19,142	14,287	18,568	20,551	19,378
Livestock	13,769	18,119	18,544	13,004	14,726	14,198	13,733	7,667	5,157	2,298
Fishery	8,698	10,512	11,942	9,931	9,736	10,305	7,227	8302	6,471	7,053
Municipal	no data	5,338	5,824	no data	5,783	5,437	5,823	5,824	6,525	6,459
Domestic	3,997	3,459	1,660	1,163	1,848	1,699	1,386	620	1,006	829
Recreation	485	1,141	1,897	1,935	1,730	1,904	1,535	1,639	1,957	2,700
Snowmaking	300	303	323	281	349	350	309	316	291	331
Commercial	403	716	143	91	13	93	21	48	44	17
Total Transbasin Diversions	3,209	3,292	4,972	3,458	4,486	2,048	2,490	2,751	1,540	3,474
Total*	399,869	378,527	465,634	405,788	451,463	423,569	443,119	364,001	345,410	384,584

* Does not include data for miscellaneous category "all other beneficial uses." Source: Colorado Division of Water Resources

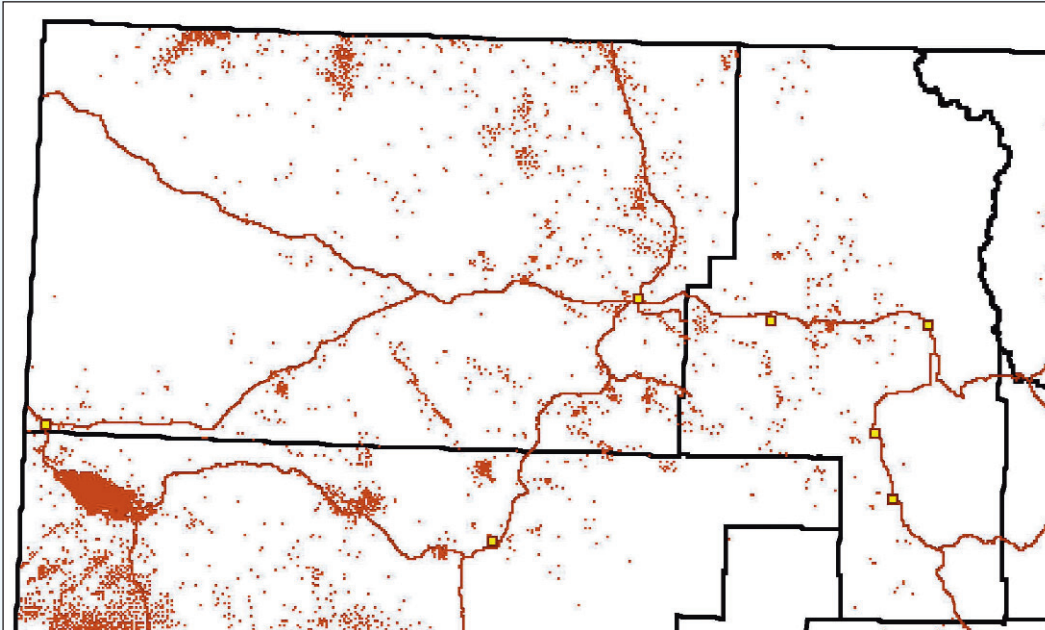
Annual Consumptive Use of Water Upstream of the Confluence of the Little Snake and Yampa Rivers



	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Municipal	3,634	3,470	1,892	1,060	1,398	1,394	1,394	1,697	1,776	1,599
Industrial	19,043	17,732	18,440	20,938	22,906	19,142	19,142	17,536	17,905	19,378
Irrigation	86,911	57,472	66,487	48,510	62,024	57,570	57,570	69,670	83,916	96,922
Reservoir Evaporation	6,824	3,708	6,451*	3,142	5,869	5,063	5,063	6,108	6,974	7,137
Total Consumptive Use	116,412	82,382	95,370	73,650	92,197	83,169	104,613	95,011	110,571	125,036

Source: Colorado Division of Water Resources

All Oil and Gas Wells in Routt and Moffat Counties <http://oil-gas.state.co.us/>



Source: Colorado Oil and Gas Conservation Commission

Oil and Gas

The Yampa Valley has significant oil and gas resources and leasing and development of these resources contributes considerably to the local economy. Oil and gas well pads are serviced by roads and pipelines. This development can result in loss and degradation of wildlife habitat by introducing weeds and disturbing sensitive species such as greater sage grouse. Mitigation strategies are available to minimize or eliminate these impacts.

It is important to note that, while the map shows all oil and gas well locations in the Valley, each well represented is not necessarily in active production.

**Routt National Forest
Timber Harvesting**

1994-2003

Location	Acres Harvested	Board Feet Harvested
Routt National Forest	7,500	35,000,000
Routt County Only	4,000	18,000,000
Moffat County Only	1,000	6,000,000

Source: Routt National Forest

Solid Waste and Recycling

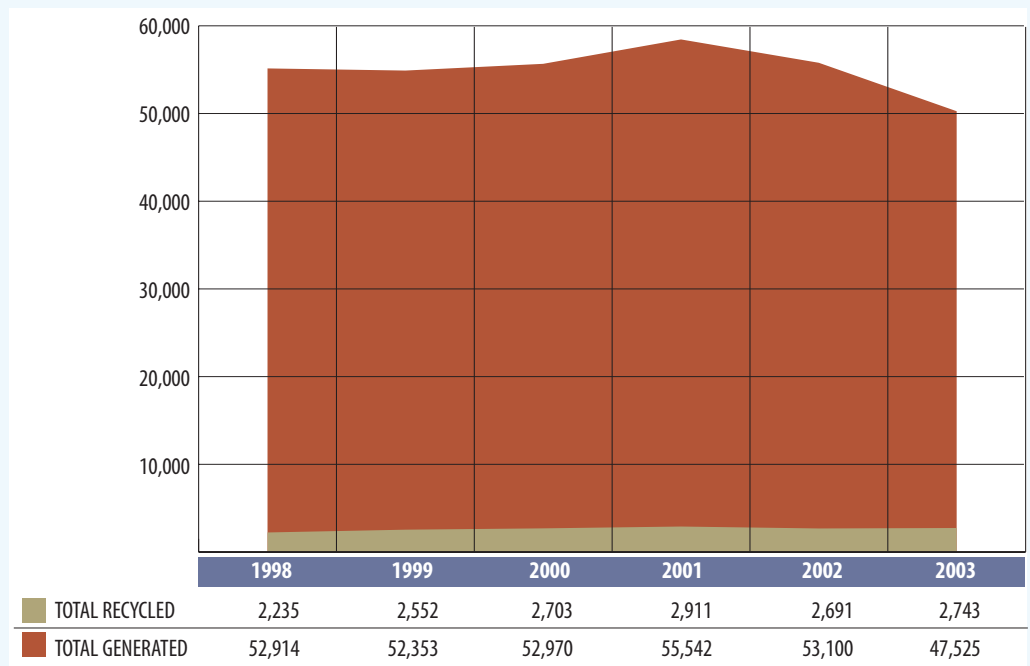
- Although the population continues to grow, solid waste generation is declining in the Yampa Valley. 47,500 tons of solid waste is generated in the Yampa Valley including 30,900 tons in Routt County and 16,600 tons in Moffat County. The total for the valley is the lowest number in the last 5 years.
- 2,743 tons of waste were recycled in the Yampa Valley in 2003, a slight increase over 2002. Waste Management of the Rockies recycling volumes have increased

29% in 6 years.

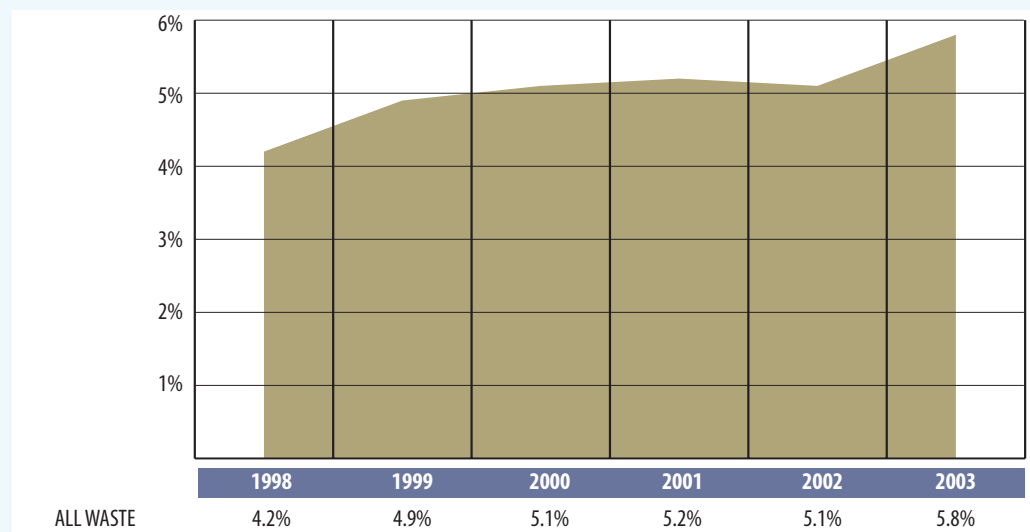
- 43% of the recycled waste was corrugated cardboard and 36% was magazines and newspaper.
- The recycling rate is the waste recycled divided by the waste generated, estimated to be 5.8% in the Yampa Valley.
- The waste generation rate is approximately 7.3 pounds per person per day (ppd) for the entire Yampa Valley compared to 8.0 ppd in 1998.

- Projects for Yampa Valley Recycles include educational programs, assisting and developing a variety of local recycling efforts and developing the Pedestrian Recycling Unit (PRU). PRUs provide locations where pedestrians can dispose of their waste so that it can be recycled. These units also help to beautify the sidewalks downtown.
- The city of Craig plans to begin a recycling program in May 2005 for plastics, aluminum, cardboard and paper.

Yampa Valley Solid Waste, in tons



Recycling Rate, Percent of all Yampa Valley Waste



Sources: Waste Management of the Rockies, Yampa Valley Recycles

Residential Kilowatt Hours

Residential electricity demand in our valley is a function of the size and energy efficiency of homes, the amount of time homes are occupied, the types of appliances in homes, and the price of electricity.

Average Annual Consumption (Kilowatt Hours) Per Residence Within the Yampa Valley Electric Service Area*

*Yampa Valley Electric Service Area includes Routt and Moffat Counties and portions of Wyoming, Eagle County and Rio Blanco County

Year	Kilowatt Hours
1992	9,731
1993	10,098
1994	9,846
1995	9,550
1996	9,743
1997	9,077
1998	9,330
1999	9,362
2000	9,493
2001	9,388
2002	9,780
2003	9,444

Source: Yampa Valley Electric Association

Although it does not tell the whole story, a profile of statistics regarding agriculture sheds some light on the status of the agricultural economy and the uses of agricultural lands in the Yampa Valley. As the statistics indicate, the cattle industry as a whole is a steady but not growing industry, while both Routt and Moffat Counties show a declining year-round sheep industry.

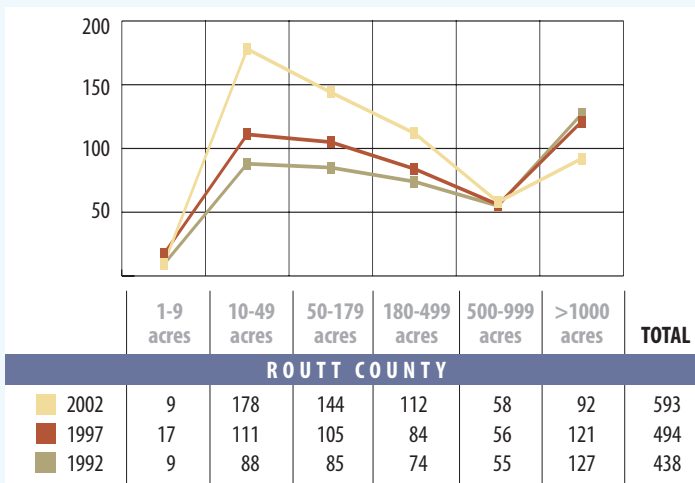
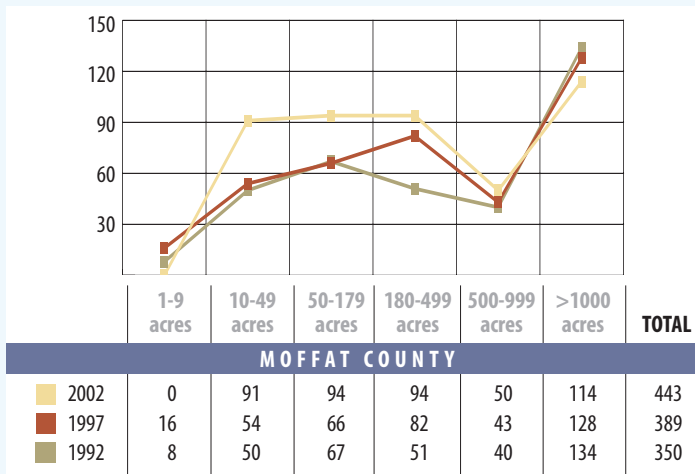
Hay is the single largest plant crop raised in Routt and Moffat Counties. Hay acres are cyclical due to variable weather/rain patterns each year. Harvesting hay is not always feasible in dry years. Acres have actually increased over time because in the 1970s and 80s additional water storage was built and allowed more acres to be irrigated than in the 1960s. Conversely, the acreage in small grains (wheat, oats and barley) clearly shows a declining grain farming industry in both counties.

Data on farms by size shows an increase in small or part-time operations. It also indicates a consolidation of commercial operations, i.e. commercial agriculture must get bigger to survive as a sole source of income for a family. This trend is consistent with farms and ranches nationwide. Some larger operations have been subdivided into smaller parcels because of the economics of land values in relation to agricultural production values.

Market Value of Agricultural products sold is a broad measure of sales of crops and livestock in each county annually. It gives an indication of whether the agriculture industry in both counties is growing, shrinking or stable. However, it is important to recognize that there are periodic fluctuations due to the cyclical prices received for farm products, particularly cattle.

RESEARCH METHODOLOGY NOTES: All figures are derived from one of two sources. The United States Department of Agriculture conducts an agricultural census every five years. The other source of data is from the Colorado Agricultural Statistic's, a program of the State Department of Agriculture.

Number of Farms by Size



Market Value of Ag Products Sold \$/1,000

MOFFAT	
2002	20,179
1997	18,938
1992	16,644
ROUTT	
2002	25,161
1997	22,858
1992	26,365

Total Acreage Harvested

All small grains acres: oats, barley, winter wheat, spring wheat	
MOFFAT COUNTY	
2001	14,400
1996	18,300
1992	20,900
1981	48,100
1977	41,400
1973	36,950
1968	36,490
ROUTT COUNTY	
2001	8,200
1996	11,900
1992	14,400
1981	24,900
1977	24,300
1973	36,300
1968	30,010

All hay: Hay-alf, other, wild, silage	
MOFFAT COUNTY	
2001	47,500
1996	25,500
1992	27,700
1981	25,500
1977	17,400
1973	27,500
1968	18,200
ROUTT COUNTY	
2001	48,500
1996	42,000
1992	39,000
1981	43,500
1977	35,000
1973	45,000
1968	48,580

Livestock Inventory

	Beef Cattle and Calves	Sheep and Lambs
MOFFAT COUNTY		
2002	31,800	86,292
1997	41,829	72,715
1992	25,504	90,518
1981	37,000	121,000
1977	27,000	114,000
1973	37,000	109,000
1968	30,200	108,000
ROUTT COUNTY		
2002	29,784	5,206
1997	45,718	9,932
1992	37,042	20,820
1981	34,000	23,000
1977	32,500	20,000
1973	42,000	61,000
1968	43,100	65,000

Sources: Colorado Agricultural Statistics, United States Department of Agriculture Agricultural Census, Routt County Cooperative Extension

Occurrence of List 'A' Weed Species by County

Common Name	Scientific Name	Routt	Moffat
African rue	(Peganum harmala)		
Camelthorn	(Alhagi pseudalhagi)		
Common crupina	(Crupina vulgaris)		
Cypress spurge	(Euphorbia cyparissias)	X	
Dyer's woad	(Isatis tinctoria)		
Giant salvinia	(Salvinia molesta)		
Hydrilla	(Hydrilla verticillata)		
Meadow knapweed	(Centaurea pratensis)	X	
Mediterranean sage	(Salvia aethiopsis)		
Medusahead	(Taeniatherum caput-medusae)		
Myrtle or donkeytail spurge	(Euphorbia myrsinites)	X	X
Purple loosestrife	(Lythrum salicaria)	X	
Rush skeletonweed	(Chondrilla juncea)		
Sericea lespedeza	(Lespedeza cuneata)		
Squarrose knapweed	(Centaurea virgata)		
Tansy ragwort	(Senecio jacobaea)		
Yellow starthistle	(Centaurea solstitialis)		

Sources: Routt and Moffat County Weed Control Programs

Noxious Weeds

Noxious weeds are plants that can invade and eventually dominate lands and can cause substantial damage to the health of natural systems and to the productivity of agricultural lands. Under the 2003 Colorado Noxious Weed Act, all List "A" species must be eradicated wherever found. List "A" species are non-native species that have become serious noxious weed problems in other Western states but are not yet serious problems in Colorado. Because of their limited distribution in the state, it is urgent that they be eradicated now before they become major problems. Donkeytail spurge, cypress spurge, and purple loosestrife are all escaped ornamental weeds that have been positively identified in the City of Steamboat Springs. Meadow knapweed is located near the Mad Creek trailhead on RCR 129, and is being actively managed. Donkeytail spurge was located and controlled in an ornamental planting in the City of Craig.

"I have found that the Yampa Valley Partners Indicators Project is a useful tool anytime I am meeting with businesses that have a presence in our valley but are absent by nature. Many times they are surprised to find a report of this quality available to them in our small area. Most of them have expressed a desire for all communities to generate this type of information in a concise and usable document. Thank you!"

DAVE DEROSE

BUSINESS OWNER AND MAYOR OF CRAIG, COLORADO

The indicator process and report is a valuable tool for Northwest Colorado. It gives us great data to make smart decisions. Colorado Northwestern Community College uses the report to determine what classes may be needed to meet the interests and demands of the community and the total college service area.

DR. DEAN HOLLENBECK

VICE PRESIDENT CRAIG-CAMPUS,
COLORADO NORTHWESTERN COMMUNITY COLLEGE

"Ideally, I think the Community Indicators can provide feedback on how well we are doing at reaching our goals as a community. Although, the Yampa Valley community is quite diverse, there are certain goals we can all agree on, like maintaining our social well-being, productive agricultural lands, healthy wildlife populations and a strong economy. Through the Community Indicators, we begin to see a picture of our progress toward these goals: where we are doing well, and where we might do better.

ANN OLIVER

YAMPA RIVER PROJECT DIRECTOR
THE NATURE CONSERVANCY

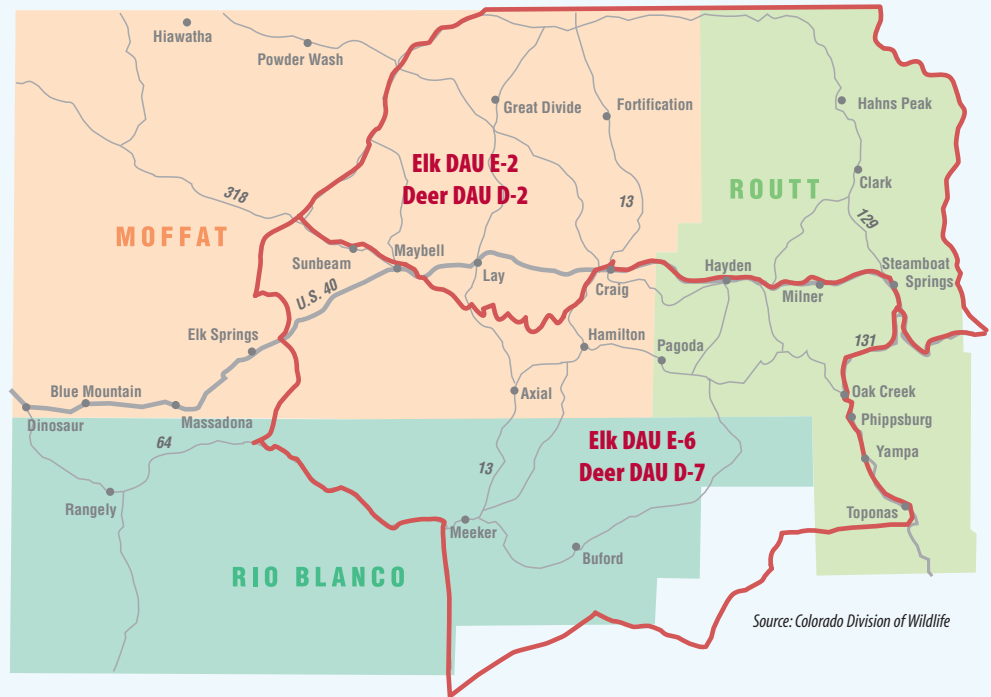
Elk and Deer: Herd Health

The Yampa Valley supports the largest herds of mule deer and elk in Colorado. These herds are a cornerstone of wildlife-related recreation and economic sectors locally and statewide. Two herd units (Data Analysis Units) occur in the Yampa Valley, the Bears Ears herd and the Flattops/White River herd. Other herd units occur in the western portions of the valley but are much smaller.

Herd productivity is the most sensitive indicator of herd health collected by wildlife agencies. It is measured by the ratio of mule deer fawns per 100 does, and elk calves per 100 cows. Changes in these ratios track the effects of wet and dry years, mild and severe winters, and good and bad forage conditions on herd health. These ratios can also indicate the position of the herd relative to carrying capacity. Carrying capacity is the maximum number of animals that can be supported without damaging the habitat. Steeply declining ratios can indicate population levels that exceed the resources available. In Colorado, biologists consider a ratio ranging from 50 to 70 young per 100 females to be optimum.

The ratio of males per 100 females indi-

Yampa Valley Elk and Deer Data Analysis Units



Source: Colorado Division of Wildlife

cates the impact of hunting seasons on populations and hunter satisfaction with the sex and age structure of populations. In managing the Yampa Valley's herds, biologists strive for a ratio of 20 to 25 males per 100 females.

These indicators serve an important role in tracking deer and elk population size, growth rate, health and the amount of hunting pressure necessary to maintain populations at desired levels.

Post-season Ratio Estimates

Elk

Year	E-2 Bear's Ears Elk Herd		E-6 White River Elk Herd	
	Males:Females	Young:Females	Males:Females	Young:Females
1980	3.30	54.40	4.89	59.46
1981	5.70	55.10	4.77	56.34
1982	6.65	44.92	4.29	54.01
1983	7.90	47.50	6.78	43.28
1984	7.02	44.01	4.26	49.37
1985	8.01	51.95	15.03	51.31
1986	17.93	53.99	19.53	62.71
1987	20.24	52.65	22.15	53.77
1988	22.00	60.29	23.85	56.69
1989	25.24	66.18	24.80	64.49
1990	22.32	54.58	21.48	62.54
1991	22.27	55.08	17.49	56.29
1992	21.93	55.14	18.33	55.80
1993	17.68	54.13	18.10	58.05
1994	20.01	52.20	16.88	49.39
1995	25.24	45.60	21.59	45.01
1996	20.60	54.80	18.35	55.83
1997	16.07	42.72	15.33	44.34
1998	21.50	56.81	20.32	48.16
1999	23.85	56.01	25.48	47.52
2000	21.87	55.62	21.50	59.11
2001	23.90	54.70	20.32	64.01
2002	26.30	52.50	21.30	59.14
2003	30.60	50.20	19.00	58.00

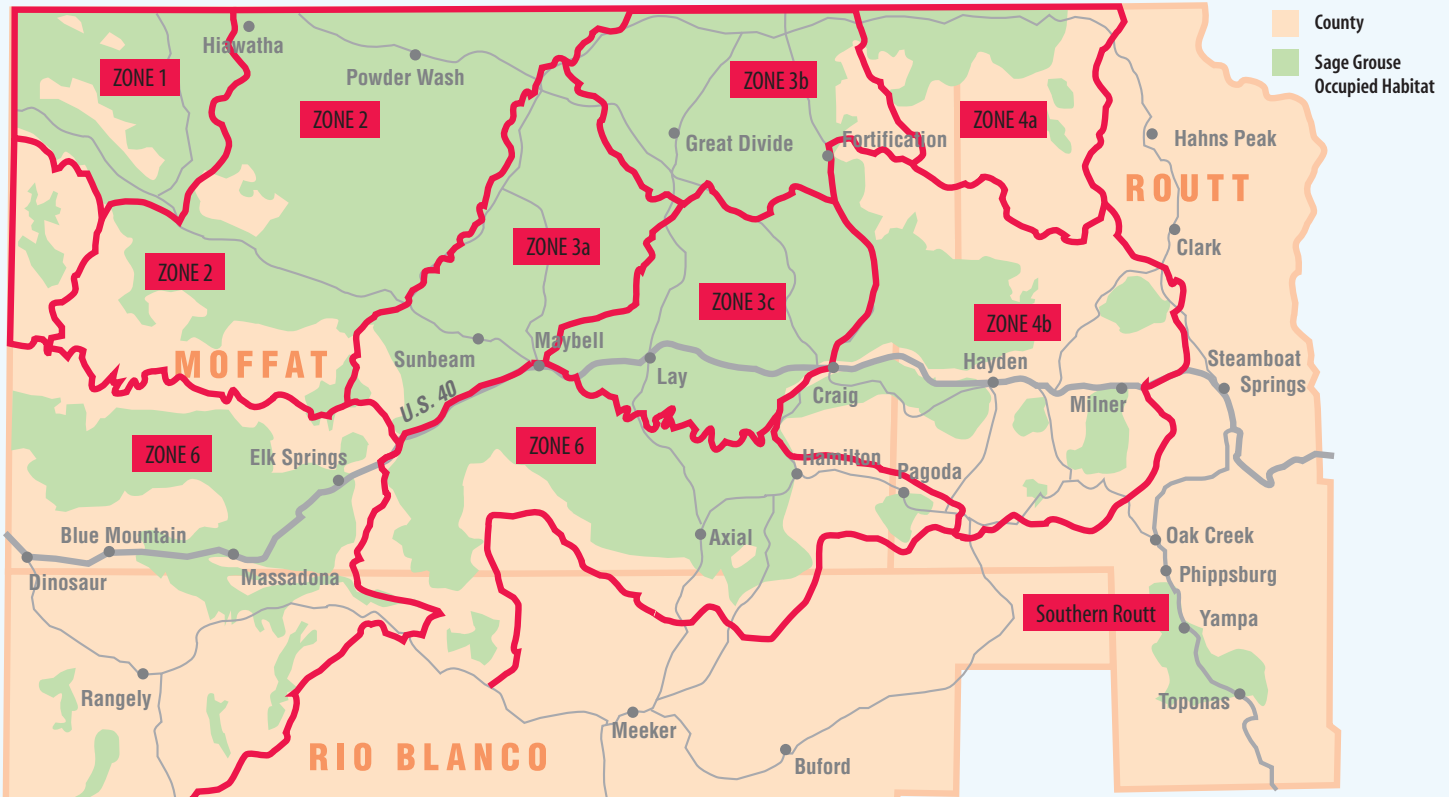
Source: Colorado Division of Wildlife

Deer

Year	D-2 Bear's Ears Deer Herd	
	Males:Females	Young:Females
1980	5.7	86.0
1981	12.1	74.3
1982	14.3	72.9
1983	12.1	66.9
1984	3.8	54.4
1985	9.5	66.0
1986	19.7	70.0
1987	20.0	64.0
1988	22.3	78.6
1989	19.9	70.6
1990	23.7	80.2
1991	20.1	75.2
1992	23.1	63.6
1993	13.3	62.7
1994	14.3	71.9
1995	17.0	56.1
1996	20.5	59.6
1997	14.8	57.6
1998	18.3	61.0
1999	22.9	59.9
2000	27.8	57.2
2001	29.3	51.4
2002	26.8	62.8
2003	33.6	86.3

Deer

Year	D-7 White River Deer Herd	
	Males:Females	Young:Females
1987	18.90	57.13
1988	15.38	63.00
1989	15.13	63.90
1990	18.46	62.15
1991	18.85	55.58
1992	17.44	49.72
1993	11.33	47.11
1994	13.75	54.85
1995	10.72	47.63
1996	18.90	57.13
1997	12.76	47.70
1998	12.78	49.75
1999	33.56	48.32
2000	20.90	59.15
2001	32.70	77.30
2002	30.89	73.70
2003	29.20	87.73



Greater Sage Grouse Lek Activity

The sage grouse is a chicken-like bird that depends on sagebrush ecosystems and can serve as a sensitive indicator of the overall health of these environments. Greater sage-grouse populations have been in decline across their range in the west. Conservation plans for the two population areas in the Yampa Valley have been prepared with broad participation from landowners, agencies, conservation, and industry interests.

In the early spring, male grouse gather at “leks” to dance and breed on clearings in the sage and females nest under sagebrush shrubs. During the summer, sage grouse look for food including insects, leaves and flowers throughout the patchwork of sagebrush, grasslands and wet meadows. In the winter months, grouse depend almost entirely on sagebrush leaves for food.

Counts of breeding males (lek counts) in the spring are widely used to indicate sage grouse population trends and are the only field measure that can be effectively obtained across large areas. While these counts do not tell us the actual population size, they are the best and most long term measure available for tracking population trends.

The Colorado Division of Wildlife has been carrying out lek counts since the 1950s, and has increased and standardized these efforts since the late seventies. Tracking the number of active leks provides an index of the distribution of sage grouse breeding activity across a population area.

In Northwest Colorado and Southern Routt County Management Zones

High Count of Male Greater Sage-Grouse on Leks						
Management Zone	1999	2000	2001	2002	2003	2004
Southern Routt	76	91	49	92	83	81
1	241	165	133	117	137	
2	54	41	18	25	37	
3a	222	628	503	459	433	
3b	282	424	744	774	650	
3c	13	74	109	170	118	
4a	45	20	143	54	64	
4b	94	43	69	63	88	
5	389	451	289	226	322	
6	479	429	349	337	321	
7	0	0	0	0	10	

Number of Active Leks						
Management Zone	1999	2000	2001	2002	2003	2004
Southern Routt	4	4	3	5	3	4
1	12	11	7	7	6	
2	4	4	4	3	3	
3a	8	13	12	13	15	
3b	12	19	25	24	23	
3c	2	3	2	4	3	
4a	2	2	4	2	2	
4b	6	5	6	6	8	
5	21	22	19	19	17	
6	7	9	8	8	9	
7	0	0	0	0	1	

Source: Colorado Division of Wildlife

Bald Eagle

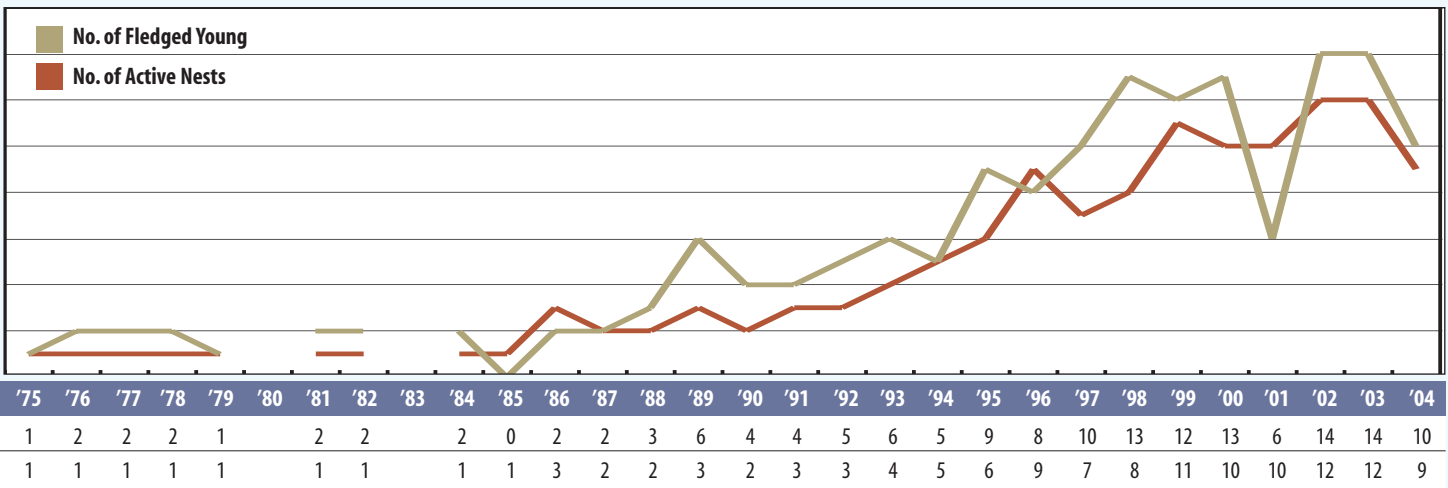
The number of successful bald eagle nests is one indicator of the health of the Yampa River and the continued regeneration of its forests. Most bald eagles in Colorado build their nests in December through June in large cottonwood trees along rivers and lakes in areas that are relatively free from human disturbance. A pair of eagles will use the same nest year after year,

adding material so the nest becomes very heavy. The availability of large, mature cottonwood trees along a water body is one of the key ingredients for successful bald eagle nesting. The birds and their young depend on the fish and waterfowl found around the rivers and lakes where they nest and winter.

In 1967, the bald eagle was listed as “Threatened” under the Endangered

Species Act due to declining numbers related to the effects of DDT, hunting, and habitat loss. While the increase in the number of active eagle nests on the Yampa may be partly attributable to increased search effort, the Yampa River's population of breeding bald eagles has certainly grown and contributes significantly to the number in Colorado.

Bald Eagle Nests in Yampa Valley



Source: Colorado Division of Wildlife

“The ‘Community Indicator’s Report’ offers both locals, visitors, and those researching our area the best glimpse of life in the Yampa Valley. It is a valuable resource which saves me hours of research time, and I cannot imagine performing the duties of my job without it.”

ALYSA SELBY
RESEARCH LIBRARIAN
BUD WERNER LIBRARY- STEAMBOAT SPRINGS

“The Yampa Valley Indicators is a valuable resource to the Community Agriculture Alliance because it offers a wide range of statistics about the impacts that affect not only agriculture, but also business, community and resort interests. To determine how to move forward, we must know where we have been and the Indicators help us recognize what factors are important to the diverse economies of our communities in Northwest Colorado.”

MARSHA DAUGHENBAUGH
EXECUTIVE DIRECTOR
COMMUNITY AGRICULTURE ALLIANCE