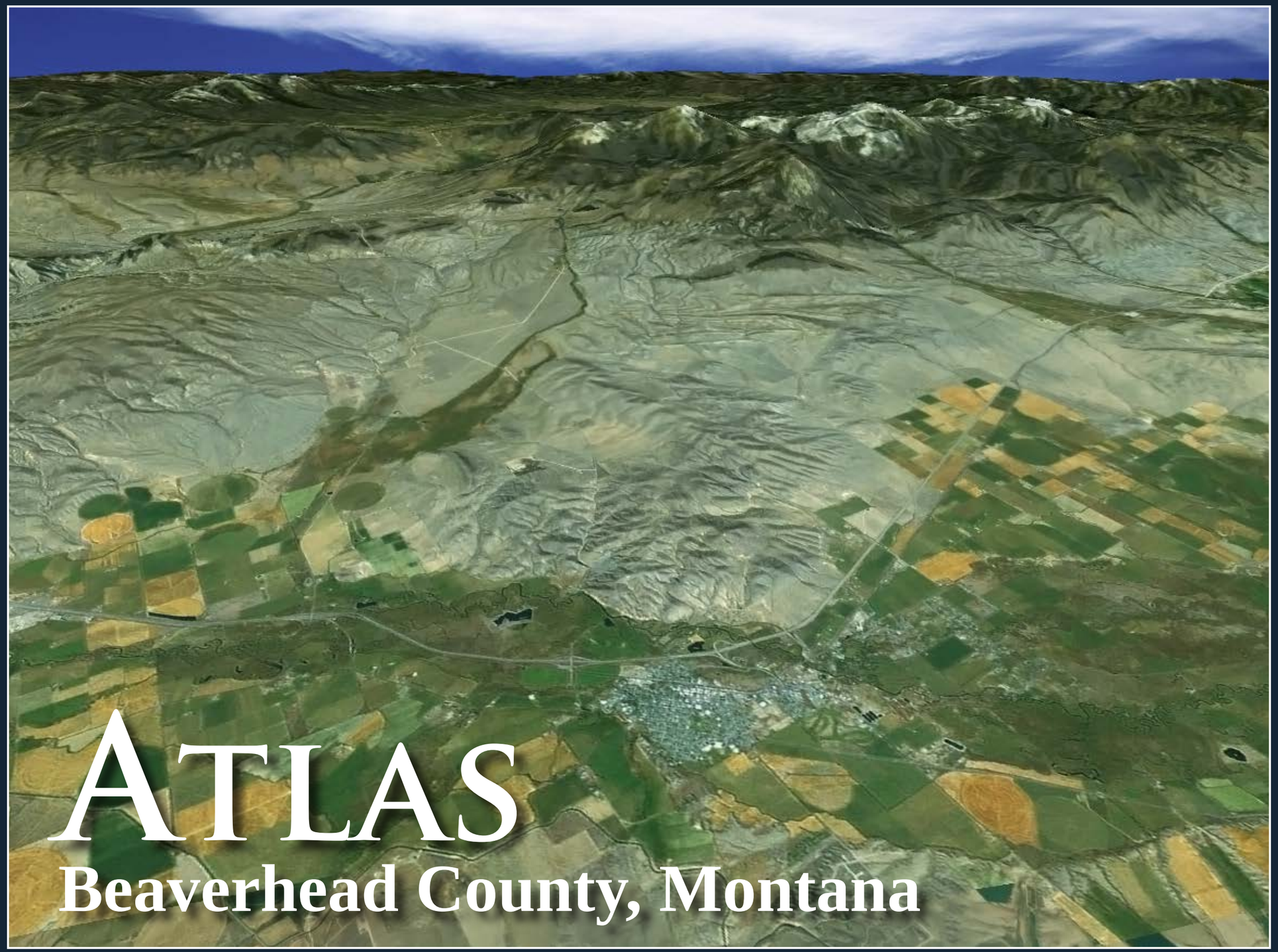

Atlas

Beaverhead County, Montana

Credits

This project was made possible through a partnership with Beaverhead County, Montana Fish, Wildlife & Parks and Future West. The project was directed by a steering committee of Beaverhead County Planning Board members. Funding was provided by the Brainerd Foundation with mapping services by Gage Cartographics.

The Atlas is designed to support land use planning efforts, economic development projects and serve as a community resource for landowners, new residents and others. One immediate application will be supporting the new growth policy for Beaverhead County.

The goal is to present natural resource and socio-economic data in a single location, graphically and with some simple analysis and summary. This will provide a snapshot of the resources and attributes in Beaverhead County and could augment grant proposals and community projects.

The Atlas is available as an electronic document and hard copy through the Beaverhead County Planning Department.

Photo credits listed below photographs. Additional photos by Larry Volkening, Scott Marsh and Barry Emge.

Introduction

Beaverhead County has a wealth of natural resource values that are recognized by the citizens as contributing to our overall quality of life and western heritage. These values have been repeated numerous times in various planning documents developed by the residents and adopted by Beaverhead County.

The Big Hole Watershed Land Use Plan (2003) lists a number of guiding principles that reflect the values of Big Hole residents. Included in that list are maintaining the character of the Big Hole River and Valley including such items as open space and view sheds, healthy functioning ecosystems, high quality fish and wildlife habitat and clean air and water. The Watershed Plan also notes as guiding principles the protection of critical fish and wildlife habitat, including winter range and the maintenance of quality recreational experiences.

Language in the Beaverhead County Dillon Growth Area Plan (2010) also reflects the importance of these natural resource values:

"Our diverse economy and strong western heritage is tied to the land which supports a rich agricultural tradition, clean water, open space, wildlife, and bountiful opportunities for recreation."

For these reasons this Atlas is an attempt to compile some of the maps and information that pertain to these natural resource values. Also included is information about another valuable resource in Beaverhead County, our citizens.

Beaverhead County has not created any new information for the resources include in this atlas, but rather has compiled existing data and maps from a variety of different sources. This atlas is not all inclusive, and is not intended to be used as a sole source of information, but rather as a starting point for a wide variety of land use discussions. These maps are not intended to replace site specific review, local knowledge and other sources of information that need to be considered in various land use planning projects.

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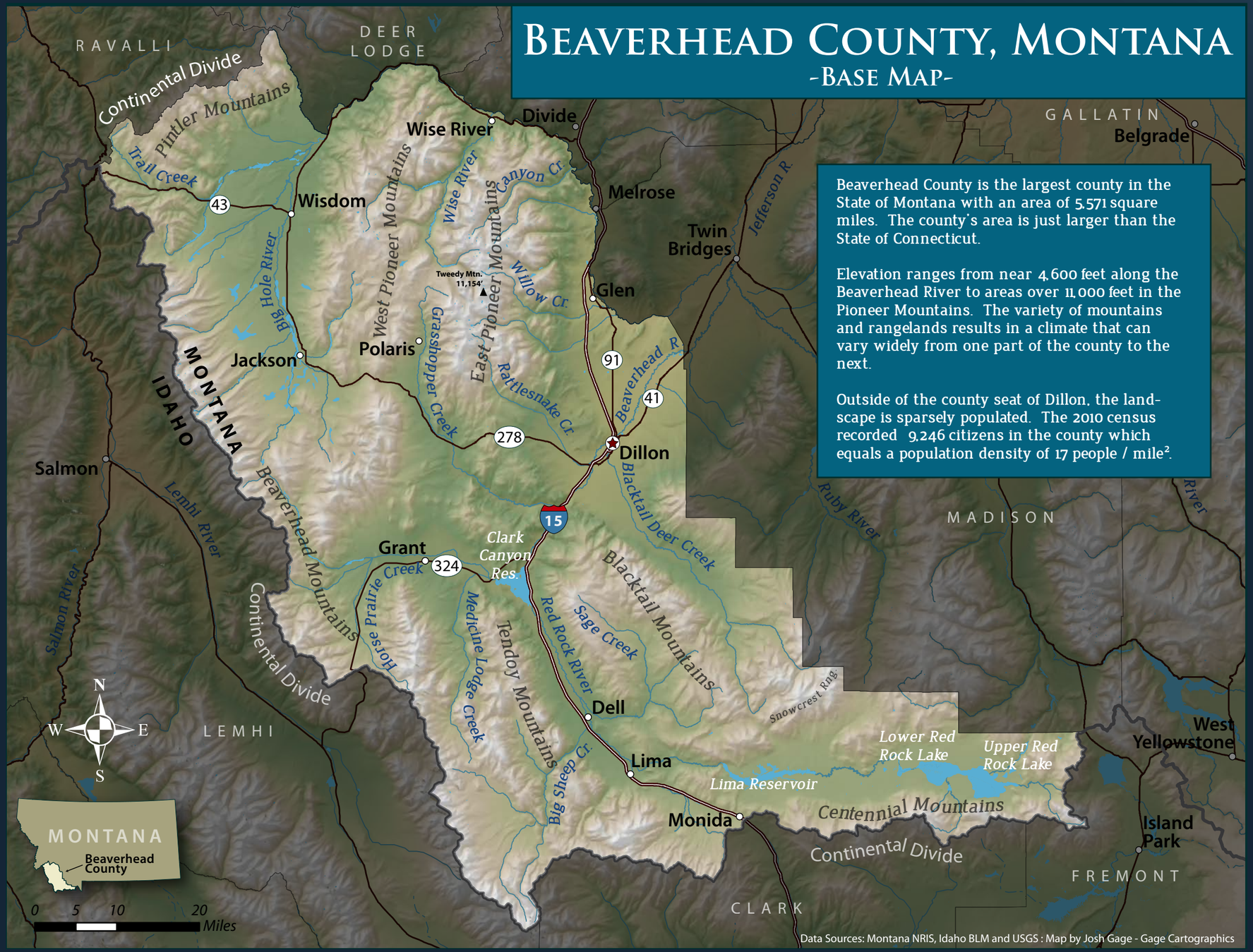
Josh Gage

Beaverhead County, Montana

-Base Map-



Beaverhead County is the largest county in the State of Montana with an area of 5,571 square miles. The county's area is just larger than the State of Connecticut.

Elevation ranges from near 4,600 feet along the Beaverhead River to areas over 11,000 feet in the Pioneer Mountains. The variety of mountains and rangelands results in a climate that can vary widely from one part of the county to the next.

Outside of the county seat of Dillon, the landscape is sparsely populated. The 2010 census recorded 9,246 citizens in the county which equals a population density of 17 people / mile^2.

Data Sources: Montana NRIS, Idaho BLM and USGS : Map by Josh Gage - Gage Cartographics

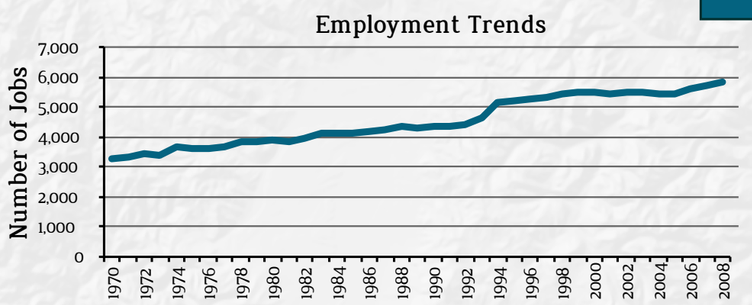
Emily Cayer

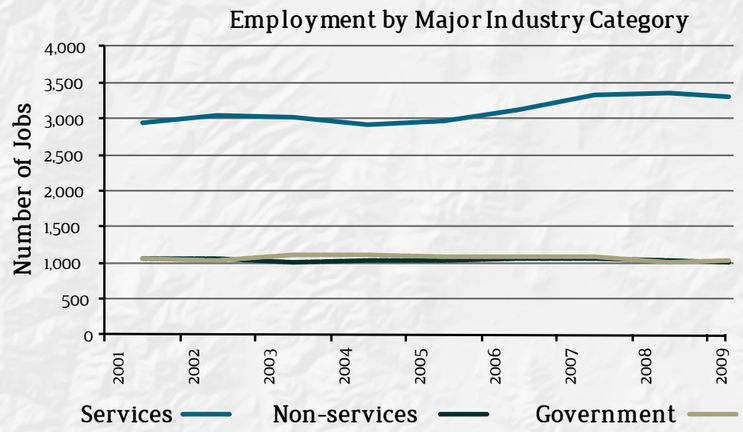
Employment Information

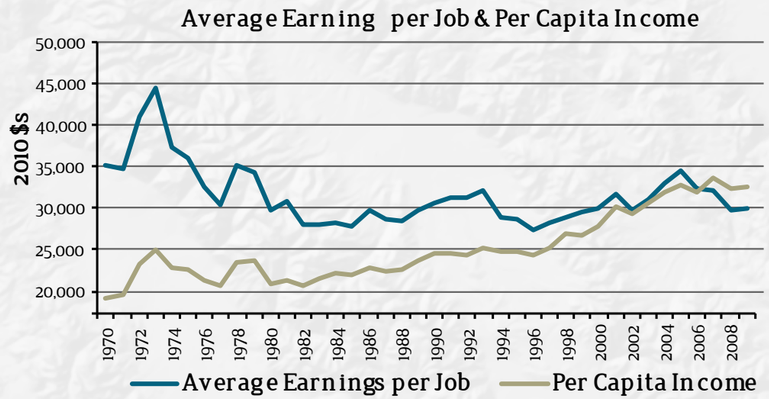
Employment information relates to trends in job growth, job categories, earnings per job, and employment by industry. Together these standard measures of economic growth or decline give a snapshot of economic performance in Beaverhead County in recent years. In addition, this information provides insight into which sectors of the economy are providing employment and whether or not these sectors are growing. Please note that "per capita income" can be misleading because it is calculated using total population including those people receiving non-labor related income and not just the labor force as in average earning per job.

Beaverhead County, Montana

- Employment Information -







Employment by Industry, 2001-2009	2001	2009	Change 2001-2009
Total Employment (number of jobs)	5,440	5,749	309
Non-services related	1,070	996	-74
Farm	609	535	-74
Forestry, fishing, & related activities	na*	na	na
Mining (including fossil fuels)	na	na	na
Construction	345	353	8
Manufacturing	116	108	-8
Services related	2,938	3,311	374
Utilities	na	na	na
Wholesale trade	117	185	68
Retail trade	602	532	-70
Transportation and warehousing	na	na	na
Information	47	47	0
Finance and insurance	185	176	-9
Real estate and rental and leasing	233	424	191
Professional and technical services	191	202	11
Management of companies and enterprises	0	0	0
Administrative and waste services	56	100	44
Educational services	10	21	11
Health care and social assistance	485	572	87
Arts, entertainment, and recreation	153	205	52
Accommodation and food services	559	520	-39
Other services, except public administration	300	327	27
Government	1,053	1,027	-26

*Some data are withheld by the federal government to avoid the disclosure of potentially confidential information. These appear as "na" in tables. Headwaters Economics uses supplemental data from the U.S. Department of Commerce to estimate these data gaps. These are indicated in italics in tables. Documentation explaining methods developed by Headwaters Economics for estimating disclosure gaps is available at www.headwaterseconomics.org/eps-hdt.

Data Sources: Headwaters Economics EPS - Figures by Josh Gage - Gage Cartographics

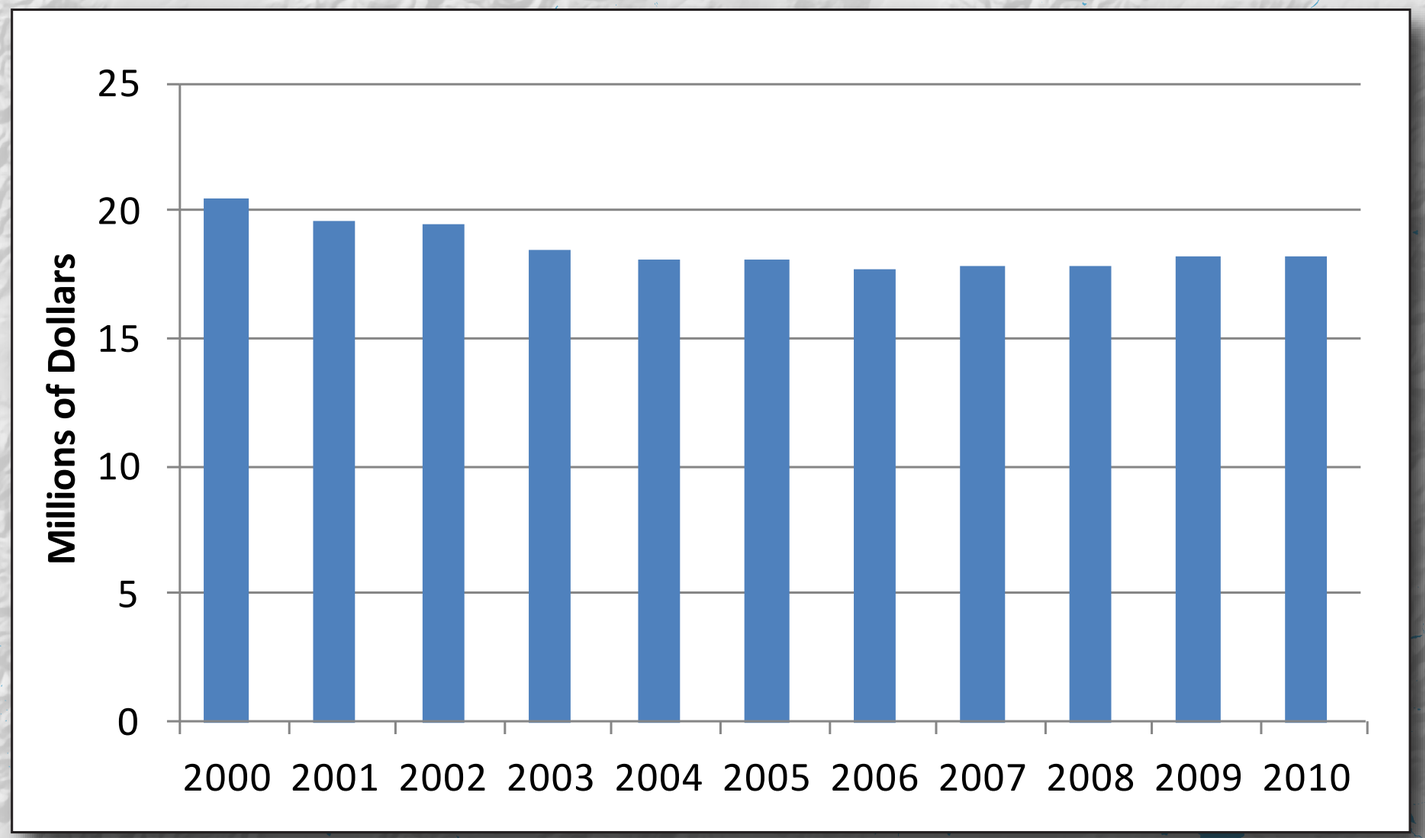
Total Taxable Value of Property

Gage Cartographics

The total taxable value of property in Beaverhead County from 1999 to 2010 is adjusted for inflation. Taxable value is a measure of the total value of property in the county, including residential and commercial property, agricultural land, and timber. Following trends over time, accounting for inflation, this graph shows trends in property value, and is an indication of the tax capacity, or the amount that can be raised from property taxes to fund local government services.

Beaverhead County, Montana

- Total taxable value of property -



Montana Department of Revenue, Biennial Reports 1999-2010. Total Taxable Value of Property; U.S. Department of Labor, Bureau of Labor Statistics, Washington, D.C. Consumer Price Index All Urban Consumers (CPI-U) U.S. City Average, All Items. Figure by Josh Gage - Gage Cartographics

Economic Trends

"Trends" refer to general indicators of economic well-being (population growth, employment, and real personal income) measured over time.

"Prosperity" refers to common indicators of individual well-being or hardship (unemployment, average earnings per job, and per capita income).

"Use Sectors" refer to components of the economy: non-labor income (e.g. government transfer payments, and investment and retirement income) and services and government employment.

"Federal Land" refers to the amount and type of land ownership and the dependence of county government on payments related to federal lands.

	Montana Metro	Montana	Beaverhead County, MT
Trends			
Population % change, 1970-2008	45.3%	38.9%	9.4%
Employment % change, 1970-2008	130.0%	116.4%	79.6%
Personal income % change, 1970-2008	155.2%	139.0%	80.7%
Prosperity			
Unemployment rate, 2009	5.0%	6.3%	4.5%
Average earnings per job, 2008 (2010 $s)	$40,343	$36,236	$29,720
Per capita income, 2008 (2010 $s)	$37,574	$35,065	$31,678
Economy			
Non-Labor % of total personal income, 2008	35.6%	39.3%	47.0%
Services % of total private employment, 2008	*87.2%*	83.8%	*82.5%*
Government % of total employment, 2008	12.4%	14.4%	17.5%
Use Sectors			
Timber % of total private employment, 2008	*1.0%*	*1.5%*	*0.5%*
Mining % of total private employment, 2008	0.7%	1.9%	*6.5%*
Fossil fuels (oil, gas, & coal), 2008	*0.6%*	1.0%	0.0%
Other mining, 2008	*0.1%*	0.9%	*6.5%*
Agriculture % total employment, 2008	1.3%	4.5%	9.4%
Travel & Tourism % total private emp., 2008	*18.7%*	*19.8%*	*27.7%*
Federal Land*			
Federal Land % total land ownership	19.9%	29.0%	58.9%
Forest Service %	17.3%	18.0%	38.4%
BLM %	2.4%	8.5%	18.8%
Park Service %	na	1.2%	0.0%
Other %	0.2%	1.2%	1.7%
Federal land % Type A**	17.5%	21.8%	2.8%
Federal payments % of gov. revenue, FY07	0.9%	0.7%	11.3%
Development			
Residential land area % change, 1980-2000	25.4%	42.7%	2.1%

** Federal public lands that are managed primarily for natural, cultural, and recreational features. These lands include National Parks and Preserves (NPS), Wilderness (NPS, FWS, FS, BLM), National Conservation Areas (BLM), National Monuments (NPS, FS, BLM), National Recreation Areas (NPS, FS, BLM), National Wild and Scenic Rivers (NPS), Waterfowl Production Areas (FWS), Wildlife Management Areas (FWS), Research Natural Areas (FS, BLM), Areas of Critical Environmental Concern (BLM), and National Wildlife Refuges (FWS).

Data Sources: Headwaters Economics EPS : Figure by Josh Gage - Gage Cartographics

Employment by Industry

Beaverhead County, Montana

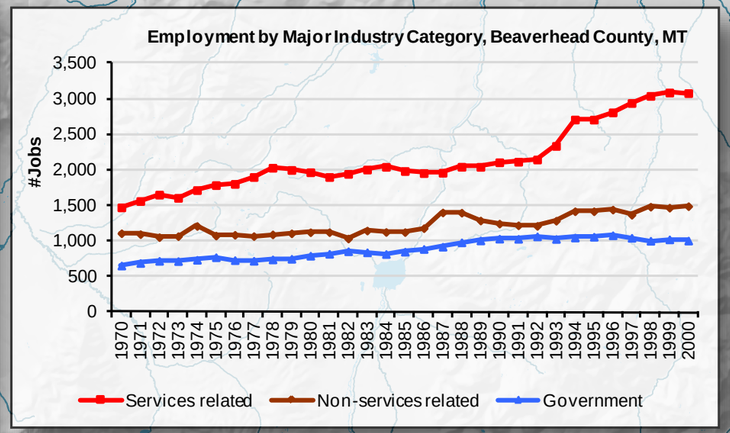
- Employment by Industry Sectors -

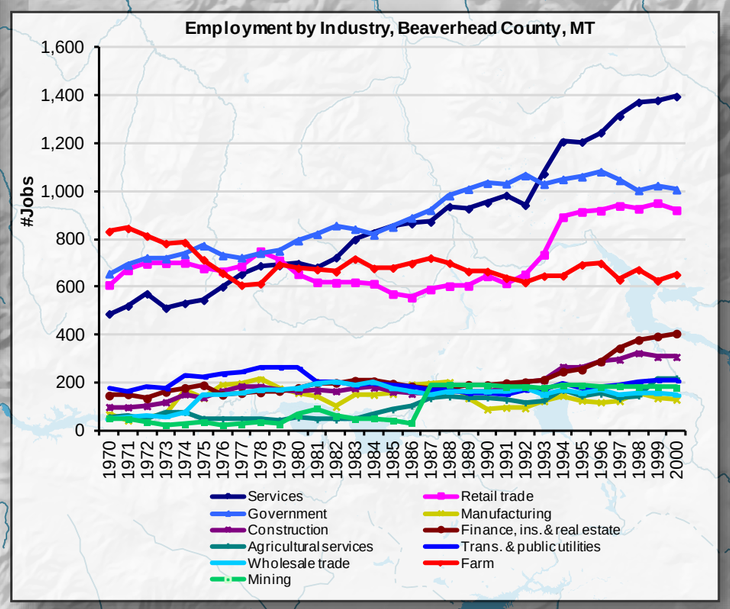
Employment by Industry, 1970-2000

	1970	1980	1990	2000	Change 1990-2000
Total Employment (number of jobs)	3,240	3,886	4,356	5,486	1,130
Non-services related	1,110	1,124	*1,246*	*1,490*	245
Farm	832	679	665	652	-13
Agricultural services, forestry, fishing & other	58	55	138	220	82
Mining (including fossil fuels)	52	66	*188*	*180*	-8
Construction	99	166	*166*	308	142
Manufacturing (including forest products)	69	158	89	130	41
Services related	1,474	1,968	2,108	*3,080*	972
Transportation & public utilities	180	262	158	*208*	50
Wholesale trade	50	175	162	149	-13
Retail trade	609	654	645	921	276
Finance, insurance & real estate	147	179	191	406	215
Services	488	698	952	1,396	444
Government	656	794	1,034	1,007	-27
Percent of Total					% Change 1990-2000
Total Employment					25.9%
Non-services related	34.3%	28.9%	*28.6%*	*27.2%*	19.6%
Farm	25.7%	17.5%	15.3%	11.9%	-2.0%
Agricultural services, forestry, fishing & other	1.8%	1.4%	3.2%	4.0%	59.4%
Mining (including fossil fuels)	1.6%	1.7%	*4.3%*	*3.3%*	-4.1%
Construction	3.1%	4.3%	*3.8%*	5.6%	85.8%
Manufacturing (including forest products)	2.1%	4.1%	2.0%	2.4%	46.1%
Services related	45.5%	50.6%	48.4%	*56.2%*	46.1%
Transportation & public utilities	5.6%	6.7%	3.6%	*3.8%*	31.9%
Wholesale trade	1.5%	4.5%	3.7%	2.7%	-8.0%
Retail trade	18.8%	16.8%	14.8%	16.8%	42.8%
Finance, insurance & real estate	4.5%	4.6%	4.4%	7.4%	112.6%
Services	15.1%	18.0%	21.9%	25.4%	46.6%
Government	20.2%	20.4%	23.7%	18.4%	-2.6%

All employment data are reported by *place of work* . Estimates for data that were not disclosed are shown in *italics* in the table above.

The employment data above are organized according to the Standard Industrial Classification (SIC) system. The data end in 2000 because in 2001 the Bureau of Economic Analysis switched to organizing industry-level data according to the newer North American Industrial Classification System (NAICS). More recent employment trends, organized by NAICS, are shown in subsequent sections of this report.





Data Sources: Headwater Economics EPS - Figures by Josh Gage - Gage Cartographics

Personal Income

Beaverhead County, Montana

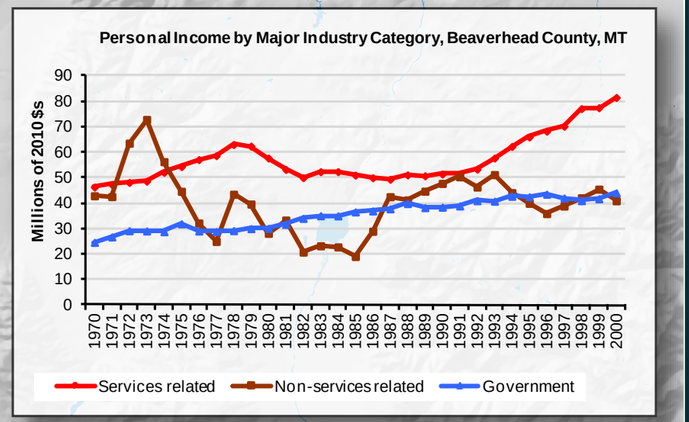
- Personal Income Information -

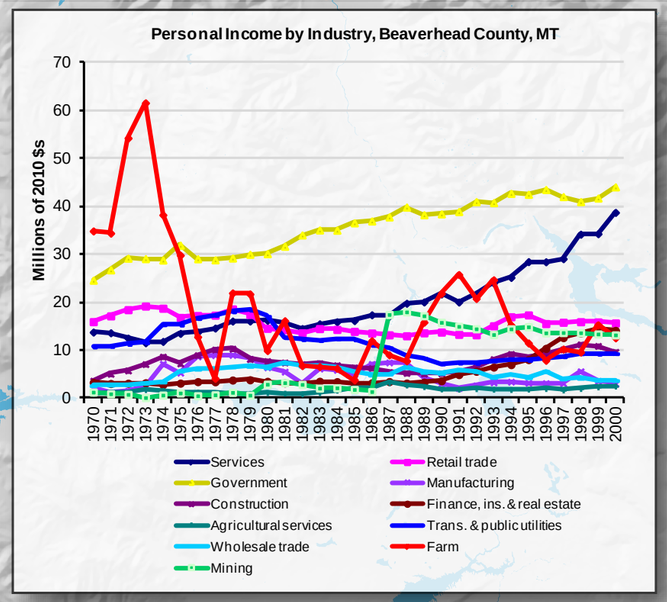
Personal Income by Industry, 1970-2000 (Thousands of 2010 $s)

	1970	1980	1990	2000	Change 1990-2000
Labor Earnings	113,799	115,988	133,002	164,411	31,409
Non-services related	42,892	28,151	*47,755*	*40,941*	-6,813
Farm	34,861	9,924	21,844	12,578	-9,266
Agricultural services, forestry, fishing & other	1,012	1,175	1,927	2,525	598
Mining (including fossil fuels)	1,265	2,903	*15,799*	*13,191*	-2,608
Construction	3,636	7,733	*5,169*	9,638	4,469
Manufacturing (including forest products)	2,119	6,417	3,016	3,010	-6
Services related	46,314	57,719	51,436	*81,519*	30,083
Transportation & public utilities	10,684	17,087	7,154	*9,304*	2,150
Wholesale trade	2,630	6,343	5,167	3,693	-1,474
Retail trade	15,950	14,560	13,774	15,674	1,900
Finance, insurance & real estate	3,276	3,504	3,624	14,122	10,498
Services	13,775	16,225	21,717	38,727	17,010
Government	24,593	30,118	38,421	44,054	5,633
Percent of Total					% Change 1990-2000
Labor Earnings					23.6%
Non-services related	37.7%	24.3%	*35.9%*	*24.9%*	-14.3%
Farm	30.6%	8.6%	16.4%	7.7%	-42.4%
Agricultural services, forestry, fishing & other	0.9%	1.0%	1.4%	1.5%	31.0%
Mining (including fossil fuels)	1.1%	2.5%	*11.9%*	*8.0%*	-16.5%
Construction	3.2%	6.7%	*3.9%*	5.9%	86.5%
Manufacturing (including forest products)	1.9%	5.5%	2.3%	1.8%	-0.2%
Services related	40.7%	49.8%	38.7%	*49.6%*	58.5%
Transportation & public utilities	9.4%	14.7%	5.4%	*5.7%*	30.0%
Wholesale trade	2.3%	5.5%	3.9%	2.2%	-28.5%
Retail trade	14.0%	12.6%	10.4%	9.5%	13.8%
Finance, insurance & real estate	2.9%	3.0%	2.7%	8.6%	289.7%
Services	12.1%	14.0%	16.3%	23.6%	78.3%
Government	21.6%	26.0%	28.9%	26.8%	14.7%

All income data are reported by place of work. Industry categories may not add to total because of adjustments made by the Bureau of Economic Analysis. Estimates for data that were not disclosed are shown in *italics* in the table above.

The personal income data above are organized according to the Standard Industrial Classification (SIC) system. The data end in 2000 because in 2001 the U.S. Department of Commerce switched to organizing industry-level information according to the newer North American Industrial Classification System (NAICS). More recent personal income trends, organized by NAICS, are shown in subsequent pages of this report.





Data Sources: Headwater Economics EPS - Figures by Josh Gage - Gage Cartographics

Non-labor Income

In many places non-labor income can be the single largest component of personal income and also the largest source of new income. With the baby boom generation reaching retirement age, it is likely that non-labor income will continue to be a growing source of personal income. Non-labor income is: dividends, interest, and rent (money earned from investments) and transfer payments (includes government retirement and disability insurance benefits and medical payments, such as Medicare and Medicaid, unemployment insurance benefits) make up non-labor income.

Beaverhead County, Montana

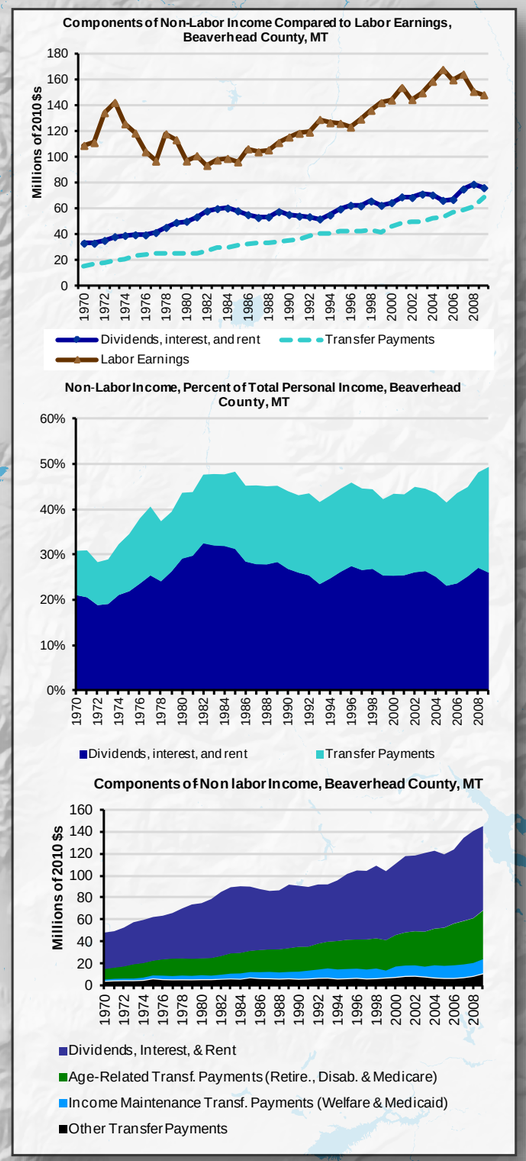
- Non Labor Income -

Components of Non-Labor Income, Beaverhead County, MT, 2009 (Thousands of 2010 $s)

	Beaverhead County, MT	U.S.
Total Non-Labor Income ($1000)	144,877	4,395,767,376
Dividends, Interest, Rent	76,117	2,228,924,544
Total Transfer Payments	68,759	2,166,842,832
Government payments to individuals	67,097	2,110,157,188
Retirement & disability insurance benefits	25,883	710,991,112
Medical payments	28,418	907,045,524
Medicare	18,739	508,458,166
Medicaid	9,410	389,905,270
Military	268	8,682,089
Income maintenance benefits ("welfare")	3,955	221,430,871
Unemployment insurance benefits	2,398	132,275,312
Veterans benefit payments	2,350	52,272,436
All other gov't payments to individuals	3,327	57,677,651
Payments to nonprofit institutions	978	33,338,936
Business payments to individuals	390	13,290,446

Percent of Total

	Beaverhead County, MT	U.S.
Dividends, Interest, Rent	52.5%	50.7%
Total Transfer Payments	47.5%	49.3%
Government payments to individuals	46.3%	48.0%
Retirement & disability insurance benefits	17.9%	16.2%
Medical payments	19.6%	20.6%
Medicare	12.9%	11.6%
Medicaid	6.5%	8.9%
Military	0.2%	0.2%
Income maintenance benefits ("welfare")	2.7%	5.0%
Unemployment insurance benefits	1.7%	3.0%
Veterans benefit payments	1.6%	1.2%
All other gov't payments to individuals	2.3%	1.3%
Payments to nonprofit institutions	0.7%	0.8%
Business payments to individuals	0.3%	0.3%



Data Sources: Headwater Economics EPS - Figures by Josh Gage - Gage Cartographics

Demographic/Housing Information

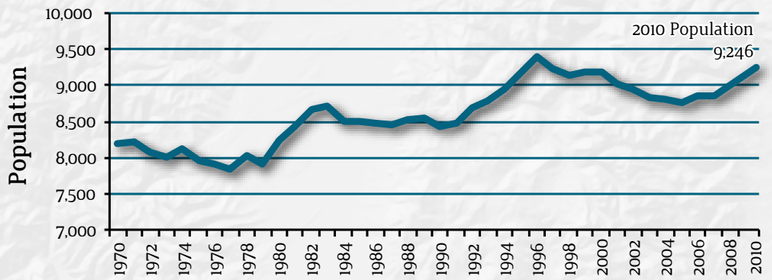
Emily Cayer

Demographic/Housing Information describes the population trends and age distribution of Beaverhead County residents. This information also documents the educational attainment level of the population. The Average Household Size chart in combination with the of the Homeowners Versus Renters chart provides a comparative picture of the current home ownership in Beaverhead County.

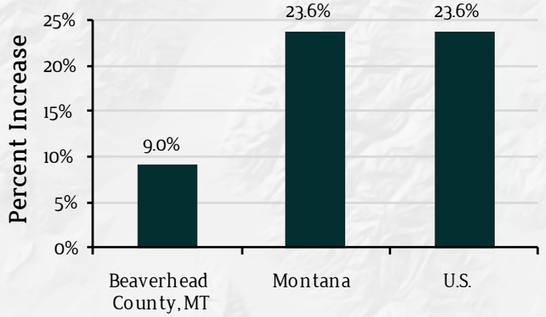
Beaverhead County, Montana

- Demographic / Housing Information -

Population Trends, Beaverhead County, MT



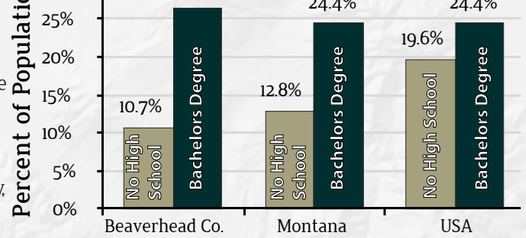
Percent Change in Population, 1990 - 2010



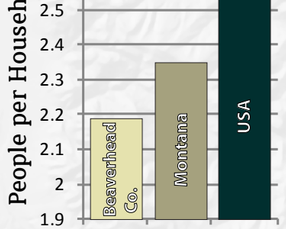
This population pyramid shows the age/gender breakdown compared across Beaverhead County, the state of Montana and the United States. Data comes from the US Census Bureau's 2010 Census.

USA
Montana
Beaverhead County

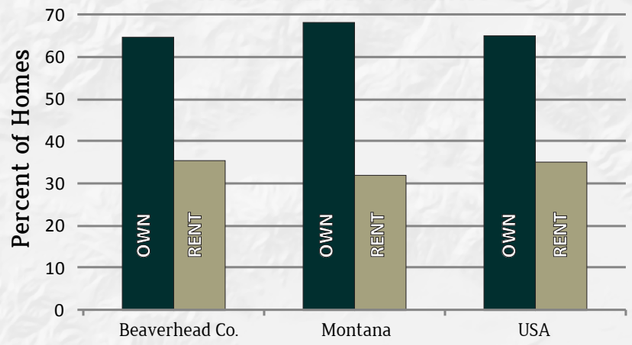
Educational Attainment, 2000



Average Household Size



Home Owners vs. Renters



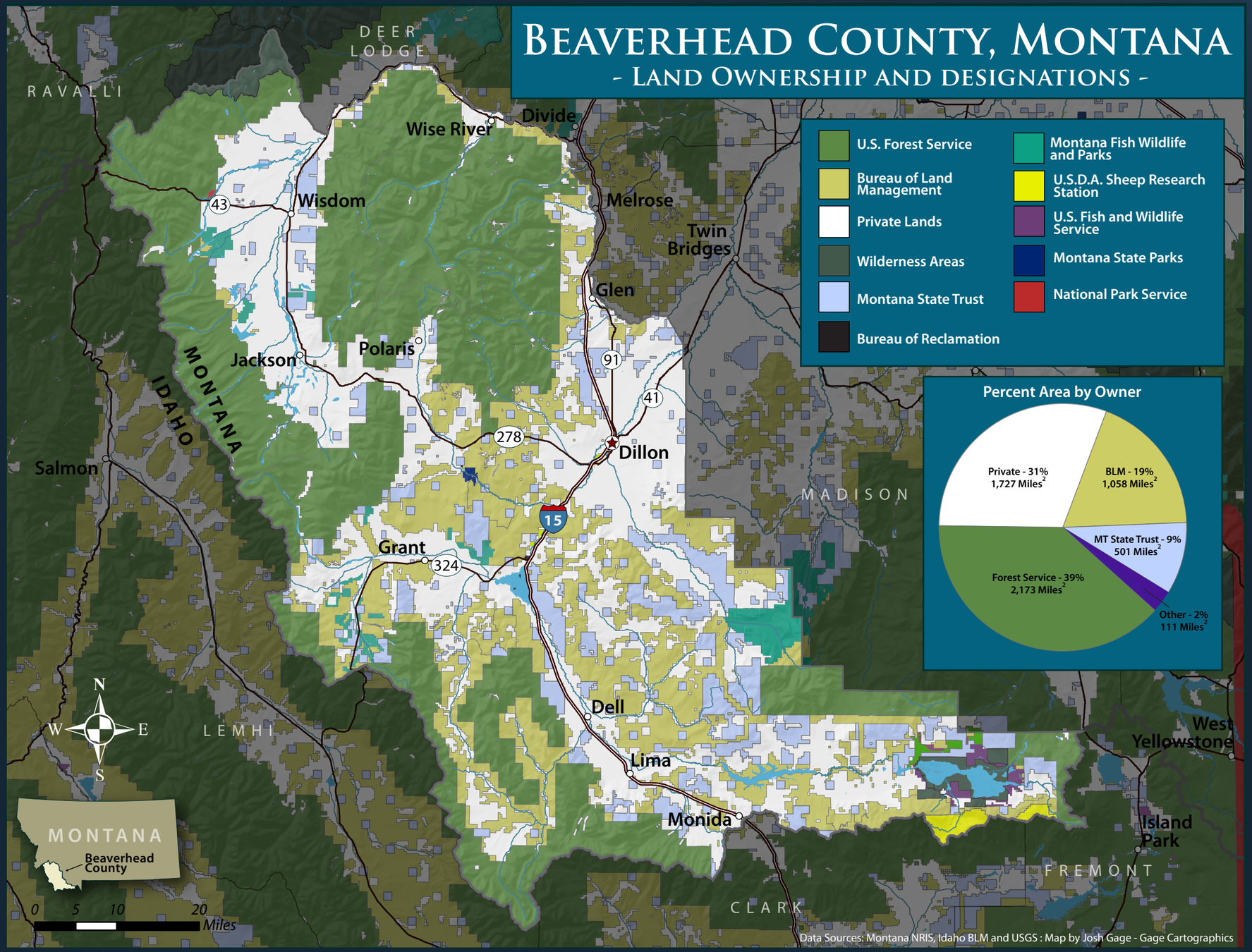
Data Sources: Headwaters Economics EPS - Figures by Josh Gage - Gage Cartographics

Land Ownership

The land ownership map depicts the major categories of land ownership and management in Beaverhead County. Public lands include National Forest, National Wildlife Refuges, Bureau of Land Management lands, National Park lands, and State lands. When combined, these public lands cover about 70% of Beaverhead County. The rest is in private ownership. While most public lands are in the more mountainous and or forested portions of the county like the East and West Pioneer Mountains, private lands are mostly found in the river valleys like the Big Hole Valley. Private lands include communities like Dillon and Wisdom, as well as extensive working landscapes, primarily farms and ranches.

Beaverhead County, Montana

- Land Ownership and Designations -



Josh Gage

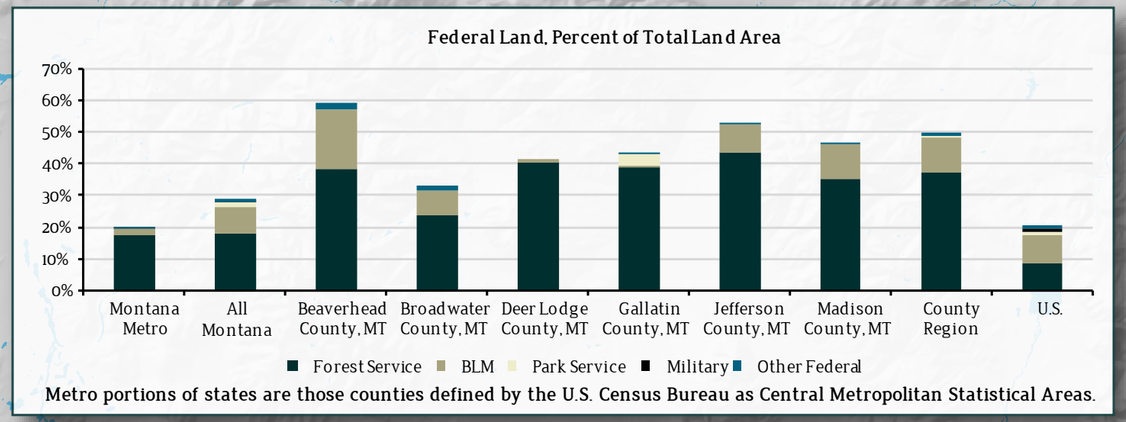
Federal Land Payments

Federal land payments are the federal payments that compensate state and local governments for non-taxable federal lands within their borders. Payments are funded by federal appropriation (e.g. PILT) and from receipts received by federal agencies from activities on public lands such as timber, grazing and minerals.

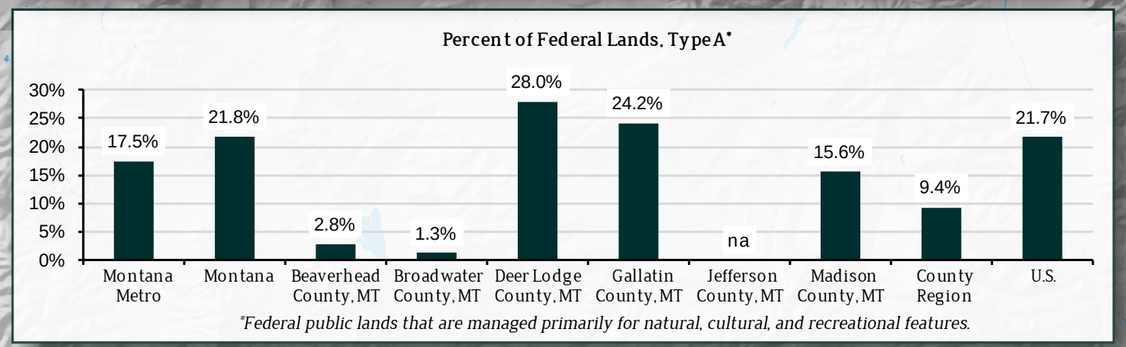
Payment in Lieu of Taxes (PILT) payments compensate county governments for non-taxable federal lands within their borders. BLM Revenue Sharing includes a portion of the receipts generated on public lands with state and local governments including grazing fees. National Wildlife Refuges also share a portion of their receipts. The US Mineral Management Service distributes royalties directly to states which, at their discretion, may share them with local governments.

Beaverhead County, Montana

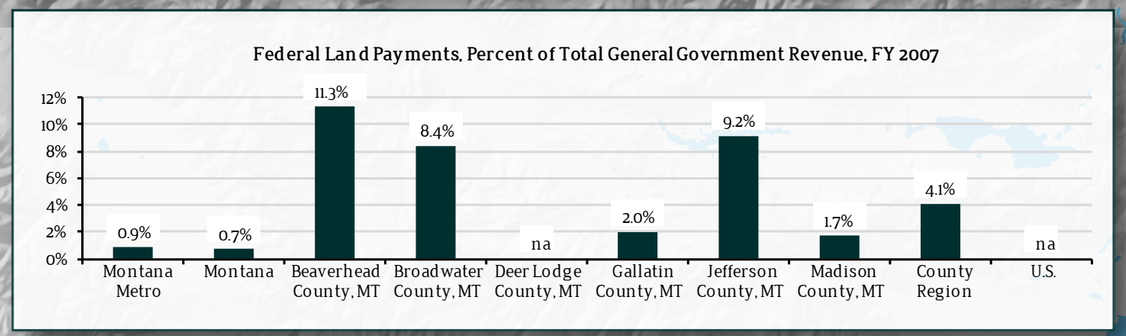
-Federal Lands and Federal Land Payments -



Metro portions of states are those counties defined by the U.S. Census Bureau as Central Metropolitan Statistical Areas.



*Federal public lands that are managed primarily for natural, cultural, and recreational features.



Data Sources: Headwater Economics EPS - Figures by Josh Gage - Gage Cartographics

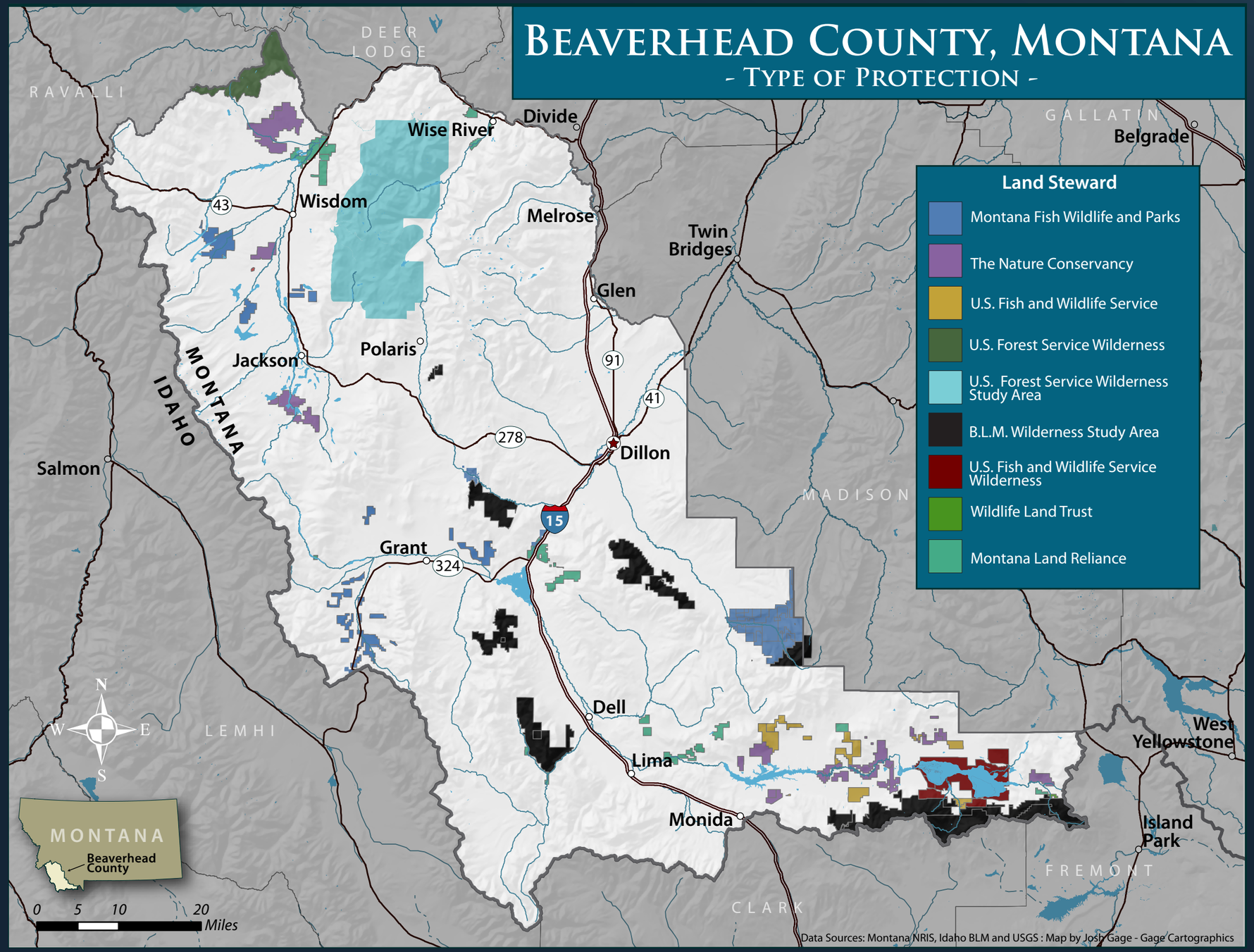
Protected Lands

Dennis Glick

Nearly all private and publicly managed lands in Beaverhead County benefit from some degree of natural resource stewardship. Because of their outstanding natural values, some of these lands receive an even higher level of protection through government regulations such as the Designated Wilderness on the Beaverhead National Forest. Conservation easements on private land also benefit from a higher degree of protection through voluntary agreements made between landowners and the entity holding the easement. Though certain land uses are prohibited, in many cases resource uses such as cattle grazing, or recreational activities such as hunting and fishing, are still allowed. In general though, these areas are protected for their natural or agricultural values, watershed functions, fish and wildlife habitat concerns, or unique recreational opportunities.

Beaverhead County, Montana

- Type of Protection -



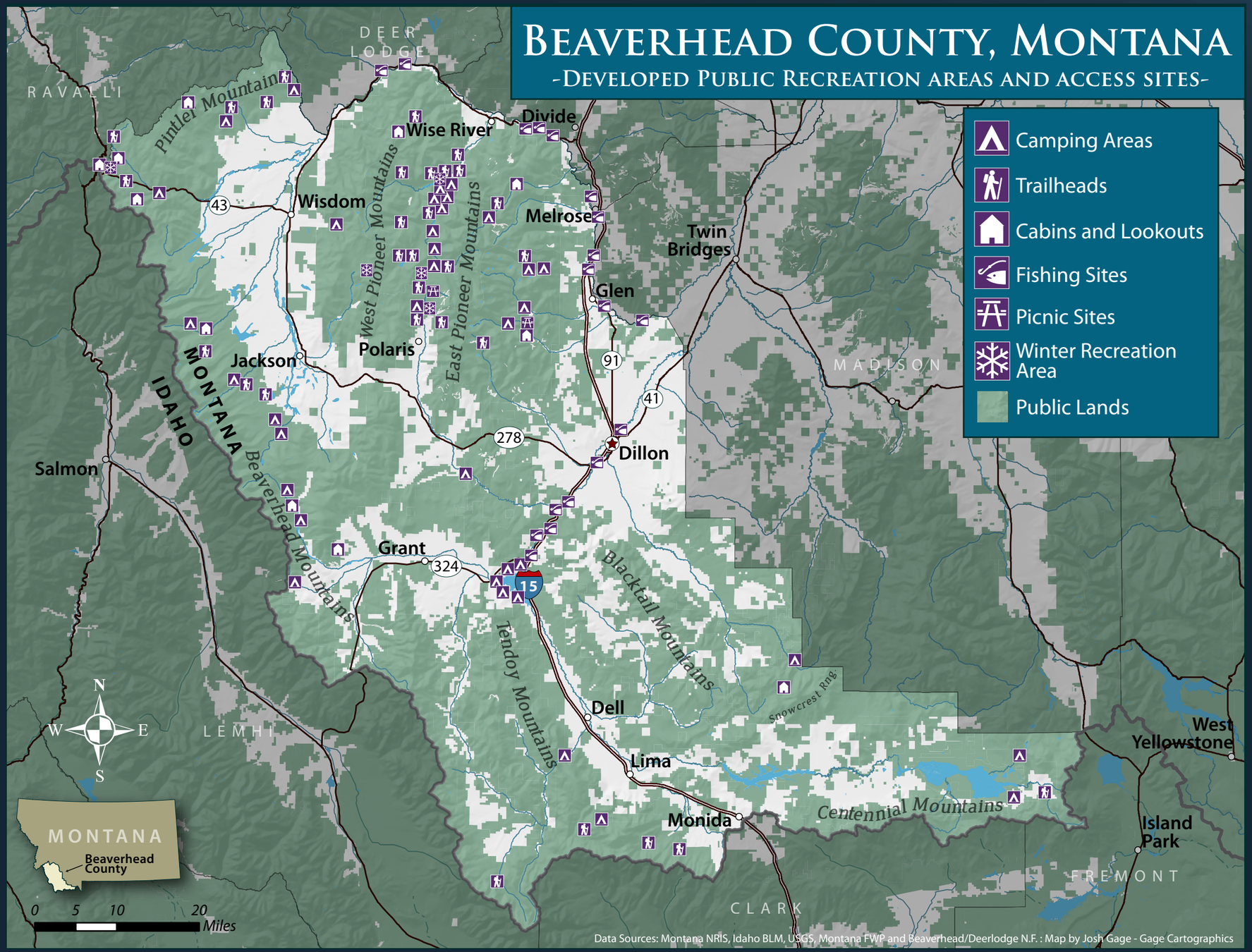
Data Sources: Montana NRIS, Idaho BLM and USGS : Map by Josh Gage - Gage Cartographics

Developed Recreation and Public Access Sites

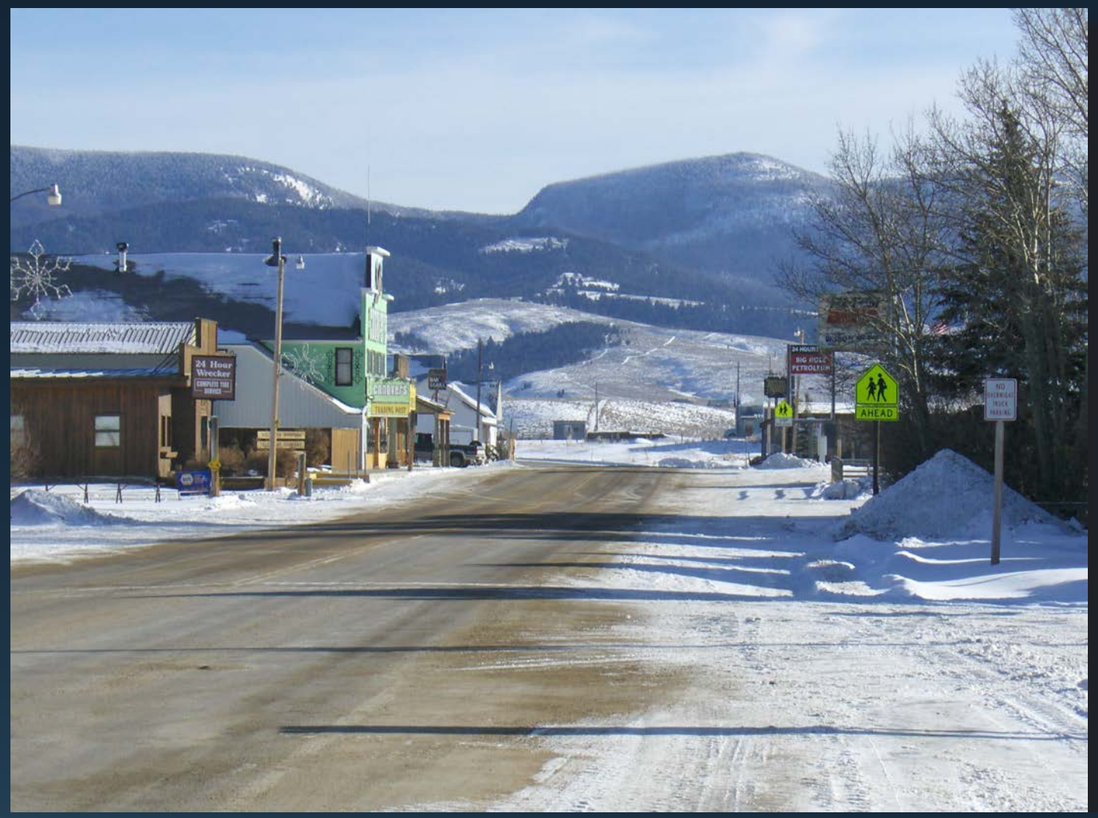
The Developed Recreation and Public Access Sites map depicts public lands that have been developed for a wide diversity of site-specific outdoor recreational uses such as developed campgrounds and downhill skiing facilities. All of the identified sites are found on the public lands of the the Beaverhead National Forest or the Red Rock Lakes National Wildlife Refuge. This map does not include urban recreation sites like ball fields, swimming pools, or privately owned facilities like private campgrounds or golf courses.

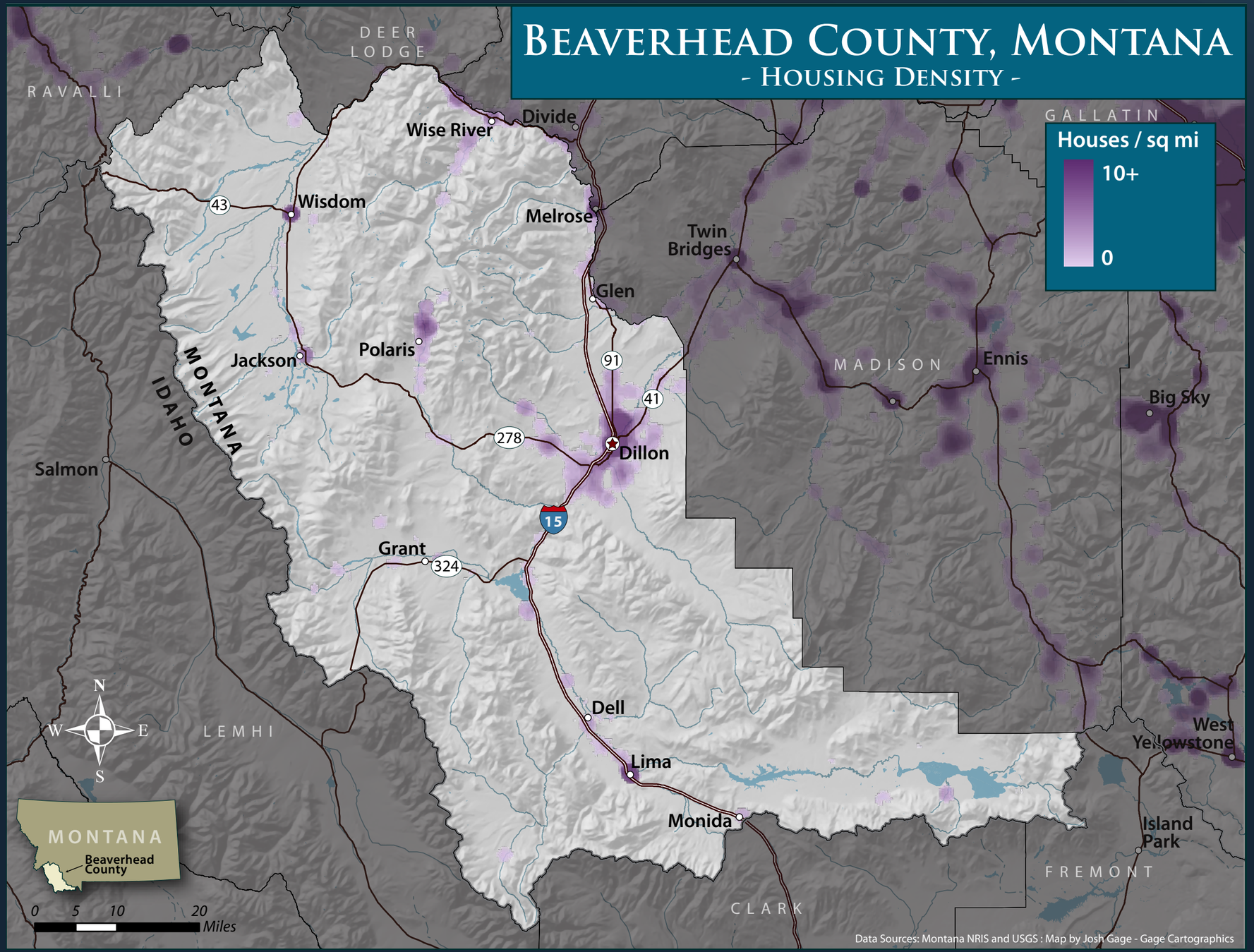
Beaverhead County, Montana

-Developed Public Recreation areas and access sites-



Housing Density



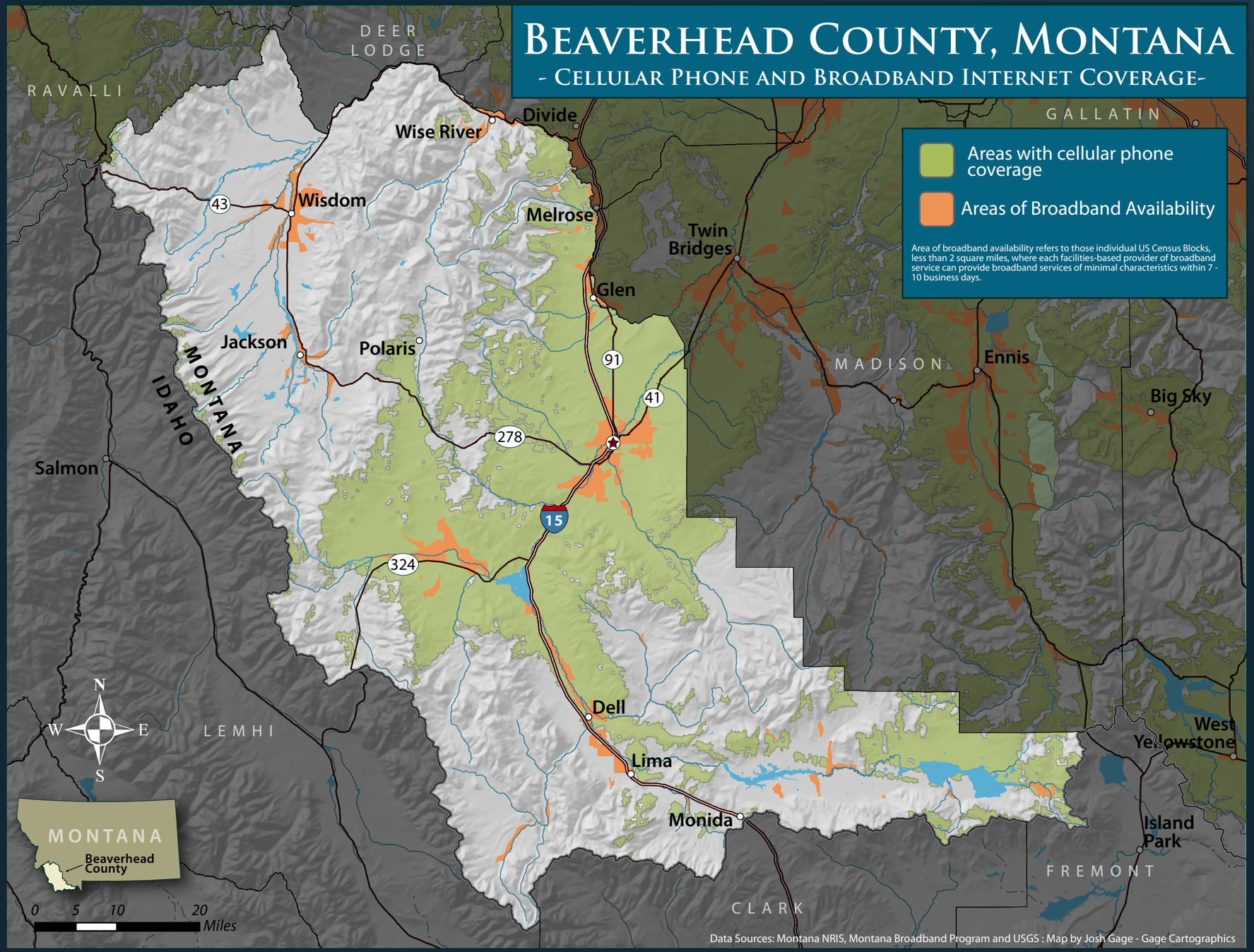

Beaverhead County, Montana
- Housing Density -
Houses / sq mi
10+
0
DEER LODGE
RAVALLI
GALLATIN
MADISON
LEMHI
CLARK
FREMONT
Divide
Wise River
Wisdom
Melrose
Twin Bridges
Glen
Polaris
Jackson
Ennis
Big Sky
Dillon
Salmon
Grant
Dell
Lima
Monida
West Yellowstone
Island Park
MONTANA
IDAHO
43
91
41
278
15
324
N
W
E
S
MONTANA
Beaverhead County
0 5 10 20
Miles
Data Sources: Montana NRIS and USGS : Map by Josh Gage - Gage Cartographics

Cell Phone Service

The Cell Phone Service map illustrates wireless and cell phone availability in Beaverhead County in 2011, as identified by the National Telecommunications Information Administration (NTIA) and the State Broadband Data Development Program (SBDD). The areas defined in this data are for those facilities-based providers of wireless broadband service that are not address specific (e.g., nomadic, terrestrial mobile wireless, or satellite) and depict areas in which broadband service is available to end users. For various reasons, there may be places in these mapped areas where cellular phone and broadband coverage may not be available, and these coverage maps are subject to periodic changes. Maps will be updated by the NTIA every six months, pending continued funding.

Beaverhead County, Montana

- Cellular Phone and Broadband Internet Coverage-

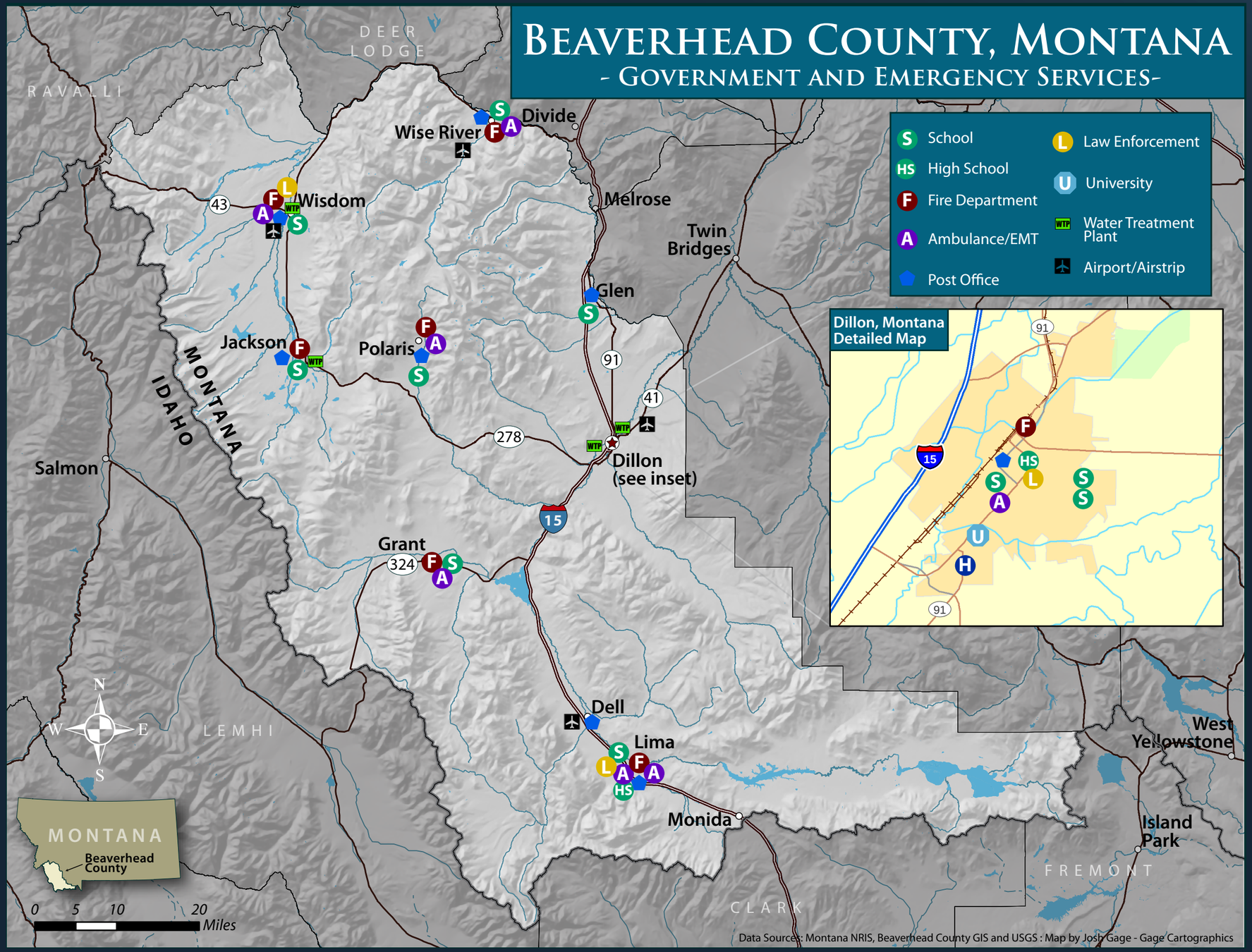


Government and Emergency Services

Government facilities such as post offices, schools, and airports, along with emergency services such as ambulance, police and fire departments, are all important elements of the county's infrastructure. Most of these services are concentrated in communities like Dillon, Lima and Wisdom. The University of Montana Western is located in Dillon, while county high schools include facilities in Dillon and Lima. Most communities have emergency medical and law enforcement services available. Dillon has a small airport and rural landing strips are scattered throughout the county.

Beaverhead County, Montana

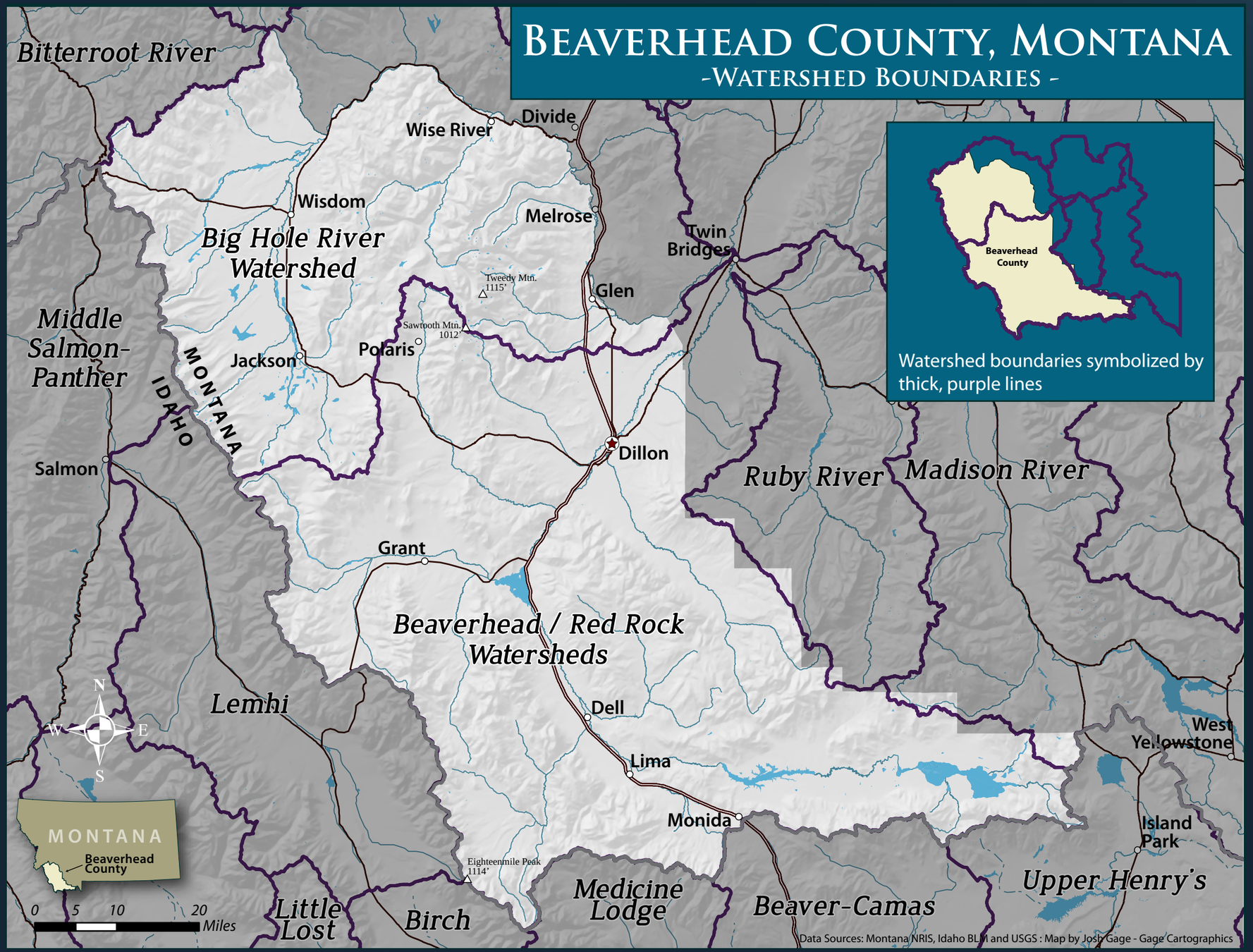
- Government and Emergency Services-



Chris Boyer

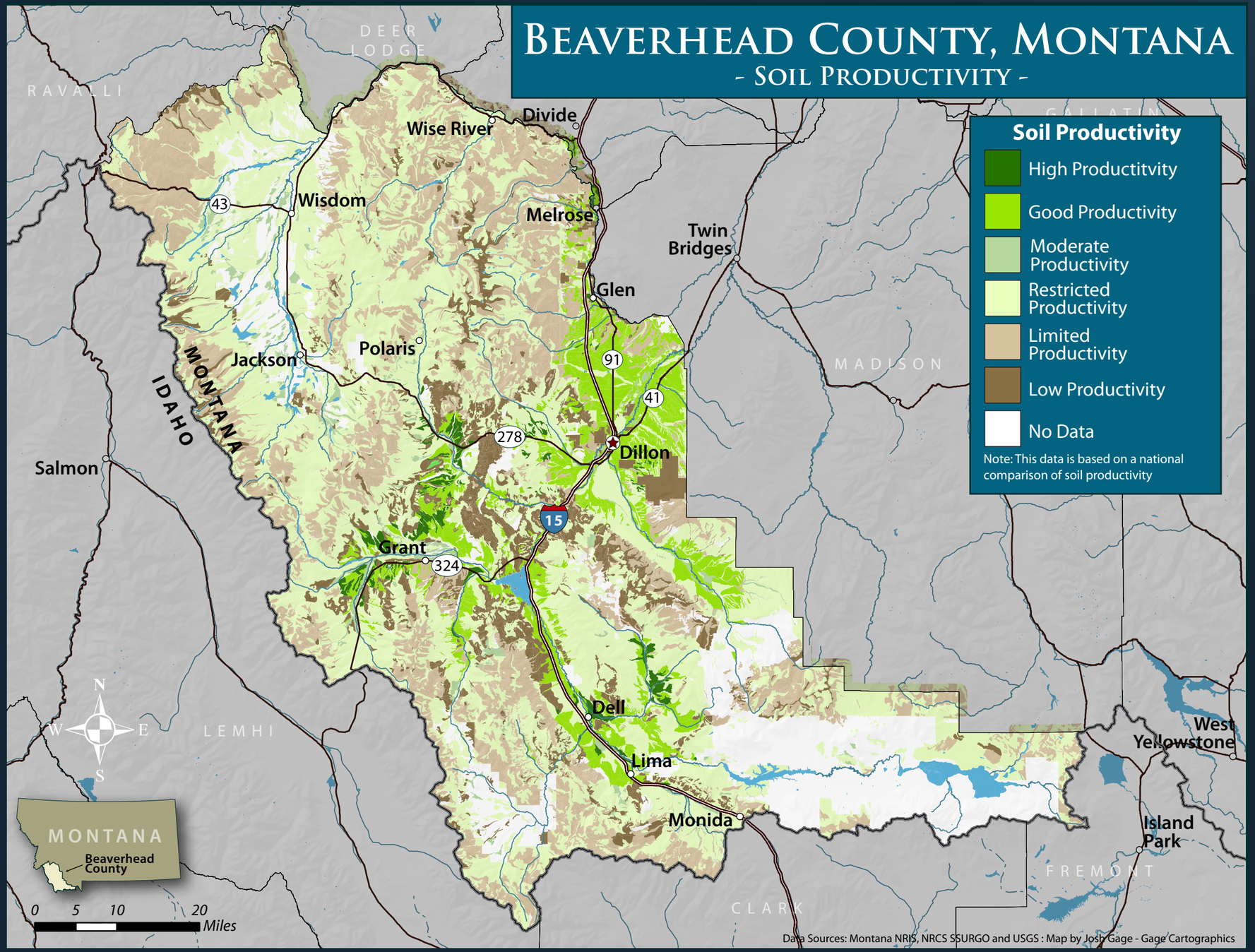
Watersheds

Beaverhead County is at the nexus of some of the most renowned waters in the world. The Blue Ribbon fishery of the Big Hole River boasts clean, cool waters supporting a thriving angling industry. The Beaverhead / Red Rock Rivers also have world class fisheries with exceptional wildlife habitat. Providing sustaining irrigation waters for agricultural enterprises in every community, these two watersheds provide crucial support to the local economy. The importance of these watersheds is not lost on local citizens. Each watershed has fostered its own watershed committee that strives to maintain high quality water resources and community values of the watershed through careful stewardship.


Beaverhead County, Montana
-Watershed Boundaries -
Bitterroot River
Wise River
Divide
Wisdom
Melrose
Twin Bridges
Big Hole River Watershed
Tweedy Mtn. 1115'
Glen
Sawtooth Mtn. 1012'
Polaris
Middle Salmon-Panther
Jackson
IDAHO
MONTANA
Salmon
Dillon
Ruby River
Madison River
Beaverhead County
Watershed boundaries symbolized by thick, purple lines
Grant
Beaverhead / Red Rock Watersheds
Lemhi
Dell
West Yellowstone
Lima
Monida
Island Park
Eighteenmile Peak 1114'
Medicine Lodge
Beaver-Camas
Upper Henry's
Little Lost
Birch
N
W
E
S
MONTANA
Beaverhead County
0 5 10 20
Miles
Data Sources: Montana NRIS, Idaho BLM and USGS : Map by Josh Gage - Gage Cartographics

Soil Productivity

Soil productivity alone would not indicate the importance of agriculture to Beaverhead County. Much of the county is classified as moderate productivity or lower. The high elevation and mountain terrain throughout the county constrict the more productive soils to the valley floors and the expanse north of Dillon. In those areas where soil productivity is good, irrigated agriculture boosts production and dominates the landscape.


Beaverhead County, Montana
- Soil Productivity -
Soil Productivity
High Productitvity
Good Productivity
Moderate Productivity
Restricted Productivity
Limited Productivity
Low Productivity
No Data
Note: This data is based on a national comparison of soil productivity
DEER LODGE
RAVALLI
GALLATIN
Divide
Wise River
Wisdom
Melrose
Twin Bridges
Glen
Polaris
Jackson
MADISON
Salmon
IDAHO
MONTANA
Dillon
Grant
Dell
Lima
Monida
West Yellowstone
Island Park
FREMONT
LEMHI
CLARK
43
91
41
278
15
324
N
W
E
S
MONTANA
Beaverhead County
0 5 10 20
Miles
Data Sources: Montana NRIS, NRCS SSURGO and USGS : Map by Josh Gage - Gage Cartographics

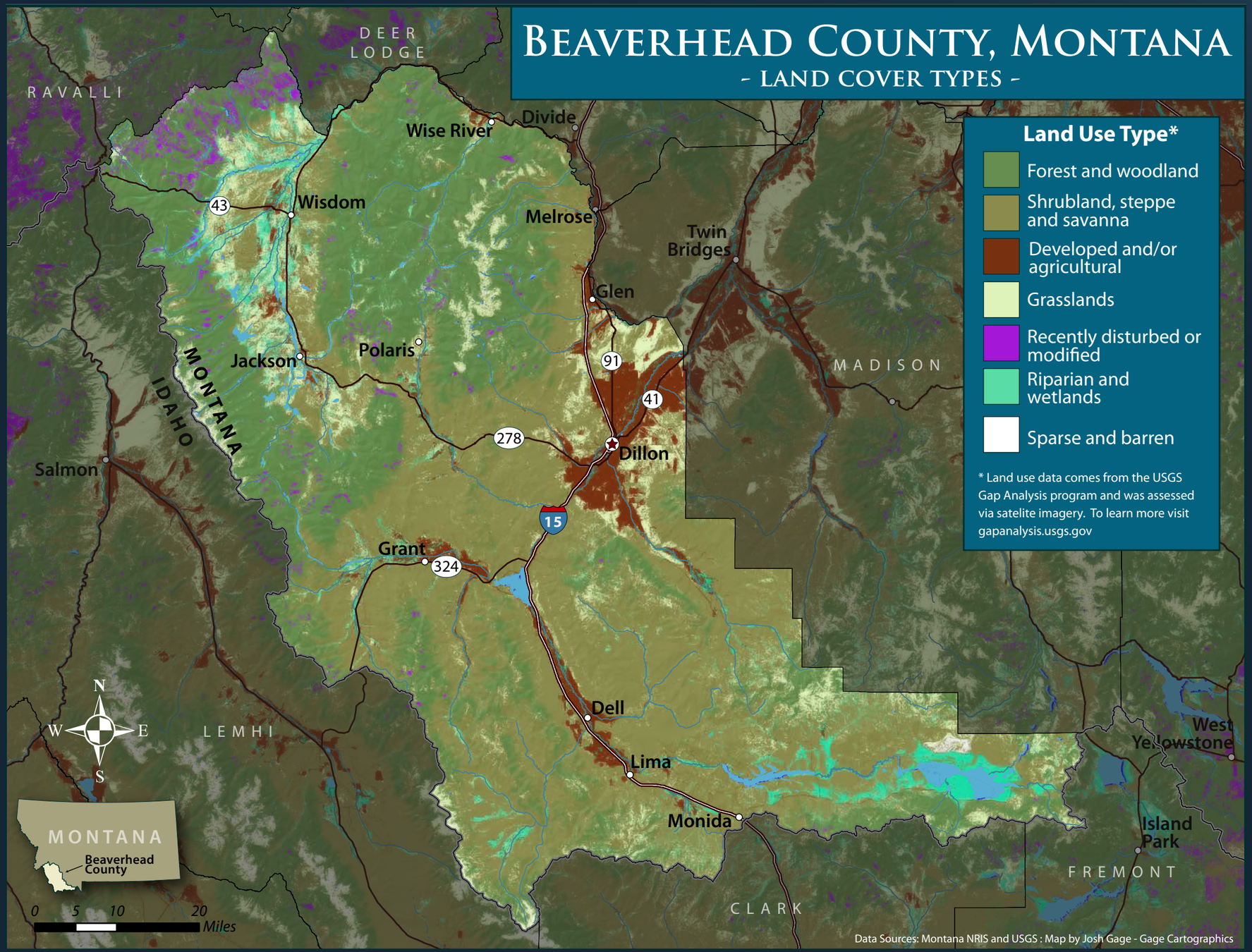
Land Cover

Emily Cayer

Analyzing satellite imagery, the United States Geologic Survey has created a predicted land cover map that depicts the most likely vegetation type to be found. The classification does not confirm this vegetation exists but provides an overall picture of the types of vegetation that dominate an area. The extensive forest and shrubland – steppe cover indicates a large landscape that is in a natural, undeveloped state. Steppe defined as a vast semiarid grass-covered plain. Areas that are developed or in production agriculture are focused in and around existing communities and productive soils. Riparian areas are those vegetative communities relating to or located on the banks of a river or stream and are obviously identified along major water bodies. Significant wetland habitats are found in the Red Rock Lakes area and upper Big Hole basin.

Beaverhead County, Montana

- Land Cover Types -

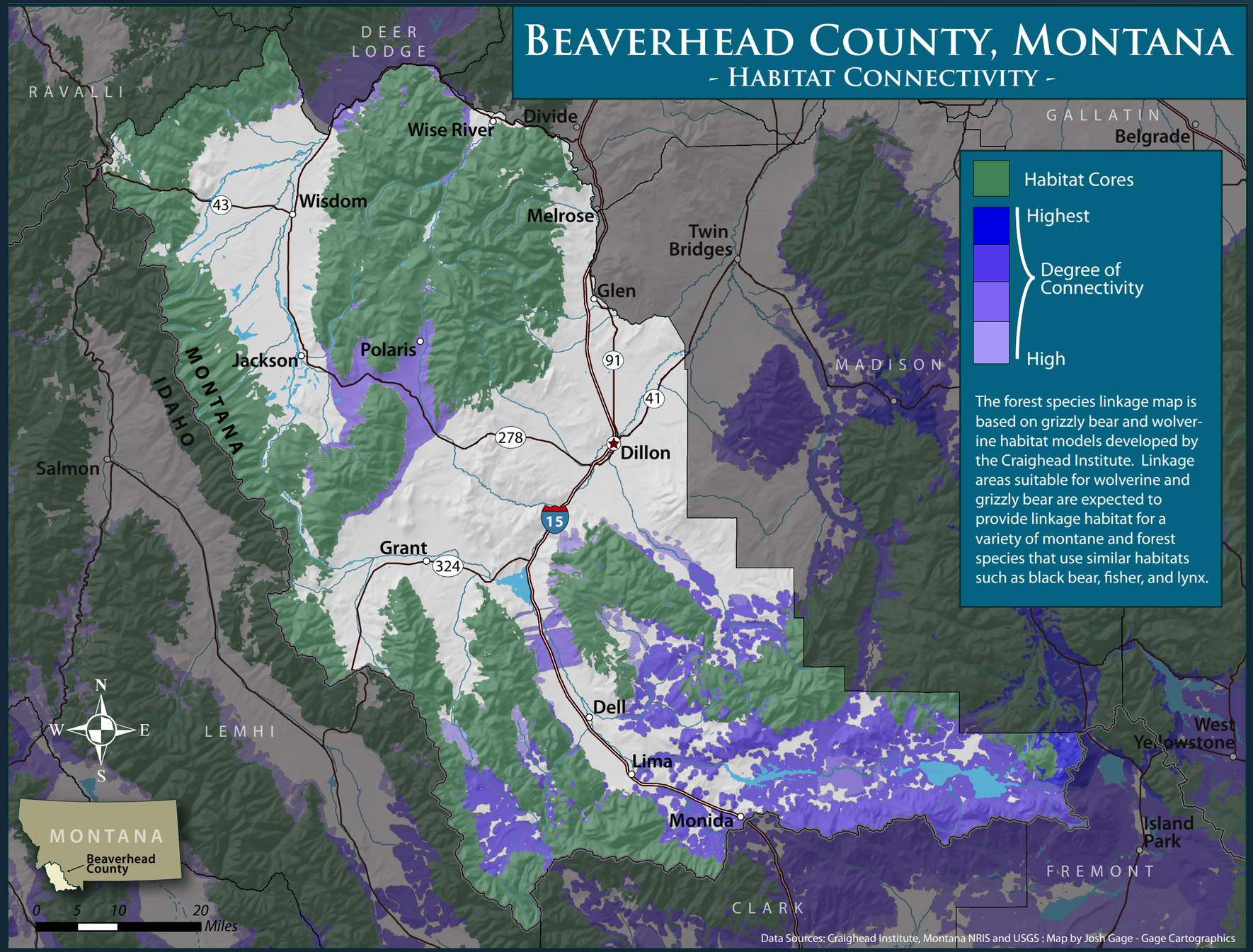


Habitat Connectivity

Measures of “habitat connectivity” reflect how easily animals are able to move between core areas of suitable habitat. Notable areas of high habitat connectivity for forest species in Beaverhead County include Red Rock Lakes along the border with Idaho, north of Dell along Interstate 15 between the Blacktail and Tendoy Mountains, and south of Polaris along MT 278 between the Pioneer and Beaverhead Mountains.

Beaverhead County, Montana

- Habitat Connectivity -



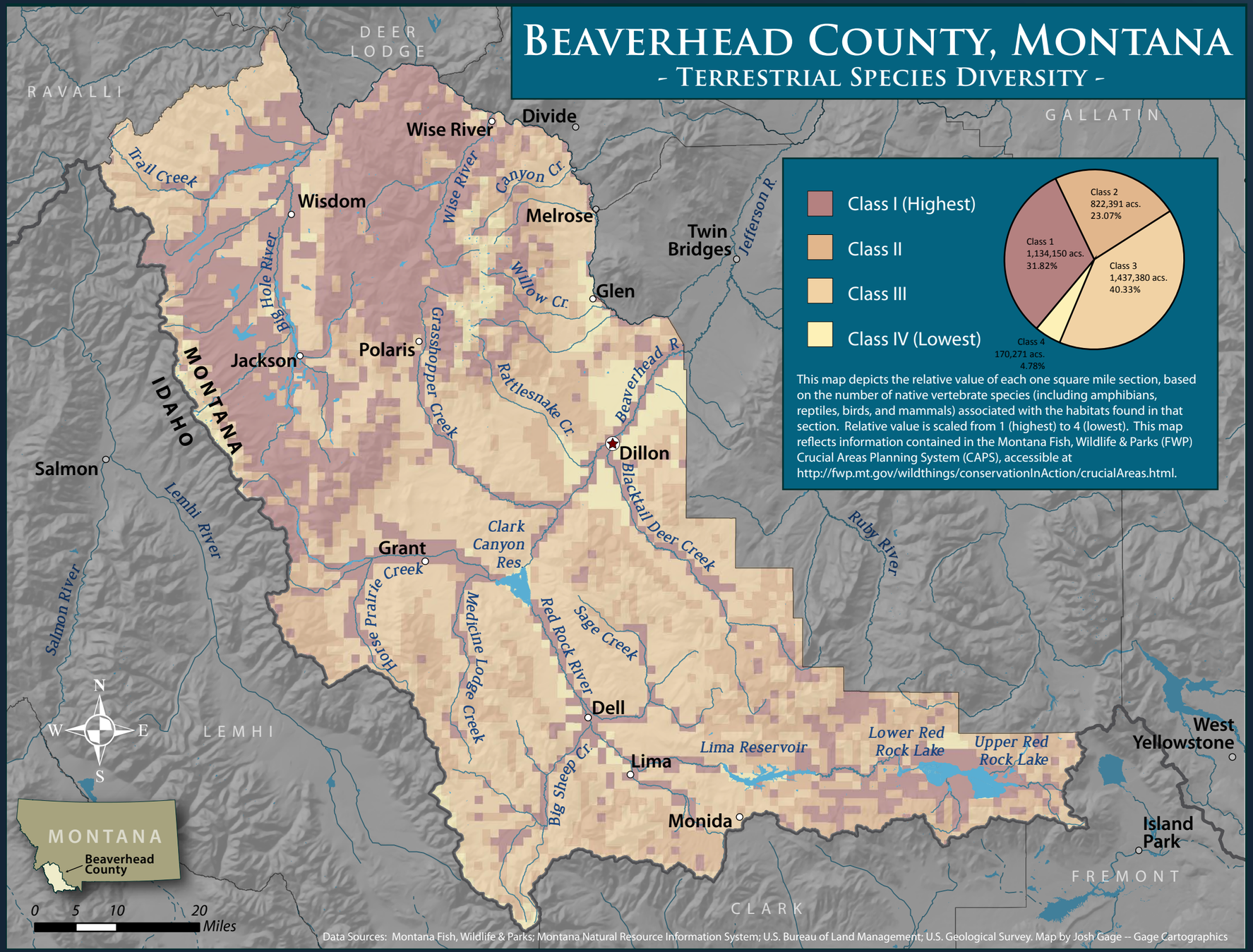
Terrestrial Species Diversity

"Species Diversity" refers to the average number of Montana native terrestrial species associated with the habitats predicted to occur in each one-mile section. This information was drawn from Montana Natural Heritage Program's (MNHP) database of which species find which habitats suitable.

Beaverhead County contains approximately half of the 81 habitat types found across Montana. Species diversity in the County ranges from a low of 8 predicted species in alpine vegetation found at highest elevations, to a high of 280 predicted species in riparian vegetation found along rivers and streams at lower elevations. Besides its riparian habitat, Beaverhead County's communities of sagebrush steppe, conifer forests, and grasslands are also associated with many different terrestrial species.

Beaverhead County, Montana

- Terrestrial Species Diversity -



Class I (Highest)

Class II

Class III

Class IV (Lowest)

This map depicts the relative value of each one square mile section, based on the number of native vertebrate species (including amphibians, reptiles, birds, and mammals) associated with the habitats found in that section. Relative value is scaled from 1 (highest) to 4 (lowest). This map reflects information contained in the Montana Fish, Wildlife & Parks (FWP) Crucial Areas Planning System (CAPS), accessible at http://fwp.mt.gov/wildthings/conservationInAction/crucialAreas.html.

Data Sources: Montana Fish, Wildlife & Parks; Montana Natural Resource Information System; U.S. Bureau of Land Management; U.S. Geological Survey. Map by Josh Gage -- Gage Cartographics

Wildlife Species of Concern

Townsend's Big-eared Bat
- Kristi DuBois

Wolverine - Montana FWP

Black-tailed Jackrabbit
- Kristi DuBois

Ferruginous Hawk
-Montana Natural Heritage Program

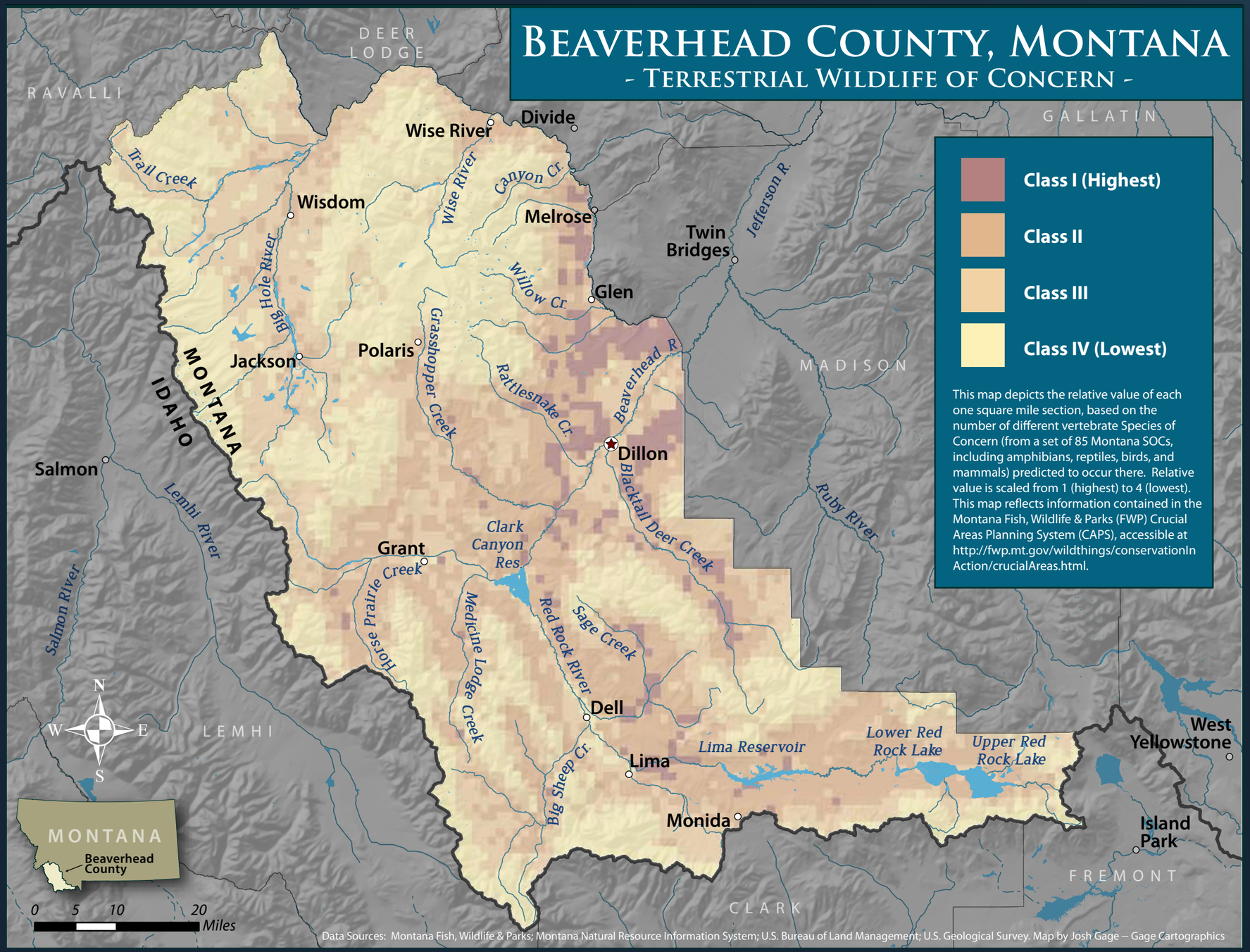
Montana's terrestrial "Species of Concern" (SOCs) are native amphibians, reptiles, birds, and mammals considered to be "at risk" due to declining population, threats to their habitats, and/or restricted distribution. The Montana Natural Heritage Program (MNHP) consults with Montana Department of Fish, Wildlife and Parks (MFWP) and other experts to make Montana SOC determinations. Montana's SOC list includes those species that are federally listed as Threatened or Endangered.

Beaverhead County is home to 38 terrestrial SOCs. Thirty-one of these SOCs are bird species, including Clark's nutcracker, Brewer's sparrow, Sage thrasher, Ferruginous hawk, Veery, and Northern goshawk. Non-bird SOCs in Beaverhead County are Western toad, Townsend's big-eared bat, Black-tailed jack rabbit, Pygmy rabbit, Great Basin pocket mouse, Grizzly bear, Western spotted skunk and Wolverine

Class I sections rank in the top 18% of the state, for number of different SOCs and highest level of concern. Class II sections represent the next 33%.

Beaverhead County, Montana

- Terrestrial Wildlife of Concern -



Class I (Highest)

Class II

Class III

Class IV (Lowest)

This map depicts the relative value of each one square mile section, based on the number of different vertebrate Species of Concern (from a set of 85 Montana SOCs, including amphibians, reptiles, birds, and mammals) predicted to occur there. Relative value is scaled from 1 (highest) to 4 (lowest). This map reflects information contained in the Montana Fish, Wildlife & Parks (FWP) Crucial Areas Planning System (CAPS), accessible at http://fwp.mt.gov/wildthings/conservationIn Action/crucialAreas.html.

Data Sources: Montana Fish, Wildlife & Parks; Montana Natural Resource Information System; U.S. Bureau of Land Management; U.S. Geological Survey. Map by Josh Gage -- Gage Cartographics

Emily Cayer

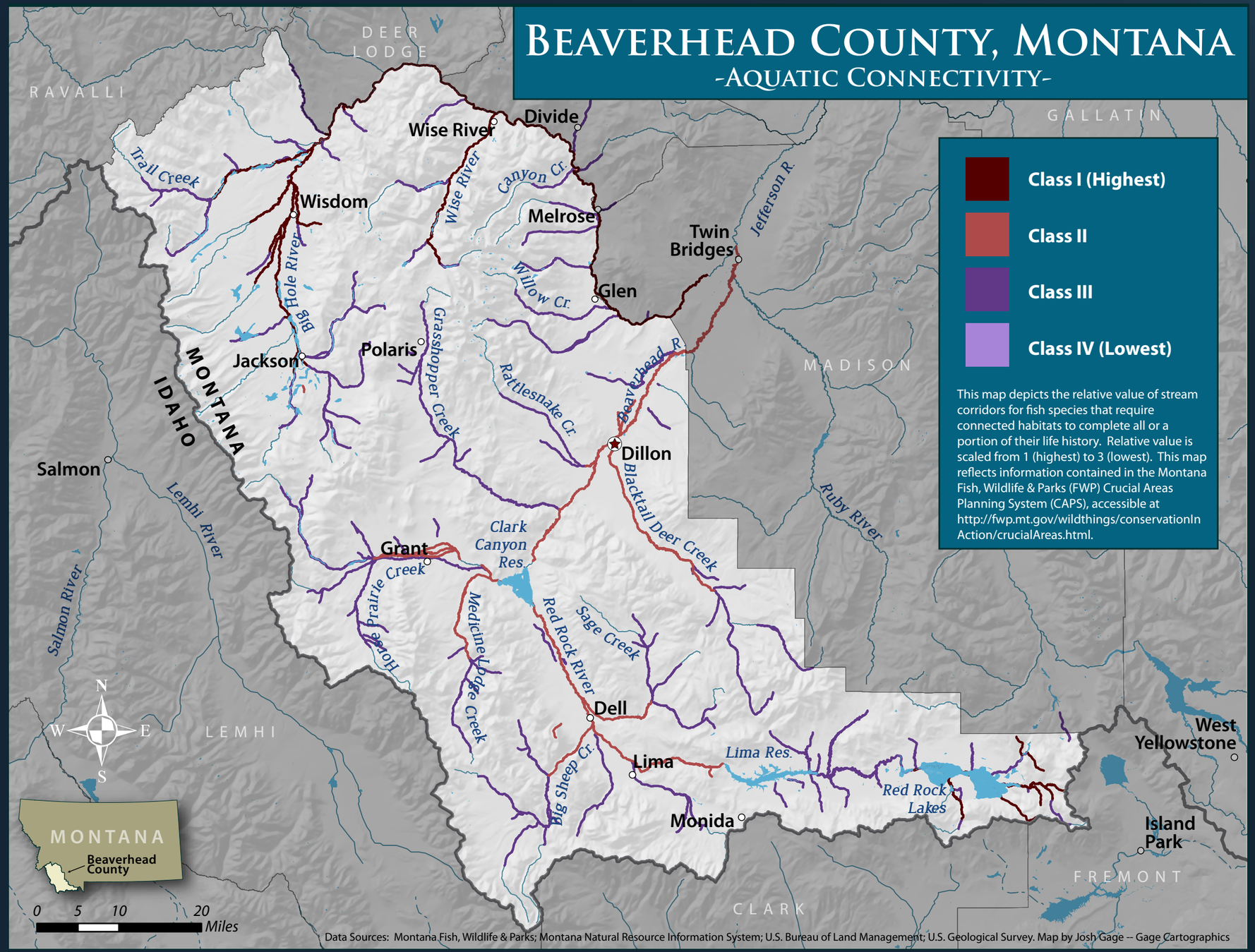
Emily Cayer

Aquatic Connectivity

The Aquatic Connectivity map depicts the Big Hole River, several of its tributaries, and the Upper Red Rock Creek drainage as Class I streams, due to the presence of the Arctic grayling which relies heavily upon a system of connected aquatic habitats to support its life stages. Streams ranked Class I in "connectivity" fall into the top 5% of Montana's river miles. Beaverhead County streams with Class II-III "connectivity" rankings are streams large enough to support several different fish species.

Beaverhead County, Montana

-Aquatic Connectivity-



Class I (Highest)

Class II

Class III

Class IV (Lowest)

This map depicts the relative value of stream corridors for fish species that require connected habitats to complete all or a portion of their life history. Relative value is scaled from 1 (highest) to 3 (lowest). This map reflects information contained in the Montana Fish, Wildlife & Parks (FWP) Crucial Areas Planning System (CAPS), accessible at http://fwp.mt.gov/wildthings/conservationInAction/crucialAreas.html.

Data Sources: Montana Fish, Wildlife & Parks; Montana Natural Resource Information System; U.S. Bureau of Land Management; U.S. Geological Survey. Map by Josh Gage -- Gage Cartographics

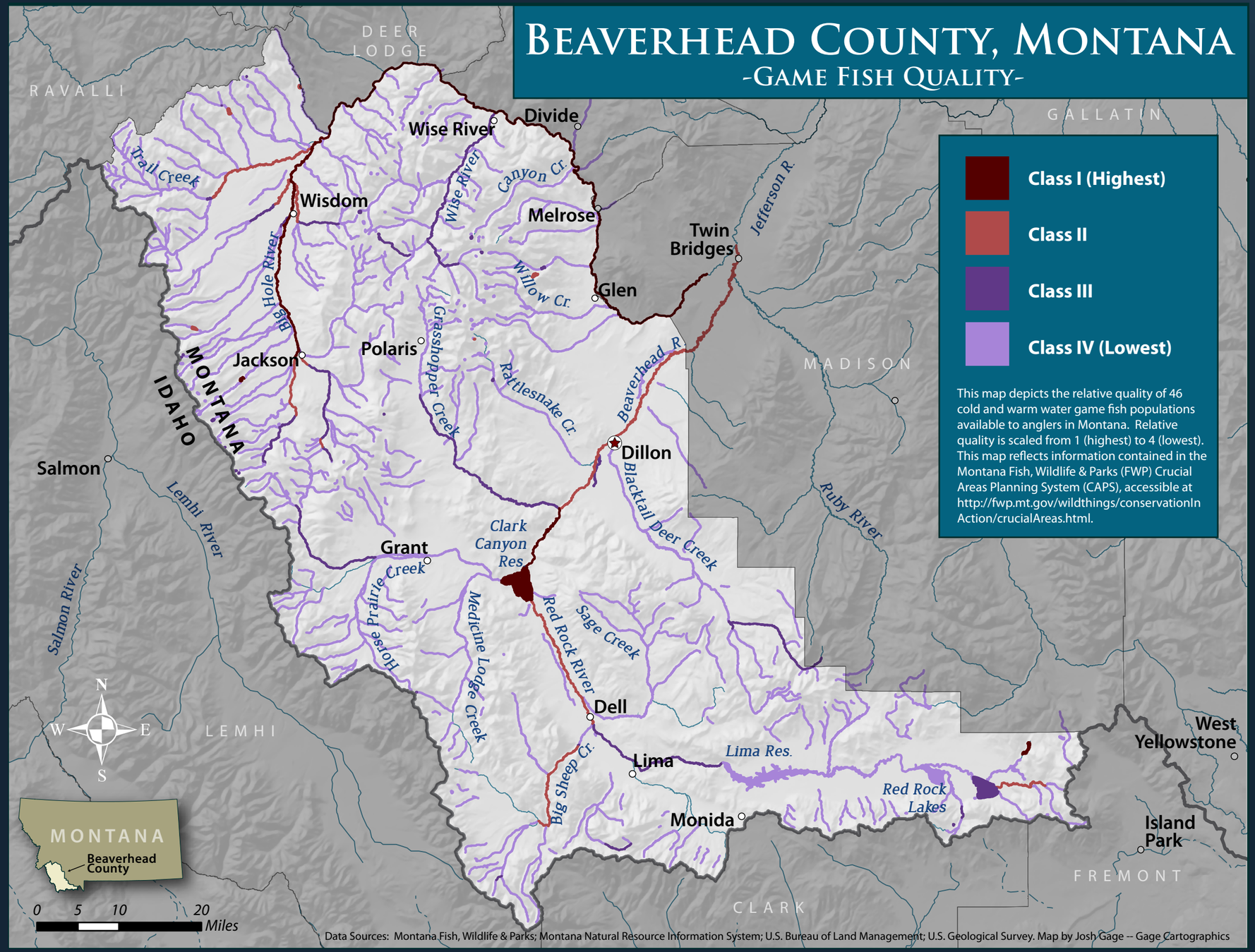
Game Fish Quality

Beaverhead County rivers, streams, lakes, and reservoirs are home to a number of coldwater game fish species, including Arctic grayling, brook trout, brown trout, burbot, golden trout, lake trout, mountain whitefish, rainbow trout, westslope cutthroat trout, and Yellowstone cutthroat trout.

The Game Fish Quality map classifies sport fisheries across Montana according to their fish species size and abundance, the number of different sport fish species found there, and the presence of unique fishing opportunities. Class I waters in Beaverhead County, such as the Clark Canyon Reservoir and portions of the Big Hole and Beaverhead Rivers, rank in the top 3% of the state's sport fisheries; Class II and III streams fall within the next 22%.

Beaverhead County, Montana

-Game Fish Quality-



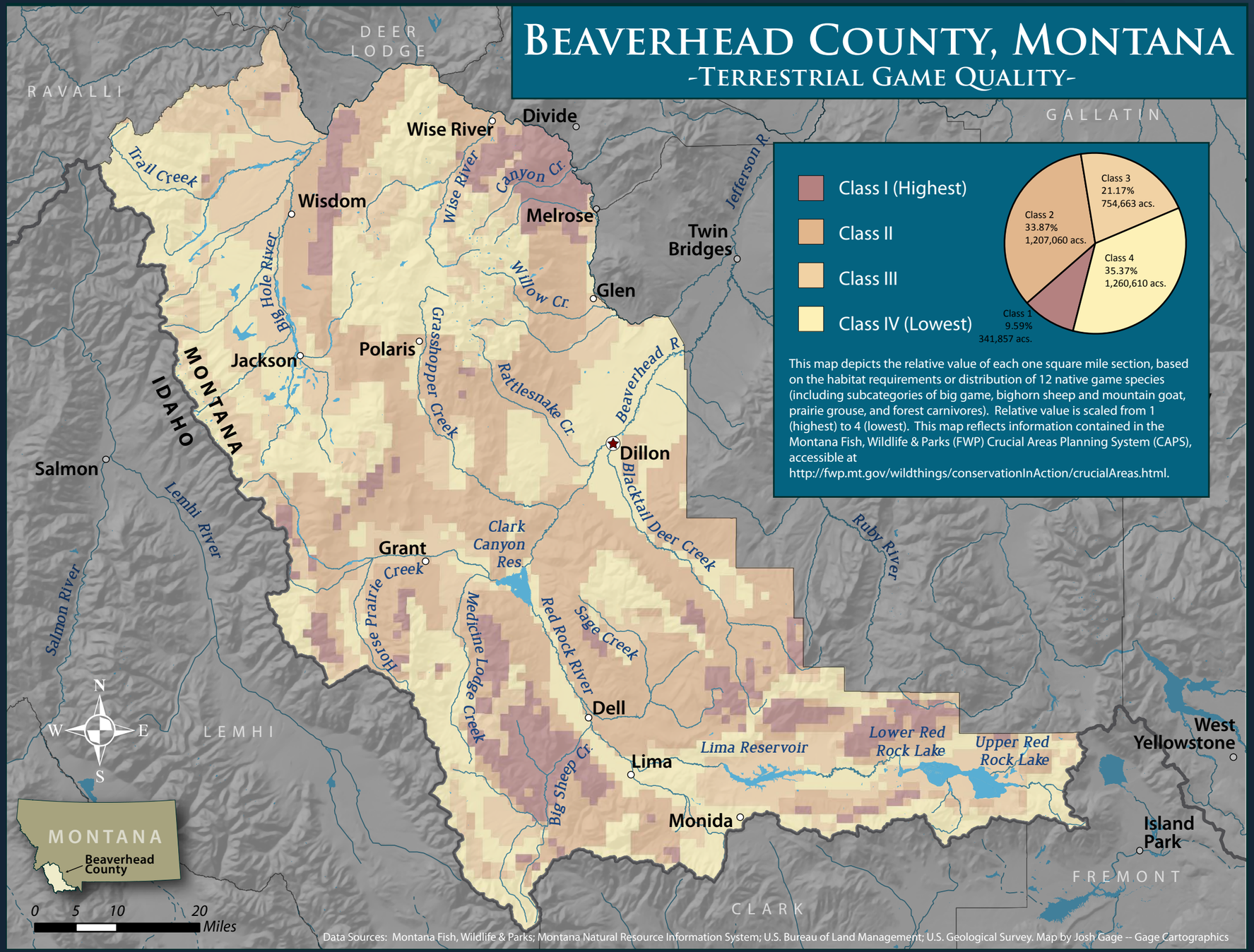
Terrestrial Game Quality

Montana Fish Wildlife &Parks biologists used the presence and habitat requirements of 12 Montana native, terrestrial game (hunted or trapped) species to rank each one-mile section in the state according to its "Game Quality". The 12 species are: bighorn sheep, mountain goat, wolverine, fisher, marten, sage-grouse, sharp-tailed grouse, pronghorn antelope, elk, moose, mule deer, and white-tailed deer. All but fisher and sharp-tailed grouse can be found in Beaverhead County.

Class I sections rank in the top 4% of the state. Class II sections rank in the next 33%. Beaverhead County provides substantial Class I and Class II habitat for several game species, especially elk, pronghorn antelope, moose, and sage grouse.

Beaverhead County, Montana

-Terrestrial Game Quality-



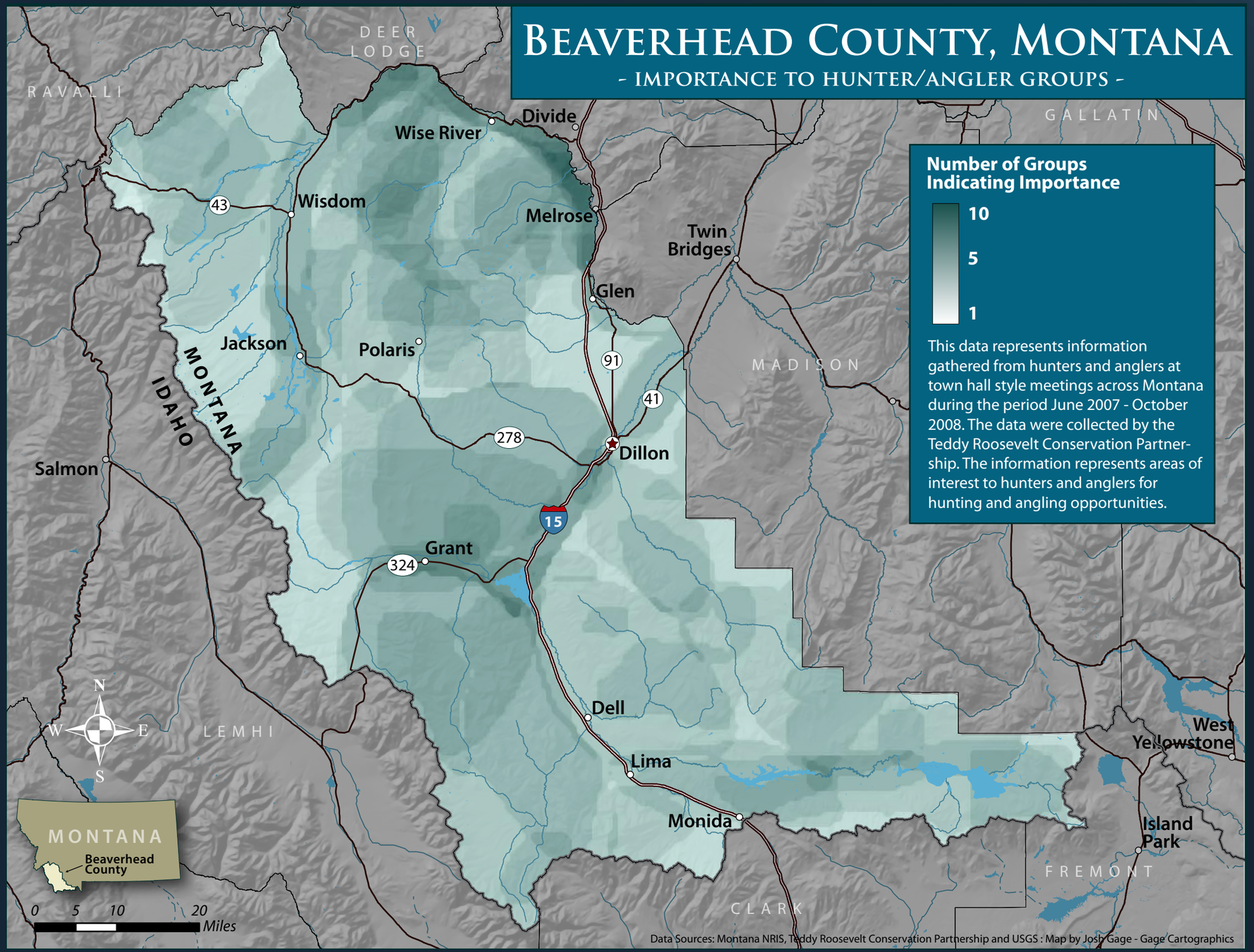
This map depicts the relative value of each one square mile section, based on the habitat requirements or distribution of 12 native game species (including subcategories of big game, bighorn sheep and mountain goat, prairie grouse, and forest carnivores). Relative value is scaled from 1 (highest) to 4 (lowest). This map reflects information contained in the Montana Fish, Wildlife & Parks (FWP) Crucial Areas Planning System (CAPS), accessible at http://fwp.mt.gov/wildthings/conservationInAction/crucialAreas.html.

Data Sources: Montana Fish, Wildlife & Parks; Montana Natural Resource Information System; U.S. Bureau of Land Management; U.S. Geological Survey. Map by Josh Gage -- Gage Cartographics

Importance of Hunting and Angling

Beaverhead County, Montana

- Importance to Hunter/Angler Groups -



Economic Values of Hunting and Fishing

Josh Gage

The opportunity to hunt and fish in Beaverhead County represents both a recreational resource and economic value.

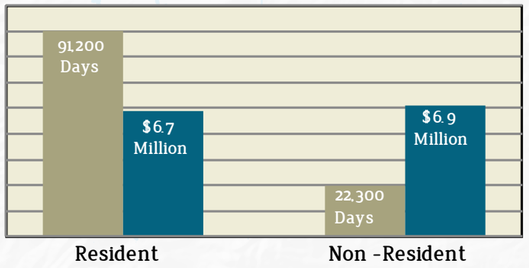
The data shown in these pie charts and bar graphs are estimates derived largely from hunter and angler surveys conducted by MFWP. Primary source of the hunting data is MFWP's Hunt Planner Harvest & Hunting Reports – the year 2007 for upland game birds, and 2010 for elk, mule deer and white-tailed deer, pronghorn antelope, and moose. Primary source of the fishing data is MFWP's 2009 Montana Statewide Angling Pressure Report

Beaverhead County, Montana

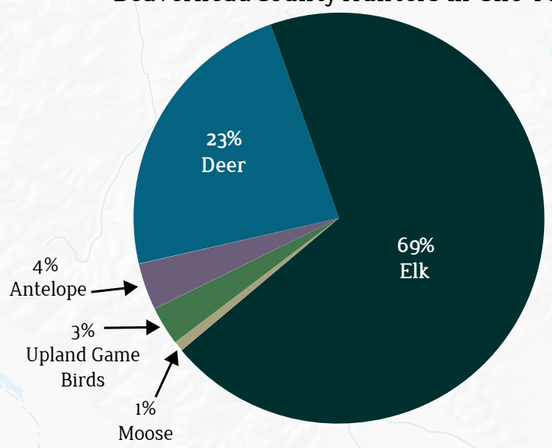
-Economic Value of Hunting and Fishing -

HUNTING

Beaverhead County Hunters
Comparison of Resident/Non-Resident
Time and Money Spent in One Year

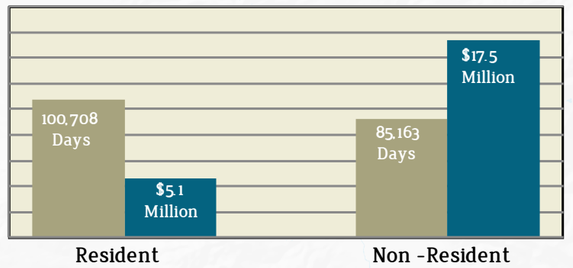


Breakdown of $13. 6M Direct Expenditures by
Beaverhead County Hunters in One Year

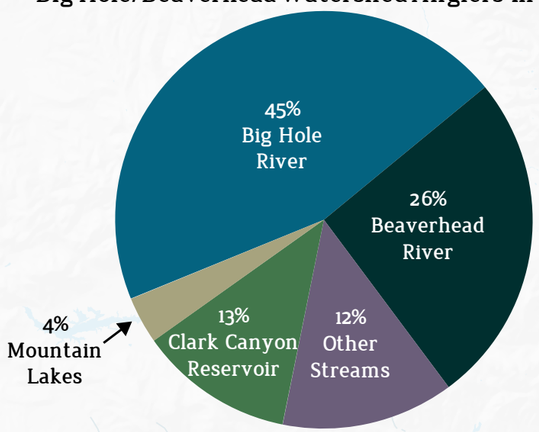


FISHING

Big Hole/Beaverhead Watershed Anglers
Comparison of Resident/Non-Resident
Time and Money Spent in 2009



Breakdown of $22. 6M Direct Expenditures by
Big Hole/Beaverhead Watershed Anglers in 2009



Data Sources: Montana Fish Wildlife and Parks - Figures by Josh Gage - Gage Cartographics

Data Sources and Acronyms

Beaverhead County Chamber of Commerce	www.beaverheadchamber.org
Beaverhead County	www.beaverheadcounty.org
Beaverhead County GIS Department	www.beaverheadcounty.org/html/gis___rural_addressing.html
BLM - Bureau of Land Management	www.blm.gov/mt/st/en/fo/dillon_field_office.html
CAPS - MT Fish Wildlife and Parks Crucial Areas Planning System	fwp.mt.gov/fishAndWildlife/conservationInAction/crucialAreas.html
Gage Cartographics	www.gagecartographics.com
GIS - Geographic Information System	www.gis.com
Craighead Institute	www.craigheadresearch.org
Future West	www.future-west.org
Headwaters Economics	www.headwaterseconomics.org
Institute for Tourism and Recreation	www.itrr.umt.edu/index.html
Montana Broadband Mapping Project	www.mtbroadband.org
MBMG - Montana Bureau of Mines and Geology	www.mbmg.mtech.edu
MT FW&P - Montana Fish, Wildlife and Parks	www.fwp.mt.gov

Data Sources and Acronyms

Montana Department of Revenue	www.revenue.mt.gov
Montana Office of Tourism	www.travelmontana.mt.gov
MNHP - Montana Natural Heritage Program	www.mtnhp.org
NRCS - Natural Resource Conservation Service	www.mt.nrcs.usda.gov
NRIS - Natural Resource Information System	www.nris.mt.gov
Soil Survey Geographic Database	www.soils.usda.gov/survey/geography/ssurgo/
Sonoran Institute	www.sonoraninstitute.org
Theodore Roosevelt Conservation Partnership	www.trcp.org
USFS - United State Forest Service	www.fs.usda.gov/bdnf
USGS - United State Geologic Survey	www.usgs.gov

Emily Cayer