



HEADWATERS
ECONOMICS

A Profile of Public Land Amenities

Beartooth Region

Selected Geographies:

Big Horn County, MT; Carbon County, MT; Stillwater County, MT; Sweet Grass
County, MT; Yellowstone County, MT

Benchmark Geographies:

U.S.

Produced by

Headwaters Economics'

Economic Profile System (EPS)

<https://headwaterseconomics.org/eps>

December 6, 2018

Public Land Amenities

Beartooth Region

About the Economic Profile System (EPS)

EPS is a free web tool created by Headwaters Economics to build customized socioeconomic reports of U.S. counties, states, and regions. Reports can be easily created to compare or aggregate different areas. EPS uses published statistics from federal data sources, including the U.S. Census Bureau, Bureau of Economic Analysis, and Bureau of Labor Statistics.

The Bureau of Land Management and Forest Service have made significant financial and intellectual contributions to the operation and content of EPS.

See <https://headwaterseconomics.org/eps> for more information about the capabilities of EPS. For technical questions, contact Patty Gude at eps@headwaterseconomics.org or telephone 406-599-7425.



headwaterseconomics.org

Headwaters Economics is an independent, nonprofit research group. Our mission is to improve community development and land management decisions.



www.blm.gov

The Bureau of Land Management, an agency within the U.S. Department of Interior, administers 249.8 million acres of America's public lands, located primarily in western states. It is the mission of the Bureau of Land Management to sustain the health, diversity, and productivity of public lands for the use and enjoyment of present and future generations.



www.fs.fed.us

The Forest Service, an agency of the U.S. Department of Agriculture, administers national forests and grasslands encompassing 193 million acres. The Forest Service's mission is to sustain the health, diversity, and productivity of the nation's forests and grasslands to meet the needs of present and future generations.

Public Land Amenities

Beartooth Region

Table of Contents

Federal Public Land Amenities

Land Ownership	1
Types of Federal Lands	2

Population and Development

Population Trends	3
Births, Deaths, and Migration	4
Residential Development	5

Economic Sectors

Service Sector	6
Non-Labor Income	7
Travel and Tourism	8

Benchmarks

Comparisons	9
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Data Sources & Methods	10
Endnotes	11

Note to Users:

This is one of 14 reports that can be created and downloaded from EPS. Topics include land use, demographics, specific industry sectors, the role of non-labor income, the wildland-urban interface, the role of amenities in economic development, and payments to county governments from federal lands. The EPS reports are downloadable as Excel or PDF documents. See <https://headwaterseconomics.org/eps>.

Public Land Amenities

Beartooth Region

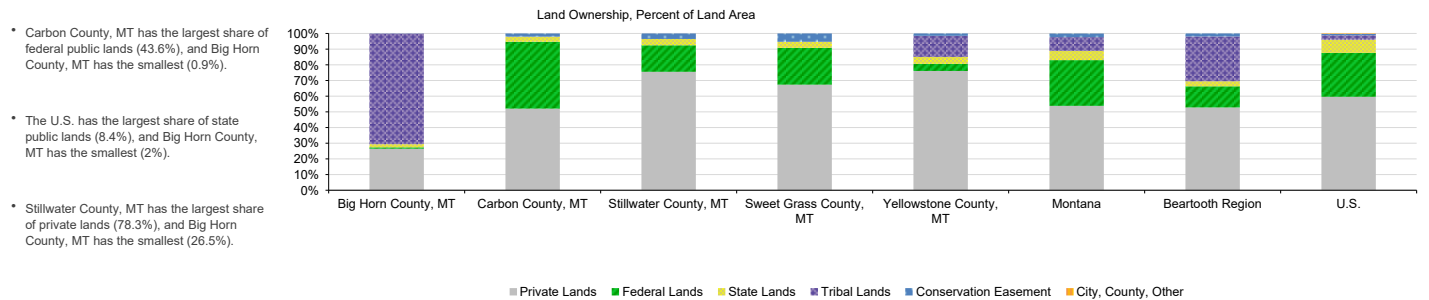
Land Ownership

	Big Horn County, MT	Carbon County, MT	Stillwater County, MT	Sweet Grass County, MT	Yellowstone County, MT	Montana	Beartooth Region	U.S.
Total Area (Acres)	3,210,313	1,319,281	1,155,782	1,191,857	1,695,290	94,105,589	8,572,523	2,301,106,907
Private Lands	850,819	701,109	904,815	847,482	1,309,636	51,856,680	4,613,861	1,383,075,581
Conservation Easement	3,213	27,645	41,983	66,897	25,990	2,232,244	165,728	19,026,854
Federal Lands	28,862	575,058	202,808	295,871	77,806	28,099,517	1,180,405	649,455,740
Forest Service	213	326,975	193,741	280,094	0	17,136,717	801,023	192,507,338
BLM	27,077	220,492	5,511	15,777	77,336	8,325,456	346,193	242,951,818
National Park Service	1,400	27,330	0	0	0	1,200,184	28,730	78,773,678
Military	0	0	0	0	0	67,066	0	22,945,136
Other Federal	172	261	3,556	0	470	1,370,094	4,459	112,277,770
State Lands	64,392	42,970	48,158	48,504	76,847	5,687,012	280,871	194,258,469
State Trust Lands*	60,080	40,534	45,448	47,947	72,255	5,120,069	266,264	46,116,200
Other State	4,312	2,436	2,710	557	4,592	566,943	14,607	148,142,269
Tribal Lands	2,266,221	145	0	0	231,001	8,438,434	2,497,367	66,666,114
City, County, Other	19	0	0	0	0	23,939	19	7,650,993

Percent of Total

Private Lands	26.5%	53.1%	78.3%	71.1%	77.3%	55.1%	53.8%	60.1%
Conservation Easement	0.1%	2.1%	3.6%	5.6%	1.5%	2.4%	1.9%	0.8%
Federal Lands	0.9%	43.6%	17.5%	24.8%	4.6%	29.9%	13.8%	28.2%
Forest Service	0.0%	24.8%	16.8%	23.5%	0.0%	18.2%	9.3%	8.4%
BLM	0.8%	16.7%	0.5%	1.3%	4.6%	8.8%	4.0%	10.6%
National Park Service	0.0%	2.1%	0.0%	0.0%	0.0%	1.3%	0.3%	3.4%
Military	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	1.0%
Other Federal	0.0%	0.0%	0.3%	0.0%	0.0%	1.5%	0.1%	4.9%
State Lands	2.0%	3.3%	4.2%	4.1%	4.5%	6.0%	3.3%	8.4%
State Trust Lands*	1.9%	3.1%	3.9%	4.0%	4.3%	5.4%	3.1%	2.0%
Other State	0.1%	0.2%	0.2%	0.0%	0.3%	0.6%	0.2%	6.4%
Tribal Lands	70.6%	0.0%	0.0%	0.0%	13.6%	9.0%	29.1%	2.9%
City, County, Other	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%

* Most state trust lands are held in trust for designated beneficiaries, principally public schools. Managers typically lease and sell these lands for a diverse range of uses to generate revenues for the beneficiaries.



U.S. Geological Survey, Gap Analysis Program. 2016. Protected Areas Database of the United States (PADUS) version 1.4; Rasker, R. 2006. "An Exploration Into the Economic Impact of Industrial Development Versus Conservation on Western Public Lands." Society and Natural Resources. 19(3): 191-207

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Land Ownership

What do we measure on this page?

This page describes the share of the selected location that is private and the share that is managed by various public agencies.

Public Land Amenities: The qualities of public lands that make a region an attractive place to live, recreate, and work such as scenic vistas, recreational opportunities, and wildlife habitat. Nearby public lands may impact a local economy by creating a setting that attracts and retains people and businesses. Recreational opportunities may attract tourists. And the opportunities to hunt, fish, and view wildlife may be important to local residents and serve as a magnet that keeps them from leaving.^{1,2,3}

This report displays a number of indicators that are commonly present when public land amenities play a role in economic development. No single indicator is sufficient proof of an economic contribution by public lands. Rather, when taken as a whole, these data may indicate that one of the economic contributions of public lands is a setting that attracts and retains people and business. The information presented in this report should be coupled with additional research, including surveys of area residents and business leaders, to discern whether and how public land amenities play an economic role in an area.

No publicly available federal database contains statistics on the area of land by ownership. The data presented in this report were calculated using Geographic Information System (GIS) tools. Two primary GIS datasets were used: U.S. Census Bureau's TIGER/Line County Boundaries⁴ and U.S. Geological Survey's Protected Areas Database (PADUS).⁵

Although every attempt was made to use the best available land ownership data, the data sometimes have errors or become outdated. Please report any inaccuracies to eps@headwaterseconomics.org.

Why is it important?

Public lands provide recreational, environmental, and lifestyle amenities that can stimulate economic growth.⁶ While amenities alone are typically not sufficient to foster growth, they have increasingly been shown to contribute to population growth and economic development.

Many factors can contribute to economic growth, including access to raw materials, workforce quality, availability of investment capital, and transportation networks. In recent decades, amenities have also become increasingly important for people who can choose where to live and work and for businesses that are not subject to location constraints.⁷ Employers now advertise public land amenities to attract and retain a talented workforce. Communities are taking advantage of nearby public lands to attract new businesses and retirement and investment income.⁸ Thus, amenities provided by public lands can be considered an economic asset.⁹

Public Land Amenities

Beartooth Region

Types of Federal Lands

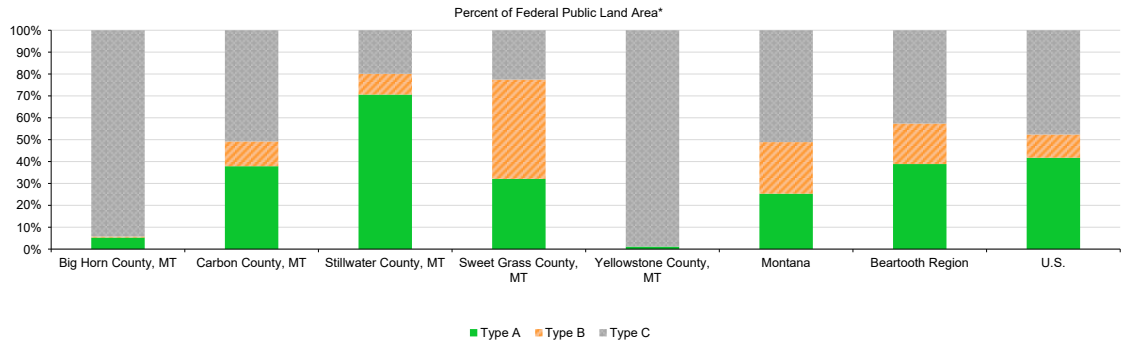
	Big Horn County, MT	Carbon County, MT	Stillwater County, MT	Sweet Grass County, MT	Yellowstone County, MT	Montana	Beartooth Region	U.S.
Total Area of Type A, B, and C (Acres)	28,644	576,230	203,507	295,787	77,959	28,045,664	1,182,127	623,478,537
Type A	1,515	218,246	143,694	95,042	884	7,104,559	459,381	260,397,439
Type B	133	65,082	19,325	134,024	0	6,606,933	218,564	66,039,395
Type C	26,996	292,902	40,488	66,721	77,075	14,334,172	504,182	297,041,703

Percent of Total

Type A	5.3%	37.9%	70.6%	32.1%	1.1%	25.3%	38.9%	41.8%
Type B	0.5%	11.3%	9.5%	45.3%	0.0%	23.6%	18.5%	10.6%
Type C	94.2%	50.8%	19.9%	22.6%	98.9%	51.1%	42.7%	47.6%

* Year for data varies by geography and source. See data sources below for more information.

- Stillwater County, MT has the largest share of Type A land (70.6%), and Yellowstone County, MT has the smallest (1.1%).
- Sweet Grass County, MT has the largest share of Type B land (45.3%), and Yellowstone County, MT has the smallest (0%).
- Yellowstone County, MT has the largest share of Type C land (98.9%), and Stillwater County, MT has the smallest (19.9%).



Type A 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, FS, BLM), Waterfowl Production Areas (FWS), Wildlife Management Areas (FWS), Research Natural Areas (FS, BLM), Areas of Critical Environmental Concern (BLM), and National Wildlife Refuges (FWS).

Type B lands include Wilderness Study Areas (NPS, FWS, FS, BLM), Inventoried Roadless Areas (FS).

Type C lands include Public Domain Lands (BLM), O&C Lands (BLM), National Forests and Grasslands (FS).

NPS = National Park Service; FS = Forest Service; BLM = Bureau of Land Management; FWS = Fish and Wildlife

Data Sources: U.S. Geological Survey, Gap Analysis Program. 2016. Protected Areas Database of the United States (PADUS) version 1.4; Rasker, R. 2006. "An Exploration Into the Economic Impact of Industrial Development Versus Conservation on Western Public Lands." Society and Natural Resources. 19(3): 191-207.

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Types of Federal Lands

What do we measure on this page?

This page describes the acreage and share of federal public lands managed for various purposes under differing statutory authority. For purposes of this section, federal public lands have been defined as Type A, B, or C.^{10,11} Private lands and areas managed by state agencies and local government are not included in this classification.

Type A lands tend to have more managerial and commercial use restrictions than Type C lands, represent smaller proportions of total land management areas (except within Alaska), and have a designation status less easily changed than Type B lands. They may be described as areas having uncommon bio-physical and/or cultural character worth preserving. In the peer-reviewed academic literature these lands are often referred to as "protected public lands."⁹

Type B lands are similar to Type A lands in terms of activities allowed. They may be described as areas worth preserving that have limited development and motorized transportation.

Type C lands generally have no special designations. They represent the bulk of federal land management areas and may allow a wider range of uses or compatible activities including timber production, mining and energy development, grazing, recreation, and large-scale watershed projects and fire management options. Type C lands may be described as areas where the landscape may be altered within the objectives and guidelines of multiple use.

The classifications offered on this page are categories of relative degrees of management priority, categorized by land designation. Lands such as wilderness and national monuments, for example, are more likely to be managed for conservation and recreation, even though there may exist exceptions (e.g., a pre-existing mine in a wilderness area or oil and gas development in a national monument). Forest Service and BLM lands without designations are more likely to allow commercial activities such as mining and timber harvesting.

Why is it important?

Some types of federal lands, such as national parks, national monuments, and wilderness, can be associated with above-average economic growth. These lands by themselves do not guarantee economic growth but when combined with other factors, such as an educated workforce and access to major markets via airports, they have been shown to be statistically significant predictors of growth.^{3,12, 13, 14, 15}

The acreage in particular land types may not be the only indicator of quality. For example, Wild and Scenic Rivers may provide amenity values far greater than their land acreage would indicate.

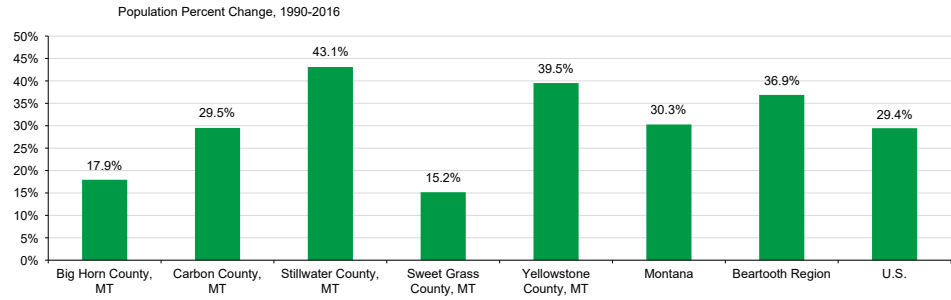
Public Land Amenities

Beartooth Region

Population Trends

	Big Horn County, MT	Carbon County, MT	Stillwater County, MT	Sweet Grass County, MT	Yellowstone County, MT	Montana	Beartooth Region	U.S.
Population 1990	11,313	8,077	6,573	3,146	113,557	800,204	142,666	249,622,814
Population 2000	12,669	9,561	8,247	3,633	129,570	903,773	163,680	282,162,411
Population 2016	13,343	10,460	9,406	3,623	158,437	1,042,520	195,269	323,127,513
Population Change 1990-2016	2,030	2,383	2,833	477	44,880	242,316	52,603	73,504,699
Percent Change 1990-2016	17.9%	29.5%	43.1%	15.2%	39.5%	30.3%	36.9%	29.4%

* Between 1990 and 2016, Stillwater County, MT had the largest percent change in population (43.1%), and Sweet Grass County, MT has the smallest (15.2%).



Population Trends

What do we measure on this page?

This page depicts the size of the population of the selected location(s) and population change since 1990.

Why is it important?

Rapid population increase may indicate that amenities of public lands play a role in stimulating growth in an area.¹⁶ This trend can be seen in many counties and regions during the 1990s and early 2000s.¹⁷

Population growth by itself is not sufficient evidence that the amenities of public lands contribute to growth. This indicator should be considered together with all other indicators in this report, and with the recommended additional reading, as a resource that helps the user understand amenity-driven growth.¹⁸

Public Land Amenities

Beartooth Region

Births, Deaths, and Migration

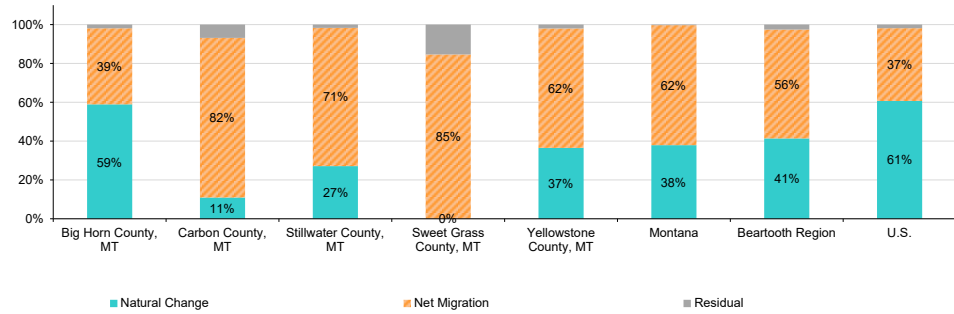
	Big Horn County, MT	Carbon County, MT	Stillwater County, MT	Sweet Grass County, MT	Yellowstone County, MT	Montana	Beartooth Region	U.S.
Population Change, 2000-2017	701	1,132	1,204	52	29,453	147,200	32,542	43,547,221
Average Annual Population Change	47	47	56	9	1,686	8,549	369	2,570,452
From Natural Change	155	-8	16	0	641	3,260	161	1,559,476
Births	273	79	92	34	1,924	11,960	480	4,071,767
Deaths	118	87	76	34	1,283	8,701	320	2,512,292
From Net Migration	-103	60	42	11	1,080	5,314	218	963,339
International Migration	4	6	1	2	47	440	12	963,339
Domestic Migration	-107	54	41	9	1,034	4,874	206	na
From Residual	-5	-5	-1	-2	-35	-25	-10	47,637

Factors Contributing to Population Change*, 2000-2017

Natural Change	58.9%	11.0%	27.1%	0.0%	36.5%	37.9%	41.4%	60.7%
Net Migration	39.2%	82.2%	71.2%	84.6%	61.5%	61.8%	56.0%	37.5%
Residual	1.9%	6.8%	1.7%	15.4%	2.0%	0.3%	2.6%	1.9%

* The absolute value of the individual component of population change divided by the sum of the absolute values of the three components (natural change, net migration, and the residual).

Factors Contributing to Population Change*, 2000-2017



• From 2000 to 2017, the U.S. had the largest share of population change from natural change (60.7%), and Sweet Grass County, MT had the smallest (0%).

• From 2000 to 2017, Sweet Grass County, MT had the largest share of population change from migration (84.6%), and the U.S. had the smallest (37.5%).

Births, Deaths, and Migration

What do we measure on this page?

This page describes components of population change. Total population change is the sum of natural change (births minus deaths) and migration (international and domestic).

The purpose of this page is to discern how much of the growth in population is due to net in-migration, shown in the orange bar in the chart Factors Contributing to Population Change.

The U.S. Census Bureau makes a minor statistical correction called a "residual" as part of its estimates of foreign-born immigrants.¹⁹ Because of this correction, natural change plus net migration may not add to total population.²⁰

Why is it important?

A growing body of literature has shown that public lands can play a role in stimulating amenity migration, defined as the permanent movement to a locality by people who have been influenced to move in part by the presence of environmental, recreational, social, and cultural amenities.^{21, 22, 23, 24}

It is useful to understand the components of population change because they show whether growth (or decline) is led by migration, and whether it derives from international or domestic migration. If migration accounts for significant population growth, it may be helpful to look for links with other potential amenity variables such as a rise in relatively footloose business (such as services) and the growth of non-labor income such as investments and retirement.

In-migration by itself is not sufficient evidence that public land amenities contribute to growth. There are other reasons for migration that may not be related to amenities, such as the migration of oil and gas workers into an area for fossil fuels production.

Public Land Amenities

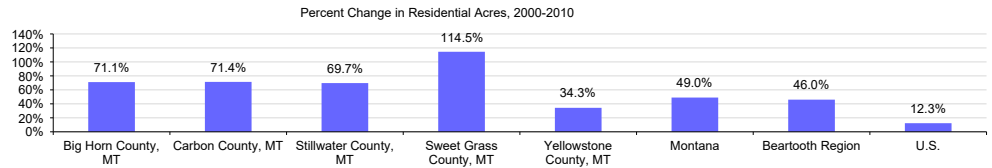
Beartooth Region

Residential Development

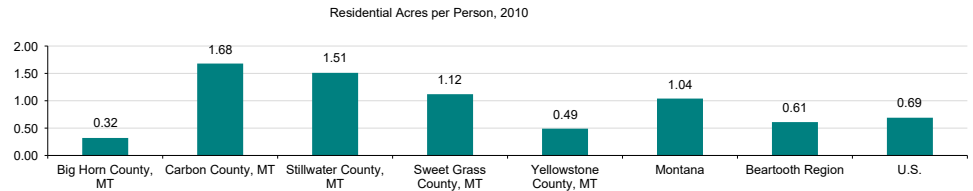
	Big Horn County, MT	Carbon County, MT	Stillwater County, MT	Sweet Grass County, MT	Yellowstone County, MT	Montana	Beartooth Region	U.S.
Residential Acres 2000	2,443	9,887	8,124	1,886	54,064	692,039	76,404	190,918,648
Residential Acres 2010	4,181	16,942	13,789	4,045	72,619	1,030,829	111,576	214,475,717
Change in Res. Acres 2000-2010	1,738	7,055	5,665	2,159	18,555	338,790	35,172	23,557,069
Percent Change	71.1%	71.4%	69.7%	114.5%	34.3%	49.0%	46.0%	12.3%
Residential Acres/Person, 2000	0.19	1.03	0.99	0.52	0.42	0.77	0.47	0.67
Residential Acres/Person, 2010	0.32	1.68	1.51	1.12	0.49	1.04	0.61	0.69
Change in Res. Ac./Person 2000-2010	0.13	0.65	0.53	0.60	0.07	0.27	0.14	0.02
Total Residential Units 2016*	4,668	6,459	4,811	2,016	66,708	491,439	84,662	134,054,899
Second Homes in 2016*	400	1,402	542	370	863	40,280	3,577	5,368,085
Percent Second Homes	8.6%	21.7%	11.3%	18.4%	1.3%	8.2%	4.2%	4.0%

* The data in this table are calculated by ACS using annual surveys conducted during 2012-2016 and are representative of average characteristics during this period.

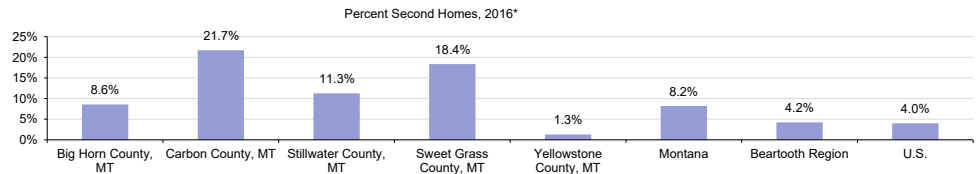
• From 2000 to 2010, Sweet Grass County, MT had the largest percent change in residential development (114.5%), and the U.S. had the smallest (12.3%).



• From 2000 to 2010, Carbon County, MT had the largest average acreage in residential development per person (1.68 acres), and Big Horn County, MT had the smallest (0.32 acres).



• In 2000, Carbon County, MT had the largest share of second homes as a percent of total homes (21.7%), and Yellowstone County, MT had the smallest (1.3%).



Data Sources: Theobald, DM. 2013. Land use classes for ICLUS/SERGoM v2013. Unpublished report, Colorado State University; U.S. Department of Commerce. 2017. Census Bureau, American Community Survey Office, Washington, D.C.

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Residential Development

What do we measure on this page?

This page describes the conversion of open space to residential development, residential acres per person, and the percent of homes that are second homes.

The rate of development is expressed as the percent change in acres used for residential development from 2000 to 2010 (the latest years available from the Decennial Census). Land consumption is expressed in terms of residential acres per person. These figures refer only to residential development and do not include lot sizes greater than 40 acres. Per capita consumption of land used for housing is a measure of the pattern of development. Areas with negative values of change in residential acres/person indicate more dense development in 2010 than in 2000. Large positive values of change indicate that an area was substantially more sprawled in 2010 than it was in 2000.

Second Homes: Residences intended for use only in certain seasons or for weekends or other occasional use throughout the year.

Comparisons are made between 2000 and 2010. These are the latest published data available from the Decennial Census.

Why is it important?

One of the characteristics of growth that is associated with the presence of public land amenities is a rapid conversion of open space (including agricultural lands) for residential development, and a relatively high proportion of homes as second homes.

Several papers are available that describe reasons for open space loss and the impact of housing on protected areas.^{25, 26, 27}

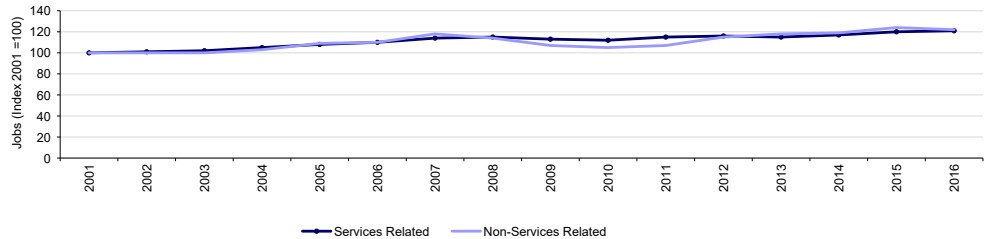
Public Land Amenities

Beartooth Region

Service Sector

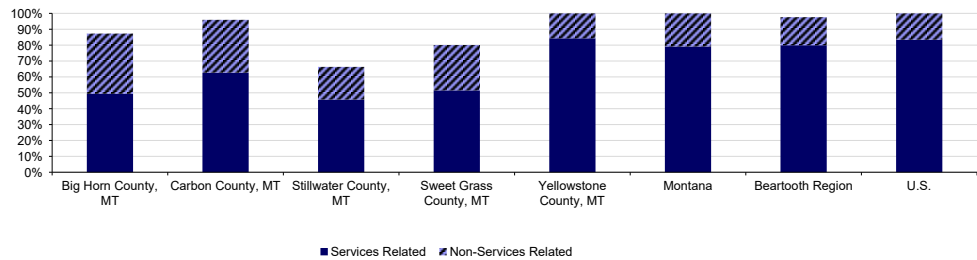
	Big Horn County, MT	Carbon County, MT	Stillwater County, MT	Sweet Grass County, MT	Yellowstone County, MT	Montana	Beartooth Region	U.S.
Total Non-Government Employment, 2016	3,748	5,005	4,699	2,500	99,514	573,050	115,466	169,368,400
Services Related	1,849	3,135	2,150	1,288	83,878	453,615	92,300	141,191,600
Non-Services Related	1,422	1,666	966	714	15,636	119,435	20,404	28,176,800
Percent of Total								
Services Related	49.3%	62.6%	45.8%	51.5%	84.3%	79.2%	79.9%	83.4%
Non-Services Related	37.9%	33.3%	20.6%	28.6%	15.7%	20.8%	17.7%	16.6%

Services & Non-Services Related Jobs, Beartooth Region



• From 2001 to 2016, services related jobs in the region grew by 21 percent. Over the same period, non-services related jobs grew by 22 percent.

Services & Non-Services Related Jobs, Percent of Total Non-Government Employment, 2016



• In 2016, Yellowstone County, MT had the largest share of total jobs in services related industries (84.3%), and Stillwater County, MT had the smallest (45.8%).

Service Sector

What do we measure on this page?

This page describes the number of jobs and share of total jobs in services related industries and non-services related industries.

Services: Utilities; Wholesale Trade; Retail Trade; Transportation & Warehousing Information; Finance & Insurance; Real Estate, Rental & Leasing; Professional, Scientific, & Tech.; Mgmt. of Companies & Enterprises; Administrative & Support Services; Educational Services; Health Care & Social Assistance; Arts, Entertainment, & Recreation; Accommodation & Food Services; and Other Services.

Non-Services: Mining; Construction; Manufacturing; and Agriculture, Forestry, Fishing, and Hunting.

The EPS Services report provides more detail on the components of services; the EPS Tourism report provides more information on industries that include travel and tourism, including some service industries: <https://headwaterseconomics.org/eps>.

Some data are withheld by the federal government to avoid the disclosure of potentially confidential information. Headwaters Economics uses data from the U.S. Department of Commerce to estimate these data gaps.²⁸ These values are indicated with tildes (~).

Why is it important?

One characteristic of growth associated with the presence of public land amenities is above-average growth in services occupations and businesses.^{29, 30} Some services-related jobs are associated with a growth in recreation and tourism. There are also services occupations and businesses that, due to telecommunications technology and transportation networks, are relatively "footloose," i.e., able to move to locations in part for quality of life reasons, including the amenities provided by public lands. Examples of potentially footloose occupations and businesses include architects, software developers, engineers, financial and management consultants, and researchers.³¹

Growth in services by itself is not sufficient evidence that the amenities of public lands contribute to growth. This indicator should be taken together with all other indicators in this report, and with the recommended additional reading, as a resource that helps the user understand amenity-driven growth. This work may have to be supplemented with additional resources, such as surveys of local residents and businesses.

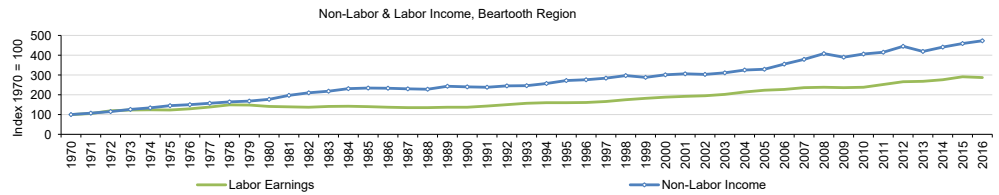
Public Land Amenities

Beartooth Region

Non-Labor Income

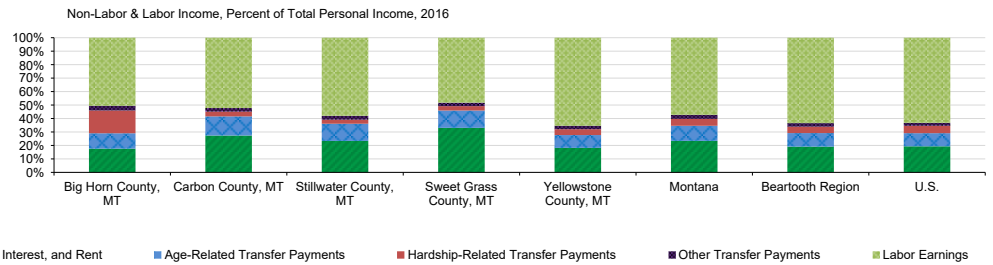
	Big Horn County, MT	Carbon County, MT	Stillwater County, MT	Sweet Grass County, MT	Yellowstone County, MT	Montana	Beartooth Region	U.S.
Personal Income, 2016, (thous. of 2017 \$s)	402,326	450,178	425,570	163,735	7,678,541	45,713,102	9,120,350	16,246,945,757
Non-Labor Income	199,028	215,041	178,778	84,766	2,659,164	19,534,476	3,336,777	5,970,923,635
Dividends, Interest, and Rent	70,775	123,201	99,364	54,116	1,396,752	10,690,572	1,744,207	3,144,457,507
Age-Related Transfer Payments	46,055	63,945	54,345	21,085	732,100	5,128,242	917,530	1,584,924,889
Hardship-Related Transfer Payments	67,991	15,911	12,799	5,314	331,399	2,336,263	433,416	892,238,651
Other Transfer Payments	14,206	11,983	12,270	4,251	198,913	1,379,399	241,625	349,302,487
Labor Earnings	203,298	235,137	246,792	78,968	5,019,377	26,178,626	5,783,573	10,276,022,222
Percent of Total								
Non-Labor Income	49.5%	47.8%	42.0%	51.8%	34.6%	42.7%	36.6%	36.8%
Dividends, Interest, and Rent	17.6%	27.4%	23.3%	33.1%	18.2%	23.4%	19.1%	19.4%
Age-Related Transfer Payments	11.4%	14.2%	12.8%	12.9%	9.5%	11.2%	10.1%	9.8%
Hardship-Related Transfer Payments	16.9%	3.5%	3.0%	3.2%	4.3%	5.1%	4.8%	5.5%
Other Transfer Payments	3.5%	2.7%	2.9%	2.6%	2.6%	3.0%	2.6%	2.1%
Labor Earnings	50.5%	52.2%	58.0%	48.2%	65.4%	57.3%	63.4%	63.2%

* From 1970 to 2016, non-labor income in the Beartooth Region grew by 373 percent. Over the same period, labor income grew by 187 percent.



* In 2016, Sweet Grass County, MT had the largest share of total personal income in non-labor income (51.8%), and Yellowstone County, MT had the smallest (34.6%).

* In 2016, Beartooth Region had the largest share of non-labor income in dividends, interest, and rent (19.1%), and the smallest share in other transfer payments (2.6%).



Non-Labor Income

What do we measure on this page?

This page describes components of non-labor income and compares non-labor income to labor earnings. It also shows how non-labor income has changed over time compared to labor earnings.

Non-Labor Income: Dividends, interest, rent, and transfer payments (includes government retirement and disability insurance benefits, medical payments such as mainly Medicare and Medicaid, income maintenance benefits, unemployment insurance benefits, etc.). Non-labor income is reported by place of residence.

Dividends, Interest, and Rent: Personal dividend income, personal interest income, and rental income of persons with capital consumption adjustments. Dividends, interest, and rent are sometimes referred to as "investment income" or "property income."

Age-Related Transfer Payments: Payments, including Social Security and Medicare, associated with older populations.

Hardship-Related Transfer Payments: Payments associated with poverty and welfare, including Medicaid and income maintenance.

Other Transfer Payments: Payments from veteran's benefits, education and training, Workers Compensation insurance, railroad retirement and disability, other government retirement and disability, and other receipts of individuals and nonprofits.

Labor Earnings: Net earnings by place of residence, which is earnings by place of work (the sum of wage and salary disbursements, supplements to wages and salaries, and proprietors' income) less contributions for government social insurance, plus an adjustment to convert earnings by place of work to a place of residence basis.

The EPS Non-Labor report provides a more detailed analysis of non-labor income and its components:

<https://headwaterseconomics.org/eps>.

Why is it important?

One characteristic of population and income growth influenced by public land amenities is a rapid growth of non-labor income, in particular investment income (dividends, interest, and rent) and age-related transfer payments.³² Because retirees are not tied to a place for work, they are relatively mobile and are often freer to choose where they live.³³ Amenities provided by public lands can attract (and retain) retirees. This is particularly important as the Baby Boom generation (born 1946 to 1964) continues to retire.^{34, 35}

Public Land Amenities

Beartooth Region

Travel and Tourism

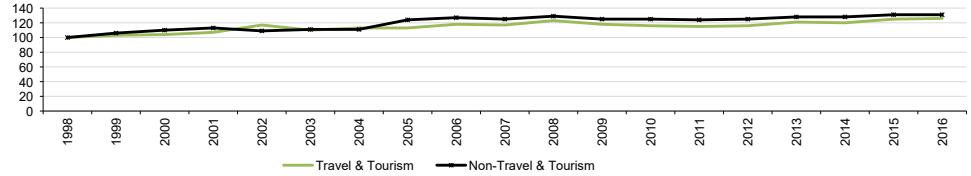
	Big Horn County, MT	Carbon County, MT	Stillwater County, MT	Sweet Grass County, MT	Yellowstone County, MT	Montana	Beartooth Region	U.S.
Total Private Employment, 2016	2,365	2,164	2,640	1,130	70,372	378,463	78,671	126,752,238
Travel & Tourism Related	474	989	308	253	13,120	75,053	15,144	19,977,824
Retail Trade	130	72	96	82	2,005	11,687	2,385	3,466,865
Passenger Transportation	0	4	7	2	237	1,097	250	495,505
Arts, Entertainment, & Recreation	118	445	34	21	1,775	10,712	2,393	2,311,437
Accommodation & Food	226	468	171	148	9,103	51,557	10,116	13,704,017
Non-Travel & Tourism	1,891	1,175	2,332	877	57,252	303,410	63,527	106,774,414

Percent of Total

Travel & Tourism Related	20.0%	45.7%	11.7%	22.4%	18.6%	19.8%	19.2%	15.8%
Retail Trade	5.5%	3.3%	3.6%	7.3%	2.8%	3.1%	3.0%	2.7%
Passenger Transportation	0.0%	0.2%	0.3%	0.2%	0.3%	0.3%	0.3%	0.4%
Arts, Entertainment, & Recreation	5.0%	20.6%	1.3%	1.9%	2.5%	2.8%	3.0%	1.8%
Accommodation & Food	9.6%	21.6%	6.5%	13.1%	12.9%	13.6%	12.9%	10.8%
Non-Travel & Tourism	80.0%	54.3%	88.3%	77.6%	81.4%	80.2%	80.8%	84.2%

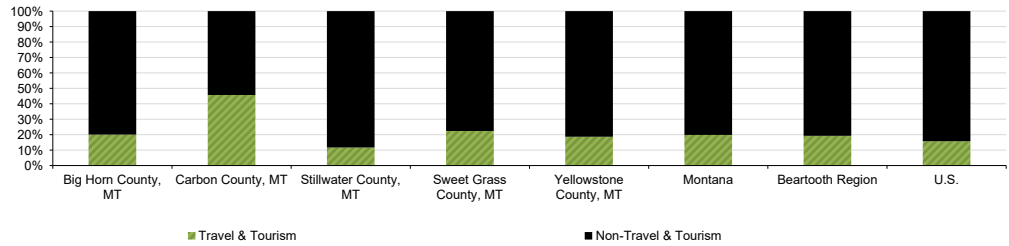
Jobs in Industries that include Travel & Tourism and Non-Travel & Tourism, Beartooth Region

Index 1998 = 100



* From 1998 to 2016, industries associated with travel and tourism in the region grew by 26 percent. Over the same period, non-travel and tourism industries grew by 31 percent.

Jobs in Industries that include Travel & Tourism and Non-Travel & Tourism, Percent of Total Private Employment, 2016



* In 2016, Carbon County, MT had the largest share of jobs in industries associated with travel and tourism (45.7%), and Stillwater County, MT had the smallest (11.7%).

Travel and Tourism

What do we measure on this page?

This page describes the number of jobs and share of total jobs in industries that include travel and tourism. It also compares employment trends in industries that include travel and tourism to all other industries.

The EPS Tourism report provides details on industries that include travel and tourism businesses: <https://headwaterseconomics.org/eps>.

Travel and Tourism: Sectors that provide goods and services to visitors as well as to the local population.

The exact proportion of jobs in these sectors attributable to expenditures by visitors, including business and pleasure travelers, is not known without additional research such as surveys. Some researchers refer to these sectors as "tourism-sensitive." They could also be called "travel and tourism-potential sectors" because they have the potential of being influenced by expenditures by non-locals. In this report, they are referred to as "industries that include travel and tourism."

There is no single industrial classification for travel and tourism under the North American Classification System (NAICS).³⁶ However, there are sectors that, at least in part, provide goods and services to visitors to a local economy. Specific industries that are closely related to travel and tourism include Gasoline Stations, Clothing & Accessory Stores, and Miscellaneous Store Retailers; Air Transportation, and Scenic & Sightseeing Transportation; Performing Arts & Spectator Sports, Museums, Parks, & Historical Sites, and Amusement, Gambling, & Recreation; and Accommodation, Food Services & Drinking Places.

Data on this page were obtained from the U.S. Census Bureau's County Business Patterns (CBP) series. Compared to other sources, CBP has fewer data gaps (instances when the federal government will not release data to protect confidentiality of individual businesses). It also includes both full- and part-time employment. However, CBP data do not include employment in government, agriculture, railroads, or the self-employed and, as a result, under-count the size of industry sectors. Also, CBP data are based on mid-March employment and do not take into account seasonal fluctuations. For these reasons, the data are most useful for showing long-term trends, displaying differences between places, and showing relationships between sectors over time.

The line chart begins in 1998 because that is the year the U.S. Census Bureau and CBP shifted to using NAICS.

Some data are withheld by the federal government to avoid the disclosure of potentially confidential information. Headwaters Economics uses data from the U.S. Department of Commerce to estimate these data gaps. Estimates for data that were not disclosed are indicated with tildes (~).

Why is it important?

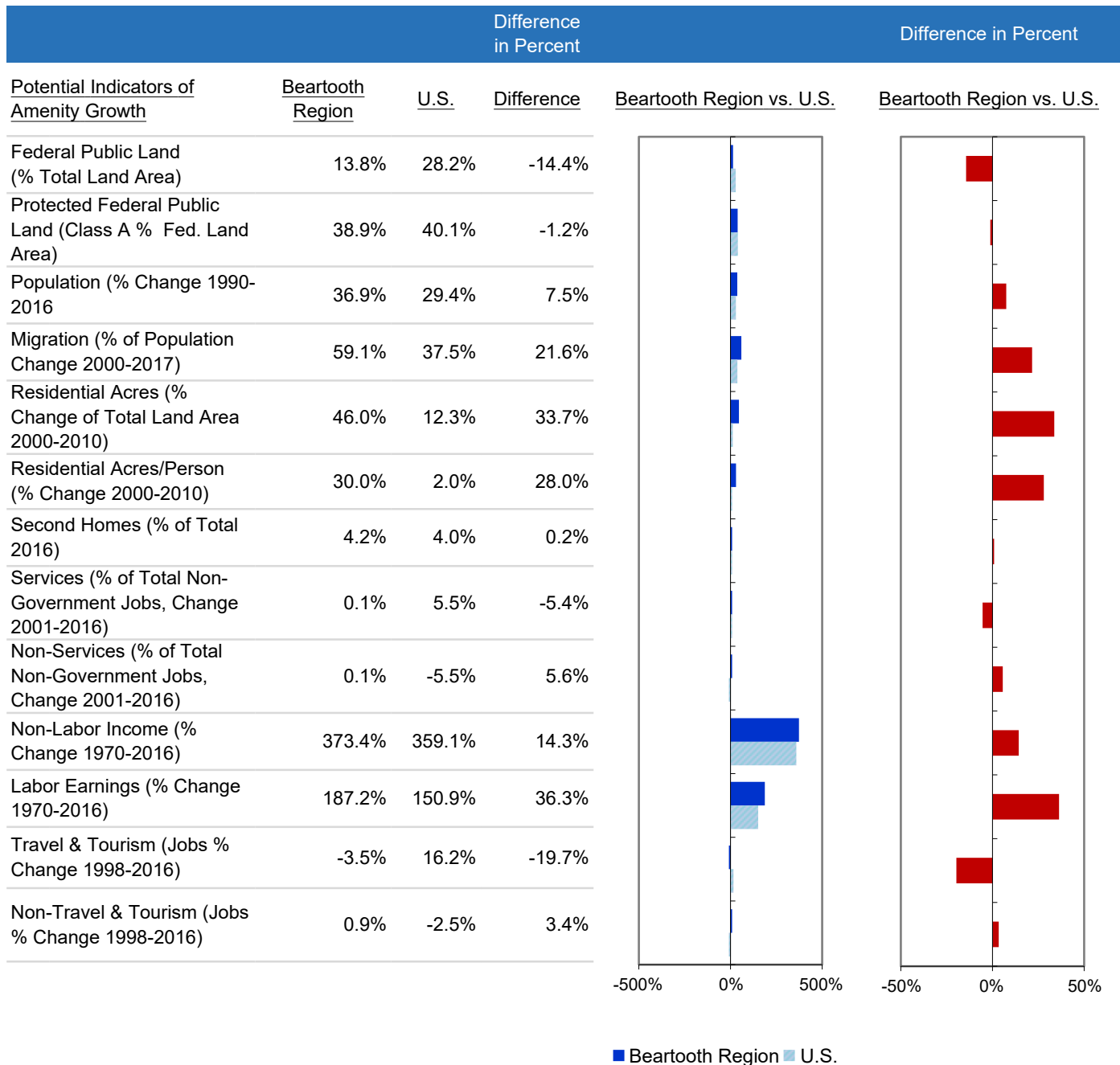
This page is useful for explaining whether sectors associated with travel or tourism are growing or shrinking in the selected location(s).

Public lands can play a role in stimulating local employment by providing opportunities for recreation.³⁷ Communities adjacent to public lands benefit economically from visitors who spend money in hotels, restaurants, ski resorts, gift shops, and elsewhere. In addition, some migrants to communities with high levels of environmental and recreational amenities visit first as tourists and then return permanently with their families and businesses.³⁸ Public lands can therefore also stimulate growth in non-tourism sectors via in-migration.³⁹

Public Land Amenities

Beartooth Region

Comparisons



- The region is most different from the U.S. in labor earnings (% change 1970-2016), (36.3% greater), and is least different in second homes (% of total 2016), (0.2% greater).

Data Sources: U.S. Department of Commerce. 2017. Census Bureau, American Community Survey Office, Washington, D.C.; U.S. Department of Commerce. 2018. Census Bureau, County Business Patterns, Washington, D.C.; Theobald, DM. 2013. Land use classes for ICLUS/SERGoM v2013. Unpublished report, Colorado State University; U.S. Geological Survey, Gap Analysis Program. 2016. Protected Areas Database of the United States (PADUS) version 1.4; U.S. Department of Commerce. 2014. Census Bureau, Population Division, Washington, D.C.; U.S. Department of Commerce. 2017. Bureau of Economic Analysis, Regional Economic Accounts, Washington, D.C.

Comparisons

What do we measure on this page?

This page compares indicators that, when taken as a whole (and supplemented with published literature), offer ways of thinking about the economic contribution of public land amenities.

The charts illustrate difference between the selected location(s) and the selected benchmark area. If no custom benchmark area was selected, EPS defaults to benchmarking against the U.S.

Why is it important?

Public land amenities are the qualities of public lands that make a region an attractive place to live, recreate, and work. This report offers a number of indicators that can provide insight into whether and how amenities on public lands contribute to the local and regional economy.

When a location has a high proportion of public lands, and when many of these lands are designated as wilderness, national park, and national monument (Type A), then it is likely that the level of environmental and recreation amenities is high. When a location also has a high rate of population growth due largely to in-migration, combined with a conversion of lands for residential development and a high proportion of second homes, then it is likely that amenity-driven growth is taking place. In addition, when the economy has a high rate of growth in service industry jobs, travel- and tourism-related sectors, and non-labor income, then amenities are likely to play a role in economic development.

When many of the indicators in the selected region are comparatively high, then it is likely that public land amenities are contributing to economic growth.

However, even when taken as a group, these indicators may not be sufficient evidence that the amenities of public lands contribute to growth. These indicators should be studied together with the existing literature to fully understand amenity-driven growth.^{40, 41, 42, 43, 44} This work may have to be supplemented with local research, such as surveys of local residents and businesses, to measure the economic role of public land amenities.

Public Land Amenities

Beartooth Region

Data Sources & Methods

This EPS report also uses published statistics on population, employment, and personal income from government sources that are available to the public and cover the entire country. The contact information for these databases is:

- **County Business Patterns**

Census Bureau, U.S. Department of Commerce.
<https://www.census.gov/programs-surveys/cbp.html>
Contacts:
<https://www.census.gov/about/contact-us.html>

- **Regional Economic Accounts**

Bureau of Economic Analysis, U.S. Department of Commerce
<https://www.bea.gov/regional/>
Contacts:
<https://www.bea.gov/contacts/search.htm>

- **Population Estimates**

Census Bureau, U.S. Department of Commerce.
<https://www.census.gov/programs-surveys/popest.html>
Contacts:
<https://www.census.gov/about/contact-us.html>

- **2010 Decennial U.S. Census**

U.S. Census Bureau, U.S. Department of Commerce.
https://www.census.gov/history/www/programs/demographic/decennial_census.html
Contacts:
<https://www.census.gov/about/contact-us.html>

The EPS Public Land Amenities report uses national data sources derived from Geographic Information Systems (GIS) to represent land ownership and residential development. The contact information for these databases is:

- **TIGER/Line County Boundaries**

Bureau of the Census, U.S. Department of Commerce
<https://www.census.gov/geo/maps-data/data/tiger.html>

- **Protected Areas Database**

U.S. Geological Survey, Gap Analysis Program
<https://gapanalysis.usgs.gov/padus/>

EPS core approaches

EPS is designed to focus on long-term trends across a range of important measures. Trend analysis provides a more comprehensive view of changes than spot data for select years. We encourage users to focus on major trends rather than absolute numbers. EPS displays detailed industry-level data to show changes in the composition of the economy over time and the mix of industries at points in time. EPS employs cross-sectional benchmarking – comparing smaller areas such as counties to larger regions, states, and the nation – to give a sense of relative performance. EPS allows users to aggregate data for multiple locations to allow for more sophisticated cross-sectional comparisons.

Adjusting dollar figures for inflation

Because a dollar in the past was worth more than a dollar today, data reported in current dollar terms should be adjusted for inflation. The U.S. Department of Commerce reports personal income figures in terms of current dollars. All income data in EPS are adjusted to real (or constant) dollars using the Consumer Price Index. Figures are adjusted to the latest date for which the annual Consumer Price Index is available.

Data gaps and estimation

Some data are withheld by the federal government to avoid the disclosure of potentially confidential information. Headwaters Economics uses supplemental data from the U.S. Department of Commerce to estimate these data gaps. These are indicated with tildes (~) in tables. Documentation explaining methods developed by Headwaters Economics for estimating disclosure gaps is available at <https://headwaterseconomics.org/eps>.

Endnotes

- 1 - For a general analysis of the role of amenities in economic development, see McGranahan DA. 1999. *Natural Amenities Drive Rural Population Change*. USDA Economic Research Service, Agricultural Economic Report No. 781. For a review of literature on the role of amenities in National Forests, see: Garber-Yonts, B. E. 2004. *The Economics of Amenities and Migration in the Pacific Northwest: Review of Selected Literature with Implications for Natural Forest Management*. USDA, Forest Service, Pacific Northwest Research Station, General Technical Report, PNW-GTR-617. https://www.ers.usda.gov/webdocs/publications/41047/13201_aer781.pdf?v=42061.
- 2 - For resources describing the economic benefits of public lands, see: <https://headwaterseconomics.org/public-lands/public-lands-research/>.
- 3 - For an annotated bibliography of peer-reviewed literature on the value of amenities provided by public lands, see: https://headwaterseconomics.org/wp-content/uploads/Annotated_Bib_Value_Public_Lands.pdf.
- 4 - U.S. Census Bureau TIGER/Line Boundaries are available at <https://census.gov/geo/maps-data/data/tiger-line.html>.
- 5 - The U.S. Geological Survey Protected Areas Database (PADUS) is available at <https://gapanalysis.usgs.gov/padus/>.
- 6 - For an analysis of the economic role of protected public lands, see Eichman H, Hunt GL, Kerkvliet J, and Plantinga AJ. 2010. Local Employment Growth, Migration, and Public Land Policy: Evidence from the Northwest Forest Plan. *Journal of Agricultural and Resource Economics* 35(2):316-333. A recent book on the value of public lands may also be useful: Davis S. 2018. *In Defense of Public Lands: The Case Against Privatization and Transfer*. Philadelphia, PA: Temple University Press.
- 7 - For a review of the literature on the relationship between public land amenities and economic development and migration, see Garber-Yonts BE. 2004. *The Economics of Amenities and Migration in the Pacific Northwest: Review of Selected Literature with Implications for National Forest Management*. PNW-GTR-617. Corvallis, OR: USDA Forest Service Pacific Northwest Research Station. https://www.fs.fed.us/pnw/pubs/pnw_gtr617.pdf
- 8 - For an example of a survey conducted to assess the public's perceptions of quality of life and how public lands actions may affect these, see Reed P and Brown G. 2003. Public land management and quality of life in neighboring communities - The Chugach National Forest planning experience. *Forest Science* 49(4):479-498.
- 9 - For an extensive slide show and references on the economic contribution of federal public lands, see https://headwaterseconomics.org/wp-content/uploads/Public_Lands_Slideshow.pdf
- 10 - The definitions of land classifications (Type A, B, and C) are not legal or agency-approved and are provided only for comparative purposes.

Endnotes (cont.)

- 11 - Land defined as either Type A, B, or C includes areas managed by the National Park Service, the Forest Service, the Bureau of Land Management, or the Fish and Wildlife Service. Lands administered by other federal agencies (including the Army Corps of Engineers, Bureau of Reclamation, Department of Agriculture, Department of Defense, Department of Energy, and Department of Transportation) were not classified into Type A, B, or C. Therefore, the total acreage of Type A, B, and C lands may not add to the Total Federal Land Area reported on page 1 of this report.
- 12 - Studies, articles, and literature reviews on the economic contribution of protected public lands are available at <https://headwaterseconomics.org/public-lands/public-lands-research/>.
- 13 - For an analysis on the effect of wilderness designations on local economies, in particular on resource-based industries, see Garber-Yonts BE. 2004. *The Economics of Amenities and Migration in the Pacific Northwest: Review of Selected Literature with Implications for Natural Forest Management*. USDA, Forest Service, Pacific Northwest Research Station, General Technical Report, PNW-GTR-617; and Holmes TP, Bowker JM, Englin J, Hjerpe E, Loomis JB, Philips S, and Richardson R. 2016. A Synthesis of the Economic Values of Wilderness. *Journal of Forestry* 114(3):320-328.
- 14 - For analysis of the role of transportation in high-amenity areas, see Rasker R, Gude PH, Gude JA, and van den Noort J. 2009. The Economic Importance of Air Travel in High-Amenity Rural Areas. *Journal of Rural Studies* 25(2009):343-353.
- 15 - For an analysis of the effect of wilderness on growth, see: Duffy-Deno KT. 1998. The Effect of Federal Wilderness on County Growth in the Intermountain Western United States. *Journal of Regional Science* 38(1):109-136.
- 16 - For a discussion of population and economic growth in relation to amenities and the restructuring of the economy that began to take place in the 1980s, see Rudzitis G. 1989. Migration, Places, and Nonmetropolitan Development. *Urban Geography* 10(4):396-411.
- 17 - For a discussion of the relationship between environmental amenities and population growth, see Hunter LM, Boardman JD, and Onge JMS. 2005. The Association Between Natural Amenities, Rural Population Growth, and Long-Term Residents' Economic Well-Being. *Rural Sociology* 70(4):452-469. See also Nelson PB. 1997. Migration, Sources of Income, and Community Change in the Non-Metropolitan Northwest. *Professional Geographer* 49(4):419-430. For analysis of the reasons for migration to the rural West, see Cromartie JB and Wardwell JM. 1999. Migrants Settling Far and Wide in the Rural West. *Rural Development Perspectives* 14(2):2-8.
- 18 - For a critical examination of whether amenities play a role in development (including a review of the literature), see Gottlieb PD. 1994. Amenities as an Economic Development Tool: Is there Enough Evidence? *Economic Development Quarterly* 8(3):270-285.

Endnotes (cont.)

- 19 - International Migration consists of people who have moved into the local geography directly from a foreign country.
- 20 - For a glossary of terms used by the Bureau of the Census, see <https://www.census.gov/programs-surveys/popest/about/glossary.html>. For methods used by the Bureau of the Census, see <https://www.census.gov/programs-surveys/popest/technical-documentation/methodology.html>
- 21 - For a regional example of the causes and consequences of "amenity migration," see Loeffler R and Steinicke E. 2007. Amenity Migration in the U.S. Sierra Nevada. *Geographical Review* 97(1):67-88.
- 22 - For a discussion of the role of amenities in people's migration decisions, see Knapp TA and Graves PE. 1989. On the Role of Amenities in Models of Migration and Regional Development. *Journal of Regional Science* 29(1):71-87.
- 23 - For a review of the theory that people decide where to live first and then create jobs, see Vias AC. 1996. Jobs Follow People in the Rural Rocky Mountain West. *Rural Development Perspectives* 14(2):14-23.
- 24 - A book on the international phenomenon of people moving to places for their amenities: Moss LAG, ed. 2006. *The Amenity Migrants: Seeking and Sustaining Mountains and Their Cultures*. Oxfordshire, UK: CABI.
- 25 - For an analysis of the reasons for a loss of open space, see Kline JD. 2006. Public Demand for Preserving Local Open Space. *Society & Natural Resources* 19(7):645-659. Also Vias AC and Carruthers JI. 2005. Regional Development and Land Use Change in the Rocky Mountain West, 1982-1997. *Growth and Change* 36(2):244-272.
- 26 - For an analysis of the ecological effects of exurban development, see Hansen AJ, Knight RL, Marzluff JM, Powell S, Brown K, Gude PH, and Jones K. 2005. Effects of Exurban Development on Biodiversity: Patterns, Mechanisms, and Research Needs. *Ecological Applications* 15(6):1893-1905. See also Gude PH, Hansen AJ, Rasker R, and Maxwell B. 2006. Rates and Drivers of Rural Residential Development in the Greater Yellowstone. *Landscape and Urban Planning* 77:131-151.
- 27 - The effect of housing development on protected public lands is analyzed by Radeloff VC, Stewart SI, Hawbaker TJ, Gimmi U, Pidgeon AM, Flather CH, Hammer RB and Helmers DP. 2010. Housing Growth in and Near United States Protected Areas Limits Their Conservation Value. *Proc. National Academy of Sciences* 107(2):940-945.
- 28 - Documentation explaining methods developed by Headwaters Economics for estimating disclosure gaps is available at <https://headwaterseconomics.org/eps>.

Endnotes (cont.)

- 29 - For an analysis of the relationship between amenities and the growth of service-based economies, see Shumway JM and Otterstrom SM. 2001. Spatial Patterns of Migration and Income Change in the Mountain West: The Dominance of Service-Based, Amenity-Rich Counties. *Professional Geographer* 53(4):492-502.
- 30 - See also Beyers W and Lindahl D. 1996. Lone Eagles and High Fliers in the Rural Producer Services. *Rural Development Perspectives* 11:2-10; and Beyers WB and Nelson PB. 2000. Contemporary Development Forces in the Nonmetropolitan West: New Insights from Rapidly Growing Communities. *Journal of Rural Studies* 16(4):459-474.
- 31 - For an analysis of the growth of "footloose" and knowledge-based industries whose owners are attracted by amenities, see Rasker R, Gude PH, Gude JA, and van den Noort J. 2009. The Economic Importance of Air Travel in High-Amenity Rural Areas. *Journal of Rural Studies* 25(2009):343-353.
- 32 - For a discussion of the relationship between amenities and an aging population, see Wright SD, Caserta M, and Lund DE. 2003. Older Adults' Attitudes, Concerns, and Support for Environmental Issues in the "New West." *The International Journal of Aging and Human Development* 57(2):151-179; Nelson PB. 1999. Quality of Life, Nontraditional Income, and Economic Growth: New Development Opportunities for the Rural West. *Rural Development Perspectives* 14 (2):32-37; Walters WH. 2002. Place Characteristics and Later-Life Migration. *Research on Aging* 24(2):243-277.
- 33 - Conway KS and Houtenville AJ. 2003. Out with the Old, In with the Old: A Closer Look at Younger Versus Older Elderly Migration. *Social Science Quarterly* 84(2):309-328; Clark DE and Hunter WJ. 1992. The Impact of Economic Opportunity, Amenities and Fiscal Factors on Age-Specific Migration Rates. *Journal of Regional Science* 32(3):349-65.
- 34 - Cromartie J and Nelson P. 2009. Baby Boom Migration and Its Impact on Rural America. USDA-ERS Report No. 79. Washington, DC: USDA Economic Research Service.
https://www.ers.usda.gov/webdocs/publications/err79/9346_err79_1_.pdf.
- 35 - For a discussion and analysis of the aging baby boom and amenity retirement migration, see: Haas WH and Serow WJ. 2002. The Baby Boom, Amenity Retirement Migration, and Retirement Communities: Will the Golden Age of Retirement Continue? *Research on Aging* 24(1):150-164.
- 36 - The list of NAICS codes associated with travel and tourism were obtained from: Marcouiller DW and Xia X. 2008. Distribution of Income from Tourism-Sensitive Employment. *Tourism Economics* 14(3):545-565.
<http://journals.sagepub.com/doi/abs/10.5367/000000008785633622?journalCode=teua>.
- 37 - For a discussion about the relationship between recreation opportunities and economic growth, see: Johnson KM and Beale CL. 2002. Nonmetro Recreation Counties: Their identification and rapid growth. *Rural America* 17(4):12-19.

Endnotes (cont.)

- 38 - For an example of how tourism can stimulate permanent migration, see: Johnson JD and Rasker R. 1995. The Role of Economic and Quality of Life Values in Rural Business Location. *Journal of Rural Studies* 11(4):405-416.
- 39 - For a review of the importance of quality of life to business location decisions, see Salvesen D and Renski H. 2003. *The Importance of Quality of Life in the Location Decisions of New Economy Firms*. Chapel Hill, NC: Center for Urban and Regional Studies, University of North Carolina. <http://curs.unc.edu/files/2013/05/neweconomyreport.pdf>.
- 40 - For an analysis of the wages people are willing to forego to live in proximity to amenities, see Schmidt L and Courant PN. 2006. Sometimes Close is Good Enough: The Value of Nearby Environmental Amenities. *Journal of Regional Science* 46(5):931-951.
- 41 - For an analysis of the distribution of amenity-driven activity in the Intermountain West, comparing "New West" to "Old West" communities, see Winkler R, Field DR, Luloff AE, Krannich RS, and Williams T. 2007. Social Landscapes of the Inter-Mountain West: A Comparison of "Old West" and "New West" Communities. *Rural Sociology* 72(3):478-501.
- 42 - For a detailed discussion of the history and challenges of economic analysis related to federal public lands, see: Nelson RH. 2006. Valuing Nature: Economic Analysis and Public Land Management, 1975–2000. *American Journal of Economics and Sociology* 65(3):525-557.
- 43 - For results of a national survey of rural elected officials and their environmental and economic development attitudes, see: Foster RH and McBeth MK. 1996. Urban-Rural Influences in U.S. Environmental and Economic Development Policy. *Journal of Rural Studies* 12(4):387-397. The authors found that "Empirical studies have demonstrated the importance of environmental quality of life factors in the lives of rural residents" and that "rural-based officials were more likely to see the importance of environmental quality of life features in the lives of rural residents."
- 44 - For a discussion of the relationship between amenities and tourism, see: Marcouiller DW, Kim K-K, and Deller SC. 2004. Natural Amenities, Tourism and Income Distribution. *Annals of Tourism Research* 31(4):1031-1050.