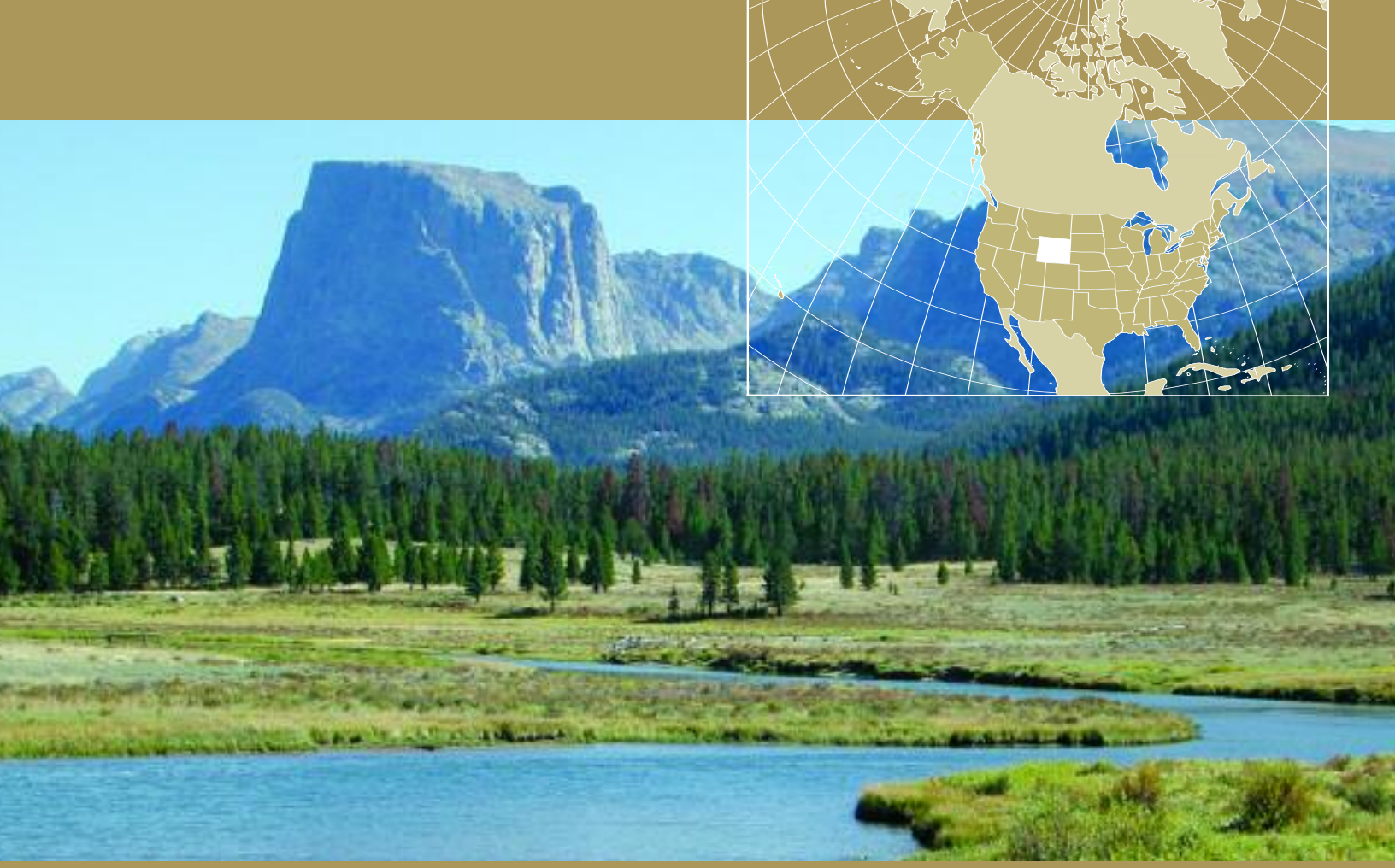


The Economic Value of Healthy Fisheries in Wyoming

A Trout Unlimited
Wyoming Water Project report
In support of the creation of the Wyoming
Wildlife and Natural Resources Funding Act

January 2005

Encampment River

"Conservation and rural life policies are really two sides of the same policy question…and this policy rests upon the fundamental law that neither man nor nation can prosper unless, in dealing with the present, thought is steadily taken for the future."

— Theodore Roosevelt

Table of Contents

Executive Summary

Years ago, the conservationist Aldo Leopold observed that,"conservation will ultimately boil down to rewarding the private landowner who conserves the public interest." This insight holds true today. Only by exploring ways that economic incentives for landowners can be linked with habitat protection can we protect the open space and wildlife habitats that benefit all Wyoming residents. Toward this end, Trout Unlimited supports the Wyoming State Legislature's creation of the Wildlife and Natural Resources Funding Act as an effective policy vehicle through which landowners and non-profit organizations can work together to ensure that fishery and wildlife habitats remain intact and healthy for current and future generations.

Of Wyoming's 62.5 million acres, public lands cover 57 percent and private land covers 43 percent. Agricultural landowners own nearly 98 percent (about 26 million acres) of the state's private land. Healthy fishery and wildlife habitats exist on both public and private lands and depend on sound stewardship, regardless of land ownership. Terrestrial and aquatic wildlife recognize no land ownership boundaries and depend on migration corridors to cross public and private lands. These corridors have been used by fish and wildlife for thousands of years, and are similar in concept to the migration routes that domestic cattle and sheep have used to move between winter and summering areas for the past 150 years. Migration corridors for fish and wildlife, and the habitats they connect, are essential to protecting the long-term viability of these populations in our state.

Together with the open spaces that support wildlife habitats, healthy fishery and wildlife populations are crucial to Wyoming's economy. Tourism is Wyoming's second largest industry, contributing nearly $1.9 billion annually to the state's economy and providing over 28,000 jobs. Fishing, hunting and other wildlife-related recreation are key components of the state's tourism industry, and occur on both public and private lands. The environmental and economic integrity of these recreational activities depends largely on the stewardship of private landowners, especially ranchers and farmers.

Like agricultural economies across the country, Wyoming's agricultural industry faces a number of pressures that threaten traditional activities, as well as

North Platte River

the fishery and wildlife habitats that agricultural lands typically provide. The ongoing health and vitality of agricultural communities depends on decision-makers' willingness to support policies that bolster the interwoven and mutually-dependent relationship between healthy habitats, healthy economic development and a healthy agricultural industry.

Key Facts

Healthy fisheries

- Healthy fisheries consist of the upstream and downstream waters of a flowing river; lands adjacent to the river, which include floodplains, riparian and upland areas; and groundwater.
- Ranches comprise the largest blocks of private land in Wyoming and contain many of the tributaries that provide the spawning areas and migration corridors that support diverse and thriving fish populations in Wyoming's main stem rivers.
- Over half of Wyoming's 21,600 stream miles are on private land. Healthy fisheries in Wyoming depend, not only on the agencies that manage fishery and wildlife habitats on public land, but on the ability and willingness of private landowners to protect the quality of fisheries on their land.

Healthy economic development

- Over 4 million tourists visit Wyoming annually and contribute nearly $1.9 billion to the state's economy. Fishing, river rafting and hunting are among the top seven outdoor activities visitors participate in most frequently during their stay in Wyoming.
- Nearly one-third of Wyoming's residents are anglers who spend over 90 percent of their fishing days in Wyoming.
- Anglers spent approximately $423 million in Wyoming in 2002. The sportfishing industry creates 3,500 jobs in the state.
- Healthy fisheries that support thriving fish populations on rivers are essential to keeping anglers, and their dollars, in Wyoming.
- The long-term health of tourism in Wyoming depends on the willingness and ability of private landowners to enhance fishery and wildlife habitats on their land.

Healthy agricultural communities

- Most of Wyoming's population growth, especially in counties with open space and amenities such as fishery and wildlife habitats, has been in rural areas that have traditionally been used for agricultural production.
- Between 1992 and 2002, ranchette developments in Wyoming increased 40 percent. During this time, ranches and farms with 180 acres or more fell by 5 percent.
- Economic and demographic trends have largely decoupled the value of agricultural products from the value of agricultural land. Increasingly, open space and amenity values, rather than productive capacity, are setting agricultural land prices.
- Agricultural landowners face strong incentives to shift their land away from agricultural production to development use. This fragments open spaces and destroys the fishery and wildlife habitats associated with agricultural lands.

Forward

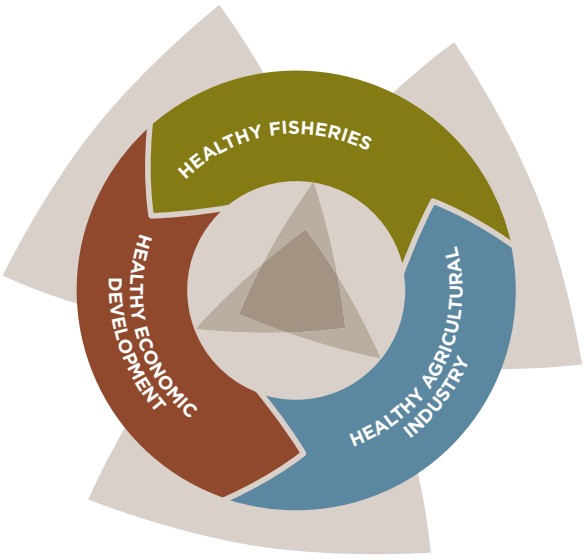
"Agriculture and open space are a huge part of what we are. Our outdoor independence defines who we are, and equally strong is our attachment to wildlife."

— Governor Dave Freudenthal

Trout Unlimited is dedicated to protecting Wyoming's coldwater fisheries on public and private lands. While Trout Unlimited recognizes the importance of the Wildlife and Natural Resources Funding Act to protect habitats for both fish and game, this report focuses on fisheries. In no way is this intended to diminish the need for a permanent source of funding to protect the habitats of all aquatic and terrestrial wildlife species, as offered by the Wildlife and Natural Resources Funding Act. Rather, this report focuses on what Trout Unlimited knows best— fisheries.

While great effort is expended to work with state and federal land management agencies to protect fisheries on Wyoming's public lands, only by working directly with private landowners can many of Wyoming's important fisheries be enhanced and maintained. Toward this end, several ranchers and landowners across the state have spent time with Laurie Goodman, Trout Unlimited's Wyoming Water Project State Director, sharing their experiences and knowledge about their lands and the fisheries they contain. Trout Unlimited thanks these individuals for sharing their time and knowledge. Their frank honesty about on-going drought conditions and the agricultural community's future deserves our respect and support as we work together to ensure that healthy fishery and wildlife habitats and a healthy agricultural industry can not only co-exist, but, indeed prosper.

Introduction



Wyoming residents value agriculture and wildlife

In Wyoming, environmental quality, wildlife, and agriculture are vital components of the state's economy and citizens' quality of life. Wildlife habitats, including the healthy fisheries that are the focus of this report, depend on an interwoven and mutually-dependent relationship between a healthy environment, healthy economy and healthy agricultural industry.

> Wyomingites view agriculture and wildlife as essential to their quality of life, and support using public funds to protect agricultural communities and wildlife habitat.

In recent years, several surveys and studies have found that Wyoming residents believe it is important to protect working ranches and farms, fisheries and wildlife, water and air quality, and the unique culture that open space and agricultural lands provide. A 2002 opinion poll conducted by the University of Wyoming found that 97 percent of respondents felt that ranches, farms and agriculture were important to their quality of life. Furthermore, 76 percent of respondents supported using public funds to help farmers and ranchers improve wildlife habitat and protect water and soil resources.[1]

Fish Creek near Union Pass

Threats to Wyoming s agriculture and wildlife

Unfortunately, several factors threaten Wyoming's wildlife resources and agricultural heritage. As discussed in the following sections of this report, these factors include population growth in rural areas, increasing residential development on agricultural lands, and economic constraints that make it difficult for many ranching and farming families to support themselves solely through traditional operations and land uses. Not only are these factors unraveling the fabric of many Wyoming communities, they are fragmenting and destroying essential fishery and wildlife habitats.

> "Conservation will ultimately boil down to rewarding the private landowner who conserves the public interest."
>
> *– Aldo Leopold*

These trends reflect the changing nature of land values across the West. Increasingly, amenity values, such as open space, trout streams, big game habitat, and scenic views are influencing land values. The economic benefits of these amenity values are typically realized when rural land, most of which is used for agricultural production, is sold. This results in the conversion of agricultural land to other uses, especially residential development, and the fragmentation of open space and fishery and wildlife habitats.

The Wildlife and Natural Resources Funding Act can provide a potential source of funding to landowners who work with non-profit organizations to improve the fishery and wildlife habitats on their lands.

How the Wildlife and Natural Resources Funding Act can help

Opportunities exist to manage rural land in ways that take advantage of the land's amenity values while maintaining its agricultural uses. The presence of amenities such as fishery and wildlife habitats can provide economic opportunities for ranchers and farmers to create new businesses on their lands that supplement their traditional agricultural incomes, and retain the open space and fishery and wildlife habitats that all Wyoming residents value so highly.

Although supplemental– and potentially substantial– incomes can be earned from businesses such as guided fishing and hunting, and lodging facilities (*e.g.* working dude ranches and Bed & Breakfasts), as well as hunting and fishing access fees, many ranchers and farmers have limited financial resources and face borrowing constraints that restrict their ability to raise the seed capital needed to develop new businesses on their land.

Preserving environmental quality through actions that enhance fishery and wildlife habitats on private land requires active stewardship and financial investment by individual ranchers and farmers. By acknowledging the value that the agricultural community's commitment to wildlife creates for all Wyomingites, the Wildlife and Natural Resources Funding Act can be an important policy tool that supports healthy fish and wildlife populations and healthy agricultural communities

Granite Creek

in our state. Significantly, the Act can serve as a potential source of funding to landowners who work through cooperative partnerships with non-profit organizations to improve the fishery and wildlife habitats on their lands.

"Conservation will ultimately boil down to rewarding the private landowner who conserves the public interest," the conservationist Aldo Leopold observed years ago. Only by exploring ways that economic incentives can be linked with habitat improvement on private lands can we protect healthy ecosystems, foster sustainable economic development, and preserve the open space and fishery and wildlife habitats that all Wyoming residents – human and wildlife alike – need to prosper. Trout Unlimited encourages the Wyoming State Legislature to create the Wildlife and Natural Resources Funding Act as an effective policy vehicle to achieve these goals.

Healthy fisheries are part of a healthy ecosystem

A healthy fishery is more than a river with flowing water. It is a complex relationship of flowing upstream and downstream waters; the floodplain, riparian and upland areas adjacent to the river; and the interplay between surface water and groundwater.

Fish populations are a bellweather of environmental health. Healthy fish populations, especially among native species, signify a healthy ecosystem, which, in turn, supports healthy populations of all living things – plants, animals and humans. Losses of fish populations indicate environmental damage or disturbance, and are likely to be accompanied by other wildlife losses. By understanding the central role of fisheries in maintaining healthy ecosystems, we can better understand the need for the Wildlife and Natural Resources Funding Act, which makes essential funds available to enhance fishery and wildlife habitats on private and public lands.

What makes a healthy fishery?

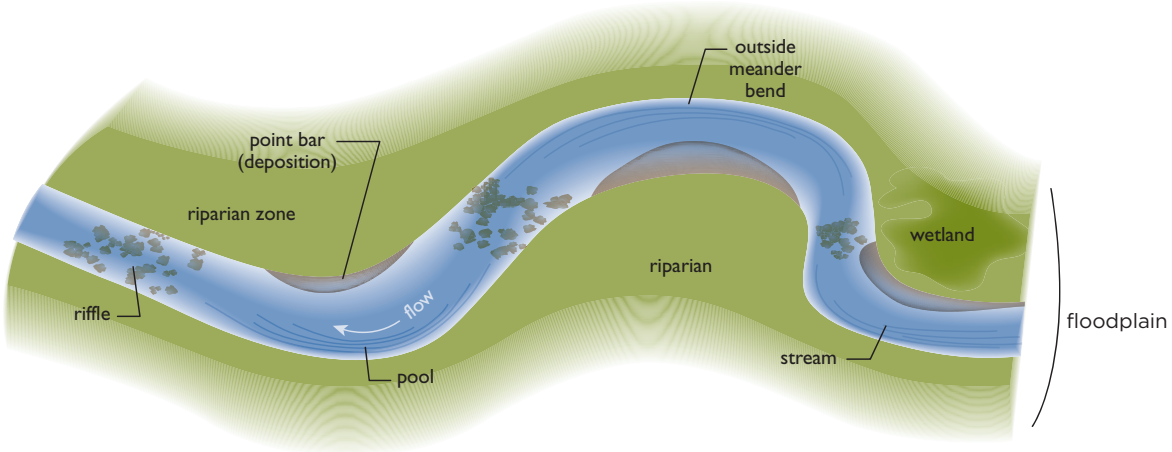
A healthy fishery is more than a river or stream with flowing water. Instead, a healthy fishery, or watershed, consists of a dynamic relationship between the upstream and downstream waters of a flowing river; lands adjacent to the river, which include floodplain, riparian and upland areas; and the interplay between water in the stream channel and groundwater (see Figure 1). Some watersheds in Wyoming are fed by perennial streams that have year-round surface water and support cold-water fisheries. Other watersheds are fed by ephemeral streams that have intermittent flows and support fisheries only in response to a single snow melt or rainfall.[2]

Sheep Creek

Over half of Wyoming's 21,600 stream miles flow through private lands.

FIGURE 1

Components of a healthy river system



Private lands often contain the tributaries that provide spawning areas, or fish factories, which support thriving fish populations in main stem rivers.

Wyoming is home to 49 native fish species, including the cutthroat trout, arctic grayling, sauger and shovelnose sturgeon; and 29 non-native fish species including the brook, brown, golden, lake, ohrid, and rainbow trout, smallmouth bass, and northern pike. (See the Appendix for lists of the native and non-native fish species found in Wyoming.) Many of Wyoming's fish species are supported by cold, clear waters, while others require turbid and relatively warm waters. Both cold- and warm-water species require a range of habitat features that support their life-cycle stages (eggs, fry, juvenile, adult) and seasonal needs.

Because over half of Wyoming's 21,600 stream miles flow through private land[3], the continued existence of healthy fisheries in the state depends largely on the ability and willingness of private landowners to improve fisheries on their lands. Private land provides essential wildlife migration corridors that link habitats on private land to those on public lands. Rivers and creeks on private land contain many of the tributaries that provide spawning areas which support thriving fish populations in main stem rivers. Without adequate and successful spawning, and migration between "fish factory" tributaries and main stem rivers, the diverse and plentiful fish populations that benefit all Wyoming's residents will diminish. In addition to the environmental losses, this will impact Wyoming's economy by eliminating one of the main reasons people choose to live here, as well as threatening the recreational opportunities that are a significant component of one of the state's largest industries– tourism.

New Fork River

The continued existence of healthy fisheries in Wyoming depends on the ability and willingness of private landowners to improve fisheries on their lands.

The benefits of healthy fisheries include:

- **improved water quality**
- **mitigation of droughts and floods**
- **increased groundwater replenishment**
- **improved wildlife habitat**
- **improved recreational opportunities**
- **increased cycling and movement of nutrients**
- **maintenance of biodiversity**
- **increased economic values *(from recreation and tourism, real estate, and water availability)***

Healthy fisheries are part of a healthy economy

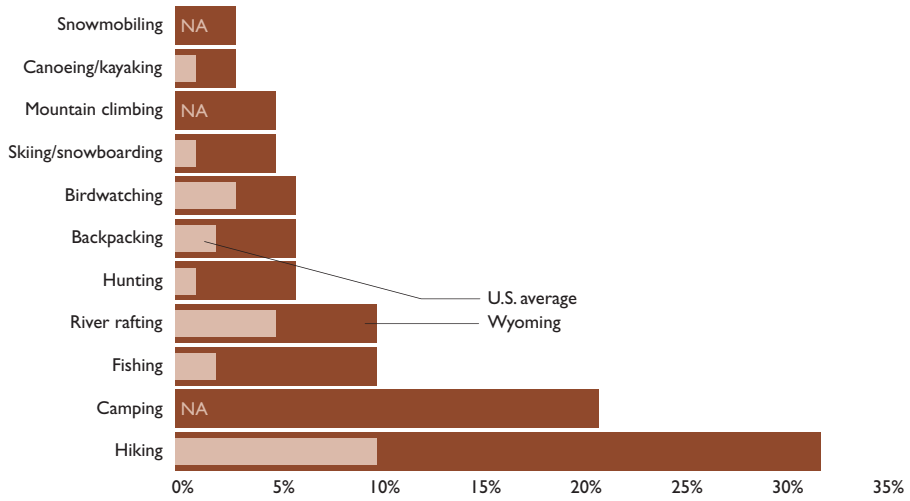
Fishing, river rafting and hunting are among the top seven outdoor activities visitors participate in most frequently when they visit Wyoming.

Tourism and fishing in Wyoming

People come to Wyoming in droves to enjoy its scenery and abundant natural resources. According to the Wyoming Business Council, over 4.2 million tourists visit the state annually, and approximately 10 percent of these visitors fish at least once while in the state.[4] Fishing, river rafting and hunting are among the top seven outdoor activities visitors participate in most frequently when they visit Wyoming (see Figure 2).[5]

FIGURE 2

Visitors outdoor experiences in Wyoming



Source: Wyoming Business Council

Little Bighorn River

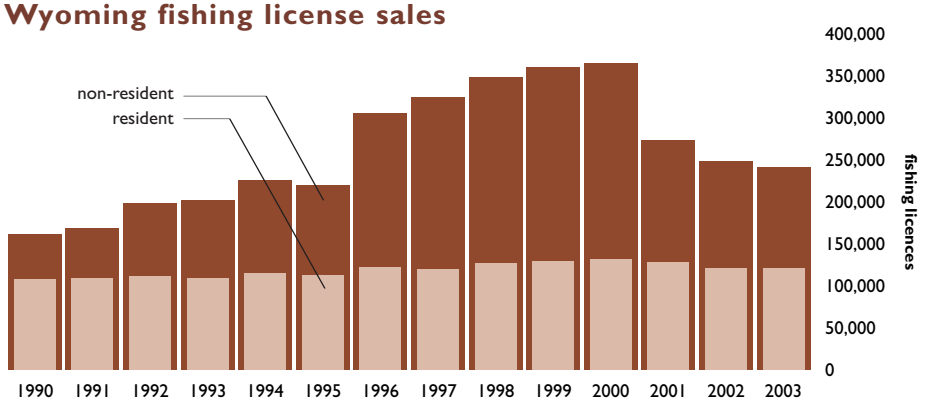
The quality of their fishing experience is especially important to Wyoming's visitors. Seventy-four percent of surveyed visitors agreed that Wyoming is a great place to visit because of its excellent fishing. Only camping and backpacking had higher satisfaction rates, which is due most likely to their higher participation rates.[6]

Fishing trends in Wyoming

Trends in the number of fishing licenses sold in Wyoming are influenced by national economic conditions. Between 1990 and 2000, a decade of robust national economic activity, the number of fishing licenses sold in Wyoming

FIGURE 3

Wyoming fishing license sales



Source: Wyoming Game & Fish Department

increased 85 percent. Most of this increase was due to non-resident license sales (see Figure 3). During this time, non-resident license sales increased 126 percent and resident license sales increased 23 percent. Due to a contracting national economy and the New York City terrorist attacks in September 2001, which dampened travel across the United States, fishing license sales fell 27 percent between 2000 and 2003. Non-residents accounted for nearly all of the losses.

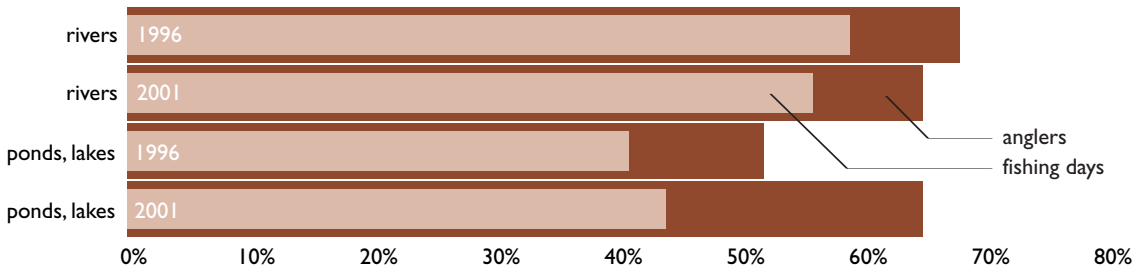
Nearly one-third of Wyoming residents are anglers who spend over 90 percent of their fishing days in their home state.

Wyoming's fisheries are the lifeblood of the state's angling community. According to the U.S. Fish and Wildlife Service, nearly one-third of Wyoming's residents are anglers who spend over 90 percent of their fishing days in their home state.[7] For policy-makers, this is significant because it means that the spending associated with this fishing occurs in-state and directly benefits local economies .

Rivers make a significant contribution to the Wyoming fishing experience. In 2001, 52 percent of anglers in Wyoming fished on rivers and streams, and 41 percent of all fishing days were spent on rivers and streams (see Figure 4). The number of anglers and fishing days spent on Wyoming's rivers fell between 1996 and 2001, which may have been due to persistent drought conditions that encouraged lake and reservoir fishing. Healthy fisheries that support thriving fish populations on rivers are essential to keeping anglers, and their dollars, in Wyoming.

FIGURE 4

Percent of anglers and fishing days spent on Wyoming rivers



(totals do not equal 100% because of multiple survey responses)
Source: U.S. Fish & Wildlife Service

Economic impact of fishing

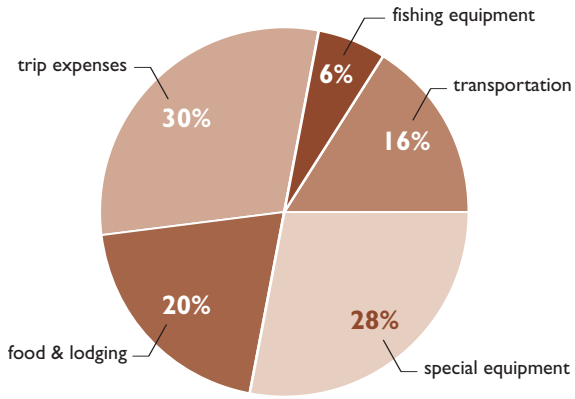
According to the Wyoming Game & Fish Department, Wyoming angler expenditures increased from nearly $182 million in 1990 to $559 million in 2002.[8] Approximately 75 percent of this is spent in Wyoming.[9] This means that in-state angler expenditures increased from $136 million in 1990 to $423 million in 2002.

> Angler spending in Wyoming increased from $136 million in 1990 to $423 million in 2002. This spending provides economic benefits to the state by supporting local businesses and generating incomes for Wyoming residents.

Fishing-related expenditures occur where anglers fish and where they live. Anglers typically spend money on trip-related expenses in areas near their fishing destinations, and on special equipment near their homes. The U.S. Fish & Wildlife Service estimates that 30 percent of Wyoming angler expenditures is for trip expenses (including equipment rental, boating costs, guide and access fees, fuel, ice, bait, licenses, permits, and land leasing); 20 percent is for food and lodging; 16 percent is for transportation; and 34 percent is for fishing gear and special equipment, such as tents, boats, campers, and recreational vehicles (see Figure 5).[10] For anglers who live in Wyoming, nearly all of this money is spent in the state. For non-resident anglers, most of this spending (*e.g.* trip expenses, food, lodging, and a portion of transportation expenses) is in Wyoming, while the remaining money is likely to be spent in their home state.

FIGURE 5

Breakdown of angler expenditures in Wyoming

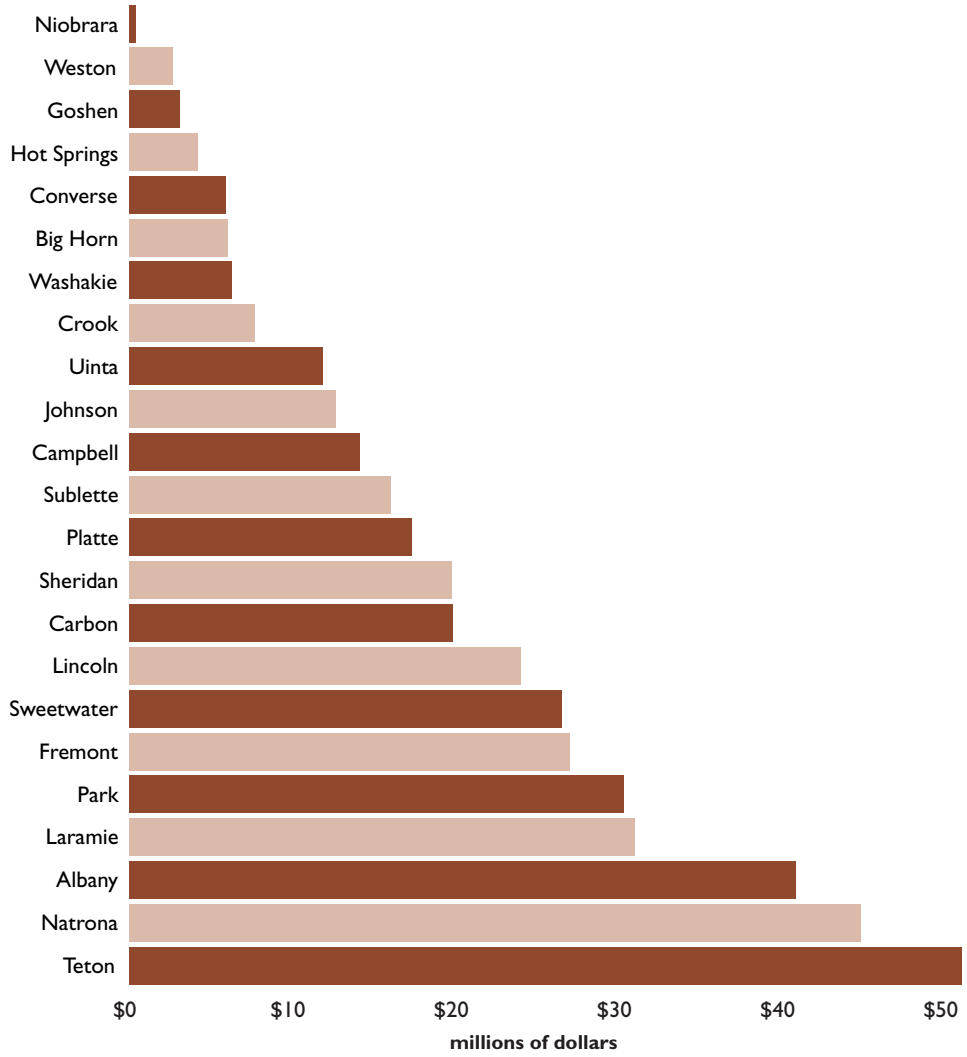


Source: U.S. Fish & Wildlife Service

Within Wyoming, estimated angler expenditures spent in 2002 varied between $421,000 in Niobrara County and $51 million in Teton County (see Figure 6). These expenditures support hundreds of small businesses and entrepreneurs across the state. The Wyoming Outfitters and Guides Association has over 200 members who provide river fishing and/or float trips. Guided fishing opportunities include boat fishing, with daily rates between $200 and $600; and guided wade fishing with rates between $85 and $400 per day. An informal, truncated telephone interview with fishing guides and fly-shop owners, conducted by Trout Unlimited

FIGURE 6

Angler expenditures spent in Wyoming counties, 2002



Source: estimates based on Wyoming Game & Fish data

officials, revealed that some of these fishing businesses generate annual gross incomes as high as $250,000, with many businesses having experienced dramatic revenue increases during the past five years.

Angler expenditures, and the businesses they support, create economic benefits for Wyoming communities through job creation, business revenues, and increased personal income. In 2001, Wyoming sportfishing generated over $227 million in retail sales, $63 million in salaries and wages, and 3,500 jobs (see Figure 7).[11]

FIGURE 7

Economic Impact of Sportfishing in Wyoming, 2001

Retail sales	$227,239,545
Salaries & wages	$63,323,800
Sales & motor fuel taxes	$9,493,295
Federal income taxes	$5,996,797
Jobs	3,511

Source: American Sportfishing Association

Economic impact of tourism

Research commissioned by the Wyoming Business Council found that tourism accounted for 28,000 jobs and $488 million in personal income in Wyoming in 2003. Researchers also found that employment in travel-related industries, which include accommodation and food services; art, entertainment and recreation; retail; ground and air transportation; and travel arrangement services, increased by 1.5 percent annually and travel-related earnings increased by 5.2 percent per year between 1997 and 2003.[12]

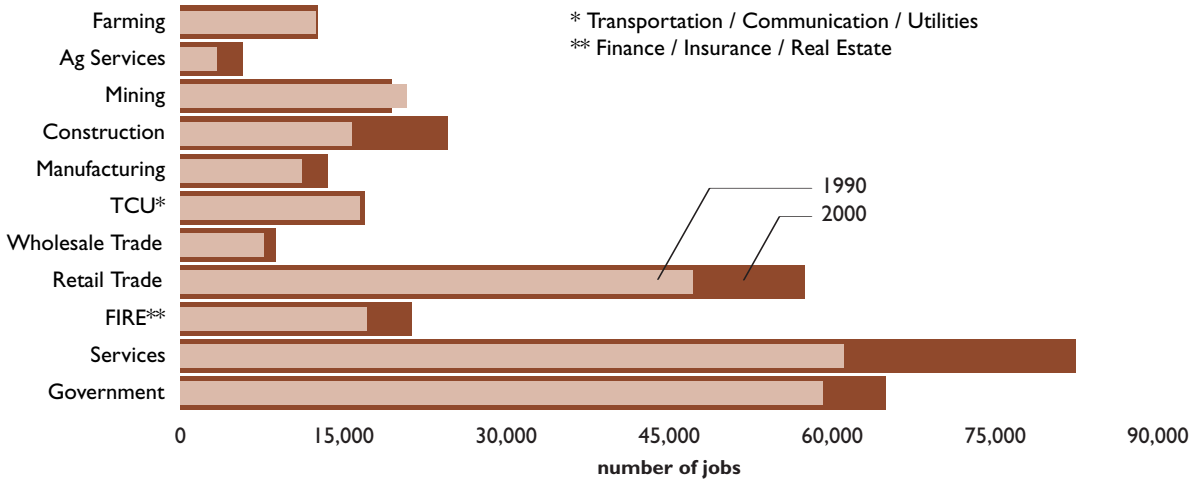
> In 2001, Wyoming sportfishing generated over $227 million in retail sales, $63 million in salaries and wages, and 3,500 jobs.

The employment and earning gains in travel-related industries, which are primarily in the retail and services sectors, compare favorably with other sectors of Wyoming's economy during the 1990s. Between 1990 and 2000, employment in Wyoming increased by 1.9 percent annually and real earnings increased by 2 percent per year.[13] Non-farm industries account for nearly all of this growth (see Figures 8 and 9). The services, government and retail sectors continue to account for most of the jobs in Wyoming, and industry earnings remain highest in the government,

Healthy fisheries that support thriving fish populations on rivers are essential to keeping anglers, and their dollars, in Wyoming.

FIGURE 8

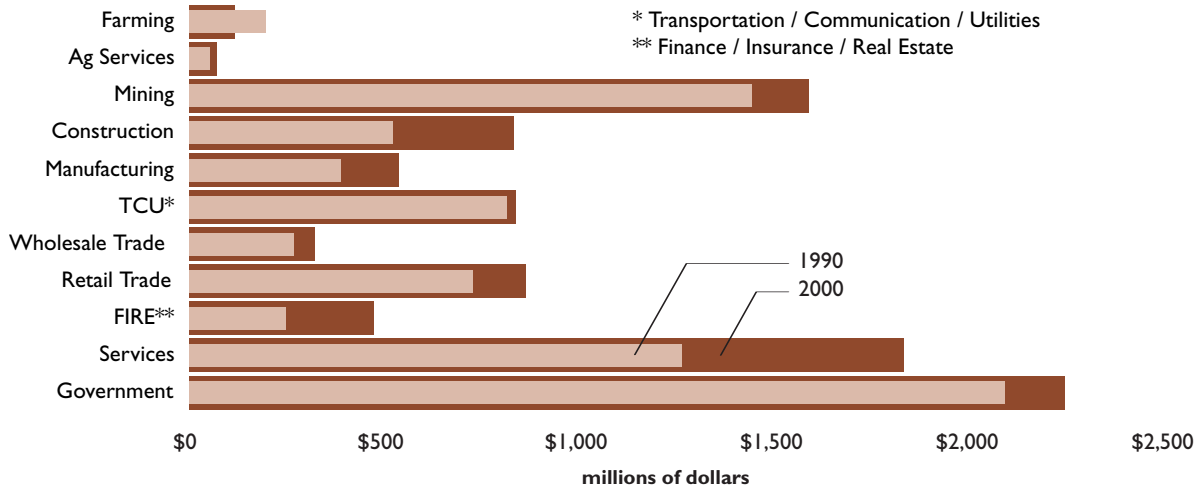
Wyoming employment by sector, 1990 - 2000



Source: Bureau of Economic Analysis

FIGURE 9

Inflation-adjusted Wyoming industry earnings by sector, 1990 - 2000



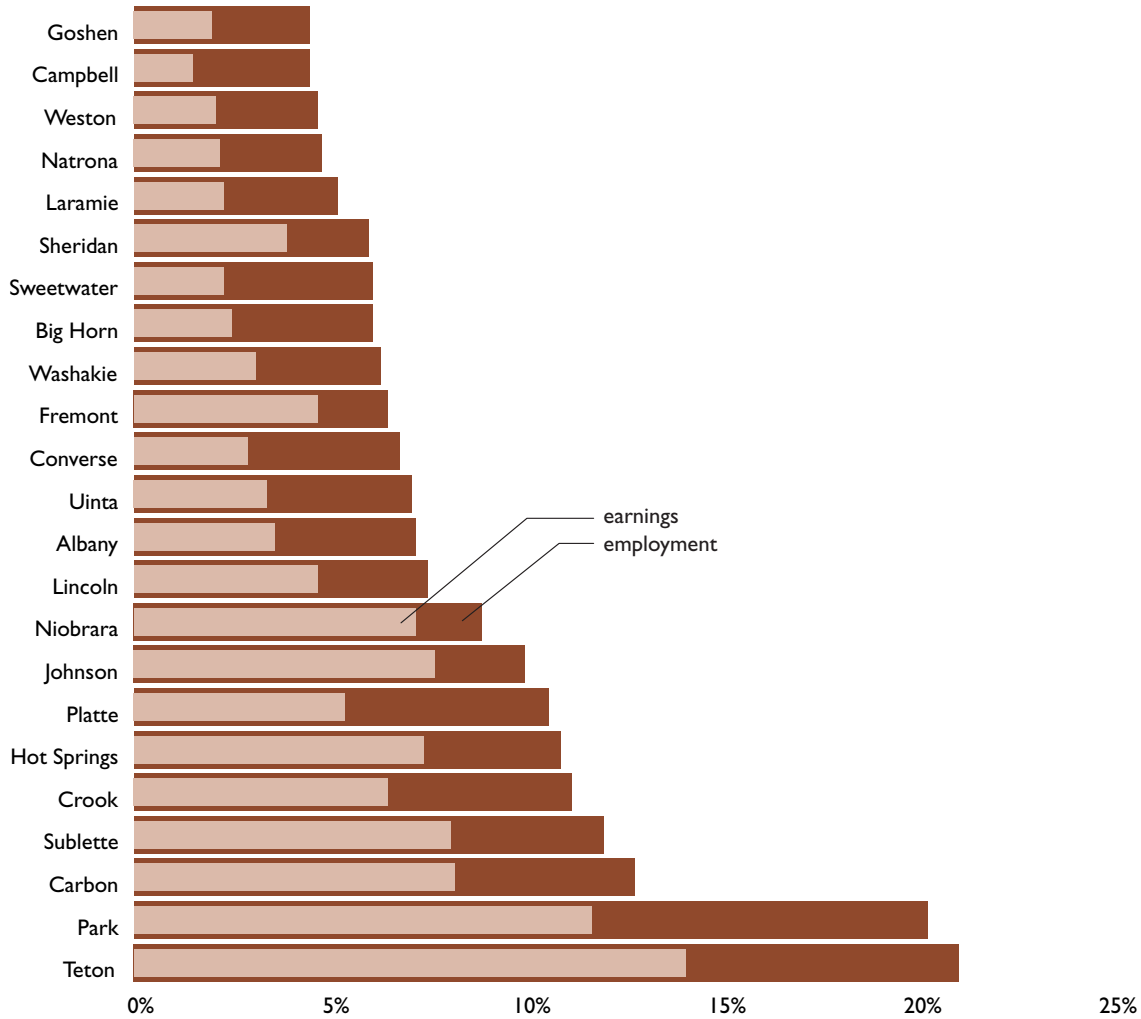
Source: Bureau of Economic Analysis

services and mining sectors.[14] Although the number of jobs in the farming sector remained relatively stable between 1990 and 2000, farm earnings fell 5 percent.

Through job creation and business earnings, tourism impacts the economies of each of Wyoming's counties differently (see Figure 10). Overall, in 2002, tourism accounted for 8.1 percent of all jobs and 4.3 percent of total industry earnings in Wyoming.[15] As a portion of total employment, tourism-related employment ranged from 4.5 percent in Campbell and Goshen counties to 21.3 percent in Teton County. As a portion of total industry earnings, travel-related earnings ranged from 1.5 percent in Campbell County to 14.1 percent in Teton County.

FIGURE 10

Travel-related impacts as percent of total economic activity in Wyoming counties, 2002



Source: Wyoming Business Council

Healthy fisheries are part of a healthy agricultural industry

"Above all, we must work to keep our ranchers ranching and our open lands open."

– former Senator Alan Simpson

The economic development generated by the fishing industry– which includes jobs, business earnings and personal income to Wyoming residents– depends on healthy fisheries on public and private lands. Privately-owned land covers 43 percent of Wyoming's surface area, of which 98 percent (about 26.2 million acres) is owned by agricultural landowners.[16] Because agriculture is the dominant use of privately-owned land in the state, programs designed to protect fisheries must recognize and address the important role agricultural operators play in supporting these habitats.

Like agricultural economies across the country, Wyoming's agricultural industry is besieged by internal and external pressures. It is important that policy-makers acknowledge these pressures and explore opportunities to work with landowners to maintain both a healthy environment and a healthy economy in our state. Toward this end, the Wildlife and Natural Resources Funding Act can be a useful tool to create opportunities for landowners and non-profit organizations to work together to enhance fishery and wildlife habitats on private lands, keep land in agricultural production, and protect the open spaces and wildlife resources that benefit all Wyoming residents.

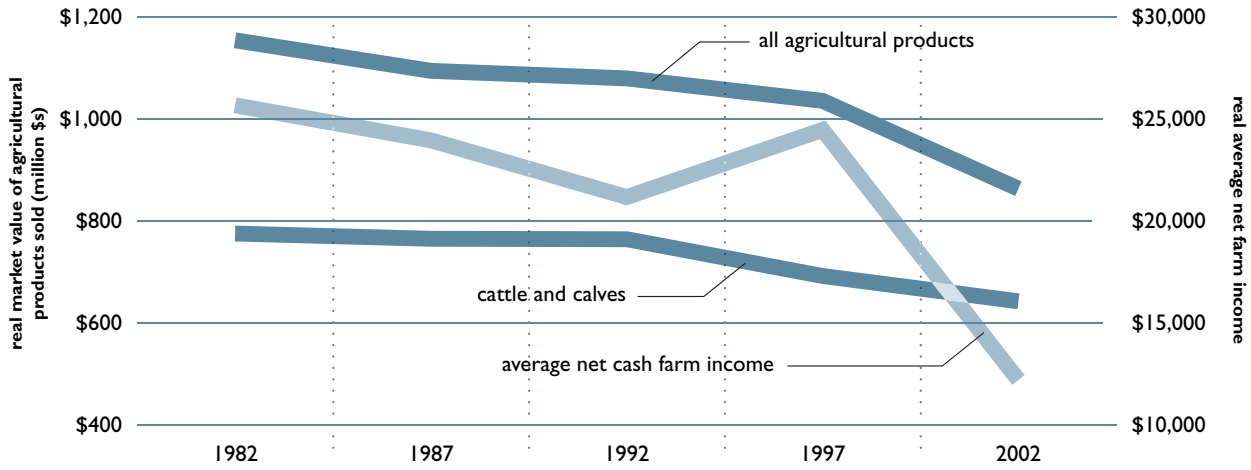
New Fork River

Economic trends in Wyoming agriculture

Historically, agricultural activities have characterized Wyoming's landscape and defined its cultural and economic identity. Productivity gains and technological innovations over the past century have enabled ranchers and farmers to become more efficient; producing more cattle and more crops using fewer resources. This success has been a double-edged sword, and has eroded the agricultural industry's measurable contribution to the state's economy. Although the number of cattle and calves sold by Wyoming producers increased 15 percent between 1982 and 2002, the real (inflation-adjusted) market value of cattle sales fell 17 percent during this time. Similarly, the real market value of all agricultural products sold fell 25 percent over this period. As a result, the real average per farm net income from agricultural operations in the state fell from $23,969 in 1982 to $12,222 in 2002 (see Figure 11).[17] Although cattle and agricultural prices are currently strong in early 2005, international trade and industry consolidation continue to impact this industry, and the long-term trend in the price of agricultural products is likely to remain downward.

FIGURE 11

Inflation-adjusted market value of agricultural products sold and average net cash farm income in Wyoming



Source: Wyoming Agricultural Census

Other factors combine with the downward trend in agricultural prices to threaten the long-term viability of Wyoming's agricultural industry, as well as the open spaces, fisheries and wildlife habitat that it provides. Individuals and families own 80 percent of the state's farms and ranches, and these families face growing pressures to convert their agricultural lands to other uses, especially rural residential developments. Greater job growth and higher earnings in non-agricultural industries, the aging of agricultural operators, and concerns about the effects of estate taxes on inter-generational transfers of agricultural property make it increasingly difficult to keep land in agricultural production, particularly when opportunities exist for other, more profitable land uses, such as residential development.

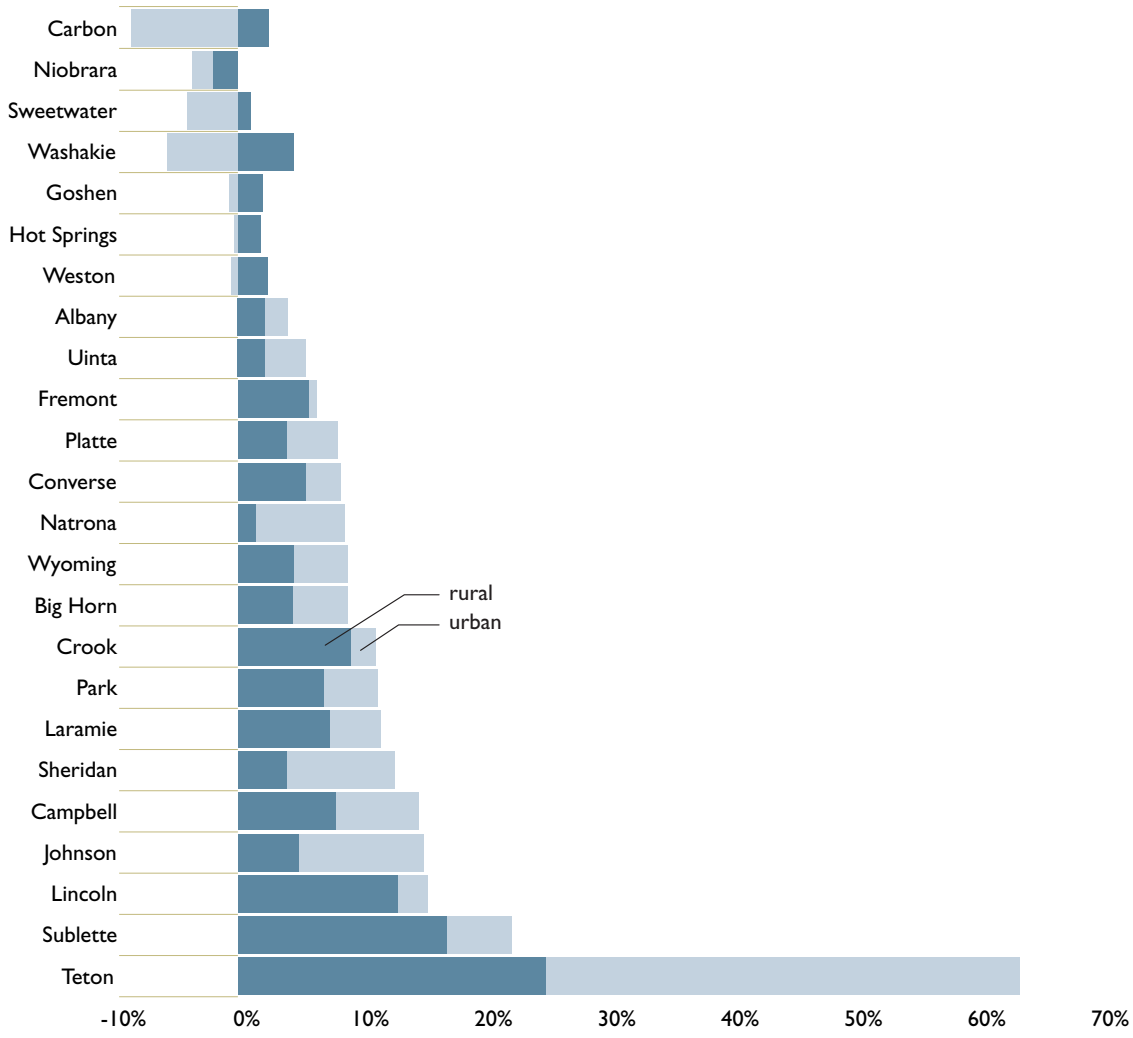
Almost all of the growth in counties with high amenity values, which include fisheries and other wildlife habitats, is in rural areas.

Demographic trends increase the demand for agricultural land

The development demand for agricultural land is due largely to population growth in rural areas. Between 1990 and 2000, just over half of the state's growth was outside incorporated cities and towns. In many counties, such as Sublette, Lincoln, Crook, and Fremont, almost all of the growth has been in rural areas. Although the populations fell in other countie (Carbon, Sweetwater and Washakie), their rural populations increased (see Figure 12).

FIGURE 12

Wyoming population growth by location: 1990-2000



(total county population growth is the sum of growth in rural and urban areas)
Source: U.S. Census Bureau

As an example of the development pressures that accompany expanding rural populations, between 1996 and 2003, building permits issued in unincorporated areas accounted for 87 percent of the residential building permits in Lincoln County, 78 percent in Sublette County, and 71 percent in Park and Teton counties.[18] This trend in rural residential development fragments the agricultural open spaces that support fishery and wildlife habitats. The increasing demand for rural land is bidding agricultural land prices to levels beyond those that can be supported by traditional agricultural activities alone, and creating incentives for landowners to remove land from agricultural production. It also presents significant challenges to wildlife managers and conservationists who must seek flexible new management approaches to coordinate the motivations of several small landowners in order to protect the state's fishery and wildlife resources.[19]

The increasing demand for rural land's amenity values is fragementing open spaces and fishery and wildlife habitats.

The role of amenities in determining agricultural land values

These economic and demographic trends have led to a decoupling of the value of agricultural products and the value of agricultural land. Paradoxically, while agricultural output values have been falling, agricultural land values have been rising. Researchers at the University of Wyoming found that, between 1990 and 2001, the average price of a ranch more than doubled on a production-unit basis. Similarly, the average price for

FIGURE 13

Wyoming agricultural land prices, 1990 — 2001

YEAR	PER ANIMAL UNIT (1)	PER ACRE IRRIGATED MEADOW	PER ACRE IRRIGATED CROPLAND
1990—92	$2,186	$555	$744
1993—95	$2,248	$809	$871
1996-98	$2,937	$915	$1,196
1999-01	$4,545	$1,631	$1,389
Change 1990-01	107.9%	193.9%	86.7%

(1) An animal unit is the forage required to feed one cow for twelve months.
Source: Department of Agricultural and Applied Economics, University of Wyoming

irrigated meadowland increased by nearly three times. In addition, the average price for irrigated cropland nearly doubled over this time (see Figure 13).[20]

The dramatic increase in agricultural land prices is due primarily to the land's amenity values and open space characteristics, rather than its productive capacity. Evidence of the impact of open space and natural amenities in determining land values is increasing. Economists from the University of Wyoming found that rural lands that have fishery and wildlife habitats, angling opportunities and scenic views command higher prices per acre in Wyoming than land used for agricultural production alone.[21] This research indicates that amenities such as the availability of water-based recreation, water quality, trout habitat, opportunities to hunt and view wildlife, accessibility, and scenic vistas are important components of agricultural land values.

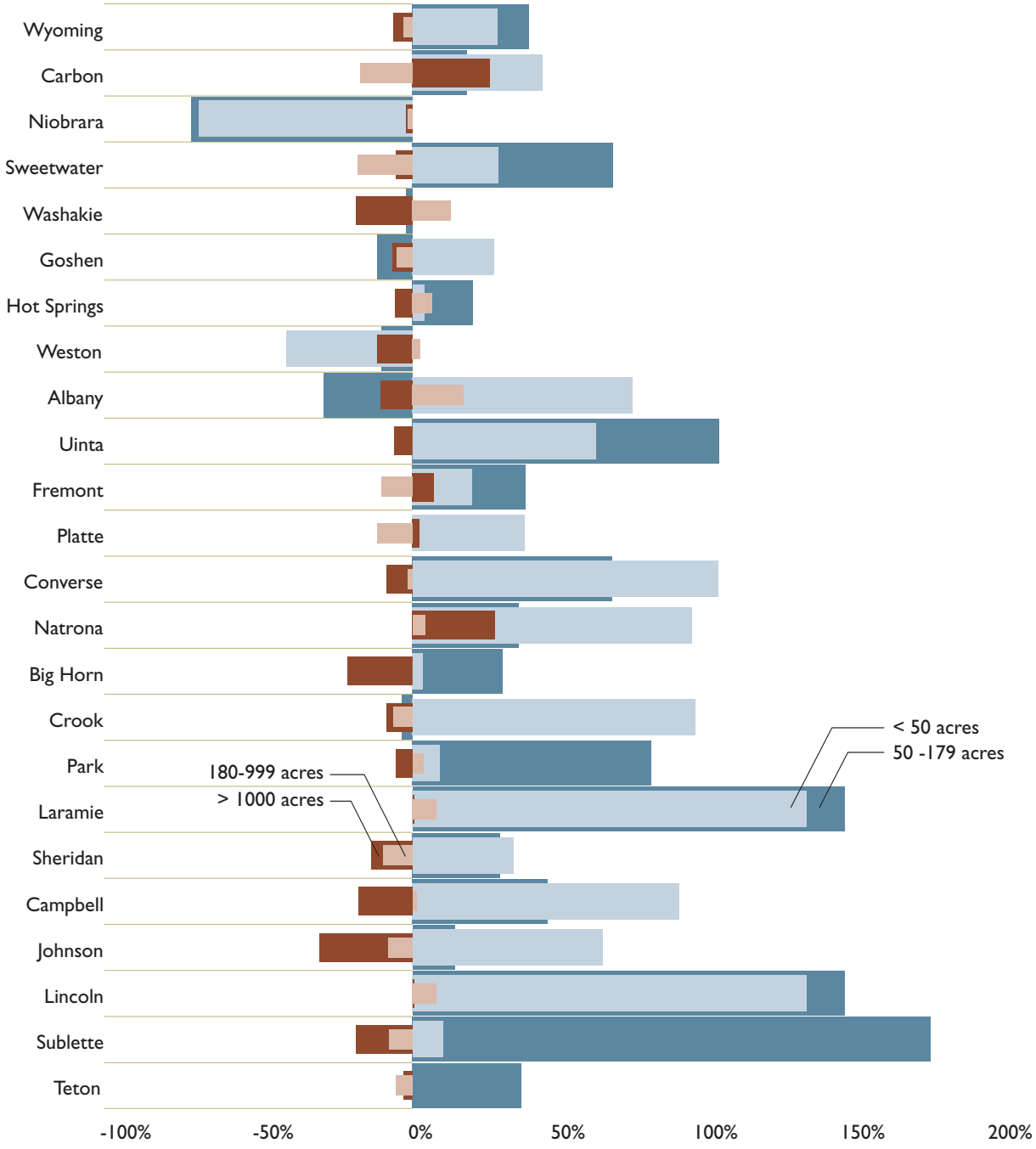
Open space and amenity values, more than productive capacity, are setting agricultural land prices in today's market.

Much anecdotal evidence exists to support this ongoing research. According to James Rogers, a real estate agent who specializes in agricultural properties in Sublette County– the state's third fastest growing county– on a per acre basis, land values in the county are highest for subdivided rural lots with between 35 and 60 acres.[22] In late 2004, prices for such ranchette developments typically varied between $12,000 and $20,000 an acre. Prices were highest for land with amenities such as river frontage and mountain views. Concurrently, the price of properties with 100 to 350 acres varied between $3,000 and $10,000 an acre; and properties with 1,000 acres or more sold for between $1,500 and $4,500 an acre.

These findings tell an important, and perhaps uncomfortable, story to Wyoming policy-makers: in today's market, agricultural land is often more highly valued because of its open space, amenities and recreational assets than its productive capacity. These values are typically captured when agricultural land is sold. While conservation easements can provide a useful mechanism to keep open space and wildlife habitats intact, many ranchers and farmers continue to face strong financial pressures to subdivide and sell their land as development parcels rather than maintain it as an intact and on-going agricultural operation.

FIGURE 14

Changes in ranch size, 1992 - 2002



Source: Wyomiing Agricultural Census

North Fork of Big Sandstone Creek

The fragmentation of Wyoming s agricultural lands

The shift in demand toward land's open space and amenity values, rather than its productive capacity, is fragmenting the state's open spaces and wildlife habitats. Although some ranches are kept intact or even enlarged when purchased by individuals who are more interested in amenity values than agricultural production, the majority of agricultural property sales result in the conversion of agricultural land to development use, and the consequent loss of open space and fishery and wildlife habitats.[23]

Figure 14 shows the changes in the size of agricultural landholdings in Wyoming counties between 1992 and 2002. On a statewide basis, the number of small agricultural operations (less than 180 acres) is increasing, while the number of mid-size and large operations (180 acres or more) is decreasing. Landholdings with fewer than 50 acres are growing the most rapidly. Between 1992 and 2002, the number of these ranchette developments increased nearly 40 percent across the state, and the number of landholdings with 50 to 179 acres increased 30 percent. The number of agricultural operations in Wyoming with 180 acres or more fell nearly 5 percent.

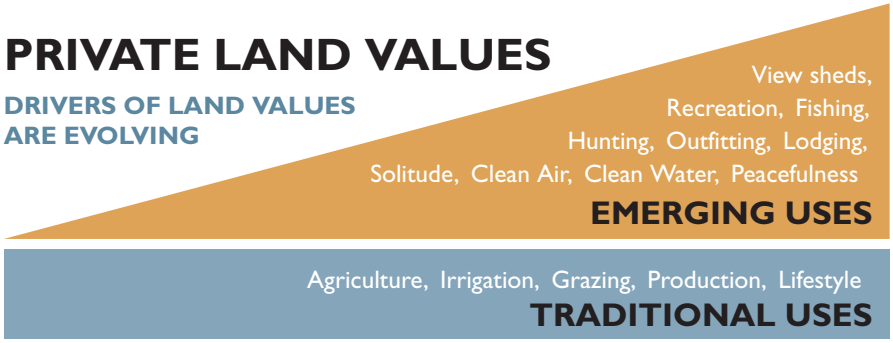
Conclusion

In addition to directly improving fishery and wildlife habitats, the Wildlife and Natural Resources Funding Act could provide seed money for landowners to work with non-profit organizations to develop new activities that support healthy fish and wildlife populations on private lands.

The significance of the Wildlife and Natural Resources Funding Act

Recognizing that healthy fisheries and wildlife habitats make a vital contribution to Wyoming's economy, policy-makers must address the economic realities facing the private landowners who manage many of these habitats. The Wildlife and Natural Resources Funding Act acknowledges the value of the agricultural community's commitment to fish and wildlife, and creates opportunities for landowners to work with non-profit organizations to improve fishery and wildlife habitats for the benefit of all Wyoming residents.

Some ranchers and farmers have developed non-traditional businesses that supplement their agricultural earnings. Some offer guided fishing and hunting



Pine Creek

services, while others offer lodging facilities, such as working dude ranches and Bed & Breakfast accommodations. In conversations with Trout Unlimited officials, one landowner reported an annual income of $50,000 from subletting a portion of his riverfront land to a local fishing guide. Another rancher reported $10,000 in access fees after enhancing a segment of the trout fishery on his property. In his words, this was "money I made without having to get up at 2:00 a.m. and go out to a cold barn and pull calves!" Despite profitable endeavors such as these, many ranchers and farmers have limited financial resources and face borrowing constraints that impede their ability to raise the seed capital necessary to develop new businesses on their land.

The Wildlife and Natural Resources Funding Act could play a key role, not only in directly improving aquatic and terrestrial habitats, but also in providing seed money for new businesses to support healthy fish and wildlife populations that entrepreneurial landowners develop in partnership with non-profit organizations. If the State Legislature doesn't take this step to address the long-term economic and demographic trends that threaten the agricultural industry, the state runs the risk that these trends will continue to fragment agricultural lands, further compromise fisheries and other wildlife habitats, and ultimately impact the state's economy. The Wildlife and Natural Resources Funding Act offers an opportunity for Wyoming to take meaningful steps to direct these trends and shape its future, rather than follow the alternative of having its future shaped by the trends.

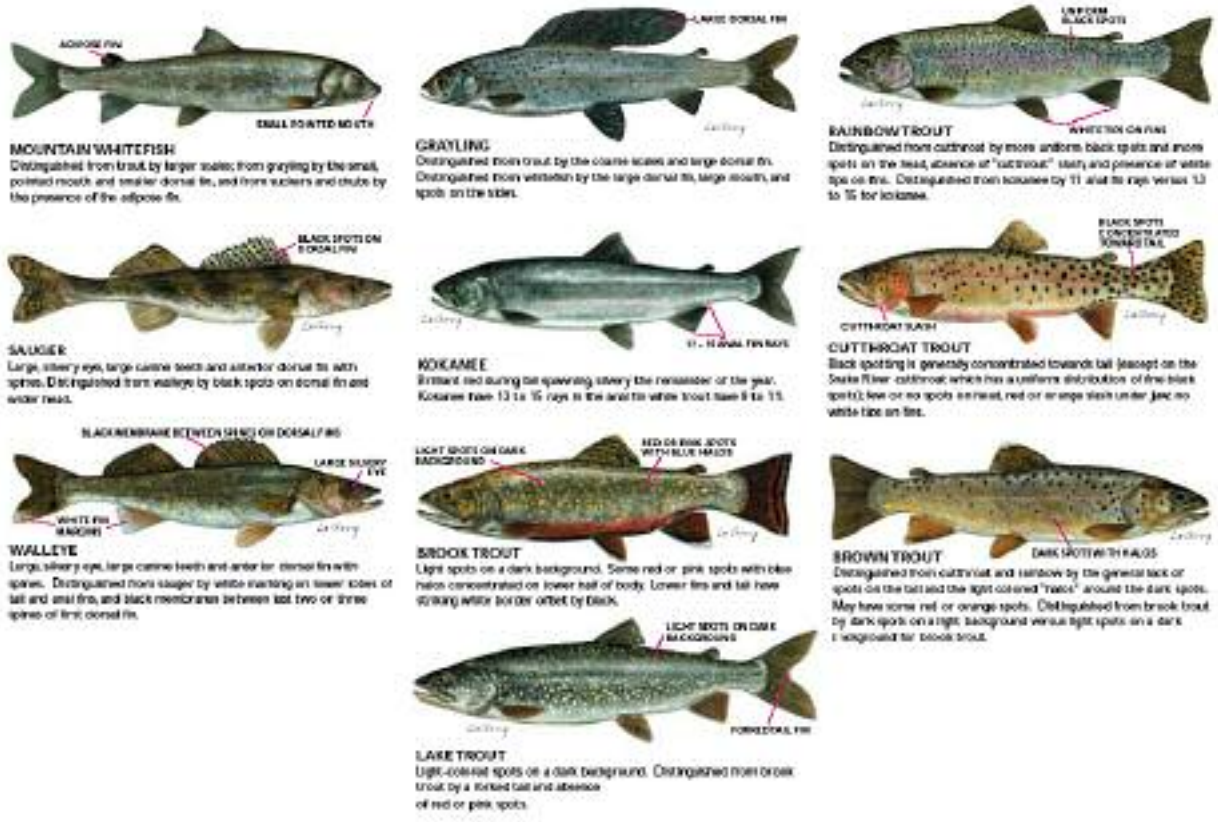
Appendix

Native fish species

Arctic grayling
Bigmouth shiner
Black bullhead
Bluehead sucker
Brassy minnow
Burbot
Central stoneroller
Channel catfish
Common shiner
Creek chub
Cutthroat trout
Fathead minnow
Finescale dace
Flannelmouth sucker
Flathead chub
Goldeye
Hornyhead chub
Iowa darter
Johnny darter
Lake chub
Leatherside chub
Longnose dace
Longnose sucker
Mottled sculpin
Mountain sucker
Mountain whitefish
Orangethroat darter
Paiute sculpin
Pearl dace
Plains killifish
Plains minnow
Plains topminnow
Quillback
Red shiner
Redside shiner
River carpsucker
Roundtail chub
Sand shiner
Sauger
Shorthead redhorse
Shovelnose sturgeon
Speckled dace
Stonecat
Sturgeon chub
Suckermouth minnow
Utah chub
Utah sucker
Western silvery minnow
White sucker

Nonnative fish species

Black crappie
Bluegill
Brook trout
Brown trout
Common carp
Emerald shiner
Freshwater drum
Gizzard shad
Golden shiner
Golden trout
Goldfish
Grass carp
Green sunfish
Greenswordtail
Guppy
Kokanee (lacustrine sockeye salmon)
Lake trout
Largemouth bass
Northern pike
Ohrid trout
Pumpkinseed
Rainbow trout
Rock bass
Smallmouth bass
Spottail shiner
Walleye
Western mosquitofish
White crappie
Yellow perch



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2 See Quentin Skinner's *Wyoming Watershed and Riparian Zones*, published in 2000 by the University of Wyoming for an excellent explanation of Wyoming's watersheds.

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7 U.S. Fish and Wildlife Service. 2001. *National Survey of Fishing, Hunting and Wildlife-Associated Recreation for Wyoming.*

8 Wyoming Game & Fish Department, Annual Reports.

9 Angler expenditures in Wyoming counties were estimated by multiplying average daily angler expenditures (WY Game & Fish Annual Reports) by estimated angler days in each county. Angler days by county were, in turn, estimated by multiplying statewide angler recreation days (WY Game & Fish

LaBarge Meadow

Annual Reports) by the portion of fishing licenses sold in each county (WY Game & Fish County Fishing Licenses Reports). The percent of statewide licenses sold in each county was multiplied by statewide angler expenditures to estimate angler expenditures by county.

Angler expenditures spent within counties were estimated by combining resident and non-resident angler expenditures in each county. All resident angler expenditures were assumed to occur in the county in which the fishing license was sold. Resident angler expenditures were estimated by multiplying the percent of resident fishing licenses sold in the county to the county's estimated angler expenditures. A portion of non-resident angler expenditures (trip expenses, food and lodging, and half of transportation expenses) was assumed to occur in the county where the fishing license was sold. Non-resident angler expenditures were estimated by multiplying the percent of non-resident fishing licenses sold in the county by the portion of angler expenditures (58 percent) spent on these items.

10 U.S. Fish and Wildlife Service, *op. cit.*

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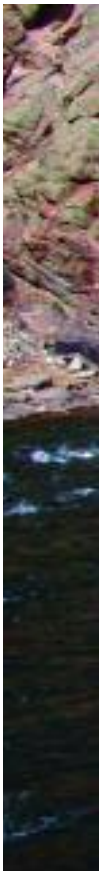

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14 Prior to 1997, the services sector was defined by the Standard Industrial Classification (SIC) system to include hotels and other lodging places, personal and business services, automotive and miscellaneous repair, amusement and recreation, motion pictures, health services, legal services, educational services, social services, museums and other cultural organizations, membership organizations, engineering and management services, and miscellaneous services. The North American Industrial Classification System (NAICS) replaced the SIC in 1997. The NAICS identifies separate sectors for educational services; health care and social assistance; arts, entertainment and recreation; accommodation and food services; and other services.

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Miracle Mile of the North Platte River

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