

COSTS AND CONSEQUENCES

The Real Price of Livestock Grazing on America's Public Lands



Executive Summary

Approximately 229 million acres of federal public lands in the western United States are used for livestock grazing for cattle and sheep. The Bureau of Land Management (BLM) and the United States Forest Service (USFS) are the two federal agencies with by far the largest grazing programs among federal agencies. These programs exist mostly on the grasslands, deserts, sagebrush steppe and national forests.

Each year in January, the federal government establishes the fee it charges livestock operators to use federal public lands for grazing privileges.

In advance of the release by the Bureau of Land Management of the 2015 federal grazing fee, we have prepared this report that focuses on the extent of the federal grazing program on BLM and USFS lands and associated appropriations and receipts from grazing fees, which are an indication of the cost to the taxpayer. This report is an update of an earlier 2002 study, *Assessing The Full Costs of the Federal Grazing Program*.

Key Findings

1. Receipts from grazing fees were \$125 million less than federal appropriations in 2014.

Total federal appropriations for the USFS and BLM grazing programs in fiscal year 2014 were \$143.6 million, while grazing receipts were only \$18.5 million.

Appropriations for the BLM and USFS grazing programs have exceeded grazing receipts by at least \$120 million annually since 2002. Had the federal government charged the average private forage market rate for non-irrigated lands in the western states, grazing receipts would have been on average \$261 million, greatly exceeding annual appropriations.

2. The gap between federal grazing fees and private land fees has widened considerably.

The federal grazing fee in 2014 was set at the legal minimum of \$1.35/AUM, or animal unit month, which is the amount of forage to feed a cow and calf for one month. The annual federal grazing fee has been set at the minimum required by law since 2007.

In 2013, the federal grazing fees of \$1.35/AUM were just 6.72 percent of fees charged for non-irrigated private grazing lands in the West, which averaged \$20.10 per AUM. The gap has widened considerably since 1981, when the federal fee was 23.79 percent of fees charged on private rangelands. The federal grazing fee is generally also considerably lower than fees charged on state-owned public lands.

3. The federal grazing subsidy is even larger when all costs to the taxpayer are accounted for.

Indirect costs for livestock grazing include portions of different federal agencies budgets, such as the USDA Wildlife Services, which expends money to kill thousands of native carnivores each year that may threaten livestock; U.S. Fish and Wildlife Service, which expends part of its budget for listing species as threatened or endangered resulting from harm by livestock grazing; and other federal land management agencies that expend money on wildfire suppression caused by invasive cheat grass that is facilitated by livestock grazing. The full cost of the federal grazing program is long overdue for a complete analysis.

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Abbreviations

AUM	Animal Unit Month
BCPI	Beef Cattle Price Index
BLM	Bureau of Land Management
CF	Calculated Fee
CFR	Code of Federal Regulations
CRS	Congressional Research Service
DOD	Department of Defense
DOE	Department of Energy
DOI	Department of the Interior
FLPMA	Federal Land Policy and Management Act
FN	Footnote
FVI	Forage Value Index
FWS	U.S. Fish and Wildlife Service
FY	Fiscal Year
GAO	General Accounting Office
NASS	National Agricultural Statistics Service
NFS	National Forest System
NPS	National Park Service
PPI	Prices Paid Index
PRIA	Public Rangeland Improvement Act
RBF	Range Betterment Fund
USDA	United States Department of Agriculture
USDOI	United States Department of the Interior
USFS	United States Forest Service

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This report was prepared for the Center for Biological Diversity.

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Introduction

Several federal agencies permit livestock grazing on public lands in the United States, the largest being the U.S. Department of the Interior's Bureau of Land Management (BLM) and the Department of Agriculture's United States Forest Service (USFS). The vast majority of livestock grazing on BLM and USFS rangelands occurs in the 11 western states of Arizona, California, Colorado, Idaho, Oregon, Montana, New Mexico, Nevada, Utah, Washington and Wyoming. Rangelands are non-irrigated and generally have vegetation that consists mostly of grasses, herbs and/or shrubs. They are different from pastureland, which may periodically be planted, fertilized, mowed or irrigated.

In 2013, the BLM issued 15,739 permits to livestock operators and there were 5,711 livestock operators who had permits to graze in the national forest system. The numbers of USFS and BLM permits and livestock permittees are not directly additive, but due to a number of livestock operators who have permits from both agencies and/or more than one grazing permit per agency, the total number of livestock operators is likely to be fewer than 21,540. This compares to the approximately 800,000 ranchers and cattle producers in the United States. (Statistic Brain, 2012). The number of operators benefitting from the USFS and BLM grazing program in the West is therefore less than 2.7 percent of the nation's total livestock operators.

By statutory direction, BLM and USFS are supposed to manage their lands for multiple purposes. Some of the major extractive uses that these lands may be subject to are grazing, mining, logging, and energy (oil, gas, coal, geothermal, wind and solar) development. To repair past and current ongoing damage, the agencies have programs to restore ecosystems, protect wildlife and wildlife habitat, and water and soil resources. As one of the major multiple uses, grazing occurs on large expanses of BLM and USFS acreage in the West.

Other federal agencies with a land base, including the National Park Service, Fish and Wildlife Service, Department of Defense (Army, Army Corps of Engineers, Air Force and Navy), and Bureau of Reclamation, often permit some livestock grazing on their lands as well, but their landholdings are small in comparison. The Bureau of Indian Affairs tribal lands and state trust lands are the other major categories of non-public lands on which livestock grazing is permitted.

The focus of this report is on federal public lands managed by BLM and USFS, and the direct costs of these federal grazing programs to taxpayers. We examine the history of public lands ranching and how much grazing the BLM and USFS agencies have authorized between 2002 and 2013. A major portion of this report deals with BLM and USFS grazing fees. We explore in detail the fee formula that has been applied since the passage of the 1978 Public Rangelands Improvement Act (PRIA). We compare the PRIA fees to rates charged on private lands, state lands, and lands managed by other federal agencies.

Appendix A explores some of the indirect costs resulting from federal grazing programs.

1. Public Lands Ranching - A Brief History

After the U.S. Civil War, the western range livestock industry started to expand. Access to federal lands was not regulated or restricted. Nomadic herders drove large herds of livestock from place to place in search of forage, or herds were left roaming unattended and only rounded up for branding and marketing, or to move them between summer and winter ranges. However, some ranchers with homesteads let cattle roam only during the summer, and brought them close to the home ranch in the winter to feed them with hay. (BLM Utah)

Faced with overuse and land degradation – the classic tragedy of the commons — by the 1880s ranchers developed ways to protect what they considered their customary range by using barbed wire to fence in large areas of public land, or by finding ways to monopolize water sources, access to which is a necessity for maintaining livestock herds in the arid West. (BLM Utah)

During the 1890s, severe land degradation (from grazing as well as logging) led Congress to take steps to create “forest reserves.” In 1905, the newly established Forest Service renamed these lands “National Forests,” with the Forest Service being given authority to “permit, regulate, or prohibit grazing in the forest reserves.” This did not immediately lead to a reduction of overuse. Full grazing privileges were given to livestock owners in the beginning, and stockmen were to be given “ample opportunity to adjust their business to the new conditions.” (USDA 1905, 20) One immediate consequence of the regulations was the elimination of nomadic herders from the lands managed by the Forest Service. (International Society for the Protection of Mustangs and Burros)

In the western states outside of the national forests, access to vast areas of federal lands remained open, and they continued to deteriorate until passage of the Taylor Grazing Act of 1934. The Act directed the secretary of the Interior “to stop injury to the public grazing lands by preventing overgrazing.” A newly established Division of Grazing (renamed the Grazing Service in 1939) delineated allotments, issued grazing permits and collected fees. After enactment of the Taylor Grazing Act, livestock numbers were significantly reduced and nomadic sheep and cattle herding was eliminated. (BLM Utah; BLM Wyoming)

During the Great Depression, under the authority of the Bankhead-Jones Farm Tenant Act of 1937, the federal government recovered millions of acres of failed western homesteads. Many of these lands in California, Montana, New Mexico and Texas were transferred to the Grazing Service or General Land Office. Other large parcels came under Forest Service management and were later named “national grasslands.” (Olson 1997, 4-7)

In 1946, the Grazing Service and General Land Office were merged to form the Bureau of Land Management (BLM), giving the BLM jurisdiction not just over rangelands, but also over public land minerals and land transfers, among others. (Gorte 2012, 10)

In the 1960s and 1970s, federal laws were passed to protect the environment, among them the National Environmental Policy Act (NEPA) of 1969 and the Endangered Species Act (ESA) of 1973. These laws changed the expectation as to how public lands were to be managed, leading, among other things, to changes in the terms and conditions that applied to grazing leases and permits. (BLM 3/28/14)

In 1974, the Forest and Rangeland Renewable Resources Planning Act was passed—and later amended in 1976 as the National Forest Management Act. This act called for management of renewable resources on national forest lands through “analysis of environmental and economic impacts, coordination of multiple use and sustained yield opportunities as provided in the Multiple-Use Sustained-Yield Act of 1960.” (74 Stat. 215; 16 U.S.C. 528–531) It also called for public participation in the development of the program.” (USDA History of Forest Planning)

In 1976, the Federal Land Policy and Management Act (FLPMA) passed into law, giving the BLM the mission to manage public lands for multiple uses and “sustained yield.” (USDOJ, 2001, 1) FLPMA also established a Range Betterment Fund into which half of all BLM and USFS grazing fee receipts were to be directed for range improvements. (BLM WYOMING)

In 1978 the Public Rangelands Improvement Act (PRIA) was passed, which provided a formula for setting grazing fees on both Forest Service and BLM lands in 16 western states.¹ After a trial period of seven years, this formula was made permanent by Executive Order 12548 (Feb. 14, 1986). Executive Order 12548 established a fee minimum of \$1.35 per Animal Unit Month (AUM)², and provided that annual fee adjustment could not exceed 25 percent of the previous year’s fee. (Vincent 2012, 3)

The application of the PRIA fee formula has ultimately led to BLM and USFS grazing fees that increasingly diverge from rates charged by private landowners as well as other federal and state agencies.

Under PRIA, both the BLM and USFS divide their rangelands into allotments. Allotments can vary in size from a few acres to hundreds of thousands of acres of land, and may be intermingled with private lands. BLM uses a grazing permit system to “permit” grazing allotments within its grazing districts. Outside grazing districts, BLM leases its fragmentary lands to ranchers. The Forest Service does not have grazing districts, and uses permits to authorize grazing within its allotments. (GAO 2005, 12)

To be eligible for a permit or lease on one of BLM’s allotments, livestock operators are required to own or control private “base property” that can serve to support the livestock with water, or necessary feed. Under USFS guidance, permits are issued to purchasers of permitted livestock or base property. (GAO 2005, 12)

Grazing is administered primarily through issuance of 10-year term permits for discrete grazing allotments. The 10-year permits can be renewed without competition. The current permittee or lessee has priority over others who may be interested in the permit or lease and thus has what is known as “preference.” Permittees do not obtain title to federal lands through their grazing permits and leases. (GAO 2005, 16)

¹ These 16 states are: Arizona, California, Colorado, Idaho, Kansas, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Utah, Washington, and Wyoming. See Vincent 2012, 1, listing authorities that govern grazing on BLM and USFS lands in 16 contiguous Western states as P.L. 95-514, 92 Stat. 1803; 43 U.S.C. §§1901, 1905. Executive Order 12548, 51 Fed. Reg. 5985 (February 19, 1986).

² Animal Unit Month (AUM) is a “standardized unit of measurement of the amount of forage necessary for the complete sustenance of one animal unit for a period of 1 month.” (BLM PLS 2012, 255). More precisely, it is “the use of public lands by one cow and her calf, one horse, or five sheep or goats for a month.” (BLM 1/31/14)

2. Extent of the Federal Lands Livestock Grazing Program

a. Acres of BLM and USFS Western Lands

As reported by Gorte et al. (2012, 19) the BLM administers 174.5 million acres of federal lands outside of Alaska, and these are almost exclusively concentrated (99.78 percent) in 11 western states (Table 1). The 11 western states are Arizona, California, Colorado, Idaho, Oregon, Montana, New Mexico, Nevada, Utah, Washington and Wyoming. Gorte et al. also report that USFS administers 141.7 million acres in these 11 western states, or 82.94 percent of its total federal land holdings. (Table 2) The delineation of the “West” in Gorte et al. is different from the delineation of the “West” with regard to PRIA, which includes 16 western states. The additional states are Kansas, North Dakota, South Dakota, Oklahoma and Nebraska.

Table 1: BLM and USFS Total Acreage in 11 Western States, 2010

	Total Land Holdings 11 Western States (acres)	Total Land Holdings Other States (Outside Alaska)* (acres)	BLM and USFS Total (Outside Alaska) (acres)	% Holdings in Western States
USFS	141,762,880	29,161,710	170,924,590	82.94%
BLM	174,512,265	388,054	174,900,319	99.78%
Total BLM & USFS	316,275,145	29,549,764	345,824,909	91.46%
*BLM and USFS lands in Alaska are not subject to PRIA or the Taylor Grazing Act and are therefore not included in this analysis. (GAO 2005, 4, 15, 55; BLM Public Land Statistics 2013, 255; Vincent 2012, 1).				

Sources: Gorte et al. 2012, 19

b. Acres of BLM and USFS Western Grazing Lands

Western BLM Lands Grazed

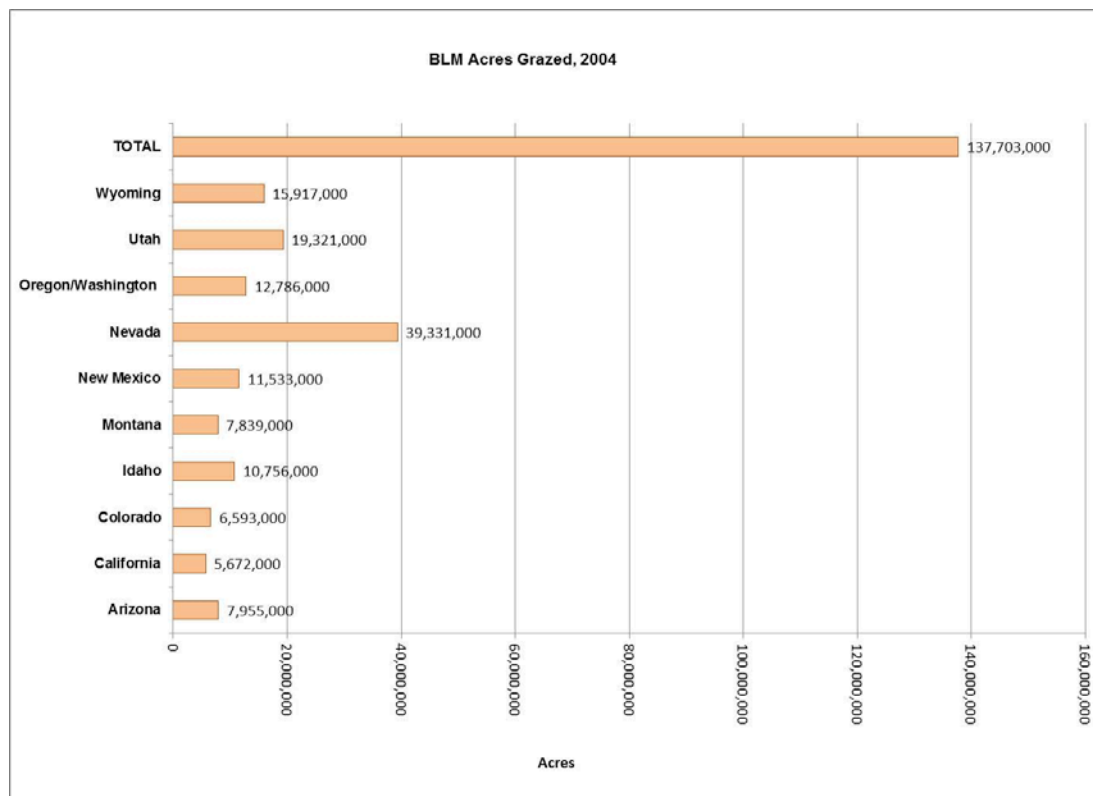
Livestock grazing is the prevailing use of BLM lands, with 137.7 million acres, or 79 percent out of 174.5 million acres of BLM land in the West authorized for livestock grazing in 2004. (GAO 2005, 15) Acres grazed differ from year to year, and were especially low in 2004 because of the drought. (GAO 2015, 14)

Figure 1 (Table B1) shows acres authorized for grazing for each of the 11 western states where BLM holds land. The four states with the largest holdings of BLM grazing lands are Nevada, Utah, Wyoming and New Mexico.

Western USFS Acres Grazed

The USFS is organized by regions, not by states. The following map (Figure 2) delineates the USFS regions and Figure 3 (Table B2) shows how many acres of grazing land the USFS administers in each of its regions. Grazing lands administered by the USFS include national forest lands and national grasslands, combined they comprise the national forest system.

Figure 1



Ninety-nine percent (92.1 million out of 92.9 million acres) of all USFS grazing on national forest and grasslands are in the western Regions within 16 contiguous western states: Arizona, California, Colorado, Idaho, Kansas, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Utah, Washington and Wyoming. (USDA Forest Service, Grazing Statistical Summary FY 2013, 96-97) The majority of national grasslands are located in the Great Plains states of Colorado, North Dakota, South Dakota and Wyoming. (Olson, 1997, 3)

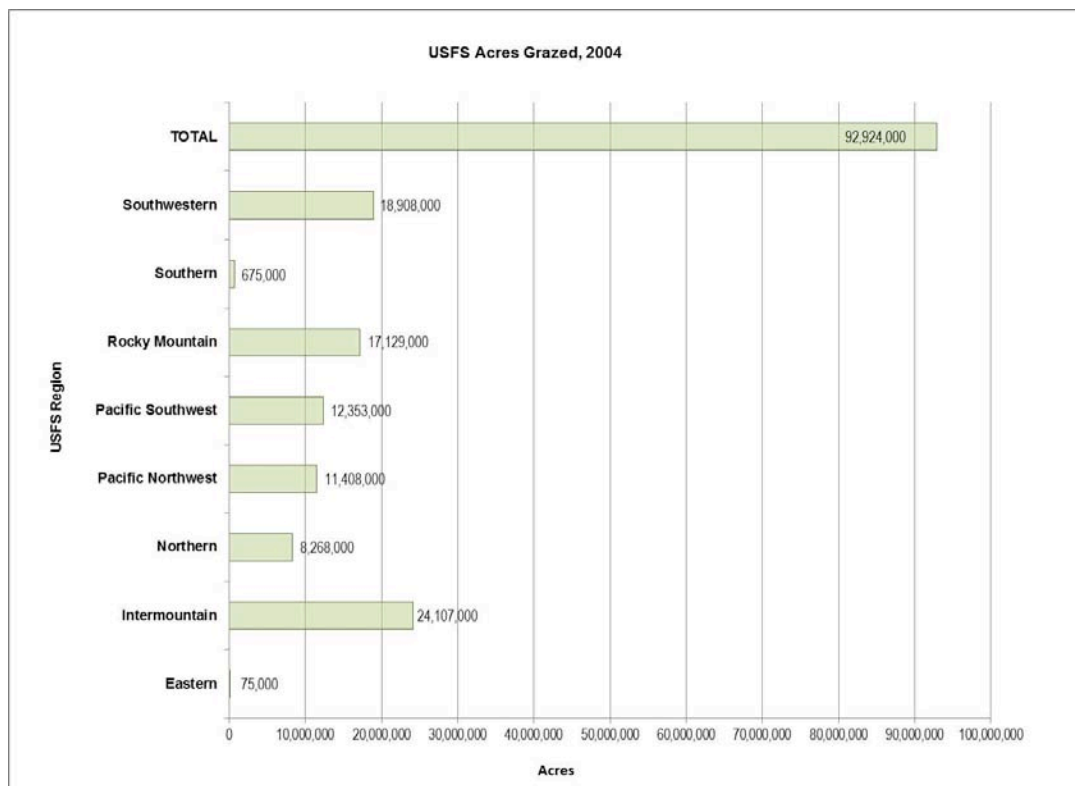
The regions with the largest extent of USFS grazing lands are the Intermountain region (Nevada, Utah and Idaho), the Southwest region (Arizona and New Mexico), and the Rocky Mountain region (Colorado, South Dakota, Kansas, Nebraska and Wyoming).

Figure 2: Forest Service Regions



Source: USDA Grazing Statistical Summery 2013, 1.

Figure 3



Other Federal Grazing Lands

In addition to BLM and USFS, other federal agencies allow grazing on their lands, including National Park Service, Bureau of Reclamation, U.S. Fish and Wildlife Service, Department of Energy, and Department of Defense. Together, they only manage a total of 4 million acres of grazing land nationwide. (GAO 2005, 17)

c. BLM and USFS—Animal Unit Months, Permits and Leases

The Animal Unit Month (AUM) is the measure of forage—plants that are eaten by livestock—used by federal land management agencies to allocate land for grazing. An AUM is defined as a “standardized unit of measurement of the amount of forage necessary for the complete sustenance of one animal unit for a period of 1 month.” (BLM Public Land Statistics 2012, 255) More precisely, it is “the use of public lands by one cow and her calf, one horse, or five sheep or goats for a month.” (BLM 1/31/14) The land area needed to produce an AUM will differ considerably depending on soil productivity and precipitation.

BLM Permits and Leases

BLM divides its rangelands into allotments. Allotments can vary in size from a few acres to thousands of acres of land, and may be intermingled with private lands. Grazing on BLM lands requires a Section 3 permit or a Section 15 lease. Section 3 permits are issued for allotments on public lands within the grazing districts. Fragmented BLM lands outside of grazing districts are known as Section 15 leases. (GAO 2005, 12) Permits and leases set out terms and conditions for grazing on BLM-managed lands and specify forage use (AUMs), season of use, and length of season. They generally cover a 10-year period and are renewable if the BLM determines that the terms and conditions of the expiring permit or lease have been met. (BLM 3/28/14) Both permits and leases specify the number of AUMs that a rancher may graze on a particular piece of land. Table 2 shows the number of BLM permit and lease authorizations issued from FY 2002 to FY 2013 as well as the associated authorized AUMs.

For FY 2013, BLM authorized 15,739 permits and leases, with a total of 8,513,271 AUMs. Table 2 shows that between FY 2002 and 2013, BLM authorized an average of 15,870 permits and leases annually, and an average of 8,359,496 AUMs. The lowest number of AUMs was 7,493,419 in 2003 and the highest was 8,985,228 in 2011.

USFS Permits

There are two notable differences between BLM and USFS reporting. Where BLM reports the “number of permits,” USFS reports the “number of permittees.” A permittee can hold multiple permits.

Further, USFS reports grazing use for the grazing season, and not for the fiscal year. BLM reports both, but did not have numbers for the 2013 grazing season. Therefore, above, we used the BLM fiscal year data, for USFS, we will use grazing season data.

Table 2: BLM Authorizations of Permits/ Leases and AUMs, 2002-2013

Fiscal Year	Total Number of Section 3 Permits and Section 15 Leases Authorized	Total AUMs Authorized (Section 3 and Section 15)
2002	15,851	8,287,394
2003	15,472	7,493,419
2004	15,544	7,574,004
2005	15,462	7,816,949
2006	16,416	8,515,292
2007	15,587	8,546,253
2008	17,292	8,531,813
2009	15,612	8,594,912
2010	15,751	8,673,822
2011	15,897	8,985,228
2012	15,815	8,781,600
2013	15,739	8,513,271
<i>Average</i>	<i>15,870</i>	<i>8,359,496</i>

Source: BLM Public Land Statistics from FY 2003 to FY 2013, Tables 3-7a and b, and 3-8a and b.

There were a total of 5,711 livestock operators who received permits on national forest service land during the 2013 grazing season, for 6,388,964 AUMs. Table 3 shows that between 2002 and 2013 USFS authorized permits for an average of 5,940 permittees, and an average of 6,335,542 million AUMs. The lowest number of AUMs authorized was 5,288,091 in 2004, the highest was 7,056,298 in 2010.

BLM and USFS Combined Totals

Table 4 shows the number of BLM permits, USFS permittees, and associated total AUMs for the grazing season. BLM numbers differ somewhat from Table 2 because they are reported by grazing season rather than for the fiscal year, to match the USFS's reporting. Because BLM's Public Lands Statistics did not report 2013 grazing season numbers, there are no entries for BLM for 2013.

Total authorized AUMs for BLM and USFS between 2002 and 2012 averaged 14,639,848, with a range of between 12,656,540 in 2004 and 15,819,413 in 2010. The number of total AUMs was reduced due to drought in 2003 and 2004. (GAO 2005, 14)

Table 3: USFS Authorized Number of Permittees and AUMs, 2002-2013

Grazing Season	Total Authorized Number of Permittees	Total Authorized AUMs
2002	6,830	6,402,125
2003	5,638	5,725,785
2004	5,791	5,288,091
2005	6,457	6,569,171
2006	5,305	5,675,098
2007	5,344	5,920,850
2008	5,931	6,621,931
2009	6,141	6,673,526
2010	6,206	7,056,298
2011	6,014	6,799,016
2012	5,906	6,905,657
2013	5,711	6,388,964
<i>Average</i>	<i>5,940</i>	<i>6,335,542</i>

Sources: USDA Grazing Statistical Summaries FY 2002 to 2013 (categories of “paid permits” or “commercial livestock”).

Table 4: USFS and BLM – Permits, Leases and Permittees by Grazing Seasons, 2002-2013

Number of Permittees, Permits and Leases			AUMs		
Grazing Season	National Forest System Authorized Number of Permittees	BLM Authorized Permits and Leases	National Forest System Authorized AUMs	BLM Authorized AUMs	BLM & NFS Total Authorized AUMs
2002	6,830	15,072	6,402,125	7,670,129	14,072,254
2003	5,638	14,880	5,725,785	7,253,613	12,979,398
2004	5,791	14,867	5,288,091	7,368,449	12,656,540
2005	6,457	15,998	6,569,171	8,518,458	15,087,629
2006	5,305	15,943	5,675,098	8,558,443	14,233,541
2007	5,344	15,935	5,920,850	8,476,842	14,397,692
2008	5,931	15,935	6,621,931	8,590,864	15,212,795
2009	6,141	17,654	6,673,526	8,608,534	15,282,060
2010	6,206	16,070	7,056,298	8,763,115	15,819,413
2011	6,014	16,117	6,799,016	8,997,890	15,796,906
2012	5,906	16,044	6,905,657	8,594,442	15,500,099
2013	5,711	n/a	6,388,964	n/a	n/a
<i>Average</i>	<i>5,940</i>	<i>15,865</i>	<i>6,335,543</i>	<i>8,309,162</i>	<i>14,639,848</i>

Sources: USDA Grazing Statistical Summaries, FY 2002 to 2013 (category of “paid permits” or “commercial livestock”); BLM Public Land Statistics from 2004 to 2013, Tables 3.10a and b.

Other Federal Agencies' AUMs

BLM and USFS are indeed the significant players in the federal grazing arena. For the purpose of comparison, all other federal agencies approved 794,000 AUMs in 2004 (GAO 2005, 17).

3. Cost of the Federal Livestock Grazing Program

a. Grazing Receipts and their Distribution

USFS and BLM combined inflation-adjusted receipts from grazing fees have declined between 2002 and 2014. As Table 5 below shows, this decline was greater for the BLM than for the USFS. Combined BLM and USFS receipts were \$27.6 million in 2002; they dipped in 2004 because of the drought, rose again slightly above the 2002 level in 2006, and from there decreased to \$18.5 million in 2014.

Not all of the grazing fees that are collected get returned to the U.S. Treasury. Federal law requires that 50 percent of all grazing revenue, for both BLM and USFS, goes into range rehabilitation and improvement funds. Activities that can be funded include, but are not limited to, constructing fences to contain livestock, installing water tanks, building impoundments to improve access to water for livestock, and seeding to improve vegetation and forage. Half of these funds are designated for use in the district, region or national forest from which they were generated. The remaining half is designated for use as directed by the secretary. (GAO 2005, 31) Counties receive between 12.5 percent and 50 percent and the balance, between 25 percent and 37.5 percent gets returned to the U.S. Treasury. (Table 6)

Table 5: USFS and BLM Grazing Receipts 2002-2014, in 2014

Receipts*			
Fiscal Year	USFS Grazing (2014 Dollars)	BLM Grazing Receipts (2014 Dollars)	USFS and BLM Total (2014 Dollars)
2002	\$7,889,000	\$19,733,000	\$27,622,000
2003	\$6,169,000	\$15,985,000	\$22,154,000
2004	\$7,010,000	\$8,191,000	\$15,201,000
2005	\$8,397,000	\$11,787,000	\$20,184,000
2006	\$7,620,000	\$20,321,000	\$27,941,000
2007	\$6,514,000	\$18,006,000	\$24,520,000
2008	\$6,247,000	\$17,538,000	\$23,785,000
2009	\$6,148,000	\$19,284,000	\$25,432,000
2010	\$6,005,000	\$16,189,000	\$22,195,000
2011	\$5,974,000	\$15,624,000	\$21,598,000
2012	\$5,689,000	\$15,352,000	\$21,041,000
2014	\$5,300,000	\$13,217,000	\$18,517,000
2013	\$5,027,000	\$14,585,000	\$19,612,000

*The numbers are gross receipts, i.e. payments to counties have not been subtracted.

Sources: USDA Forest Service, Budget Overviews for Fiscal Years 2004, 2006, 2007, 2008, 2010-2015, Budget Justification Fiscal Years 2005, 2009 (2012 and 2013 numbers are "Enacted"; 2014 numbers are "Estimated."); BLM Fiscal Years 2004 to 2015 Bureau Highlights - Appendices (Receipts by Source Category). BLM grazing receipts for 2014 "Estimated." All other receipts are "Actual."

Table 6: Distribution of Fee Receipts by Agency and Land Classification

	Payments to Counties	Range Betterment/Improvement Fund	US Treasury
USFS	25%	50%	25%
BLM Section 3 (permits)	12.50%	50%	37.50%
BLM Section 15 (leases)	50%	50%	
BLM Bankhead-Jones (grasslands)	25%	50%	25%

Sources: GAO 2005, 31-32; BLM 2012.

b. Grazing Appropriations

Direct grazing appropriations, funds designated for use for BLM or USFS rangeland/grazing management programs and range improvement/betterment funds, are shown in Table 7. USFS inflation-adjusted appropriations have increased, whereas BLM appropriations have decreased. BLM and USFS combined inflation-adjusted appropriations have decreased somewhat since 2003, with the exception of the year 2012, when they increased to almost their 2004 level.

Table 7: USFS and BLM Direct Grazing Appropriations 2002-2014, in 2014 Dollars

Appropriations			
Fiscal Year	USFS (2014 Dollars)	BLM (2014 Dollars)	USFS and BLM (2014 Dollars)
2002	\$50,040,000	\$105,948,000	\$155,988,000
2003	\$55,998,000	\$104,771,000	\$160,768,000
2004	\$59,012,000	\$101,369,000	\$160,381,000
2005	\$59,950,000	\$93,989,000	\$153,940,000
2006	\$58,831,000	\$92,214,000	\$151,045,000
2007	\$56,877,000	\$87,794,000	\$144,671,000
2008	\$55,480,000	\$90,830,000	\$146,310,000
2009	\$57,126,000	\$88,213,000	\$145,340,000
2010	\$56,190,000	\$88,751,000	\$144,941,000
2011	\$53,751,000	\$89,343,000	\$143,094,000
2012	\$59,248,000	\$99,616,000	\$158,864,000
2013	\$54,245,000	\$86,495,000	\$140,740,000
2014	\$58,356,000	\$85,280,000	\$143,636,000

Sources: USDA Budget Overview 2004, 2006-2008, 2010-2015; USDA Budget Justification 2005, 2009; BLM Bureau Highlights 2004-2015. NOTE: USFS numbers were reported as “Enacted” for the years 2004 and 2007-2014, and for other years as “Final Appropriations.” BLM 2012 and 2014 numbers were reported as “Enacted”; in 2013, the number for range improvement, which is part of the total, was reported as “Requested.” For other years, BLM numbers were reported as “Actual.”

c. Difference Between Appropriations and Receipts

In FY 2014, the total inflation-adjusted appropriations for BLM and USFS were \$143.6 million; grazing receipts amounted to \$18.5 million, or 13 percent of the appropriations (Table 8 and Figure 4).

The difference between appropriations and receipts was \$128.4 million in 2002, and reached its highest level of \$145.2 million in 2004. Its lowest level of \$120.2 million was reached in 2007. The percent of receipts to appropriations was 18 percent in 2002, dipped to 9 percent in 2004, rose again to 18 percent in 2006, and decreased to 13 percent in 2013.

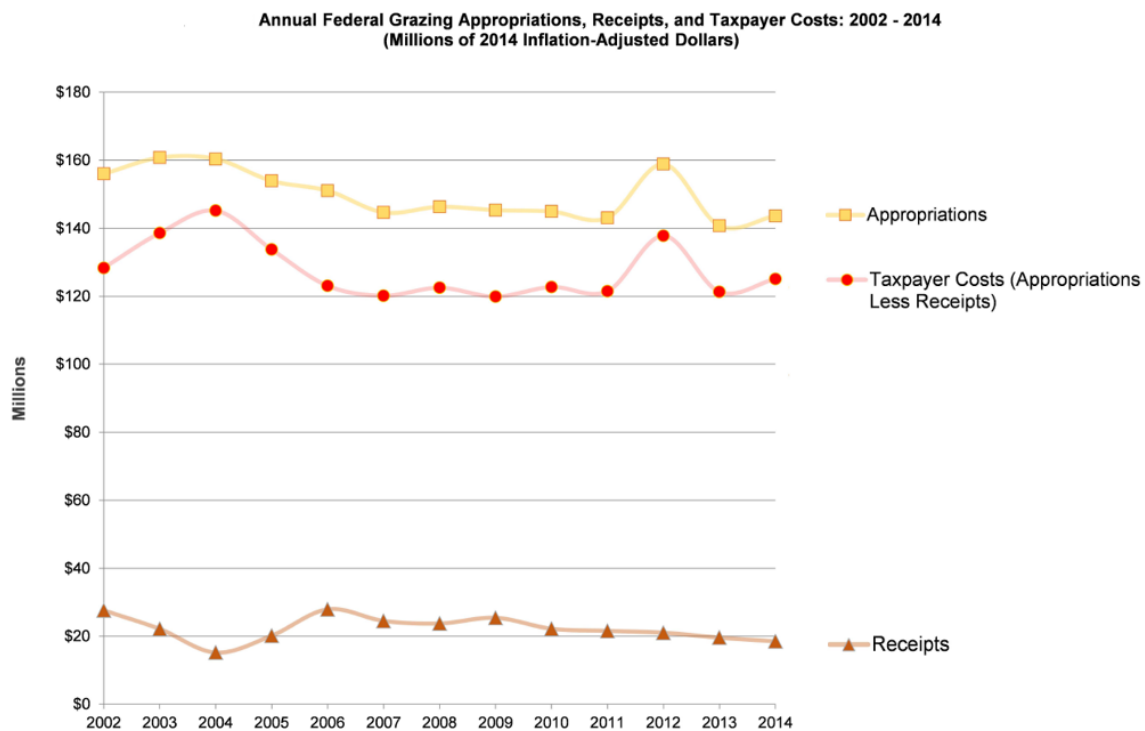
The difference between appropriations and receipts is a measure of the cost to taxpayers of the grazing program. The direct federal subsidy of the BLM and USFS livestock grazing programs exceeded \$120 million every year for the past 12 years.³

Table 8: Total BLM and USFS Direct Grazing Appropriations vs. Receipts 2002-2014

Year	Total Appropriations (2014 Dollars)	Total Receipts (2014 Dollars)	Appropriations Minus Receipts (2014 Dollars)	Percent Receipts to Appropriations Percent of Receipts to Appropriations
2002	\$155,988,000	\$27,622,000	\$128,365,000	18%
2003	\$160,768,000	\$22,154,000	\$138,614,000	14%
2004	\$160,381,000	\$15,201,000	\$145,181,000	9%
2005	\$153,940,000	\$20,184,000	\$133,756,000	13%
2006	\$151,045,000	\$27,941,000	\$123,104,000	18%
2007	\$144,671,000	\$24,520,000	\$120,151,000	17%
2008	\$146,310,000	\$23,785,000	\$122,525,000	16%
2009	\$145,340,000	\$25,432,000	\$119,907,000	17%
2010	\$144,941,000	\$22,195,000	\$122,746,000	15%
2011	\$143,094,000	\$21,598,000	\$121,496,000	15%
2012	158,864,000	\$21,041,000	\$137,824,000	13%
2013	140,740,000	\$19,612,000	\$121,127,000	14%
2014	143,636,000	\$18,517,000	\$125,119,000	13%

³ Federal receipts are gross numbers, before distribution to counties, for this comparison.

Figure 4



As shown, inflation adjusted grazing appropriations for USFS have increased, whereas they have decreased for BLM (Table 7). However when comparing grazing receipts as a percent of appropriations separately for BLM and USFS (Tables B3 and B4), different trends emerge.

The percentage of receipts to appropriations declined markedly for the Forest Service, from 16 percent in 2002 to 9 percent in 2014. (Table B3)

The changes in the percentage of receipts to appropriations are less pronounced for BLM, because appropriations have fallen as well as receipts. The percentage of receipts to appropriations for BLM was 19 percent in 2002 and is down to 15 percent in 2014, but fluctuated a lot in-between and rose to 22 percent in both 2006 and 2009. (Table B4)

d. PRIA Fee Impacts on Receipts and Scenarios for Reducing Taxpayer Costs

As demonstrated above, BLM and USFS grazing receipts have declined in real, or inflation adjusted dollars, since 2002. The decline in grazing receipts over these years is mostly attributable to the decline in grazing fees rather than a decline in the number of AUMs. The grazing fee is based on a specific formula called PRIA and explained in the next chapter.

Specifically, the inflation-adjusted PRIA fee was \$1.88 in 2002, and \$1.36 in 2013 (Table B6), a decline of 28 percent. Grazing receipts in 2002 were \$27.6 million and in 2013 they were \$19.6 million (Table 7), a decline of 29 percent. Receipts decline when either the numbers of AUMs

fall in any given year, or fees decline. As Tables 2 and 3 show, AUMs have been fairly stable over the years, except for the drought period around 2004.

Before the PRIA formula came into effect, BLM and USFS charged fees that were designed to cover agency costs or were market-based.

In order to cover direct appropriation costs for the BLM and USFS programs, the grazing fee would have had to be set at \$10.25 per AUM based on 2012 figures. This calculation is based on using the 2012 inflation-adjusted appropriations for BLM and USFS of \$158.9 million (Table 7), and total AUMs of 15.5 million (Table 4).⁴

Other federal agencies as well as state agencies administering grazing programs in the West sometimes charge rates that are considerably higher than the \$10.25 per AUM.

If the BLM and USFS had charged private markets rates, on average between 2002 and 2012, grazing receipts would have amounted to \$261 million annually. This is based on applying private grazing fee rates to non-irrigated land to the corresponding number of AUMs for each of those years. (Table B5)

Specifically, applying the inflation-adjusted 2012 private grazing fee of \$19.23 per AUM, grazing fees would have been \$298 million, way above the appropriations of \$158.9 million for that year. (Table B5)

4. BLM and USFS Grazing Fees

a. History of Fee Setting Approaches

Charging fees for grazing livestock has been Forest Service policy since 1906. The BLM and its predecessors have charged fees since 1936, after enactment of the Taylor Grazing Act in 1934. (GAO 2005, 84)

The USFS and BLM have used a number of different concepts at different points in time to establish how much the federal government should charge livestock operators for grazing their animals on federal lands:

- Fair market value: The fee is determined by the interaction of willing buyers and sellers that are knowledgeable about the value of what they are transacting, behave in their own best interest, and are free of undue pressure to conduct the transaction. A knowledgeable buyer and seller would be aware of the quality and productivity of the land and of market prices for leases or permits on other comparable lands, and the seller would expect to derive some profit from the transaction.
- Costs to the government: The fee is determined with the goal of covering the costs to the government of providing land for grazing.

⁴ 2012 is the most recent year where combined USFS and BLM AUMs data are available (Table 6).

- Fees based on the development of livestock prices: Fees increase or decrease depending on livestock prices.
- PRIA Fees: Fees are set to achieve a policy objective of supporting the livestock industry (“prevent economic disruption to the Western livestock industry” (43 U.S.C. 37, §1901(5)), taking into account the price for beef and lamb and the costs of production for the livestock industry. Costs of the public agency for providing grazing land are not included in this fee structure.

In the early 1900s, the Forest Service assessed fees by comparing those of similar privately owned rangeland, so as to approximate fair market value. From the early 1920s to 1968, the USFS based its fees on beef and lamb prices. BLM and its predecessors started out basing their fees on agency expenses, but changed this approach in 1958 to basing fees on livestock prices, similar to the USFS fee structure. (GAO 2005, 84) In the 1960s, the Bureau of the Budget (predecessor of Office of Management and Budget) set a fee schedule for these two agencies that had the goal of achieving fair market value. (GAO 2005, 84) This was based on an Office of Management and Budget circular of 1959, which directed that “fair market value” be obtained (36 C.F.R. §222.50 (b)).

36 CFR §222.50 General procedures.

(b) Guiding establishment of fees are the law and general governmental policy as established by Bureau of the Budget Circular A-25 of September 23, 1959, which directs that: A fair market value be obtained for all services and resources provided the public through establishment of a system of reasonable fee charges, and that the users be afforded equitable treatment. This policy precludes a monetary consideration in the fee structure for any permit value that may be capitalized into the permit holder's private ranching operation.

The Public Rangeland Improvement Act (PRIA) of 1978 acknowledged that the public rangelands were in unsatisfactory condition with regard to productive potential for livestock, wildlife and wildlife habitat, recreation, forage and soil conservation, and might decline further under prevailing management. It acknowledged the need for intensive programs for maintaining, managing and improving these lands. (43 U.S.C. 37, §1901(1)-(4) In further elaborating the policy objectives, it stated that “to prevent economic disruption and harm to the Western livestock industry, it is in the public interest to charge a fee for livestock grazing permits and leases on the public lands which is based on a formula reflecting annual changes in the costs of production.”(43 U.S.C. 37, §1901(5))

The Public Rangeland Improvements Act (PRIA) established a fee formula on an experimental basis (to be applied for the grazing years 1979 through 1985), explained in 43 U.S.C. 37 §1905:

For the grazing years 1979 through 1985, the Secretaries of Agriculture and Interior shall charge the fee for domestic livestock grazing on the public rangelands which Congress finds represents the economic value of the use of

the land to the user, and under which Congress finds fair market value for public grazing equals the \$1.23 base established by the 1966 Western Livestock Grazing Survey multiplied by the result of the Forage Value Index (computed annually from data supplied by the Economic Research Service) added to the Combined Index (Beef Cattle Price Index minus the Price Paid Index) and divided by 100: Provided, That the annual increase or decrease in such fee for any given year shall be limited to not more than plus or minus 25 per centum of the previous year's fee.

In 1981, USFS and BLM began charging the same fees based on this fee formula. After the seven-year trial period, President Reagan issued Executive Order 12548 (Feb. 14, 1986) to continue the PRIA fee formula indefinitely, and established a minimum fee of \$1.35 per AUM. (Vincent 2012, 3)

The PRIA fee formula is applied only for grazing on western USFS forestlands and permits and leases on BLM lands. Detailed regulations for western states can be found in 36 CFR 222.51, and in 43 CFR 4130.8-1.

Fees for grazing on USFS Grasslands are regulated by 36 CFR 222.52, which states that: "Grazing fees for National Grasslands will be established under concepts and principles similar to those in §222.51." These fees are usually slightly higher than the fees based on the PRIA formula. (GAO 2005, 39)

Grazing on USFS lands in non-western states is regulated either by 36 CFR 222.53, setting out non-competitive procedures based on fair market value, or they are regulated by 36 CFR 222.54, which provides for determining fees by competitive procedures. Other federal agencies base their grazing fees mostly on market value. (GAO 2005, 41-44)

Table 9: PRIA-Based Grazing Fees from 1981 to 2014

Dollars per AUM		
1981.....\$2.31	1993.....\$1.86	2005.....\$1.79
1982.....\$1.86	1994.....\$1.98	2006.....\$1.56
1983.....\$1.40	1995.....\$1.61	2007.....\$1.35
1984.....\$1.37	1996.....\$1.35	2008.....\$1.35
1985.....\$1.35	1997.....\$1.35	2009.....\$1.35
1986.....\$1.35	1998.....\$1.35	2010.....\$1.35
1987.....\$1.35	1999.....\$1.35	2011.....\$1.35
1988.....\$1.54	2000.....\$1.35	2012.....\$1.35
1989.....\$1.86	2001.....\$1.35	2013.....\$1.35
1990.....\$1.81	2002.....\$1.43	2014.....\$1.35
1991.....\$1.97	2003.....\$1.35	
1992.....\$1.92	2004.....\$1.43	

Sources: Vincent 2012, 3; BLM 1/31//14; BLM 2013

Actual grazing fees charged since 1981 based on the PRIA formula for USFS and BLM permits and leases are shown in the table below. Several attempts at legislative reform have been made since 1986 with the goal of changing the PRIA formula to bring grazing fees charged on federal lands closer to rates charged for private and state grazing lands in the western states. None of these attempts were successful. (Vincent 2012, 5-6)

For the years 2002 to 2014, Table 9 shows that the PRIA fee was \$1.43 in 2002, rose to its highest level of \$1.79 in 2005, and then fell to the its \$1.35 legal minimum level for the years 2007 to 2014.

When adjusted for inflation, PRIA fees have declined from \$1.88 in 2002 to \$1.35 in 2014, with a high of \$2.20 in 2005 (in 2014 dollars). (Table B6)

b. PRIA Formula Explained

A 2012 report by Vincent explains that the PRIA formula is to represent the fair market value of grazing, beginning with a 1966 base value of \$1.23 per AUM. This value is adjusted for three factors: (1) the rental charge for pasturing cattle on private rangelands (FVI), (2) the sales price of beef cattle (BCPI), and (3) the cost of livestock production (PPI). (Vincent 2012, 3) The values for FVI, BCPI and PPI that were used to calculate PRIA fees from 1981 to 2014 are shown in Table 12 below.

The following formula is used to determine the grazing fee for any given grazing season:

$$CF = \$1.23 \times \frac{FVI + BCPI - PPI}{100}$$

The example below describes the application of the PRIA formula.

Applying index numbers for data year 2013 (Table 12) to calculate the PRIA fee for 2014 would result in a calculated fee (CF) of \$0.75.

$$2014 \text{ CF} = \$1.23 \times (507 + 548 - 994) / 100 = \$0.75$$

Since \$1.35 has been set as a minimum value, the actual grazing fee was \$1.35 for 2014.

CF = Calculated Fee is calculated fee (CF) is the value resulting from the application of the above formula and is based on prior year values for the formula components (FVI, BCPI, PPI). The actual fee may differ from the calculated fee. If the calculated fee is below the minimum of \$1.35 per AUM, then the actual fee will be set at \$1.35. Or, if the fee adjustment would exceed 25 percent of the previous year's fee, then the fee would be constrained within the 25 percent limit.

\$1.23 was the base year fee for forage for the year 1966. The base year fee of \$1.23 was calculated as the difference between the costs of conducting ranching business on private lands, including any grazing rates charged, and the costs of ranching on public lands, not including

grazing fees. The costs were computed in a 1966 study that included 10,000 ranching businesses in the western states. (GAO 2005, 40, FN 27)

FVI = Forage Value Index is based on grazing rates charged per head month on privately owned, non-irrigated land in eleven western states.⁵ Private grazing rates – for the prior year – are published by USDA’s National Agricultural Statistics Service (NASS) in the January Agricultural Prices report. They are divided by the base year rate (\$ 3.65) times 100, to arrive at the Index Value.

BCPI = Beef Cattle Price Index is based on weighted average annual selling price for beef cattle in 11 western states of the prior year. It is published by USDA’s NASS in the December Agricultural Prices report. The beef cattle price is divided by the base year price (\$22.04) times 100 to arrive at the index.

PPI = Prices Paid Index is based on several categories of livestock production costs and is published by USDA’s NASS in the December Agricultural Prices report. (43 CFR 4130 .8–1)

As explained above, based on a 1966 study, it was determined that a public lands grazing fee of \$1.23 would make total grazing costs on public land (non-fee costs + fee of 1.23) equal to total costs on private land (including lease rates for private grazing land). This \$1.23 fee was at the time 33.69 percent of the private grazing fee, which amounted to \$3.65.

The PRIA formula has been used to adjust federal grazing fees yearly, and has resulted in an ever-widening gap between private rates and PRIA fees, as will be shown in more detail below. PRIA fees have declined since 1981 in both nominal terms and adjusted for inflation, whereas private fees have increased nominally and changed little in real terms. (Table B6)

This development is the result of the construction of the PRIA formula. In the nominator it adds the difference between the BCPI (Beef Cattle Price Index) and PPI (Prices Paid Index) to FVI (Forage Value Index). PPI has mostly been larger than the BCPI, as can be seen in Table 10. This results in a negative BCPI-PPI number, which reduces the nominator below the level of FVI, and therefore reduces the factor by which the base fee is multiplied. With FVI thus being systematically reduced, it is not possible for the PRIA fee to increase in sync with private rates. The calculated fee can even drop below the 1.23 base fee or become negative (Table 10). Only the legally established minimum floor of \$1.35 prevents that.

If the fee formula had been $CF = 1.23 \times FVI/100$, public grazing fees would have increased about five-fold since 1966, from \$1.23 to about \$6.15. This can be seen in Table 10, where FVI starts at a level of 100 in 1966 and reaches a level of 507 in 2013, resulting in a five-fold increase in private forage rates. The public grazing fee would still be about 1/3 of the private grazing fee, just as it was in 1966, when the base fee of \$1.23 was established.

⁵ Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, and California

5. PRIA Fees Compared To Private, State and Other Federal Grazing Fees

Several grazing fee studies and surveys have been conducted over the years, demonstrating that rates for private grazing lands in the western states are generally higher, and sometimes considerably higher, than fees based on the PRIA formula. Fees charged for state grazing lands also tend to be higher than PRIA rates, though they generally are lower than private rates. Livestock operators also generally pay rates that are higher than PRIA rates on federal lands administered by other federal agencies, including National Park Service or U.S. Fish and Wildlife Service.⁶

Tables 10 to 13 show how PRIA fees are different from rates charged by private, state and other federal landowners. One of the differences, besides PRIA being generally lower, is that PRIA fees are uniformly applied across the western states, while it is obvious when looking at non-PRIA rates (i.e. rates charged by private, state and other federal land-owners) that they can vary considerably within and across states. This is to be expected if supply and demand conditions are not uniform, and market-based fee setting approaches are used. Supply conditions include such factors as quality of the forage, access to water, grazing infrastructure, and services offered (or not offered) by private or public landowners. Differences in supply conditions can lead to differences in livestock management costs, and in turn affect how much a rancher is willing to pay for a lease or permit. Livestock operator costs are also not uniform on BLM and USFS land. A 1992 study for the states of Idaho, New Mexico and Wyoming showed that total non-fee costs for livestock operators (excluding the federal grazing fee) on BLM land on average were \$15.41 per AUM and on USFS land were \$21.89 per AUM. (VanTassel, 2012)

a. PRIA Fees Compared to Private Fees

Table 10 includes a column shaded in light grey, which shows the average private grazing fees (for non-irrigated land in the 16 western states) from 1981 to 2013. The column on the right calculates PRIA fees as a percent of private land grazing fees. Going back to the PRIA base year 1966, the calculated fee would have been 33.69 percent of the private fee.

Starting in 1981, when PRIA fees were first charged by both BLM and USFS, the PRIA fee was down to 23.79 percent of the private fee, the highest it has been since then. By 1984 the percentage had gone down to 14.33 percent, but it rose sporadically for a few years after that. Since 1991 it has trended downward, reaching a low of 6.72 percent in 2013.

⁶ Van Tassell et al. 1997; Torell et al. 1993; Torell et al. 2003; Van Tassell 2012; Bioeconomics 2011, GAO 2005.

Table 10: PRIA Fee Calculation 1980 through 2014 and Comparison to Private Rates

Data Year	FVI	BCPI	PPI	PRIA Fee Year	Calculated Fee (CF)	PRIA Fee	Private Rates	% PRIA Fee of Private Rates
1966	100	100	100		\$1.23		\$3.65	33.69%
1980	216	291	319	1981	\$2.31	\$2.31	\$9.71	23.79%
1981	242	268	359	1982	\$1.89	\$1.86	\$9.75	19.08%
1982	229	262	378	1983	\$1.39	\$1.39	\$9.59	14.49%
1983	242	256	387	1984	\$1.37	\$1.37	\$9.56	14.33%
1984	243	262	395	1985	\$1.35	\$1.35	\$9.06	14.90%
1985	251	243	397	1986	\$0.93	\$1.35	\$8.33	16.21%
1986	233	235	388	1987	\$0.98	\$1.35	\$8.09	16.69%
1987	234	272	381	1988	\$1.54	\$1.54	\$8.98	17.15%
1988	240	297	386	1989	\$1.86	\$1.86	\$10.06	18.49%
1989	243	306	402	1990	\$1.81	\$1.81	\$10.86	16.67%
1990	253	326	419	1991	\$1.97	\$1.97	\$9.78	20.14%
1991	265	327	436	1992	\$1.92	\$1.92	\$10.46	18.36%
1992	275	316	440	1993	\$1.86	\$1.86	\$10.60	17.55%
1993	279	333	451	1994	\$1.98	\$1.98	\$11.30	17.52%
1994	282	304	455	1995	\$1.61	\$1.61	\$11.20	14.38%
1995	301	277	473	1996	\$1.29	\$1.35	\$11.40	11.84%
1996	293	252	499	1997	\$0.57	\$1.35	\$11.70	11.54%
1997	310	281	512	1998	\$0.97	\$1.35	\$12.30	10.98%
1998	323	272	514	1999	\$1.00	\$1.35	\$12.30	10.98%
1999	326	281	516	2000	\$1.12	\$1.35	\$12.60	10.71%
2000	329	313	554	2001	\$1.08	\$1.35	\$13.10	10.31%
2001	345	330	559	2002	\$1.43	\$1.43	\$13.50	10.59%
2002	356	303	559	2003	\$1.23	\$1.35	\$13.80	9.78%
2003	367	342	593	2004	\$1.43	\$1.43	\$14.30	10.00%
2004	378	402	618	2005	\$1.99	\$1.79	\$14.60	12.26%
2005	400	413	686	2006	\$1.56	\$1.56	\$15.20	10.26%
2006	414	418	724	2007	\$1.32	\$1.35	\$15.90	8.49%
2007	427	394	762	2008	\$0.73	\$1.35	\$16.20	8.33%
2008	444	394	891	2009	\$-0.65	\$1.35	\$16.10	8.39%
2009	433	355	806	2010	\$-0.22	\$1.35	\$16.70	8.08%
2010	441	398	866	2011	\$-0.33	\$1.35	\$17.90	7.54%
2011	460	509	946	2012	\$0.28	\$1.35	\$18.80	7.18%
2012	490	556	980	2013	\$0.81	\$1.35	\$20.10	6.72%
2013	507	548	994	2014	\$0.75	\$1.35	n/a*	n/a

Source: USDA National Agricultural Statistics Service (NASS) Quickstats; USDA NASS Agricultural Prices (January and December Surveys); GAO 2005, 83; correspondence with BLM rangeland specialist; USDA NASS 2007.

Figure 5

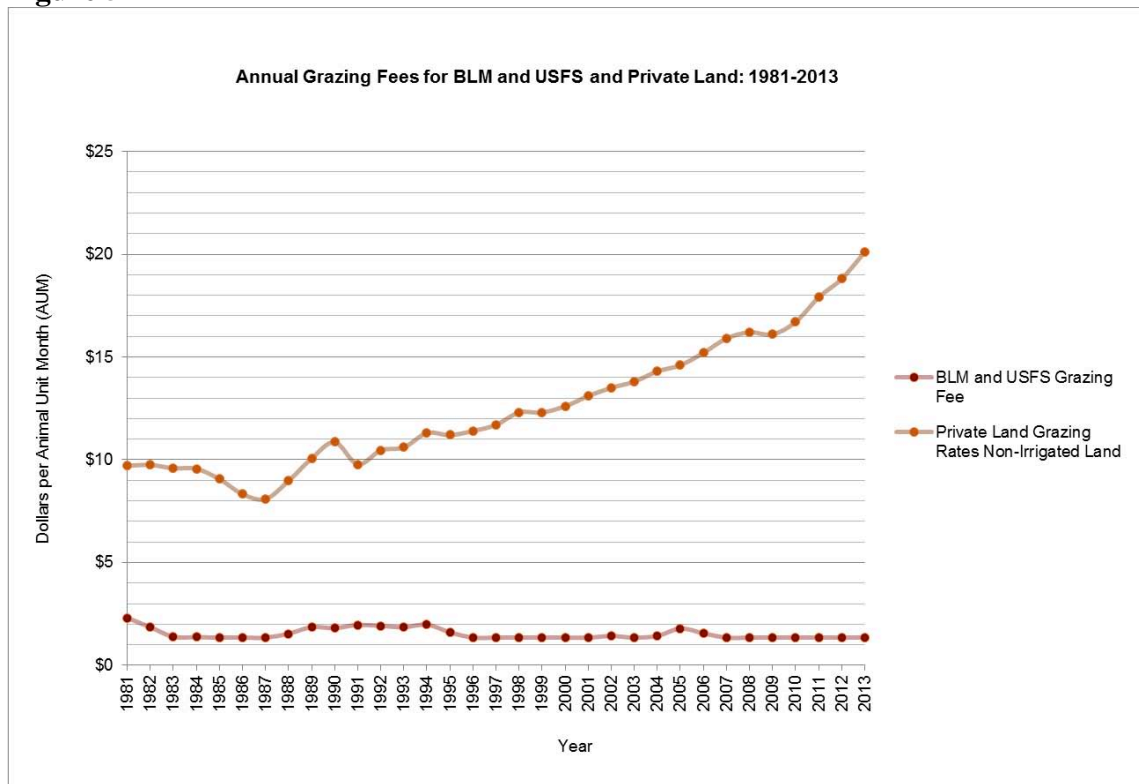


Figure 6

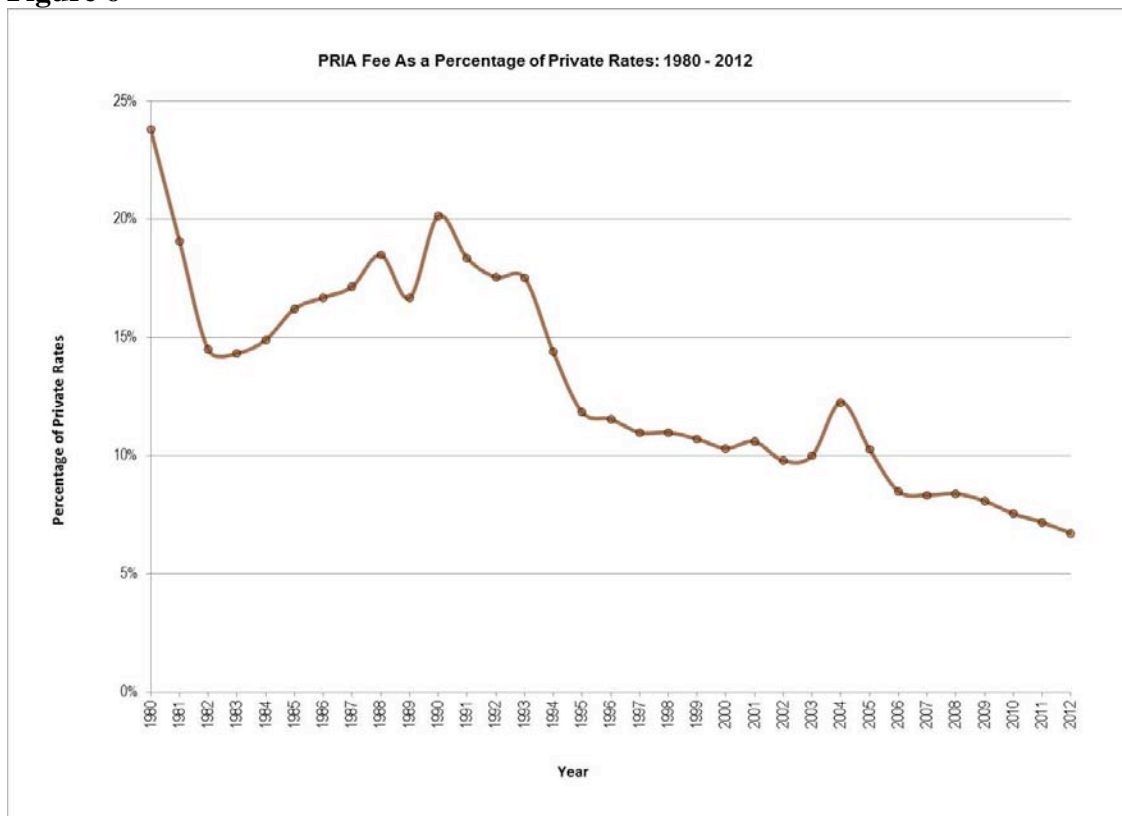


Table 11 compares PRIA fees to average private grazing fees per AUM in 16 western states for the years 2002 and 2013. The state averages for private grazing fees varied considerably among the 16 states. In 2002, rates ranged from \$7.30 to \$20.9. In 2013, fees varied between \$9 and \$33.50 per AUM.

How much private rates can vary even *within* one state is exemplified by a 2013 Colorado State University Extension survey. Rates for privately owned, non-irrigated pasture leases for Colorado averaged \$16.49 per AUM, and ranged from \$3.72 and \$38 per AUM.⁷

**Table 11: Private Rates and PRIA Fees per AUM for Non-Irrigated Land
In 16 Western States, 2002 and 2013**

	PRIA Fee 2002	PRIA Fee 2013
	\$1.35	\$1.35
State	Average Private Fee 2002	Average Private Fee 2013
Arizona	\$7.30	\$9.00
California	\$12.80	\$19.50
Colorado	\$12.60	\$17.50
Idaho	\$11.70	\$15.50
Kansas	\$13.00	\$17.00
Montana	\$15.10	\$21.00
Nebraska	\$20.90	\$33.50
Nevada	\$10.50	N/A
New Mexico	\$8.80	\$13.00
North Dakota	\$12.50	\$18.00
Oklahoma	\$7.50	N/A
Oregon	\$11.80	\$15.00
South Dakota	\$16.90	\$27.90
Utah	\$11.60	\$14.50
Washington	\$9.60	\$13.50
Wyoming	\$13.50	\$18.70

Sources: Private rates provided by National Agricultural Statistics Quickstats

b. Fees Charged by other Federal Agencies

In 2005, the Government Accountability Office (GAO) undertook an extensive survey of grazing rates. Included in the survey were the PRIA based rates charged by BLM and USFS and the rates charged in western states by other federal agencies that are not subject to the PRIA formula. The lowest rate charged by other federal agencies in 2004 was \$0.29 per AUM, charged by the U.S. Fish and Wildlife Service, the highest was \$112.50 charged by the U.S. Corps of Engineers. (GAO 2005, 39)

⁷ Tranel et al. 2013, Table 7, 9.

A number of federal agencies including the National Park Service, U.S. Fish and Wildlife Service, Bureau of Reclamation, and Department of Defense set fees that reflect, or come close to, market value.

Some of the agencies, such as the Air Force and National Park Service, charge per acre; and others, such as the Corps of Engineers, receive a total bid price for an allotment. To achieve a fair market value, some agencies use a competitive bidding process that can involve notifying the public of the opportunity to permit or lease a grazing allotment, the acceptance of sealed bids, and the selection of the highest bid. Other agencies conduct a market appraisal of a grazing property, or use an average prevailing rate for the local area, and set a fee based on those values. (GAO 2005, 41-42) USFS applies market-based methods for determining fees in the eastern national forest lands. (36 CFR 222.53, 36 CFR 222.54)

Table 12: Fees Charged by Other Federal Agencies in 2004

Agency	Range of fees charged Per AUM	Average Fee Charged
DOI		
National Park Service	\$1.35 to \$7.00 (\$1.50 to \$25.00 per acre)	\$4.30
Bureau of Reclamation	\$1.27 to \$56.46	\$10.93
U.S. Fish and Wildlife Service	\$0.29 to \$34.44	\$11.24
DOE		\$1.43
DOD		
Air Force	\$1.35 to \$26.67	\$15.49
Army	\$0.99 to \$66.09	\$19.10
Corps	\$0.82 to \$112.50	\$6.22
Navy	\$10.42 to \$97.49	\$32.60
PRIA Fee 2004	\$1.43	

Source: GAO 2005, 39.

c. Fees Charged by State Agencies

There is also considerable variation in fees charged and fee setting approaches used by state agencies that manage public grazing lands in 17 western states.⁸ Table 13 shows averages and ranges of fees charged for the years 2004 and 2010. As the 2005 GAO study reports, six states (Montana, Nebraska, New Mexico, North Dakota, Oklahoma, and South Dakota) offer their leases to the highest bidder through a competitive process. Six states (Arizona, California, Colorado, Texas, Washington and Wyoming) use market-based approaches. These rely on regional market rates, land appraisals, or formulas that adjust the market price and account for differences between state and private lands and livestock market conditions. Three states (Idaho, Oregon and Utah) use formulas that apply either a base fee, adjusted for local livestock market conditions, or a fixed percentage of livestock production value.” (GAO 2005, 93-94)

⁸ GAO included 17 western states, including the 16 states in which the PRIA fees apply, plus Texas.

Table 13: Grazing Fees Charged by State Land Agencies in Western States in 2004 and 2010

State	2004 State Land Agencies Fees	2010 State Land Agencies Fees
Arizona	\$2.23	\$2.28
California	\$1.35 to \$12.50	No set fee
Colorado	\$6.65 to \$8.91	35% less than private
Idaho	\$5.15	\$5.12
Kansas	*	*
Montana	\$5.48 to \$80.00	Minimum of \$6.12
Nebraska	\$16.00 to \$28.00	\$22.50 to \$38.00
Nevada	*	*
New Mexico	\$0.71 to \$10.15 per acre	\$3.19
North Dakota	\$1.73 to \$19.69 per acre	Set by auction
Oklahoma	\$7.00 to \$16.00	\$8.34 to \$20.83
Oregon	\$4.32	\$5.30
South Dakota	\$3.00 to \$56.00 per acre	\$10.82
Texas	\$4.16 to \$12.50	\$65.00 to \$150.00
Utah	\$1.43 or \$2.35	3.92 to \$7.00
Washington	\$5.41 or \$7.76	\$8.78
Wyoming	\$4.13	\$4.64
PRIA Rate	\$1.43	\$1.35

* Kansas and Nevada do not have grazing on state trust lands.

Sources: GAO 2005, 45-46 (2004 fees); Bioeconomics 2011, 9 (2010 fees)

As part of the 2005 GAO study, state officials were interviewed and maintained that their state trust lands, received from the federal government to generate revenue for public education, are often comparable in range condition, productivity and land value to federal lands. For example, in Wyoming and Oklahoma, state lands are intermingled with or adjacent to federal lands and have similar characteristics. (GAO 2005, 93)

6. Indirect Costs Of Federal Public Lands Grazing

The direct budgeted BLM and USFS costs as shown in the body of this paper are not the only costs of the federal grazing program. They are however the clearly measurable ones.

The USFS and BLM administer many other programs and projects not budgeted under grazing or range management budget line items that nevertheless may benefit public lands livestock operators or compensate for the negative impacts of livestock grazing. The funds spent on these activities are indirect costs of the BLM and USFS grazing programs. An example of a BLM program that benefits livestock operators is the Wild Horse and Burro Management Program that removes competitors from the range; USFS has a vegetation and

watershed management program that deals, for example, with soil erosion, stream degradation and weed infestations resulting from livestock grazing. For more examples of USFS and BLM programs supporting livestock grazing or compensating for its impacts see Tables A1 and A2.

In addition, there are other federal agencies that have programs benefitting grazing or attempting to compensate for its impacts. The U.S. Fish and Wildlife Service, for example, conducts consultations with USFS and BLM regarding impacts of grazing on threatened or endangered species, and for recovery plans developed for such species. For more examples see Table A3. Examples for how potential livestock grazing impacts on the state and local level see Table A4.

Indirect costs may be divided into tangible and intangible. Tangible costs are easily expressed in monetary terms, such as federal funding for fire suppression necessitated by grazing impacts. (Table A2)

Intangible costs, such as the loss of an endangered species due to public lands grazing, damage to ecosystems, or the destruction of archeological, historical and cultural resources of the indigenous people of the West, are not readily expressed in monetary terms.⁹ The costs of such damage or are often “externalized,” that is, paid by communities or individuals that would otherwise benefit from the goods and services that flow from unimpaired forests, grasslands, deserts and rivers, or from the preservation of their heritage.

In this report, we do not attempt a comprehensive review of the subject or provide an estimate of the dollar value of indirect costs of the federal livestock program. A comprehensive analysis of the indirect costs of the federal grazing program is long overdue.

Conclusions

Since 2002, on average, 14.6 million AUMs have been authorized annually for grazing on USFS and BLM lands in the West. Inflation-adjusted federal appropriations for the management of the livestock grazing programs have decreased over this time period. Grazing receipts have also decreased—but at a steeper rate than the decline in appropriations. This is reflected in the percentage of receipts to appropriations, which has decreased from 18 percent in 2002 to 13 percent in 2014.

Grazing receipts have decreased mainly because the PRIA fee has decreased by 28 percent between 2002 and 2014 in inflation-adjusted dollars.

⁹ Economists have developed a variety of methods for estimating the monetary value of or damage to ecosystems, as well as other intangible costs. See the website http://www.ecosystemvaluation.org/dollar_based.htm for an overview of such approaches. One method is to use monetary costs resulting from damage to ecosystems as a proxy for estimating externalized, intangible, ecological and social costs. For example, the costs of eradicating invasive species and recreating conditions favorable for native re-vegetation can be used as an estimate of the value of these native plant communities.

There is also a growing disparity between BLM and USFS grazing fees and the rates charged for grazing on private non-irrigated land in the West. The percentage of federal fees to private rates has decreased to 6.72 percent in 2013. This decline is the continuation of a long-term decline that started right after PRIA fees were first applied by both BLM and USFS in 1981. The PRIA fee then was 23.79 percent of the private rate.

The result of this growing gap between public land fees and private rates is that livestock operators on BLM and USFS lands pay significantly less than operators on non-irrigated private rangeland, indicating a deepening of federal support for the livestock operators who have permits and leases for grazing on USFS and BLM lands.

Additionally, the PRIA fee is uniformly applied to BLM (11 western states) and USFS (16 western states) grazing leases and permits. This is a markedly different approach from fees charged by other federal agencies, and fees charged on state trust lands and private lands. Many federal agencies and state agencies use market-based fee-setting approaches that lead to considerable variations in fees within and between states, besides being generally higher than PRIA fees. Given that grazing fees are offsetting smaller and smaller portions of the appropriations, and the disparity between private rates for non-irrigated lands and the federal fee have increased considerably, the fee-setting approach for BLM and USFS lands requires a reevaluation.

Appendix A

Table A1: BLM Budget Items Potentially Containing Indirect Costs of Grazing BLM

Budget Item*	Explanation
Soil, Water, and Air Management	Livestock are the principal cause of soil erosion and stream degradation. (Jones 2000; Belsky et al, 1999)
Riparian Management	Livestock are the most pervasive cause of riparian damage. Up to 80% of Western streams have been damaged by livestock. (Belsky, et al. 1990)
Cultural Resources Management	Most harm to archeological resources is from livestock and from ranch access roads, fences, tanks and other ground disturbing range developments. (Osborn et al. 1987; Broadhead 1999)
Wild Horse and Burro Management	Removes wild competitors for forage. **
Wildlife and Fisheries Management	Considerable harm to wildlife results from the pervasive competition for forage and removal of cover by livestock (Fleischner 1994)
Threatened and Endangered Species Management	Considerable harm to threatened and endangered species results from the pervasive competition for forage and removal of cover by livestock (Fleischner 1994, Flather et al. 1994; Czech and Kraussman 1997)
Resource Management Planning	Grazing is a major element of planning. It covers a larger area than all other uses.**
Hazardous Materials Management	Herbicides are the main tool used to control weeds that are spread by livestock operations. Many noxious weeds are spread by livestock operations. (Belsky and Gelbard 2000, Reisner, 2013)
Transportation and Facilities Management	Field offices and additions are necessitated in part by the range program. Frequent monitoring and inspections related to grazing permits require transportation.**
Workforce and Organizational Support	Out of a workforce of 5994 full time equivalents (FTE), 670 worked directly for range management. (BLM Budget Justification FY 2015, VII-25,26) That amounts to 13.4% of BLM's workforce, not counting anyone working indirectly to support livestock grazing in the administration of other programs.
*Budget Categories are from BLM Bureau Highlights 2015; ** Moskowitz and Romaniello 2002, Table A-2	

Table A2: USFS Budget Items Potentially Containing Indirect Costs of Grazing Program

Budget Item*	Explanation
Land Management Planning	Every 10-15 years land management plans must be revised, they must include suitability analysis for grazing, and an Environmental Impact Statement. Inventory and monitoring are required of forage use and range condition as part of the permitting process, as well as for Forest Plans and Biological Opinions.**
Inventory and Monitoring	
Recreation, Heritage and Wilderness	Fencing off campgrounds and archeological sites may be necessitated largely due to livestock. (Osborn et al. 1987; Broadhead 1999)
Wildlife and Fisheries Habitat Management	Grazing is often the land use most in conflict with wildlife habitat needs and necessitates fencing. (Fleischner 1994)
Vegetation & Watershed Management	Grazing is often the land use most damaging to soils and vegetation, causing widespread soil erosion and infestations of grasslands with weeds, shrubs and conifers.(Belsky and Blumenthal 1995, Reisner 2013)
Wildland Fire Management	Grazing is the principle cause of the growth of highly flammable thickets in western ponderosa pine forests, and for invasion of rangelands by pinion, juniper and other woody shrubs. Wildland fire management includes thinning of thickest and prescribed fires to reduce fuel loads. (Belsky and Blumenthal 1995)
Forest and Rangeland Research	Research stations spend some of their efforts studying the impacts of grazing on native species and ecosystems. **
*Budget Categories are from USDA 2015 Budget Overview, 2015; **Explanations based on Moskowitz and Romaniello, 2002, Appendix A-1	

Table A3: Other Federal Agencies' Indirect Costs of Grazing on Federal Lands

Federal Agency	Explanation
USDA Wildlife Services	Kills thousands of native carnivores each year to protect livestock in the West from predators. (Moskowitz and Romaniello 2002, 24)
US Fish and Wildlife Service	Expends part of its budget for listing native species impacted by grazing as threatened or endangered, for consultations with USFS and BLM over impacts of grazing on listed species, and for recovery plans for such species. (Moskowitz and Romaniello 2002, 24)
USDA's livestock assistance program	Payments to ranchers in the event of livestock loss due to natural disasters, like droughts. Moskowitz and Romaniello (2002, 25) report that on average public lands ranchers qualify for this subsidy four out of 10 years.
Department of Commerce National Marine Fisheries Service	Performs the functions of the Fish and Wildlife Service for anadromous fish like salmon that can be impacted by livestock grazing. (Moskowitz and Romaniello 2002, 25)
USDA's Natural Resources Conservation Service	Addresses watershed damage caused by livestock. (Belsky et al. 1999)
Bureau of Reclamation	Increased soil erosion from grazing (Jones 2000; Belsky et al, 1999) can lead to increased sedimentation of waterways and reservoirs, shortening the useful life of reservoirs and causing higher peak flows, which affect the design of dams. (Moskowitz and Romaniello 2002, 25)
US Army Corps of Engineers	Costs of flood control related to increased peak flows and higher erosion due to compaction of soils and removal of vegetation by livestock grazing. (Belsky et al. 1999)
Environmental Protection Agency	Monitoring and addressing grazing impacts on water quality due to erosion. (Moskowitz and Romaniello 2002, 25)
Department of Justice	Costs of defending federal land agencies in lawsuits brought by grazing industry and environmental groups. (Moskowitz and Romaniello 2002, 26)
USDA - Cooperative State Research, Education and Extension Service	Supports USFS, BLM in the management of their range resources. (GAO 2005, 27)
USDA Office of General Counsel	Provides legal advice and support to USFS in managing grazing lands and permits. (GAO 2005, 27)
United States Geological Survey	Conducts research on the effects of grazing on plant communities, including invasive species; on runoff and erosion, on select species or groups of species, and on ecosystem health including riparian areas. GAO 2005, 28)

Table A4: Indirect Costs on State and Local Level

Affected Entities	Explanation
Recreation-related industries	Recreation and the industries associated with it are negatively affected from impacts of livestock on riparian habitats, trampling of vegetation and fecal matter on the ground, waterways impacted by erosion, impacts on cultural resources, and diminished opportunities for wildlife viewing. (Moskowitz and Romaniello 2002, 29)
States and Communities	States and communities are impacted by increased grazing-related fire risks. (Belsky and Blumenthal 1995; Swetnam and Baisan 1994)
State and Local Governments	Livestock grazing assists weed invasions. (Belsky and Gelbard 2000, Reisner 2013) Weed populations on federal lands can become source populations for invasions on other lands and thus require increased weed control expenses of state and local governments. (Moskowitz and Romaniello 2002, 31)
State Historic Preservation Offices Indigenous Peoples	Studies have shown that livestock grazing can have a destructive impact on archeological and historical sites. (Osborne et. al 1987; Broadhead 1999) Cultural artifacts of indigenous people (an intangible cost) are destroyed as the result of cattle trampling, soil erosion, and range development measures such as bulldozing and plowing. The (tangible) costs of consultations over impacts of public lands grazing on archeological resources are borne at least in part by states through their State Historic Preservation Offices. (Moskowitz and Romaniello 2002, 32)
Water Utilities	Livestock borne pathogens cause illness and increase water treatment costs in the West, because of the need of monitoring and control of these pathogens by water utilities throughout the West. (Moskowitz and Romaniello 2002, 32)

Appendix B

Table B1: BLM Acres Grazed by State, 2004

	BLM Grazing Lands (acres)
Arizona	7,955,000
California	5,672,000
Colorado	6,593,000
Idaho	10,756,000
Montana	7,839,000
New Mexico	11,533,000
Nevada	39,331,000
Oregon/Washington	12,786,000
Utah	19,321,000
Wyoming	15,917,000
TOTAL	137,703,000

Sources: GAO 2005, 15

Table B2: USFS Acres Grazed by Region, 2004

Forest Service Regions	Acres Grazed
Eastern	75,000
Intermountain	24,107,000
Northern	8,268,000
Pacific Northwest	11,408,000
Pacific Southwest	12,353,000
Rocky Mountain	17,129,000
Southern	675,000
Southwestern	18,908,000
Total Acres of Grazed Land in All Regions	92,924,000
Total Acres of Grazed Land in Western Regions*	92,173,000
Percent of USFS Grazed Lands in the West	99.19%
*All regions other than Eastern and Southern.	

Source: GAO 2005, 15

Table B3: USFS Grazing Receipts and Appropriations 2002-2014 in 2014 dollars*

Fiscal Year	USFS Grazing Appropriations in 2014 dollars	USFS Total Receipts in 2014 dollars	Appropriations minus Receipts in 2014 dollars	Percentage Of USFS Receipts to Appropriations
2002	50,040	7,889	42,151	16%
2003	55,998	6,169	49,829	11%
2004	59,012	7,010	52,003	12%
2005	59,950	8,397	51,553	14%
2006	58,831	7,620	51,211	13%
2007	56,877	6,514	50,363	11%
2008	55,480	6,247	49,233	11%
2009	57,126	6,148	50,978	11%
2010	56,190	6,005	50,184	11%
2011	53,751	5,974	47,777	11%
2012	59,248	5,689	53,559	10%
2013	54,245	5,027	49,217	9%
2014	58,356	5,300	53,056	9%

Table B4: BLM Grazing Receipts and Appropriations 2002-2014, in 2014 Dollars

Fiscal Year	BLM Appropriations in 2014 dollars	BLM Receipts in 2014 dollars	BLM Appropriations minus Receipts in 2014 Dollars	Percent Receipts to Appropriations
2002	105,948	19,733	86,215	19%
2003	104,771	15,985	88,786	15%
2004	101,369	8,191	93,178	8%
2005	93,989	11,787	82,203	13%
2006	92,214	20,321	71,892	22%
2007	87,794	18,006	69,789	21%
2008	90,830	17,538	73,292	19%
2009	88,213	19,284	68,929	22%
2010	88,751	16,189	72,562	18%
2011	89,343	15,624	73,720	17%
2012	99,616	15,352	84,265	15%
2013	85,982	14,585	71,397	17%
2014	85,280	13,217	72,063	15%

*Table B4 is derived from Tables 5 and 7

Table B5: Scenario of USFS and BLM Grazing Revenues with Application of Private Grazing Rates

Year	Private Grazing Rates (in 2014 dollars)	BLM and USFS AUMs (grazing season)	Grazing Revenue (\$)
2002	\$17.75	14,072,254	249,782,509
2003	\$17.58	12,979,398	228,177,817
2004	\$17.58	12,656,540	222,501,973
2005	\$17.33	15,087,629	261,468,611
2006	\$17.55	14,233,541	249,798,645
2007	\$17.84	14,397,692	256,854,825
2008	\$17.72	15,212,795	269,570,727
2009	17.49	15,282,060	267,283,229
2010	\$17.60	15,819,413	278,421,669
2001	\$18.40	15,796,906	290,663,070
2012	\$19.23	15,500,099	298,066,904
Averages	\$17.82	14,639,848	261,144,544

Table B6: PRIA Fees and Private Fees 1981 to 2014 (Nominal and Adjusted for Inflation)

Year	PRIA Fee	PRIA FEE in 2014	Private Rates	Private Fee in 2014 dollars
1966	\$1.23	\$7.43	\$3.65	\$18.39
1981	2.31	\$5.43	\$9.71	\$22.84
1982	1.86	\$4.12	\$9.75	\$21.61
1983	1.39	\$2.99	\$9.59	\$20.65
1984	1.37	\$2.86	\$9.56	\$19.93
1985	1.35	\$2.72	\$9.06	\$18.28
1986	1.35	\$2.68	\$8.33	\$16.55
1987	1.35	\$2.67	\$8.09	\$15.97
1988	1.54	\$2.93	\$8.98	\$17.11
1989	1.86	\$3.44	\$10.06	\$18.60
1990	1.81	\$3.26	\$10.86	\$19.55
1991	1.97	\$3.39	\$9.78	\$16.80
1992	1.92	\$3.24	\$10.46	\$17.66
1993	1.86	\$3.03	\$10.60	\$17.28
1994	1.98	\$3.13	\$11.30	\$17.89
1995	1.61	\$2.46	\$11.20	\$17.12
1996	1.35	\$2.03	\$11.40	\$17.14
1997	1.35	\$1.99	\$11.70	\$17.28
1998	1.35	\$1.97	\$12.30	\$17.94
1999	1.35	\$1.92	\$12.30	\$17.52
2000	1.35	\$1.86	\$12.60	\$17.37
2001	1.35	\$1.83	\$13.10	\$17.74
2002	1.43	\$1.88	\$13.50	\$17.75
2003	1.35	\$1.72	\$13.80	\$17.58
2004	1.43	\$1.76	\$14.30	\$17.58
2005	1.79	\$2.12	\$14.60	\$17.33
2006	1.56	\$1.80	\$15.20	\$17.55
2007	1.35	\$1.51	\$15.90	\$17.84
2008	1.35	\$1.48	\$16.20	\$17.72
2009	1.35	\$1.47	\$16.10	\$17.49
2010	1.35	\$1.42	\$16.70	\$17.60
2011	1.35	\$1.39	\$17.90	\$18.40
2012	1.35	\$1.38	\$18.80	\$19.23
2013	1.35	\$1.36	\$20.10	\$20.23
2014	1.35	\$1.35	n/a	n/a

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