

# Cows & Cash

## Trends On Nevada's Public Lands

By Rob Pearce, Don Henderson, Sandy Jonkey, Gabe Fogarty, and Tim Dardin

Controversy has plagued public land grazing in the western United States for decades. Those supporting public land grazing are as adamant about the propriety of their views as are their opponents, who see grazing of federal lands as an adverse and often unnecessary use of western public land. The argument intensifies with each passing year. The debate itself is plagued with problems; especially the emotional intensity that surrounds those involved with the discussion. Individuals on both sides of the fence often cloud their views and opinions in a fog of emotion, rather than scientific or research supported information.

Opponents of public land grazing often say it has little impact to local economies and the livestock industry as a whole. However, the importance of grazing management decisions, and the ensuing effects to rural Nevada economies, should not be trivialized. This article contains definitive results illustrating the impact that federal land grazing decisions may have on rural economies. As outlined below, decisions to reduce or increase grazing on federal lands do have implications for the rural and state economies. This article is a summary of a larger and more detailed report on Nevada's federal land grazing history primarily from 1980 through 1999.

The consulting firm Resource Concepts, Inc. (RCI), produced three reports that addressed grazing history for about 1/3 of Nevada federal lands up to 1995. Those three reports were summarized and presented in a 1999 edition of *Rangelands*. During the process of producing the three reports, RCI collected Bureau of Land Management (BLM) grazing data for the entire state. Therefore, a Nevada Grazing Statistics (NGS) database existed that contained nearly complete Bureau of Land Management grazing records from adjudication through 1999 and some United

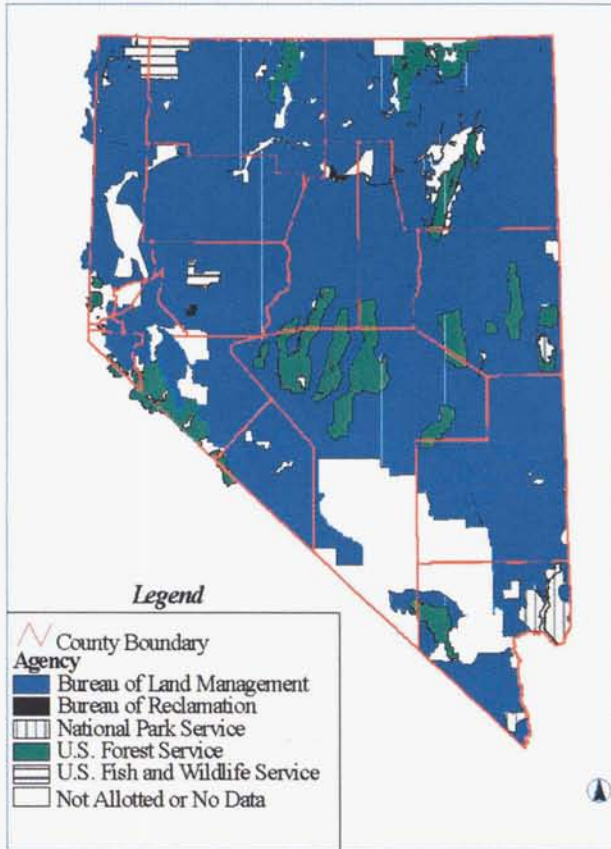
States Forest Service (USFS) grazing records. No other Federal land data had been compiled for the state.

The intent of this project, and the ensuing report, was to add credence and reliable information to the discussion of public land grazing. Several important aspects of the public land debate, at least for Nevada, are presented in the following pages. These include: available historical permitted numbers of livestock on Nevada Federal lands, mapping for agency boundaries of federal land grazing areas, and economic impacts to ranching and rural economies from federal grazing over the last 19 years. The study includes documented grazing histories and economic grazing impacts from federally administered lands within the state of Nevada for the period of 1980 through 1999. The lands reviewed include Bureau of Land Management (BLM), United States Forest Service (USFS), United States Fish and Wildlife Service (USFWS), Bureau of Reclamation (BOR), and National Park Service (NPS) administered Nevada lands (Figure 1).

This project was a cooperative venture between the Nevada Department of Agriculture and the Nevada Association of Counties (NACO). The project was contracted to Resource Concepts, Inc., who in cooperation with the University of Nevada, Reno, University Center for Economic Development, updated the existing database, gathered data for the remaining federal lands not covered in the database, and analyzed the public land grazing data on a statewide basis.

Recognizing the importance of public land grazing to the agricultural sector and to rural Nevada communities and economies, the Nevada Legislature appropriated \$80,000 to the Department of Agriculture during the 1999 legislative session. The purpose of this appropriation was for the de-





**Figure 1.** Jurisdictional boundary map for federal lands in Nevada. Jurisdictional boundaries included on the map are Bureau of Reclamation (BOR), W.S. Fish and Wildlife Service (USFWS), National Park Service (NPS), U.S. Forest Service (USFS), and Bureau of Land Management (BLM).

partment to retain the necessary assistance to: 1) document public land grazing levels in Nevada over time to determine trends; and, 2) provide an estimate of the economic effects to rural communities and economies resulting from the documented trends.

### What Information Was Collected?

Beginning in January 2000 Nevada grazing data were gathered for Bureau of Land Management (BLM), U.S. Forest Service (USFS), Bureau of Reclamation (BOR), United States Fish and Wildlife Service (USFWS), and National Park Service (NPS) managed lands (Figure 1). Data collected included the following for each agency: permit or allotment name, permit or allotment number, permittee or lessee name, number of Animal-Unit-Months, and associated maps. Data gleaned for BLM allotments included records for adjudication, 1980, 1995, and 1999. For all other Federal lands grazing data were obtained for 1980, 1995, and 1999. Economic Analysis was conducted for all Nevada Federal lands for 1980 through 1999. Trend data in this paper are also for the 1980–1999 period.

During the course of this project it became apparent that

definitions to describe similar concepts varied among Bureau of Land Management Field Offices and also among other agencies. The following definitions are offered so the reader will better understand each term and their intent throughout this paper.

- \* AUMs = Animal-Unit-Month, one mature (1000 pound) cow or the equivalent based upon average daily forage consumption of 790 pounds of dry matter per month. For a complete discussion of AUM definitions and variations among agencies refer to Pearce et al. 1999 and NDA 2001 listed in the additional readings.
- \* Permitted Use (Active Use, Permitted Preference, Active Preference): Bureau of Land Management and U.S. Forest Service term to denote the maximum allowable AUMs permitted to a permittee. The Bureau of Land Management definition is as follows: "The maximum amount of livestock grazing allowed. Permitted Use is expressed in AUMs authorized under a term permit or lease for an individual permittee/lessee for and individual public land allotment. This level does not include 'adjudicated suspended non-use,' nor does it include authorizations issued as non-renewable, or authorizations authorized under an exchange of use agreement."
- \* Authorized Use: A Bureau of Land Management term to designate the number of Animal-Unit-Months paid for by a permittee.
- \* Actual Use: A Bureau of Land Management and U.S. Forest Service term to denote the number of AUMs grazing on the permit, i.e., the actual physical bodies of livestock on the land.
- \* Historical Suspended AUMs: A Bureau of Land Management term to describe the number of AUMs present, and above permitted AUMs at the pre adjudication period and cancelled through administrative decision.

Early in 2000, Nevada Association of Counties submitted letters to the Bureau of Land Management, Humboldt-Toiyabe National Forest, Bureau of Reclamation, U.S. Fish and Wildlife Service, Great Basin National Park, and Lake Mead National Recreation Area describing the project, listing what information was being requested, and seeking cooperation in data collection and compiling the required grazing information.

The Bureau of Land management staff requested that once the accumulated data were entered into the Nevada Grazing Statistics database that a hardcopy be provided for verification. The verification with Bureau of Land Management and other federal agencies was also required as part of the contract with Nevada Association of Counties. The Bureau of Land Management and U.S. Forest Service were provided a draft version of all allotment records for verification. During November and December Resource Concepts, Inc. received corrected Bureau of Land Management allotment data from most of

the Bureau of Land Management Field Offices and corrected data for the U.S. Forest Service.

All grazing data collected for this project was input into a Microsoft Access Database (NGS database). Allotment mapping was also collected during the project and is included in Nevada Department of Agriculture (NDA) 2001 document and in a GIS database. The Access database is linked with an ArcView GIS database containing allotment mapping.

The economic analysis portion of the project evaluated the period from 1980 through 1999. The 1980 starting year for economic analysis was selected because that was the first year complete data could be obtained from U.S. Forest Service records in Nevada. The 1995 data are included in this study because that is the year the three previous Nevada Grazing Statistics reports were used as the final reporting year.

### Reasons For AUM Reductions

Included in the NGS database are "data fields (areas to input data)" for notes and reasons for changes in AUMs between 1980 and 1995, and between 1995 and 1999. Every effort was made during the data collection process to compile reasons for every Animal-Unit-Month change. However, information was not always available.

Ten broad categories were selected to represent major reasons for changes in AUMs. Those categories include: boundary changes, change of class of livestock, Final Multiple Use Decision (FMUD—usually resource related), Forest Service Enhancement Act, permit violations, resource related (e.g., monitoring data suggested that too many livestock were utilizing the allotment, or other resource type decisions), transfer of ownership, other, unknown (the record was reviewed but no reason for change could be found), and no change.

The numbers provided in each reason section in Tables 1–2 represent a net gain or loss. Each category may have had losses and gains. What is reported in each table is the overall loss or gain.

**Table 1. Bureau of Land Management Animal-Unit-Month Losses (AUM) in Nevada from 1980-1999 by reason.**

Reason	AUMs	Percent of Total Change
No reason given in the database	164,087	44
Resource Related	89,619	24
Permit Violation	35,210	9
Change in Class of Livestock	34,179	9
Forest Service Enhancement Act	19,189	5
Transfer of Ownership	11,863	3
Final Multiple Use Decision	10,485	3
Boundary Change	9,413	3
<b>Total</b>	<b>374,045</b>	<b>100</b>

**Table 2. United States Forest Service Animal-Unit-Month (AUM) changes in Nevada from 1980-1999 by reason. (numbers in parenthesis represent a gain).**

Reason	AUMs	Percent of Total Change
Boundary Change	41,517	48
No reason given in the database	25,230	28
Resource Related	19,719	23
Forest Service Enhancement Act	(17,605)	(20)
Permit Violation	13,672	16
Transfer of Ownership	5,716	7
Change of Class of Livestock	(1,960)	(2)
<b>Total</b>	<b>86,289</b>	<b>100</b>

Reasons are presented for 56% Bureau of Land Management (BLM) AUM reductions that occurred in Nevada from 1980-1999, (Table 1). This leaves 44% of the BLM AUM reductions without explanation for a change. Absent explanations for the AUM changes can be attributed to several factors. Among them, BLM records did not contain reasons, or reasons were not entered into the original database, prior to this phase of the project.

Three categories account for 87% of U.S. Forest Service 86,289 AUM reductions in Nevada (Table 2). The three categories are boundary changes, resource related, and permit violations.

The resource related and permit violation categories are the two most important categories for AUMs changes in the Bureau of Land Management and U.S. Forest Service data. Those two categories alone account for over 1/3 of the reductions in AUMs on Bureau of Land Management and U.S. Forest Service lands.

### Economic Impacts

The University of Nevada, Reno, University Center for Economic Development conducted the economic analysis for this project. Potential estimated economic impacts to rural Nevada resulting from changes in livestock AUMs were calculated using the Micro IMPLAN model developed by the U.S. Forest Service. The model estimates sectoral and regional impacts of alternative management scenarios. For a thorough discussion and explanation of the Model review the U.S. Forest Service IMPLAN manual authored by Alward and the Nevada Department of Agriculture report written in 2001. The IMPLAN model has been further revised by the University of Minnesota to accommodate analyses of other impacts, such as livestock number fluctuations. The period of economic analysis for all Federal lands in Nevada is from 1980-1999.

The following economic and AUM grazing allocation changes occurred in Nevada from 1980-1999 (economic values assume that if each AUM lost was active then the values presented represent the losses depicted) (Figure 2).

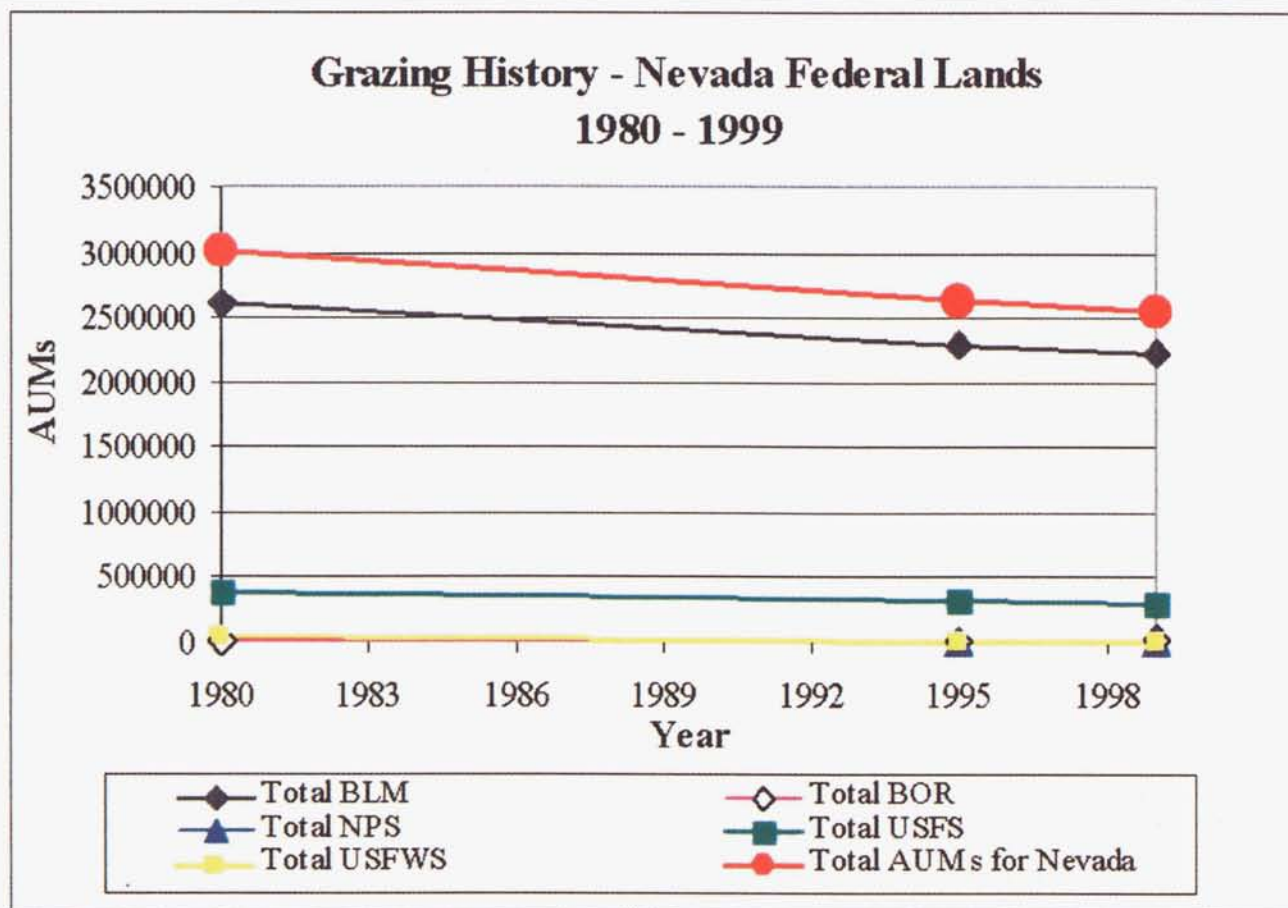


Figure 2. Grazing summary of AUMs for federal lands in Nevada from 1980-1999. Federal lands histories include Bureau of Reclamation (BOR), U.S. Fish and Wildlife Service (USFWS), National Park Service (NPS), U.S. Forest Service (USFS), Bureau of Land Management (BLM), and all federal land grazing AUM trends combined.

\* Combined federal land AUMs lost in the state of Nevada from 1980 through 1999 were 473,553 (16%) with a corresponding estimated loss of over \$24,000,000 to Nevada, and an estimated loss of nearly 12 million dollars to Nevada's livestock industry.

\* Impacts to Bureau of Land Management lands included a loss of 374,045 (15%) permitted Animal-Unit-Months (AUMs). These losses in AUMs resulted in an estimated financial loss of nearly \$20,000,000 to the state of Nevada, with a corresponding estimated loss of \$9,000,000 to Nevada's livestock industry for the 19-year period evaluated in this study.

\* U.S. Forest Service administered lands realized an estimated loss of 86,289 AUMs (23%) and an estimated economic loss of \$4,500,000 to Nevada, with a \$2,100,000 negative estimated impact to Nevada's livestock industry.

\* A loss of 25,176 AUMs (78%) were realized on U.S. Fish and Wildlife Service administered lands from 1980-1999 with \$1,300,000 estimated loss to Nevada's economy and \$600,000 estimated losses to the Nevada livestock industry.

\* Bureau of Reclamation lands saw an increase of 10,218 AUMs and a resultant \$500,000 estimated positive im-

pact to Nevada's economy and \$250,000 to Nevada's livestock industry.

\* National Park Service lands lost 313 AUMs with a corresponding estimated loss to the Nevada livestock industry of \$8,000 and a \$16,000 loss to Nevada's economy as a whole.

With the exception of Bureau of Reclamation lands, changes in Animal-Unit-Months (AUMs) throughout the state were generally a downward trend during the 1980 to 1999 period. These changes can be attributed to shifts in administrative policies, climatic factors, livestock prices, resource conditions, competition with wildlife and feral horses, and a host of other factors.

Bureau of Land Management AUM reductions since adjudication (the period from about 1960 through 1999) amount to a 468,114 AUM decrease. Prior to adjudication there were an additional 419,755 historical suspended AUMs. Therefore, during the tenure of Bureau of Land Management land management in Nevada there have been approximately 890,000 AUMs removed from Nevada Bureau of Land Management rangelands. The historical suspended AUMs represent a reduction in AUMs prior to adjudication, but not analyzed in this study.

The analysis provided in this study has shown that changes in the numbers of livestock grazing on Nevada public lands impact Nevada's economy, particularly the fragile economy of rural Nevada.

### Collaboration And Cooperation Needed

The downward trend of livestock grazing experienced on Nevada public lands over the last 19 years is illustrated throughout this article. This trend is likely a result of many factors, including, environmental, ecological, sociological, and administrative policy.

There are continual pressures and challenges facing livestock grazing in Nevada. However, it is important to realize that grazing of rangelands is a manageable activity. Grazing is the controlled harvest of a sustainable natural resource. The practice of grazing rangelands is a good example of low-input agriculture, requiring little fossil fuel when compared to many other forms of agriculture. Livestock are turned out to graze, rotated from one grazing unit to another, or herded through an area while harvesting forage. Grazing animals convert natural and cultivated forage into red meat protein for human consumption, along with other products. When viable, the livestock industry contributes to the economic well being of Nevada, the tax base of the state, and also helps to maintain a much needed diversified economy.

Resource managers have an opportunity to work cooperatively under present state and federal agency leadership to better plan and administer the management of Nevada's public land resources. If livestock grazing is to continue on Nevada public lands then a cooperative working relationship between the livestock permittee and the federal land management agency, and uniform and consistent methods for assessing condition-and-trend of our rangelands are vitally needed.

Our study provided a description of Animal-Unit-Month (AUM) trends in Nevada, gave explanations for the changes (when known), and described estimated economic impacts to Nevada's economy. It is apparent from our study that many factors influence AUM changes on public lands in Nevada. Results from this study indicated that permit violations and resource protection were the primary reasons for AUM reductions in Nevada. However, in our experience, other factors have also contributed to this decline in grazing in Nevada, that are not evident in the data. We feel additional forces driving the decline in livestock grazing have been:

- \* A change in public attitude toward grazing
- \* A reluctance, or inability, of federal agencies to invest in rangeland improvement projects
- \* A distrust, and often poor working relationship, among federal land administrators, permittees, and the general public.
- \* Region wide resource condition decisions rather than site specific evaluations

Nevada public land grazing issues that permittees face today are often localized and related to livestock distribution problems, which can be resolved by site specific planning, as opposed to further livestock reductions. In the past, federal agencies have tended toward prescriptive grazing standards, regional or landscape based planning processes, and penalty driven program administration. These approaches offer little incentive or opportunity for private investment for site specific management solutions to address specific grazing issues. If continued, this approach will likely result in further declines in public land grazing and further adverse economic effects to the Nevada livestock industry, dependent rural economies, and local governments.

Collaboration and cooperation among agency staff, permittees, the scientific community, and the general public will help resolve resource concerns. All groups and individuals involved with public land grazing have responsibilities to the public and to the natural resource. Federal agency personnel have a responsibility to provide resource management plans, provide objectives, and conduct monitoring based on sound scientific reasoning and an understanding of the needs of all that use public lands. Public land livestock operators are obligated to manage their operations with respect and concern for resources, and to base land management decisions on established rangeland management techniques.

Sound resource management decisions based on site specific resource conditions, combined with a collaborative working relationship between the responsible land management agency and the livestock permittee, will provide the best opportunity for maintaining an economically viable livestock industry in Nevada.

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### How BLM Came About

The majority of public land grazing in Nevada occurs on Bureau of Land Management and U.S. Forest Service administered lands. While the U.S. Fish and Wildlife Service, National Park Service, Bureau of Reclamation, and other federal agencies do permit grazing, their contribution to total federal land grazing is a small percentage of the total.

Grazing on federal lands has gone through many stages over the past two centuries, and changes continue to occur to this day. Early explorers and settlers homesteaded the most fertile and well irrigated lands. In the mid and late 1800's ranchers grazed livestock on the federal lands with little intervention or regulation. However, with increasing competition and conflict among federal land users, and as environmental stewardship awareness increased, it became necessary to regulate federal land grazing. Prior to 1905, the Department of Interior's General Land Office (GLO) managed forest reserves (part of which became the U.S. Forest Service lands) and federal lands (those that are now Bureau of Land Management administered). In Rowley's book on the history of the U.S. Forest Service's grazing history he stated that in 1894, while still under GLO control, the "driving, feeding, grazing, pasturing, or herding of cattle, sheep, or other livestock" was prohibited within forest reserves. Although this regulation was changed the following year, the grazing of livestock, especially sheep, in forest reserves was allowed sporadically for the next decade.

In 1905, the U.S. Forest Service was created under the Department of Agriculture. In effect, this removed forest reserves from the General Land Office (GLO) and placed them under U.S. Forest Service control. The GLO managed grazing of public lands outside forest perimeters prior to 1934. Comprehensive management of these lands was initiated in 1934 when Congress passed the Taylor Grazing Act. The Grazing Service was established with the implementation of the Act. Specific tasks within the Act included: establishment of a permit system, organization of grazing districts, fee assessment, and consultation with local advisory boards.

In 1946, the Grazing Service was combined with the General Land Office to create the Bureau of Land Management. Although there have been several attempts to merge the Bureau of Land Management and U.S. Forest Service, divergence in management philosophy and regulations affecting public lands continues to the present.

### Additional Readings

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