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Briefing Report to the Chairman, Environment, Energy, and Natural Resources Subcommittee, Committee on Government Operations, House of Representatives

June 1991

RANGELAND MANAGEMENT

Current Formula Keeps Grazing Fees Low

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Resources, Community, and
Economic Development Division

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June 11, 1991

The Honorable Mike Synar
Chairman, Environment, Energy
and Natural Resources Subcommittee
Committee on Government Operations
House of Representatives

Dear Mr. Chairman:

On December 27, 1990, you requested that we review the soundness of the existing formula for computing grazing fees on most federal lands. You asked that we compare the existing formula with alternatives set forth in the 1986 Grazing Fee Review and Evaluation Report, prepared jointly by the Forest Service in the Department of Agriculture and the Bureau of Land Management (BLM) in the Department of the Interior, using updated cost-of-production and pricing data.

In response to your request we briefed you, other Members of Congress, and other interested parties on our findings at a May 16, 1991, open briefing. This briefing report outlines our overall findings and observations and serves to formalize the information we presented during that briefing.

In summary, the soundness of the formula must be viewed in the context of the primary objective to be achieved. The current formula meets an objective of promoting the economic stability of western livestock grazing operators with federal permits by keeping grazing fees low. If other objectives are to be achieved, however, the formula is less successful. For example, it does not achieve an objective of recovering reasonable program costs because it does not produce a fee that covers the government's cost to manage the grazing program. Furthermore, it does not meet an objective of providing a revenue base that can be used to better manage and improve federal lands so that they will remain a productive public resource in the future. In this

regard, all other formula alternatives we studied would produce higher fees than the current formula and tend to increase the fees faster over time.

Relatively low fees are an inherent result of the existing formula's design. The formula begins with a low base grazing fee value and adjusts this value in subsequent years using an index that heavily weights factors aimed at measuring rancher "ability to pay." The formula includes these ability-to-pay factors twice using a mathematical design that has served to suppress increases in the fee over time. As a result, the federal grazing fee is 15 percent lower now than it was 10 years ago. This contrasts with a 17-percent increase in private grazing land lease rates over the same period.

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In conducting our review, we examined numerous existing studies on grazing fees conducted by the Department of Agriculture and the Department of the Interior, universities throughout the West, and various interest groups. We also obtained assessments of the formula from a number of economists knowledgeable about ranching economics, state and federal agency officials, livestock industry representatives, and representatives of environmental groups. With the assistance of a consulting agricultural economist, we analyzed the technical merits of the existing formula and alternative formula designs. Finally, we computed the grazing fee outcomes from the alternative formulas using updated cost and pricing data obtained from the Department of Agriculture.

As you requested, we did not obtain official agency comments on a draft of this briefing report from the Department of Agriculture or the Department of the Interior. However, information was discussed with Forest Service and BLM officials during the course of this assignment. Our review was performed in accordance with generally accepted government auditing standards.

As agreed with your office, we plan no further distribution of this briefing report until 7 days from the date of this letter. At that time we will send copies to the Secretaries of the Interior and Agriculture and other interested parties and make copies available to others upon request. If you or

your staff have any questions concerning this briefing report, please call me at (202) 275-7756. Other major contributors to this briefing report are listed in appendix I.

Sincerely yours,

James Duffus III
Director, Natural Resources
Management Issues

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ABBREVIATIONS

AUM	animal unit month
BCPI	beef cattle price index
BLM	Bureau of Land Management
FVI	forage value index
GAO	U.S. General Accounting Office
PPI	prices paid index
PRIA	Public Rangelands Improvement Act of 1978

SECTION 1

BACKGROUND

The current formula for setting fees charged livestock operators that graze domestic livestock on federal lands was established in the Public Rangelands Improvement Act of 1978 (PRIA). PRIA prescribed that the formula would be in place for a 7-year trial period. In 1986, however, its use was extended indefinitely by Executive Order 12548. The formula is applicable to those public lands managed by the Bureau of Land Management (BLM) and the Forest Service in the 16 western states. Together, these agencies manage grazing on about 268 million acres, divided into about 31,000 grazing allotments. Grazing privileges on these allotments are assigned to livestock operators by permit or lease.

Each operator pays a fee for each head of livestock grazing on the public lands. The fee is established in terms of an animal unit month (AUM) of forage. An animal unit month is considered to represent the amount of forage required to sustain one cow or five sheep for a 1-month period. For example, if an operator grazes 1,000 cows on public lands for a period of 3 months, he/she would be billed for 3,000 AUMs.

Under the existing formula the grazing fee equals a $1.23 base value adjusted annually by an index designed to reflect (1) changes in forage prices paid by livestock operators on private lands as well as (2) the overall profitability of public lands grazing. The formula is:

$$\text{Grazing fee} = \$1.23 \times [(FVI + BCPI - PPI)/100]$$

The Executive order defines the terms in the equation as follows:

-- Forage value index (FVI) is the weighted average estimate of the annual rental charge per head per month for pasturing cattle on private rangelands in 11 western states (Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, and California).

-- Beef cattle price index (BCPI) is the weighted average annual selling price for beef cattle (excluding calves) in the 11 western states.

-- Prices paid index (PPI) is the following selected components from the Department of Agriculture's Statistical Reporting Service's Annual National Index of Prices Paid by Farmers for Goods and Services adjusted by the weights indicated in parentheses to reflect livestock production costs in the western states:

-- Fuels and Energy (14.5).

-- Farm and Motor Supplies (12.0).

-- Autos and Trucks (4.5).

-- Tractors and Self-Propelled Machinery (4.5).

-- Other Machinery (12.0).

-- Building and Fencing Materials (14.5).

-- Interest (6.0).

-- Farm Wage Rates (14.0).

-- Farm Services (18.0).

The Executive order limits the annual increase or decrease in the resulting fee to not more than 25 percent of the previous year's fee and establishes a floor rate of $1.35 below which the fee cannot drop. In the 1991 grazing fee year, the fee computed by the formula is $1.97 per AUM.

SECTION 2

OBJECTIVES, SCOPE, AND METHODOLOGY

Objectives

-- Assess soundness of current formula set forth in PRIA.

-- Compare current formula results to those of alternative formulas using updated cost and price data.

Scope and Methodology

-- Reviewed existing studies.

-- Analyzed technical merits of PRIA formula and alternatives.

-- Computed grazing fee outcomes under alternative formulas.

-- Obtained assessments of economists knowledgeable about ranching economics.

-- Obtained assessments of state and federal agency officials, livestock industry representatives, and representatives of environmental groups.

-- Did not attempt to establish an optimum formula for setting fees.

SECTION 3

HISTORICAL PERSPECTIVE ON GRAZING FEE ISSUE

Controversy Has Persisted for Decades

-- Issues debated in the 1930s, such as the need to relate fees to private market values, are virtually the same as those debated today.

-- Tenor of the debate has been consistently contentious.

Fee Structure Has Changed Several Times

-- The 1969 formula multiplied a base value by the forage value index.

-- Implementation of fee increases computed by the 1969 formula was delayed several times by legislative or executive action.

-- The current formula was initially used for 1979 grazing year.

Many Analyses Have Been Conducted

-- Analyses concerning grazing fees date back to the 1920s.

-- GAO addressed grazing fees several times during the 1950s and 1960s.

History of Debate Leads to Several Key Observations

-- The focus has been as much on technical details of formulas as on discussion of program objectives.

-- Because a competitive market does not exist, federal grazing fees must be artificially set in the context of often-conflicting policy objectives.

-- Given extensive analyses to date, there is little need for additional study.

SECTION 4

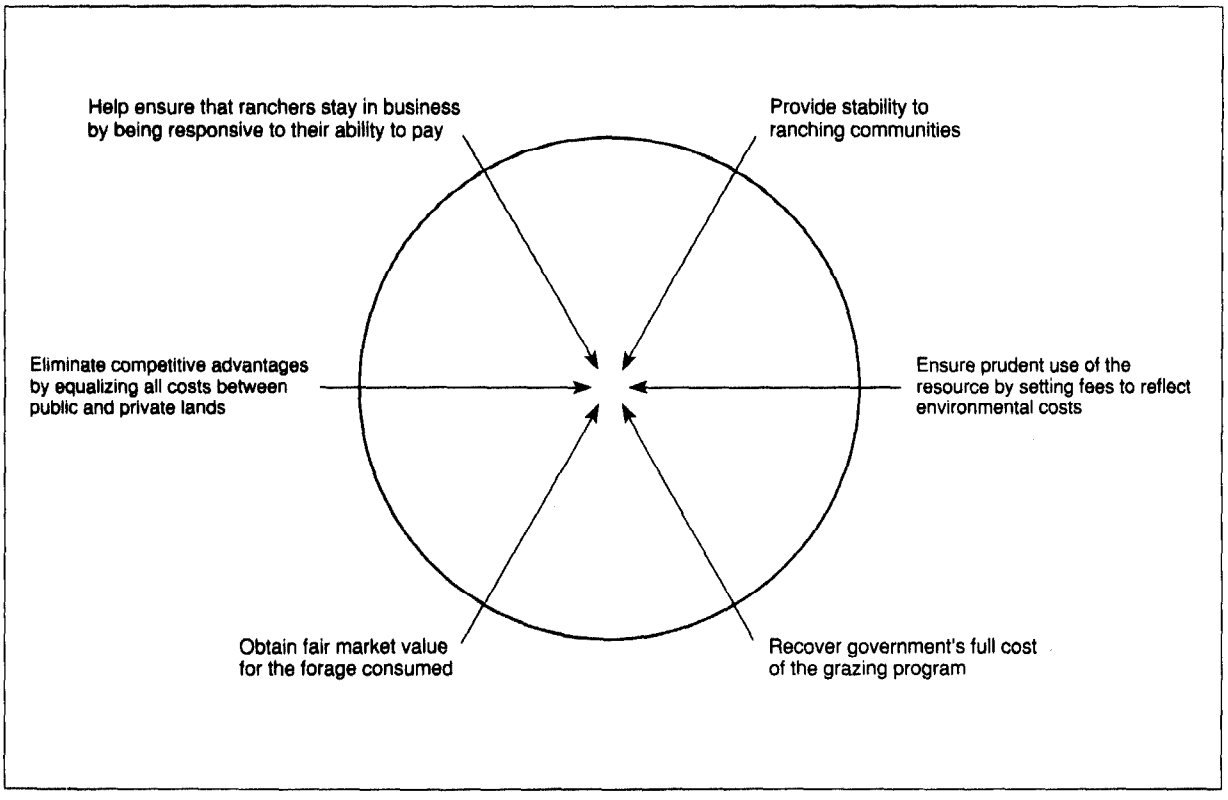
GRAZING PROGRAM OBJECTIVES

-- Evaluating the soundness of any formula depends on the primary objective to be achieved.

-- With respect to grazing fees, a number of different--and in some cases, conflicting--objectives have been proposed over the years, as set forth in figure 4.1.

-- Deciding among these objectives involves policy tradeoffs more than analytical solutions.

Figure 4.1: Proposed Objectives for Federal Grazing Program



SECTION 5

WHAT THE PRIA FORMULA HAS DONE

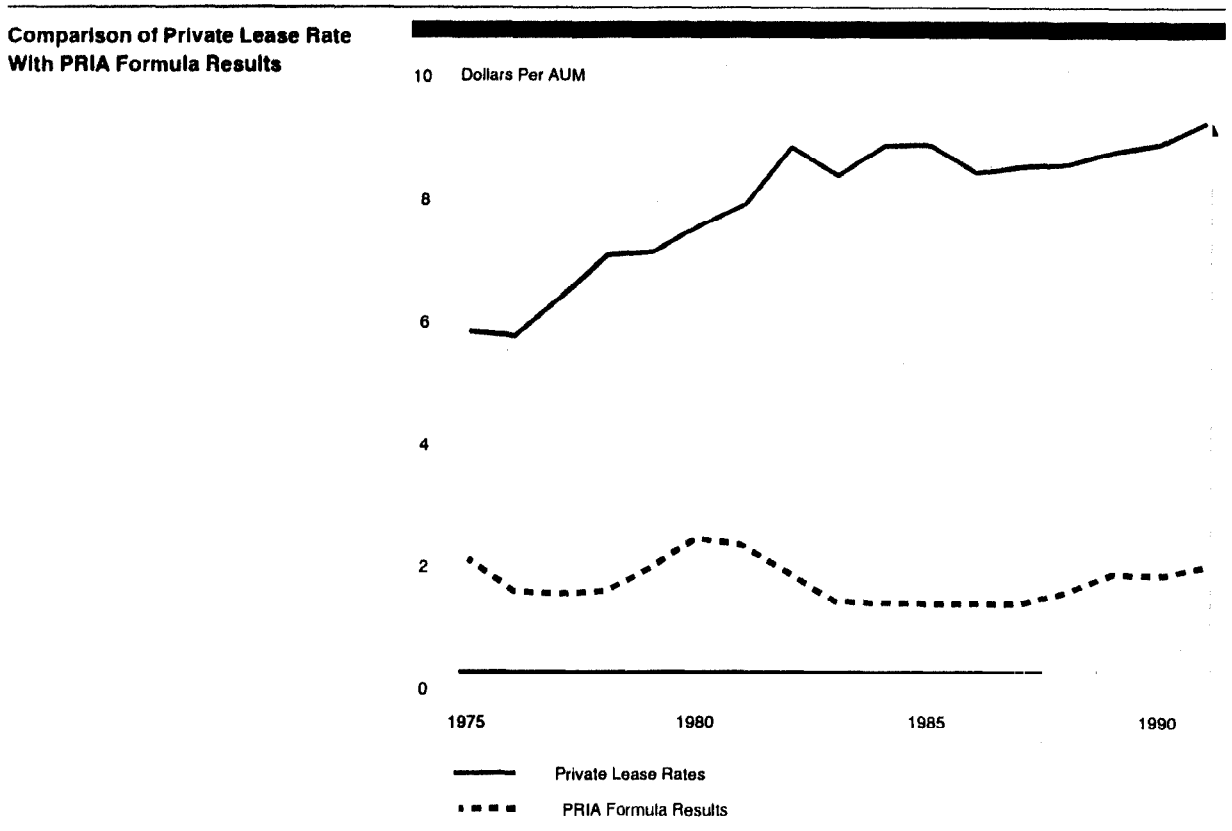
-- Reaching a conclusion on the soundness of the PRIA formula depends on the objective being measured against. In this respect, PRIA has done one thing well--it has kept fees low.

-- The formula's performance in keeping fees low has been in keeping with PRIA's objective of preventing economic disruption and harm to the western livestock industry.

-- Figure 5.1 demonstrates that while private land lease rates have increased steadily over time, the PRIA formula has kept federal fees relatively low and within a fairly narrow range. The gap between federal grazing fees and private land lease rates is wide and growing.

-- Over the past 10 years, the federal grazing fee has dropped 15 percent while private rates have increased 17 percent.

Figure 5.1: Comparison of Private Lease Rates With PRIA Formula



Note: In this figure and those that follow, the PRIA formula results line reflects the $1.35/AUM floor as well as maximum annual adjustment provisions set forth in the Executive order. For years prior to the formula's 1979 implementation, the line reflects formula results rather than the fee actually charged.

SECTION 6

FEATURES IN PRIA FORMULA THAT KEEP FEES LOW

The formula starts with a base fee value set deliberately lower than private forage values. This helps explain the initial divergence between federal grazing fees and private land lease rates as depicted in figure 5.1.

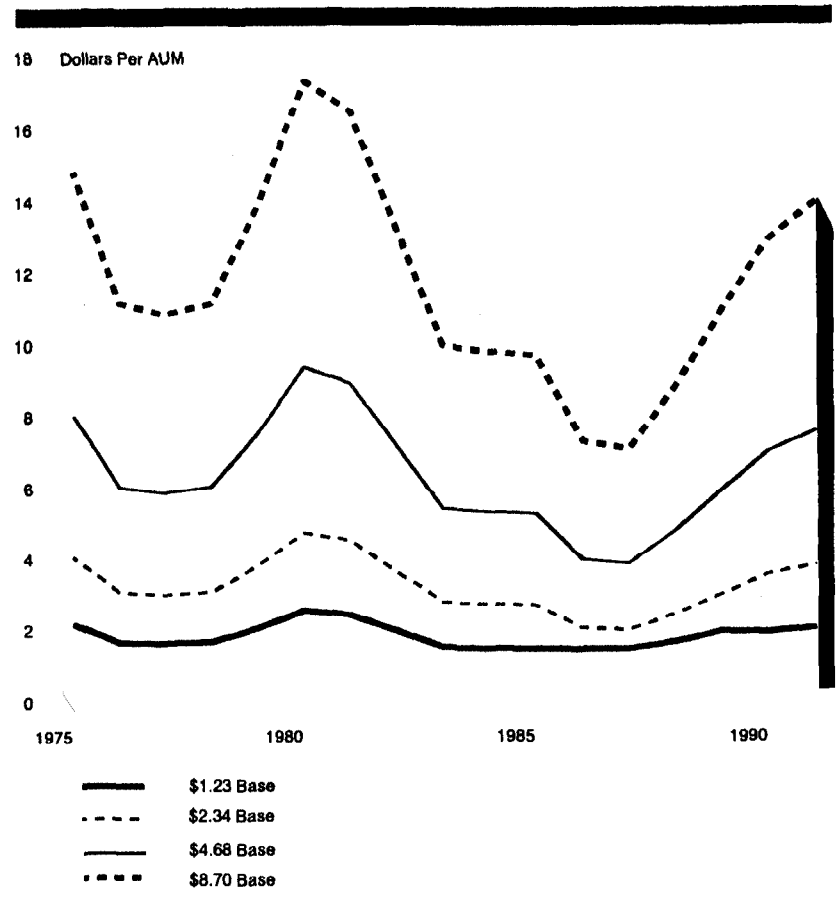
-- The goal in doing so is to equalize total costs between ranchers on federal and private lands.

-- Formula designers found that operators on public lands had higher non-forage-related costs of operation than operators on private lands. The difference was attributed to factors such as higher herding costs, higher livestock death rates, and increased costs of travel to and from grazing areas. They set the base value at a level ($1.23) that was lower than the forage component ($1.79) of the private land lease rate being charged at the time ($3.65) to offset these higher costs.

-- Figure 6.1 demonstrates the sensitivity of the PRIA formula to different base values that might have been chosen. (The $2.34 and $4.68 values used in the figure were included as alternatives in the 1986 Agriculture/Interior grazing fee study. The $8.70 value was a minimum fee in previously proposed grazing fee legislation.

Figure 6.1: Comparison of PRIA Formula Results Using Different Base Values

Comparison of PRIA Formula Results Using Different Base Values



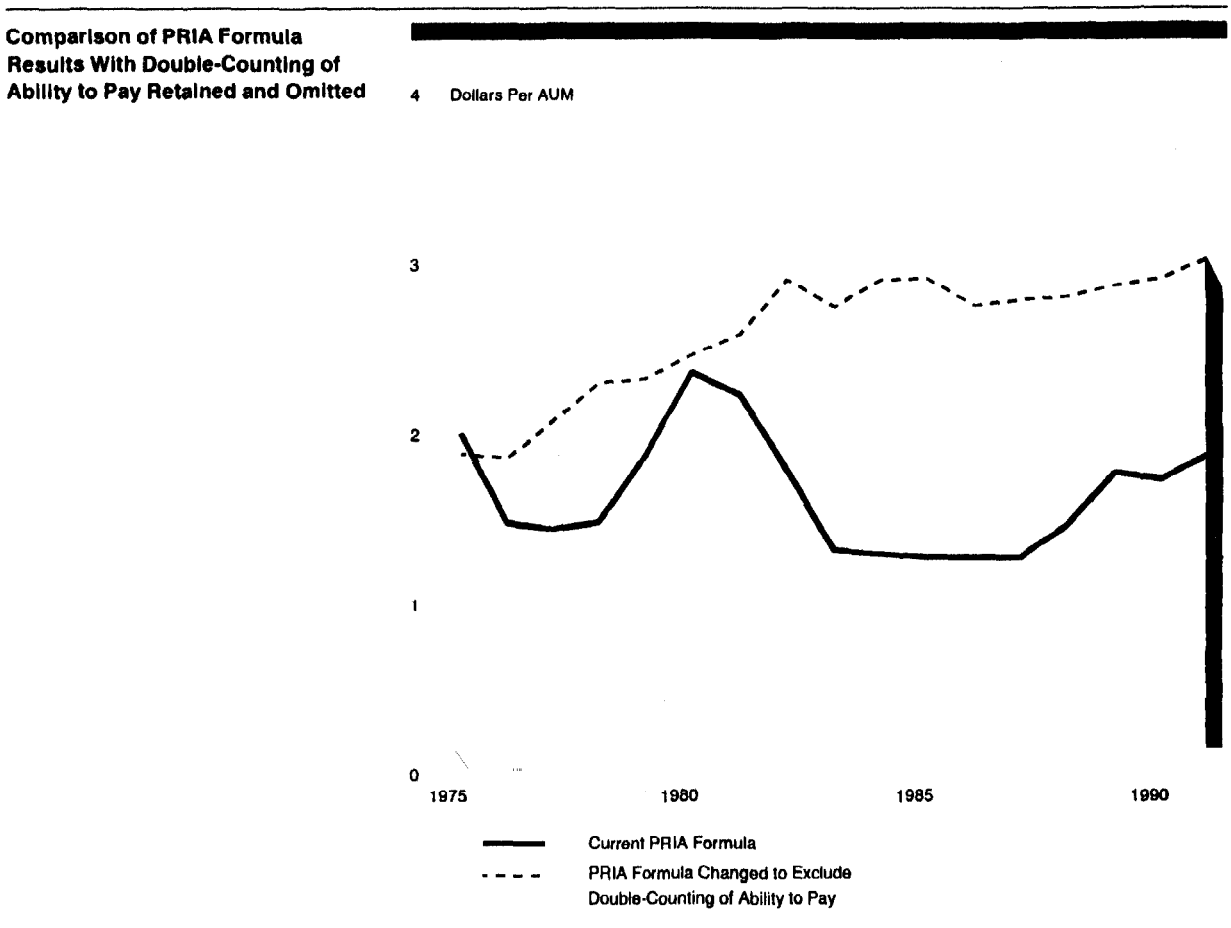
Features of the Formula: Double-Counting

Several technical features of the formula help explain why federal grazing fees have not kept pace with increases in the private land lease rate over time.

-- At the outset, the formula reflects rancher ability-to-pay considerations twice rather than once.

-- Figure 6.2 isolates the impact of double-counting ability-to-pay considerations on grazing fee outcomes by comparing the results of the current formula to the results of a formula that indexes the $1.23 base value solely to the forage value index.

Figure 6.2: Comparison of PRIA Formula Results With Double-Counting of Ability to Pay Omitted



How Ability-to-Pay Factor Is Double-Counted in Federal Grazing Fee Formula

The existing federal grazing fee formula was designed with the intention of having fees increase when the livestock industry was doing well and having them decrease when times were difficult. The approach taken to achieve this result, however, has had the added effect of insulating public lands ranchers from the fairly steady increases in market prices for forage paid by ranchers leasing private grazing lands. This occurs because in addition to indexing the base grazing fee value ($1.23) to changes in private land lease rates (the forage value index), the formula also includes a separate index of industry profitability (the difference between the beef cattle price index (rancher revenues) and the prices paid index (rancher expenses)). The inclusion of this separate index of profitability double-counts ability-to-pay considerations already captured in the forage value index element of the formula.

When the livestock industry is experiencing good times, ranchers tend to increase demand for forage, thereby bidding up private land lease rates and hence eventually pushing up the forage value index. Conversely, when the industry is not as healthy and the ability to pay for forage is reduced, private land lease rates will tend to decline. This decline is, in turn, eventually reflected in a reduced forage value index. The method used to overlay additional ability-to-pay consideration in the federal grazing fee formula has exerted a strong and steady downward pressure on federal fees and thereby caused a growing gap between prices paid for forage by public lands ranchers and those without access to public lands. This is occurring even though public and private land ranchers face essentially the same market conditions.

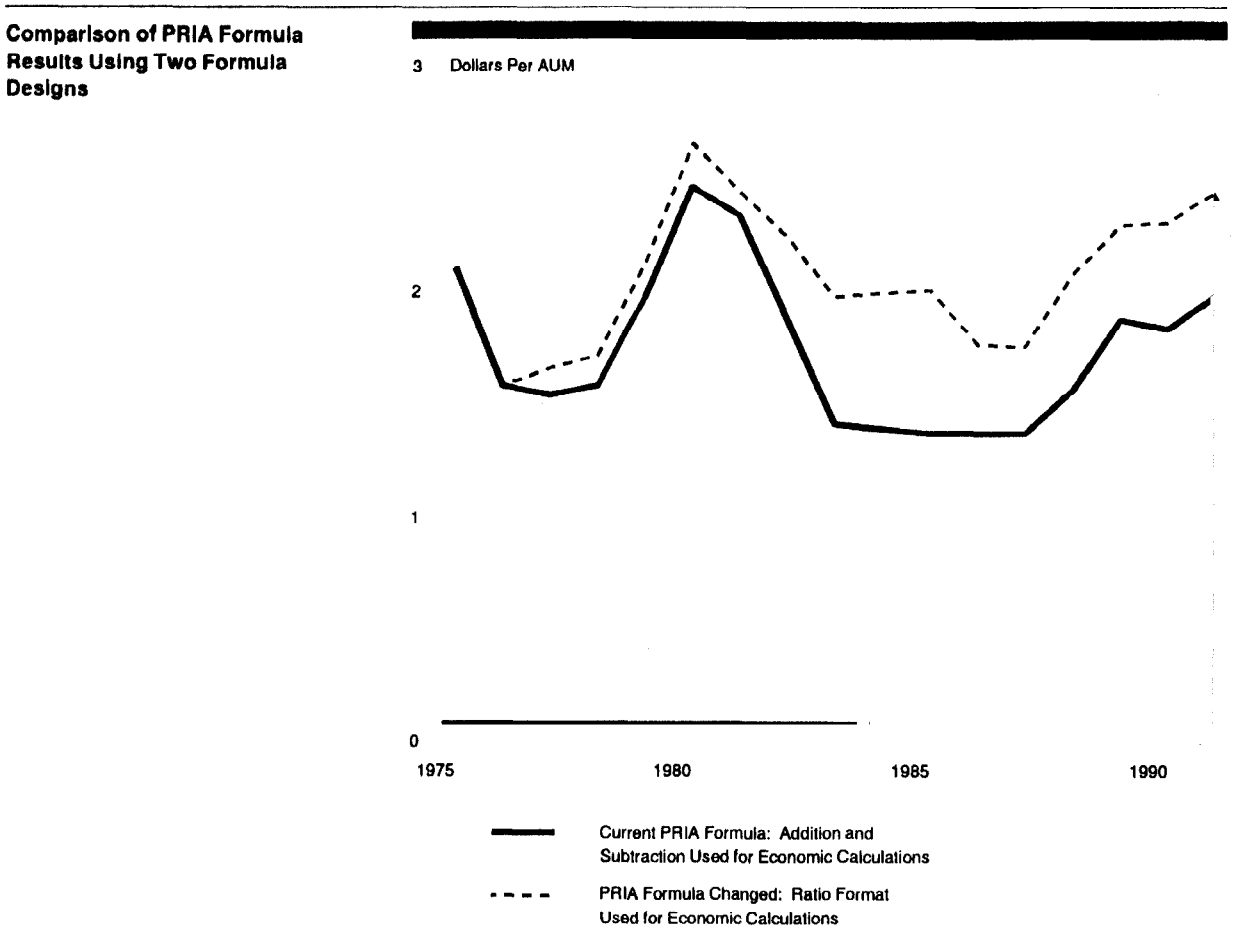
Features of the Formula: Mathematical Design

-- In addition to reflecting ability-to-pay considerations twice rather than once, the existing formula incorporates these considerations in a design that has magnified the impact of production cost increases and, to date, enabled this factor to dominate formula outcomes. As a result, federal grazing fees have decreased at a time when private fees have increased.

-- Figure 6.3 isolates the impact of this formula design feature on grazing fee outcomes. It reflects the comparative results of the existing formula and a formula revised as follows:

$$\text{Grazing Fee} = \$1.23 \times \frac{[FVI \times (BCPI/PPI)]}{100}$$

Figure 6.3: Comparison of PRIA Formula Results Using Two Formula Designs



Explanation of Impact of Formula's Mathematical Design

Under the existing PRIA formula, cost and price indices are added and subtracted as absolute numbers. To compute each year's fee, the base fee value of $1.23 is adjusted by a factor representing the sum of the forage value index plus the beef cattle price index minus the prices paid index. As the 1986 Agriculture/ Interior grazing fee study suggested, this addition and subtraction format has magnified differences between prices received and prices paid indices as inflation over time has caused all of them to increase. This occurred because, while the relationship between cost and price indices changed relatively little over time, the absolute differences between them increased more substantially. The report concluded that incorporating the formula's indices in a ratio format rather than in an absolute differences format, would dampen the variable effect of the differences in long-run trends of prices and costs. It would also serve to protect against the possibility that the formula could produce a fee result of less than zero.

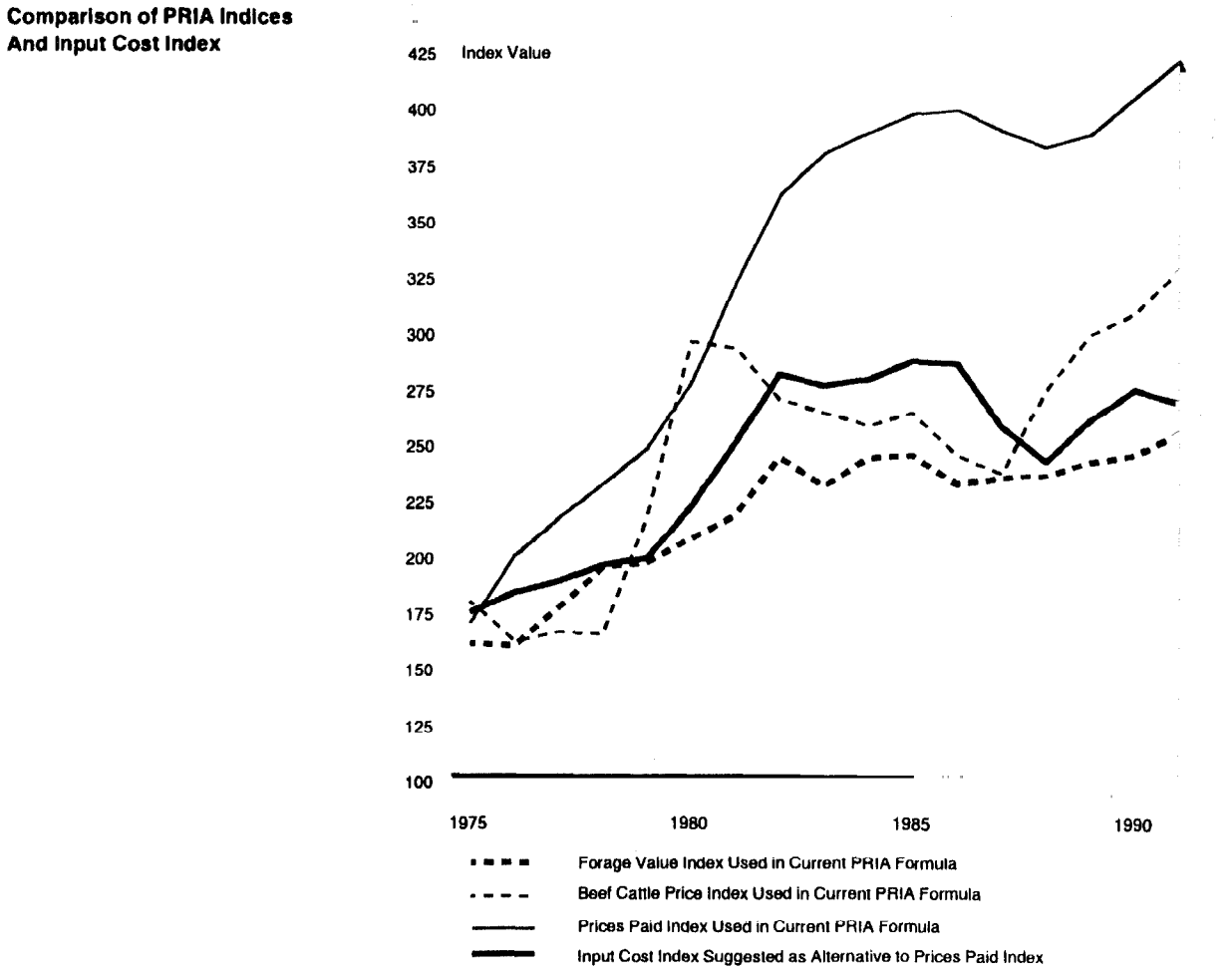
Features of the Formula: Noninclusive Index

-- The formula uses a rancher cost-of-operations index (the prices paid index) that emphasizes cost elements most affected by inflation and excludes cost elements that tend to increase less over time.

  -- The index used was created solely for the PRIA formula.

  -- Figure 6.4 demonstrates how the prices paid index currently used diverges from other cost and price indices.

Figure 6.4: Comparison of PRIA Indices and Input Cost Index



Explanation of Differences Between Prices Paid Index and Input Cost Index Alternative

The prices paid index, developed solely for use in the PRIA formula, is made up of selected components of the National Index of Prices Paid by Farmers maintained by the National Agricultural Statistics Service in the Department of Agriculture. The prices paid index excludes farm-produced cost components included in the broader index such as feed, feeder livestock, seed, and fertilizer. The exclusion of those components gives greater weight to components of livestock production more highly affected by market changes and inflation, such as fuel and equipment costs. Because of this, some agricultural economists believe the prices paid index used in the PRIA formula overstates overall livestock operator costs. Since this noninclusive index is subtracted in absolute terms from the other indices in the formula, it acts to significantly reduce the fee ultimately computed.

To correct this problem, the 1986 Agriculture/Interior grazing fee study proposed an alternative cost-of-operations index known as the input cost index. This index includes all livestock production costs of both farm and nonfarm origin and therefore more realistically depicts overall operating costs.

Using The Prices Paid Index Produces Lower Fees

-- Using the current cost-of-operations index, which emphasizes cost elements most affected by inflation, results in lower fees than would occur using another index more realistically depicting total costs of operation.

-- Figure 6.5 demonstrates the dramatic effect on formula outcomes by using the prices paid index.

Figure 6.5: Comparison of PRIA Formula Results Using Two Cost-of-Operations Indices

Comparison of PRIA Formula Results Using Two Cost-of-Operations Indexes

SECTION 7

ASSESSMENT OF PRIA FORMULA'S PERFORMANCE IN MEETING OTHER OBJECTIVES

PRIA Does a Poor Job of Meeting Other Objectives

-- Fee has not followed the rise in grazing land lease rates paid by operators on private lands.

-- Fee does not cover government's costs of managing the grazing program.

-- Fee does not provide funding for an adequate level of resource protection.

In addition to doing a poor job of mirroring changes in fees paid by ranchers leasing private grazing land, the existing grazing fee formula is not generating grazing fee revenues sufficient to cover the amount spent by federal agencies to conduct their current level of grazing program management. The current grazing fee is $1.97/AUM. In contrast, the Forest Service reports that it costs $3.86/AUM to manage its livestock grazing program. While not reporting a cost per AUM figure, BLM says its livestock grazing management costs represent 60 percent of its total rangeland management budget. This livestock management-specific portion of its rangeland management program totaled about $21 million in fiscal year 1990. Gross grazing fee receipts during this same year were about $19 million.

We did not assess the validity of the breakout BLM uses to determine the costs of its livestock grazing management effort. However, two pieces of information suggest that BLM program management cost estimates may be understated. First, BLM figures suggest that its costs per AUM are about half those of the Forest Service. Second, BLM's current cost estimates are less than estimates BLM reported in 1986 ($2.44/AUM).

In any event, the loss incurred by the U.S. Treasury for conducting the federal grazing program is even more dramatic than may first appear because the Treasury retains, at most, only 37.5 percent of the grazing fees collected. Of the gross federal grazing fee revenues, between 12.5 percent and 50 percent of BLM collections (depending on the administrative authority under which the land is managed) and 25 percent of Forest Service collections are returned to the state and county governments in which they were collected. In addition, 50 percent of the collections are returned to BLM and the Forest Service to fund various range improvements (fences, water developments, etc.) and are not available to offset management expenses funded through federal appropriations. The range improvement funds ultimately expended are in addition to the program management costs discussed above.

Furthermore, as we have demonstrated in many previous reports[1] and as BLM and the Forest Service have recognized, existing levels of program management and range improvement are insufficient to perform all important management functions and restore lands damaged by previous grazing activity. Among the functions we have shown to be receiving insufficient resources are livestock grazing trespass enforcement, grazing allotment monitoring, allotment management planning, and riparian area restoration. Consistent with our findings, a 1990 BLM report found that the agency needed a nearly 50-percent increase in its range management budget from fiscal year 1989 levels to accomplish its program management objectives.[2]

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[1]A list of these reports is included at the end of this report.

[2]State of the Public Rangelands 1990, United States Department of the Interior, Bureau of Land Management.

SECTION 8

ECONOMISTS' VIEWS OF CURRENT FORMULA

-- Most economists we interviewed believe that the PRIA formula has several technical drawbacks.

-- Many believe a simpler formula eliminating duplicative consideration of ability to pay is preferable.

-- While noting problems with the PRIA formula on technical grounds, many hold the public policy view that the low grazing fees it produces is desirable as a means of

  -- equalizing total costs of operation on public and private lands;

  -- avoiding economic losses to those who have bought and paid for ranches with the expectation of continued low federal grazing fees; and

  -- ensuring that public lands with marginally valuable forage are not priced beyond their worth.

SECTION 9

STATES AND OTHERS EMPHASIZE DIFFERENT OBJECTIVES

States

States generally place greater emphasis on raising revenues.

-- State revenues are largely used to finance education-related activities.

-- Virtually every western state charges more than the federal government under PRIA.

Subleasers

Permit holders subleasing their permits to other livestock operators also emphasize the enhancement of income.

-- Sublease payments are an indicator of market value.

-- A study of nearly 1,000 subleases, prepared by two Colorado State University faculty members, showed charges that averaged more than $7/AUM. In some cases, this rate was affected by services provided by the permit holder at an average value of $3.30. This would indicate that, in these cases, the net charge for forage alone was $3.70.

Federal Agencies

Federal agencies charge varying fees to achieve differing objectives on some of their lands.

-- On McGregor Range (Department of Defense land managed by BLM) in New Mexico, BLM attempts to obtain revenues that cover costs relating to improvements such as fences and water supplies. A weighted average charge of $4.60/AUM is proving to be insufficient to keep all existing water systems operational.

-- For the approximately 150 national wildlife refuges that permit livestock grazing, Interior's Fish and Wildlife Service directs refuge managers to set rates that are comparable to local market conditions based on market surveys. Market surveys are to occur at least every 3 years and are to reflect comparability in forage and privileges. Fees therefore vary from refuge to refuge. Fees charged in 1989 included $3.63/AUM for upland range on the Sheldon National Wildlife Refuge in Nevada, $5.90/AUM on the Browns Park National Wildlife Refuge in Colorado, and

$6.72/AUM for meadows on the Hart Mountain National Antelope Refuge in Oregon.

BLM and the Forest Service, in assessing charges for grazing trespass, charge an amount that is derived from the value of grazing on private lands. This rate is $9.19/AUM for BLM and $6.08/AUM for Forest Service.

SECTION 10

ANALYSIS OF ALTERNATIVE FORMULAS

-- Alternatives analyzed were proposed by Interior and Agriculture in a 1986 grazing fee study or in recent legislation.

-- Alternatives would address some or all of the PRIA formula's technical drawbacks.

-- As shown in figures 10.1 and 10.2, all alternatives analyzed would produce higher fees than the PRIA formula and would increase more quickly over time.

Figure 10.1: Comparison of PRIA Formula With Alternatives in 1986 Agriculture/Interior Study

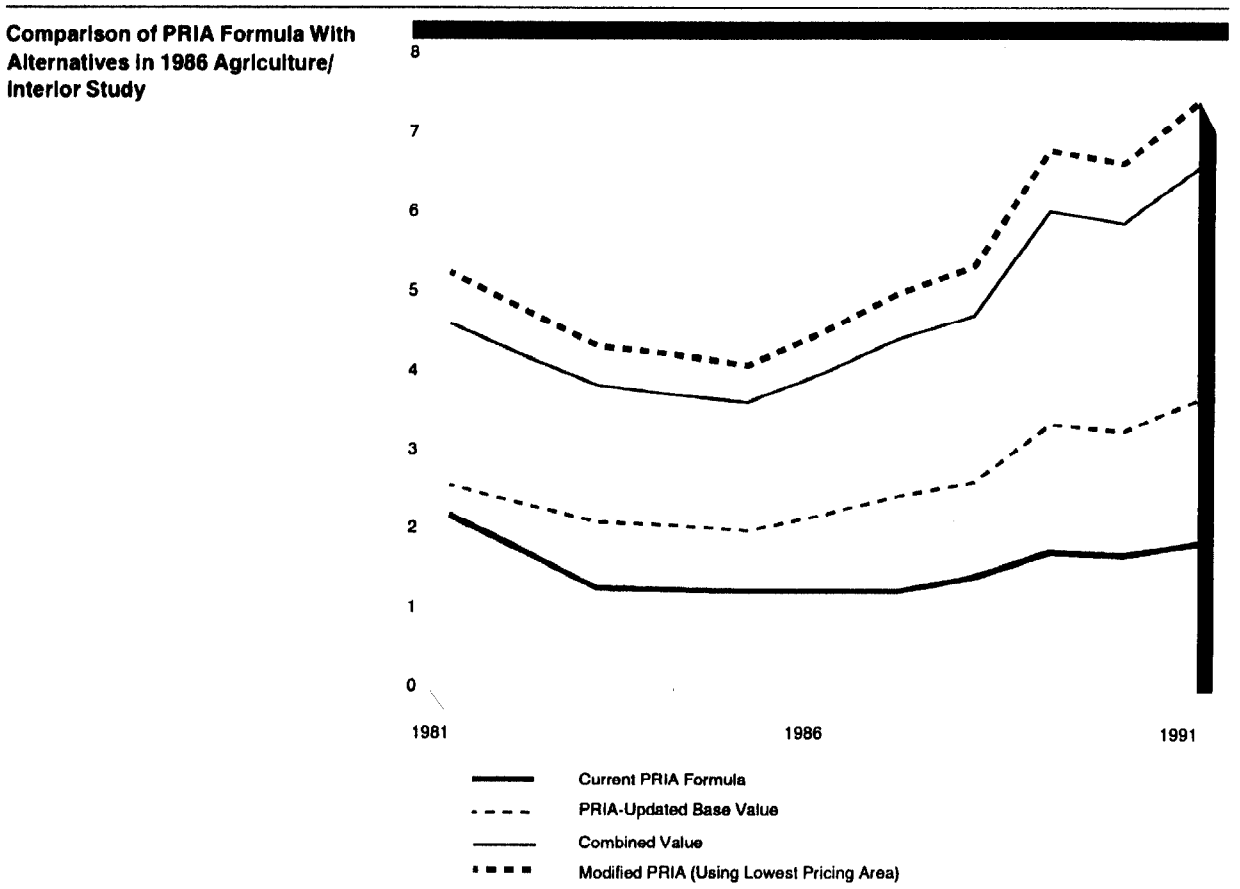
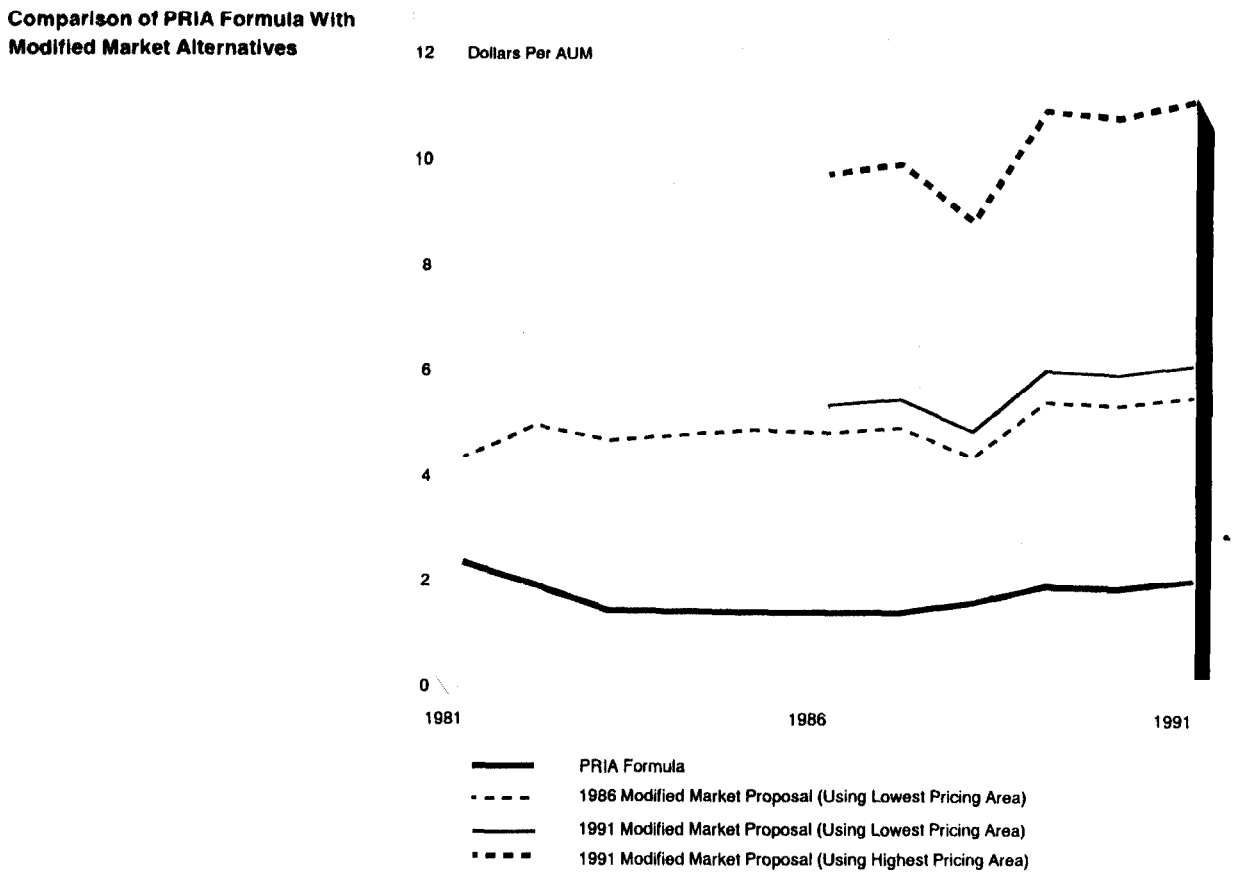


Figure 10.2: Comparison of PRIA Formula With Modified Market Alternatives



Description of Alternative Formulas Analyzed

PRIA-Updated Base Value. This alternative maintains the existing PRIA formula components but uses a different base value and makes technical modifications to the mathematical construction of the formula indices. The base value is updated by indexing the 1966 Western Livestock Grazing Survey nonfee costs and private grazing lease rates to a 1980-84 base period. This results in an updated base value of $2.34/AUM. In addition to this change, technical modifications are made to the PRIA formula to incorporate changes recommended in the 1986 Agriculture/Interior Study to (1) use ratios of the PRIA indices rather than addition and subtraction; (2) use the input cost index rather than the prices paid index; and (3) weight the forage value index and the beef

cattle price-index by the number of BLM and Forest Service AUMs in the 16 western states.

Combined Value. This alternative formula uses the same technical changes included in the PRIA-Updated Base Value formula. However, it uses a base value that is derived by averaging a market value determined by the Forest Service and BLM appraisers with the $2.34/AUM base value in the PRIA-Updated Base Value formula.

Modified PRIA. This alternative formula again uses the same technical changes that were included in the PRIA-Updated Base Value formula. It differs from that alternative by using a base value derived from the appraised market value of public land grazing determined in a Forest Service and BLM appraisal study.[3] The formula may use different base values for each of six individual pricing areas determined in the appraisal study.

1986 Modified Market Proposal. This alternative formula uses base values derived from the appraised market value of public land grazing determined in the aforementioned appraisal study and uses only one index--the forage value index--as the annual adjustment factor. The formula may use different base values for each of six individual pricing areas determined in the appraisal study, and the forage value index is weighted by the number of BLM and Forest Service AUMs in the 16 western states.

1991 Modified Market Proposal. This alternative formula, proposed in recent legislation, has the same features as the 1986 Modified Market Value formula described above but uses higher base values because it omits a 10-percent reduction in market value for advance payment that was used in the 1986 formula.

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[3]Appraisal Report Estimating Fair Market Rental Value of Grazing on Public Lands, United States Forest Service and Bureau of Land Management, July 27, 1984.

SECTION 11

CONCLUSIONS

-- If minimizing the burden to the permittee and keeping fees low and relatively stable are the primary objectives, the PRIA formula keeps fees lower than any of the alternatives studied.

-- If the primary objective is to track changes in forage prices paid on private lands or to recover the government's costs of administering the livestock grazing program and provide an adequate level of protection for the land, substantial revisions would be needed. Current fees are insufficient to cover the costs of the existing grazing program, and as we have demonstrated many times previously, current program funding levels are insufficient to perform all important management functions.

-- A formula that many economists we interviewed preferred to the existing PRIA formula would adjust a base value by a single index and make no additional adjustments for rancher ability to pay.

-- Any formula would need to be revisited over time to make certain it is still meeting established objectives.

APPENDIX I

MAJOR CONTRIBUTORS TO THIS BRIEFING REPORT

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RELATED GAO PRODUCTS

Reports

Rangeland Management: Forest Service Not Performing Needed Monitoring of Grazing Allotments (GAO/RCED-91-148, May 16, 1991)

Public Land Management: Attention to Wildlife Is Limited (GAO/RCED-91-64, Mar. 7, 1991)

Rangeland Management: BLM Efforts to Prevent Unauthorized Livestock Grazing Needs Strengthening (GAO/RCED-91-7, Dec. 7, 1990)

Public Lands: Limited Progress in Resource Management Planning (GAO/RCED-90-225, Sept. 27, 1990)

Rangeland Management: Improvements Needed in Federal Wild Horse Program (GAO/RCED-90-110, Aug. 20, 1990)

California Desert: Planned Wildlife Protection and Enhancement Objectives Not Achieved (GAO/RCED-89-171, June 23, 1989)

Public Rangelands: Some Riparian Areas Restored but Widespread Improvement Will Be Slow (GAO/RCED-88-105, June 30, 1988)

Rangeland Management: More Emphasis Needed on Declining and Overstocked Grazing Allotments (GAO/RCED-88-80, June 10, 1988)

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