

Benefit/Cost Assessment--Grassland Reserve Program

Introduction

The Farm Security and Rural Investment Act of 2002 (2002 Act), Title II, Subtitle E, mandates establishment of the Grassland Reserve Program (GRP)-a voluntary program with the goal of protecting and restoring eligible grasslands through easement purchases and rental agreements with private landowners and operators. Participants are provided technical and financial assistance to restore native and naturalized grassland¹ functions and values. The 2002 Act authorized funding of \$254 million, but the Omnibus Appropriations Acts of 2003 and 2004 used \$30 million of authorized GRP funds to provide Wetland Reserve Program and Conservation Reserve Program technical assistance, leaving \$224 million for the GRP.

Statutory Requirements

1) Enrollment Conditions

The Secretary must establish GRP to assist landowners to restore and conserve eligible land. Land may be enrolled in permanent or 30-year easements, or 10, 15, 20, or 30-year rental agreements. For States with statutory limits on the maximum length of easements, easements may be written for the maximum length permitted. A maximum of 2 million acres of grasslands may be restored or improved through GRP.

2) Limitation on Use of Easements and Rental Agreements

Of total funds expended (1) not more than 40 percent may be used for 10, 15, or 20-year rental agreements, and (2) not more than 60 percent may be used for 30-year rental agreements, 30-year easements, or permanent easements.

3) Eligible Land

GRP is available on private land, including tribally owned, and any other non-publicly owned land managed to produce livestock and/or wildlife. Eligible land includes:

- Grasslands (The definition for the rule includes land on which the vegetation is dominated by grasses, grass-like plants, shrubs, and forbs. This definition includes rangeland² and pastureland³),

^{1/} Unless noted otherwise, includes shrubland, rangeland, improved pastureland and other lands containing forbs.

^{2/} Rangeland means a land cover/use on which the climax or potential plant cover is composed principally of native grasses, grasslike plants, forbs, or shrubs suitable for grazing and browsing, and introduced forage species that are managed like rangeland. This term would include areas where introduced grasses are planted and such practices as deferred grazing, burning, chaining, and rotational grazing are used, with little or no chemicals or fertilizer being applied. Grasslands, savannas, many wetlands, some deserts and tundras are considered rangeland. Certain communities of low forbs and shrubs, such as mesquite, chaparral, mountain shrub, and pinyon-juniper are also included as rangeland.

- Land located in an area historically dominated by grassland, forbs, or shrubland, and has potential to serve as habitat for ecologically significant animal or plant populations, if retained in its current use or restored to a natural condition, and
- Incidental land contributing to properly configuring boundaries, allowing efficient management of the area for easement purposes and otherwise promote and enhance GRP objectives. (Parcels of less than 40 contiguous acres are not eligible unless the Secretary grants a waiver.)

GRP is available nationwide, including the District of Columbia, the Commonwealth of Puerto Rico, Guam, the Virgin Islands, American Samoa, and the Commonwealth of the Northern Marianna Islands.

4) Terms of Rental Agreements and Easements

Enrolled grasslands may be used for common grazing practices, including maintenance and necessary cultural practices (to maintain the viability of locally common grassland, forb, and shrub species), fire rehabilitation, and construction of fire breaks and fences. Converting land to urban or crop use is prohibited. Grazing and cultural practices are subject to appropriate restrictions during the bird nesting season for species in significant decline or conserved by Federal or State law. Landowners retain ownership and associated responsibilities, including property taxes.

5) Evaluation and Ranking

The Secretary shall establish criteria to evaluate and rank applications. Criteria emphasize support for:

- Grazing operations,
- Plant and animal diversity (i.e., native grasslands), and
- Grassland, land including forbs, or shrubland under greatest threat of conversion.

6) Easement and Rental Agreement Payments

The Secretary shall make easement or rental payments to the owner in an amount equal to:

- In the case of a permanent easement, the fair market value of the land less the grazing value of the land encumbered by the easement.
- In the case of a 30-year easement or an easement for the maximum duration allowed under applicable State law, 30 percent of the fair market value of the land less the grazing value of the land for the period during which the land is encumbered by the easement.

^{3/} Pastureland is land *managed* primarily for the production of introduced or native forage plants for livestock grazing.

- For rental agreements, annual payments can not exceed 75 percent of annual grazing value.

7) Restoration Agreements and Cost-Share

The Secretary prescribes restoration cost-share agreement terms, including respective duties of the owner and the Secretary, Federal share of restoration payments, eligible practices, and technical assistance. For previously cultivated land, the Secretary shall make payments of not more than 75 percent of the cost of carrying out practices necessary to restore or enhance grassland functions and values. For land having never been cultivated, the cost-share rate is not more than 90 percent.

8) Funding

The 2002 Act directs the Secretary to expend, to the maximum extent practicable, \$254 million over fiscal years (FY's) 2003 through 2007. Because the Omnibus Appropriations Acts of 2003 and 2004 use \$30 million of authorized GRP funds to provide Wetland Reserve Program and Conservation Reserve Program technical assistance, only \$224 million has been made available for the implementation of GRP. GRP easement and rental agreement funds are obligated in FY 2003 through FY 2007, but rental agreement payments are expended annually throughout the length of the contract.

Grassland in the United States

Before U.S. settlement, grasslands occupied approximately 1 billion acres, about 1/2 the landmass of the contiguous United States. About 50 percent of these lands have been converted to cropland, urban, and other uses. The remaining 533 million grassland acres continue to be at risk of conversion as population and crop production pressures increase. The expansiveness and

Table 1. Estimated Percentage Decline in Prairie Acreage Since 1830

<u>State</u>	<u>Tall Grass</u> *	<u>Mixed-Grass</u> *	<u>Short-Grass</u> *
Illinois	99.9		
Indiana	99.9		
Iowa	99.9		
Kansas	82.6		
Minnesota	99.4		
Missouri	99.5		
Nebraska	98.0	75.3	
North Dakota	99.9	68.3	
South Dakota	99.2	70.0	35.0
Texas	90.0	30.5	79.5
Wisconsin	99.9		
Wyoming			20.0

a/ Unless noted otherwise, includes shrubland.

* "Blanks" indicate that grassland type did not exist in the State.

many uses and values of grasslands make them economically and environmentally important. Based on U.S Geological Survey (USGS) estimates (Table 1), the percentage of prairie grasslands lost in selected States is significant.

Between 1992 and 1997 about 24 million acres (4.6 percent) of grasslands were converted to cropland or non-agricultural uses, such as development (Appendix Table 1). However, because cropland, forestland, and other lands are also converted to grassland, the net change in grassland is much less. Between 1992 and 1997 net grassland loss totaled about 5.5 million acres, or 1.1 percent.

FY 2003 GRP Activities

In its first year (FY 2003), GRP operated under a notice of funds availability (NOFA). A total of \$68.4 million were obligated, \$52.2 million for enrollment (payments to landowners) and \$16.2 million (24 percent) for Natural Resource Conservation Service (NRCS) and Farm Service Agency (FSA) technical assistance costs (Appendix Table 3).

The GRP authorizing language requires the Secretary to emphasize support for grazing operations; grassland, land that contains forbs, and shrubland under the greatest threat of conversion; and bio-diversity of plants and animals. Because the statute does not prioritize the areas of emphasis USDA made a policy decision to support these areas equally, in the allocation process. For this reason FY 2003 GRP State funding was a function of the number of grazing operations, the acres of pasture and rangeland under the threat of conversion, and bio-diversity⁴ considerations. Unused State funds were redistributed to other States. Each State developed selection criteria to evaluate and select offers.

The Commodity Credit Corporation (CCC) received 13,321 offers covering 8.92 million grassland acres—7.96 million acres of which were offered for rental agreements and 0.62 million acres for easements. The estimated cost to enroll the full 8.92 million acres was \$1.6 billion--over six times the \$254 million authorized, and 32 times the announced FY 2003 funding. Across the United States, 213,000 acres were enrolled—148,000 acres in 10, 15, and 20-year rental agreements and 65,000 in easements or 30-year rental agreements. The average offer accepted into the GRP was less than half the size (300 acres) of the average GRP offer (670 acres). A total of 139,000 acres of native grassland were enrolled.

FY 2004 GRP Activities

⁴/ Native grassland acres were used to measure bio-diversity.

In its fiscal year 2004, GRP operated under an interim final rule, published May 21, 2004. A total of \$56.1 million were obligated for enrollment and \$14.8 million for Natural Resource Conservation Service (NRCS) and Farm Service Agency (FSA) technical assistance costs.

The Commodity Credit Corporation (CCC) received 10,122 offers covering 6.5 million grassland acres—5.54 million acres of which were offered for rental agreements and 0.96 million acres for easements. The estimated value to enroll the full 6.5 million acres was \$1.49 billion—nearly six times the \$254 million authorized. Across the United States, 1,055 participants were enrolled, comprising 283,338 acres. Of this enrollment, 177,298 acres was for rental agreements and 106,040 acres for easements. The average rental agreement accepted into the GRP was 196 acres and the average easement was 702 acres. A total of 78,218 acres of native grassland were enrolled.

FY 2005 GRP Activities

In fiscal year 2005, a total of \$65.8 million were obligated for enrollment and \$9.8 million for NRCS and FSA technical assistance costs. The CCC received 7,412 application offers covering 4.9 million grassland acres. The estimated value to enroll the entire 4.9 million acres was \$980 million. Across the United States, 1,004 participants were enrolled, comprising 384,794 acres.

GRP Options Considered

Five options for determining State funding levels and their impacts on enrollment were examined. The first two options included: (1) the Selected Option, which balances the enrollment for meeting each of the three statutory objectives: protection of grassland under threat of conversion, support for livestock operations, and bio-diversity; and (2) the FY 2004 Implementation, which is like the Selected Option, except it also gives consideration to landowner application demand for the GRP. The three additional options examined the consequences of concentrating on only a single objective. Comparing the impacts of each option identified pertinent tradeoffs.

Option 1: Selected Option

The Selected Option provides for a national enrollment which balances the statutory objectives of GRP without emphasizing any one particular objective over the other. This was done because the statute does not specify that the Secretary will prioritize any single objective, and therefore, USDA made a policy decision to support these areas equally, in the allocation process. State funding is a function of: 1) State number of grazing operations, 2) State acres of grassland under the threat of conversion, and 3) State bio-diversity considerations. This option was the procedure used for allocating funds to States in FY 2003 and FY 2005.

Although the Selected Option enrolled fewer grassland acres than some other options, it more equally distributed funds to States based on the number of grazing operations, the threat of grassland conversion to other uses, and a bio-diversity index; recognizing the implicit equality

given the three program objectives by the statute. The Selected Option approach enables USDA to enhance the program's ability to address national grassland resource concerns, and enables States to address unique grassland concerns within the context of a specific grassland ecosystem within their State. Because this option balanced the three statutory objectives, no single objective was maximized. This is in contrast to the Grassland and Conversion to Other Uses Options that would have distributed funds based on a single criteria, and the Native Grassland Option that would have distributed funds based on two criteria.

Option 2: FY 2004 Implementation

The FY 2004 Implementation also recognized the implicit equality given the three program objectives by the statute, except it included consideration for interest within each State for program participation based on application demand for funds. Allocation funding was a function of State number of grazing operations, acres of grassland under the threat of conversion, bio-diversity considerations, and State application demand for funds as measured by the number of offers for the GRP.

Option 3: Focus on Existing Grassland Acreage by State, i.e., the Grassland Option

State funding based on ratio of State's 1997 grassland acres to the national total grassland acres (Appendix Table 1)⁵. The Grassland Option would have maximized enrollment based on lands available for grazing. The bio-diversity and grassland conversion objectives were not considered.

Option 4: Focus on Relative State Percentages of Grasslands Recently Converted to Other Uses, i.e., the Conversion to Other Uses Option

State funding based on ratio of State's 1992 grasslands (including rangeland and pastureland) converted to other land uses by 1997 (Appendix Table 1). Grasslands converted to cropland would have dominated this scenario. The Conversion to Other Uses Option would have maximized enrollment based on recent grassland conversions. The bio-diversity and grazing operation objectives were not considered.

Option 5: Focus on Relative State Percentages of Native Grasslands, i.e., the Native Grassland Option

State funding based on ratio of State's 1992 native grasslands (i.e., rangeland) converted to other land uses by 1997 (Appendix Table 2). States would have been allocated funds based on FY

⁵/ The 1997 NRI is the most current national data on private land use. Grassland was estimated using the sum of NRI pastureland and rangeland acres.

2003 native grass enrollment according to the National Resources Inventory (NRI) data.⁶ The Native Grasslands Option would have maximized enrollment based on recent native grassland conversions and focused on the bio-diversity objective. The grazing operations objective was not considered.

Under all the options considered, each State develops its own ranking criteria to select offers. The analysis assumes the criteria are similar to FY 2003 ranking criteria.

Analysis

Introduction

Each option was analyzed using application offers and enrollment data from FY 2003 to estimate State funding levels. FY 2003 offers accepted were used to estimate State outlays and the percentage distribution of contracts and easements by State. The statutory requirement for a 40/60-expenditure percentage distribution between 10, 15, and 20-year contracts and longer-term agreements (30-year contracts and easements) are imposed nationally, not on a state by state basis. Native grass acres were assumed to follow State FY 2003 enrollments proportionally.

Of the \$254 million authorized for the program, \$170 million were allocated in FY 2003 and 2004, of which \$30 million were used for technical assistance to implement the CRP and WRP programs ⁷. In FY 2005, \$84 million were allocated, of which \$15 million were used by USDA for technical assistance to implement GRP.

Option Results

This section focused on estimating (1) regional-level funding and (2) consequent acreage enrollment levels under each option. Grassland concentration west of the Mississippi River generally would result in larger funding levels for Western States, except under Option 4—Conversion to Other Uses.

Regional funding varies considerably by option (Table 2). Generally, Great Plains States and Pacific States would have received the largest share of funding under the Option 5 (Native Grassland Option) (Table 2). Overall, the Conversion to Other Uses Option (Option 4) would have distributed funds most evenly across regions with the Selected (Option 1) and FY 2004 Implementation (Option 2). Options 3 and 5 (Grassland and Native Grassland Options) would have distributed funds somewhat less evenly.

^{6/} Funds to States without NRI native grasslands ranged from \$250,000 to \$2.6 million. These States were categorized as having high, moderate or low potential for native grasses. Eastern States without original grasses as native flora were low, while States (listed in Table 1) with a history of prairie conversion to cropland were categorized as high. Native grassland enrollment in FY2003 was also used.

^{7/} The Farm Bill, as amended, designated GRP as one of the four donor programs that could supply the technical assistance funds needed to implement certain Farm Bill conservation programs, including the Wetlands Reserve Program and The Conservation Reserve Program..

Tables 2 projects regional funding levels for considered options, subsequent to FY 2003, for payments to program participants utilizing an estimated amount of \$135.5 million and based on the FY 2003 program enrollment experience.

Table 2. Regional Funding Level, by Option (\$ million)

Region	Selected Option	FY 2004 Implementation	Grassland Option	Conversion to Other Uses Option	Native Grassland Option
Northeast	6.3	6.0	1.8	8.8	2.5
Appalachian	13.4	10.6	5.1	17.0	2.9
Southeast	6.6	5.5	4.7	12.3	15.0
Lake States	7.2	7.4	3.3	10.1	4.2
Corn Belt States	13.0	17.3	6.7	22.1	4.2
Delta States	5.0	4.8	3.0	7.6	1.6
Northern Plains	23.3	22.2	20.5	10.8	16.3
Southern Plains	28.0	29.1	33.1	20.3	28.5
Mountain States	19.8	22.6	46.8	17.5	38.2
Pacific States	13.0	10.0	10.5	8.9	22.1
United States	135.5	135.5	135.5	135.5	135.5

An analysis of acreage enrolled subsequent to the FY 2003 program shows an additional⁸ enrollment of 677,000 acres under the Selected Option (Table 3). This is slightly more than the 676,000 acres under Option 2 (FY 2004 Implementation). Additional acres enrolled would have been greatest under Option 3 (Grassland Option) and Option 5 (Native Grassland Option) 844,000 and 791,000 acres, respectively, which would have enrolled 25 and 17 percent more acres than the Selected Option. However, Options 3 and 5 would not result in an enrollment which would equally balance the three statutory goals for GRP. Additional acres enrolled would be least under Option 4 (Conversion to Other Uses Option, 671,000 acres), because it would have enrolled the greatest urban area acreage, which have the highest cost for enrollment.

Using FY 2003 data, the additional enrollment distribution for easements (including 30 year rental contracts) versus 10, 15 and 20-year rental contracts for the five scenarios are presented in Table 3. The Selected Option has an estimated 453,000 of additional acres enrolled, subsequent to FY 2003 obligations, under 10, 15, or 20-year rental agreements and 223,000 additional acres under easements or 30-year rental agreements. A similar proportion of enrollments for rental agreements and easements occurred under the other considered options.

The estimated additional acres of native grassland enrolled under the Selected Option are 453,000 acres (Table 3). The most additional native grassland acres (731,000) would have enrolled under the Grassland Option (Option 3), 56 percent more than the FY 2004 Implementation. The Native Grassland Option (Option 5), which would have distributed funds to States based on native grassland acres converted to other uses would have enrolled 666,000 additional native grassland acres, nine percent less than the Grassland Option.

The Selected Option enrolls 81,000 additional acres of grasslands in urban areas (Table 3).

^{8/} Additional acres refer to the acres that could be enrolled, after accounting for the \$68 million obligated in FY2003.

These lands are likely vulnerable to conversion to urban use. Option 4 (Conversion to Other Uses Option) was estimated to enroll 148,000 additional acres of urban grasslands, more than 80 percent more than the FY 2004 Implementation Option . Option 5 (Native Grassland Option) was estimated to enroll 23,000 acres of grasslands in urban areas (28 percent of the Selected Option).

Table 3: Additional Acres Enrolled (1000) Under Options Considered

	Selected Option	FY 2004 Implementation	Grassland Option	Conversion to Other Uses Option	Native Grassland Option
Additional Acres – Total	677	676	844	671	791
Additional Acres – Rental Contracts	453	461	556	461	507
Additional Acres - Easements	223	215	288	211	284
Additional Acres - Native Grass	453	469	731	335	666
Additional Acres - Urban Areas	81	87	47	148	23

Program Costs

The Selected Option does not emphasize enrollment for any single statutory objective, but instead demonstrates the greatest ability, of all the considered options, for equally addressing the three primary objectives in accordance with the legislation: protection of grassland under threat of conversion, support for livestock operations, and bio-diversity; The Selected Option’s average per acre cost for enrollment is similar to the cost of Fiscal Year 2004 (Table 4).

The national average enrollment cost per acre varied directly with the number of acres enrolled under each option. The Grassland Option (Option 3) had the lowest cost per acre enrolled (\$204. per acre), with Native Grassland Option (Option 5) next lowest at \$219. per acre (Table 4). Even though Options 3 and 5 had the lowest cost per acre, USDA did not utilize either of these as the selected option, because they did not result in an enrollment that would reasonably balance the three statutory objectives for GRP. Option 4 (Conversion To Other Uses) had the highest cost per acre at \$258. per acre, with the Selected Option and Option 2 (Continuation of FY 2003 Procedures) having somewhat lower costs per acre at \$256 per acre (Table 4).

Table 4. National Average Cost for GRP Enrollment, by Option (\$ per Acre)

Selected Option	Continue FY 2003 Procedures	Grassland Option	Conversion to Other Uses Option	Native Grassland Option
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National Average	256.	256.	204.	258.	219.
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The analysis of program implementation costs through FY 2007, assumed that \$232 million would be made available and be obligated by FY 2007 (Table 5). Because rental agreements continue for up to 30 years, outlays (payments) of rental contract obligated funds continues after FY 2007,⁹ beginning the year following signup.¹⁰ The analysis treated technical assistance costs as occurring in the year following signup.

Technical assistance costs were 24 percent for FY 2003, and assumed to decline to 23 percent in ensuing years (Appendix Table 3). For Options 2-5, future GRP enrollment was based on obligating \$57.7 million each year. The amount was determined by evenly distributing funds available after obligating \$68.4 million in FY 2003¹¹ across FY 2004–FY 2006 signups. The Selected Option used proposed FY 2004 funding of \$79.5 million¹² and \$46.4 million for FY 2005 and FY 2006.

FY 2003 easement and contract costs were used to estimate future costs. FY 2003 per acre enrollment costs were applied to State-level projected enrollment under the various options. Changing funding distribution across States also changed the national per acre cost. National weighted average easement payment cost per acre for lands enrolled in the GRP in 2003 were \$389 (\$490.27 including technical assistance) and weighted average rental agreement payments were \$10.64 (\$13.08 including technical assistance) per acre per year. Costs changed between options considered because the 40/60-percent ratio for contracts to easements and the State allocations redistributed enrollment. Restoration costs were included in easement and rental costs.

Table 5. Selected Option Enrollment Costs (\$ millions)

	Fiscal Year 2004	Fiscal Year 2005	Fiscal Year 2006	Fiscal Year 2007	Fiscal Years 03 - '07	Beyond 2007	Total
Easements	21	24	24	24	92	15	107
Rental Agreements	2	3	5	6	16	56	72
Technical Assistance	16	13	13	13	54		54

⁹/ Participants have the option to receive easement payments in a single payment or up to 10 annual payments. The analysis assumes a single payment is made at the time the contract is signed. FY 2003 data show easement payments generally take this form.

¹⁰/ Contracts actually begin both at signup and in the following fiscal year. The proportion occurring in each year will vary. This analysis assumes payments begin in the following year for clarity.

¹¹/ The \$38 million in outlays for FY 2004 in Table 4 is consistent with this \$68.4 million because \$20.4 million in rental payments occur in years after the funds are obligated. The \$9.4 million of FY 2003 funds returned to States is included in the FY 2005 – 2007 outlays.

¹²/ The \$9.4 million of FY 2003 funds returned to States is included in the FY 2005 – 2007 outlays.

Total \$ Costs	39	39	41	43	162	232
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Program Benefits

USDA chose the Selected Option because it equally balances the objectives that Congress emphasized in the statute. Congress recognized that grasslands provide many benefits, including livestock feed, wildlife habitat, higher quality water for urban and rural uses, flood protection, air purification, carbon sequestration, hunting, and other recreational opportunities. Requiring GRP participants to implement integrated grazing management practices, according to an NRCS approved conservation plan, sustains forage productivity and soil health, improves air and water quality, and enhances habitat for native plants and animals. GRP provides technical and financial support for enrolled farmers and ranchers in exchange for protecting and enhancing the functions and values of grasslands, including increased biodiversity for native plants and animals. Additional benefits include improvement and protection of aesthetic values, ensuring availability of open space, and enhanced rural social stability and economic vigor.

Ecological benefits are hard to measure because variables making up the ecology are often inter-related. Improvements to one function often affects others in non-evident ways, and can take years or even decades to aggregate or appear. Four inherent grassland characteristics especially make estimating their benefits difficult. First, each grassland has unique characteristics with their own unique set of values. Second, even though some characteristics may be clearly identified, quantifying the beneficial effect may be problematic. Third, because grasslands also help maintain water and air quality on lands not enrolled in the GRP, fully accounting for all benefits is difficult. Finally, problems associated with identifying specific bio-geochemical grassland benefits and the difficulty in assigning monetary values to these non-market goods and services make it extremely difficult to evaluate using strict monetary benefit-cost techniques. Regardless of whether many grassland benefits can be adequately quantified, their importance is still recognized.

1) Benefits of Delaying or Preventing Grassland Conversion

Much of GRP's ecological benefits stem from the value society places on delaying grassland conversion. Care must be taken in attributing these benefits to land solely because it is enrolled in GRP. If GRP enrollment simply results in the conversion of other non-enrolled grasslands to other uses, then little is accomplished. On the other hand, if grasslands with unique and highly valued qualities (e.g., native grasslands, including native prairie) are enrolled and protected from conversion GRP enrollments provide ecological benefits.

Native grasslands are variable in their quality and characteristics. Ranging from virgin prairie to heavily grazed rangeland. Identifying and selecting ecologically significant and unique grasslands maximizes GRP's ability to secure many of the environmental benefits grasslands provide.

Converting cropland to permanent vegetation provides many soil erosion, wildlife, and water quality benefits. Each year grassland is not converted to development or more intensive agricultural use, these benefits are maintained. For example, CRP is estimated to provide annual wildlife-related benefits of \$30 per acre (FSA, 2003). While GRP enrollment may be targeted to lands threatened with conversion, it is difficult to determine whether conversion is actually delayed or prevented.

2) Forage Production Increase

Modification of grazing practices can often increase forage production. Based on Agricultural Research Service research (Spaeth, 2000), improved grassland management could provide an estimated 1,013 additional pounds of forage per acre per year. This translates into about 1.3 animal unit months per acre.

3) Environmental Benefits

Participants are required to implement and maintain a NRCS approved conservation plan on grasslands enrolled in the GRP. Conservation plans will result in improved grassland management enhancing infiltration, reducing soil erosion, increasing carbon sequestration, and reducing water runoff.

Infiltration. Increased rate of water infiltration could be the most important ecological benefit of improved management of grazing lands. Infiltration is determined by soil structure, amount of cover, and type of cover. More water infiltration means more forage production. Before and after infiltration rates for six different regions including pasturelands were used to calculate a weighted average of 2.58 acre-inches per year (Spaeth, 2000, Namken, 2002). Besides improving production, higher water infiltration rates can improve site ecology. Water infiltration is also important for the recharge of underground aquifers and above ground springs.

Soil Erosion. Improved grazing management reduces average soil erosion 0.69 ton per acre per year (Spaeth, 2000). Additional erosion reductions result if GRP prevents grassland conversion to cropland.

Carbon Sequestration. Improved management can increase carbon sequestration. Data indicates that an additional 0.11 tons of carbon per acre per year is sequestered (Follett, et al., 2000, Namken, 2002).

Runoff. The amount of grassland runoff will generally be reduced if forage is in better condition. Average runoff reduction was estimated to be 2.58 acre-inches per year (Namken, 2002). Less runoff increases water infiltration, enhancing forage production, aquifer recharge, and spring water production. Less runoff also means less erosion and sediment in the rivers and streams, improved water quality, enhanced recreational opportunities downstream, less reservoir silting, and reduced dredging.

4) Wildlife Benefits

Grasslands provide forage and habitat for many wildlife species, including declining populations of native grassland dependent birds and mammals such as the Greater Sage Grouse and Black-tailed Prairie Dog, of which have undergone decline commensurate with the overall decline in native grassland habitat (USGS). Prairie dogs are an indicator species for reduced grassland bio-diversity. Since U.S. settlement, prairie dog populations have declined an estimated 98 percent. Endemic grassland bird species have also shown significant declines. Species adversely impacted include sage grouse, prairie chickens, mountain plover, western meadowlark, and ferruginous hawk. Slowing loss of grassland habitats loss will help to reduce the precipitous decline of such wildlife species.

5) Recreational Benefits

Besides providing livestock forage, grasslands generate income for landowners leasing their acreage for hunting, fishing, wildlife observation, and other recreational activities. Improved management that increases forage production can benefit wildlife. Decreased runoff resulting in decreased sedimentation will benefit downstream water quality and recreational benefits.

Summary of Findings

The 2002 Act authorized \$254 million for GRP contracts, easements, restoration, and technical assistance. Of this amount, \$69 million was obligated in FY2003 and another \$15.8 million was diverted to fund technical assistance for the CRP and WRP programs leaving \$169 million for FY 2004 and beyond. Under all options examined it was estimated that the GRP would transfer approximately an additional \$135 million, subsequent to FY 2003 enrollment, in financial assistance and \$37 million in technical assistance to landowners (Table 2). The Selected Option will enroll an estimated 453,000 additional acres of native grasslands, a measure of bio-diversity protection and enhancement.

The Selected Option:

- Allocates GRP funds to States based on its number of grazing operations, acres of grasslands under threat of conversion, and bio-diversity considerations, balancing all three statutory objectives;
- Complies with legislation by giving equal weight to the three statutory objectives including emphasizing support for grazing operations, reducing the threat of grassland conversion, and enhancing the bio-diversity of plants and animals;
- Enrolls an estimated 676,000 additional acres into the GRP, of which about 453,000 acres will be enrolled under 10, 15, and 20-year rental agreements and 223,000 acres under easements and 30-year rental agreements.;

Other Factors Considered:

- Distributing GRP funds to States based on State share of national grassland converted to other uses would have reduced the acreage enrolled in the GRP, due to the higher per acre costs in these States;
- Distributing GRP funds to States based solely on the State share of national grassland or native grasslands would have: 1) increased the amount of land enrolled in the GRP and 2) increased the acres of native grass enrolled, but will not have fully addressed all statutory objectives. Higher enrollment would result from lower per acre costs and the higher proportion of native grasslands in these States.
- GRP funds and enrollment was highest for western Regions because these Regions have more grassland and generally lower per acre rental/easement costs.

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APPENDIX A: GRASSLAND RESERVE PROGRAM: Selected Option Allocation Process

The GRP authorizing language requires the Secretary to emphasize support for grazing operations; grassland, land that contains forbs, and shrubland under the greatest threat of conversion; and bio-diversity of plants and animals. Since the statute does not prioritize the areas of emphasis USDA made a policy decision to support these areas equally, along with consideration for program demand, in the allocation process.

To address the statutory requirements four factors were used to allocate funds to States. Each of the four allocation factors were weighted equally:

1. **Threat of grassland conversion** – Data source: National Resources Inventory (NRI). Threat of grassland conversion factor was estimated using NRI estimates of the State percentage of National acres of pastureland converted, rangeland converted, prime farmland used as pasture, and prime farmland used as rangeland. Each component was weighted equally.
2. **Number of grazing operations** – Data source: Agricultural Statistics. The number of grazing operations was obtained directly from Agricultural Statistics published by National Agricultural Statistics Service. State percentages were calculated using these data.
3. **Bio-diversity** – Date source: United States Fish and Wildlife Service (USFWS) and NRI. An index of bio-diversity was estimated using the State percentage of national number of threatened and endangered species (USFWS) and the State’s percentage of national rangeland acres (NRI).
4. **Demand for GRP participation** – Data source: USDA. State percentage of national GRP offers were calculated using data collected by NRCS and entered into FSA’s on-line data reporting system (Appendix Table 4).

GRP Allocation Process: An Example

Category	Factor Percent	Percent of National Total and Sum
Grassland Conversion	.25	.00196
Pasture loss	.063	$.063 * 0 = 0$
Range loss	.063	$.063 * .03052 = .00192$
Prime Farmland as Rangeland	.063	$.063 * .00033 = .00002$
Prime Farmland as Pastureland	.063	$.063 * .00034 = .00002$
Grazing Operations	.25	.00156 = .25 * .00156
Bio-diversity	.25	.01701
Threatened and Endangered Species	.125	$.125 * .03429 = .00857$
Rangeland	.125	$.125 * .0675 = .00844$
Demand for GRP Participation	.25	.00218 = .25 * .00871
Total	1.00	.02271
<i>Assuming \$16,000,000 National Funding</i>		
State Allocation		\$363,360 = .02271 * \$16,000,000

Appendix Table 1: Acres of 1997 Grassland and Grasslands converted to Other Uses (1992-1997)

State	Grassland:	Grassland Converted to other		Grassland Developed: 1992	
	1997 1/ Acres	Uses: 1992 to 1997 1/ Acres	Percent	to 1997 1/ Acres	Percent
Alabama	3,601,800	527,700	15%	60,200	2%
Alaska					
Arkansas	32,395,600	435,900	1%	85,800	0%
Arizona	5,389,300	558,900	10%	50,900	1%
California	19,318,100	984,000	5%	265,400	1%
Colorado	25,785,100	319,100	1%	63,500	0%
Connecticut	111,800	31,600	28%	2,100	2%
Delaware	23,700	6,100	26%	1,400	6%
Florida	7,459,600	1,095,300	15%	338,600	5%
Georgia	2,864,600	589,500	21%	112,500	4%
Hawaii	1,044,600	18,300	2%	3,000	0%
Idaho	7,815,300	228,800	3%	34,200	0%
Illinois	2,502,000	481,800	19%	41,800	2%
Indiana	1,830,000	312,600	17%	28,900	2%
Iowa	3,572,000	627,100	18%	12,100	0%
Kansas	18,049,800	277,200	2%	48,500	0%
Kentucky	5,685,500	1,244,800	22%	103,700	2%
Louisiana	2,662,500	181,800	7%	29,700	1%
Maine	123,400	61,300	50%	6,400	5%
Maryland	478,000	133,900	28%	40,300	8%
Massachusetts	119,000	51,300	43%	10,300	9%
Michigan	2,032,300	720,200	35%	52,800	3%
Minnesota	3,434,300	658,600	19%	47,100	1%
Mississippi	3,679,300	640,600	17%	43,200	1%
Missouri	10,936,200	2,174,800	20%	66,400	1%
Montana	40,193,400	723,600	2%	35,000	0%
Nebraska	24,889,600	315,300	1%	12,900	0%
Nevada	8,651,400	95,400	1%	22,900	0%
New Hampshire	93,800	9,000	10%	1,600	2%
New Jersey	111,000	42,000	38%	11,600	10%
New Mexico	40,220,300	750,300	2%	162,000	0%
New York	2,721,500	663,400	24%	62,400	2%
North Carolina	2,038,500	239,500	12%	69,600	3%
North Dakota	11,818,200	500,100	4%	14,900	0%
Ohio	2,006,300	635,600	32%	37,500	2%
Oklahoma	21,995,500	558,900	3%	125,800	1%
Oregon	11,247,000	348,700	3%	34,200	0%
Pennsylvania	1,844,900	631,700	34%	65,500	4%
Rhode Island	25,200	1,200	5%	200	1%
South Carolina	1,196,500	133,200	11%	35,500	3%
South Dakota	23,984,600	530,300	2%	26,100	0%
Tennessee	4,989,600	698,200	14%	124,700	2%
Texas	111,659,100	2,498,000	2%	568,300	1%
Utah	11,428,300	233,900	2%	45,700	0%
Vermont	338,300	38,300	11%	2,600	1%
Virginia	2,995,300	442,500	15%	49,500	2%
Washington	7,050,100	310,600	4%	65,700	1%
West Virginia	1,526,500	229,800	15%	24,800	2%
Wisconsin	2,994,200	425,600	14%	19,600	1%
Wyoming	28,448,000	143,300	1%	32,500	0%
Puerto Rico	588,200	295,200	50%	63,100	11%
United States	525,969,100	23,854,800	5%	3,263,000	1%

1/ Range and Pasture, (1997 NRI)

Appendix Table 2: Acres of Native Grasslands Converted to Other Uses (1992-1997)

State	Change in Native grass acres 1992 to 1997	National Change in native grass Percent
Alabama	1	2%
Alaska		0
Arkansas	430	7%
Arizona	0	0
California	863	13%
Colorado	221	3%
Connecticut		0
Delaware		0
Florida	638	10%
Georgia		0
Hawaii	18	0%
Idaho	93	1%
Illinois		0
Indiana		0
Iowa		0
Kansas	157	2%
Kentucky		0
Louisiana	8	1%
Maine		0
Maryland		0
Massachusetts		0
Michigan		0
Minnesota		0
Mississippi		0
Missouri	13	2%
Montana	437	7%
Nebraska	164	2%
Nevada	79	1%
New Hampshire		0
New Jersey		0
New Mexico	735	11%
New York		0
North Carolina		0
North Dakota	312	4.722979
Ohio		0
Oklahoma	255	4%
Oregon	208	3%
Pennsylvania		0
Rhode Island		0
South Carolina		0
South Dakota	236	4%
Tennessee		0
Texas	1,302	20%
Utah	195	3%
Vermont		0
Virginia		0
Washington	113	2%
West Virginia		0
Wisconsin		0
Wyoming	102	2%
Puerto Rico	26	0%
United States	6,609	

Appendix Table 3: FY 2003 Contacts and Acres Offered and Accepted, and States Funding

State	Number of Offers	Acres Offered	Offers Accepted	Acres Accepted	Funds to GRP Participants \$1,000	Technical Assistance Cost	FY 2003 GRP Funds \$1,000
Alabama	74	46,542	33	5,112	918	307,000	1,183
Alaska	20	2,952	2	390	54	22,000	73
Arizona	42	73,240	1	840	978	303,000	1,238
Arkansas	28	4,307	10	1,668	791	282,000	1,034
California	139	265,095	17	12,609	1,964	653,000	2,526
Colorado	378	1,076,876	4	4,207	1,271	345,000	1,568
Connecticut	52	2,371	8	535	78	29,000	103
Delaware	-	-	-	-	0	27,000	23
Florida	59	34,261	4	8,232	1,098	394,000	1,437
Georgia	246	29,897	71	6,841	661	220,000	850
Hawaii	34	35,434	5	4,893	1,292	428,000	1,660
Idaho	193	173,562	3	356	539	163,000	679
Illinois	251	19,676	15	1,635	673	247,000	886
Indiana	543	32,472	20	1,017	825	213,000	1,008
Iowa	322	40,254	22	2,425	976	336,000	1,265
Kansas	1,015	439,168	12	6,390	2,350	702,000	2,954
Kentucky	257	25,557	4	593	1,246	354,000	1,550
Louisiana	188	30,104	13	4,191	488	166,000	631
Maine	49	1,333	11	447	100	41,000	135
Maryland	37	3,455	12	1,010	161	60,000	213
Massachusetts	5	118	5	118	154	42,000	191
Michigan	55	9,378	39	7,307	635	218,000	823
Minnesota	392	53,796	17	2,319	798	270,000	1,030
Mississippi	316	35,651	10	1,291	722	239,000	927
Missouri	2,265	305,331	114	12,197	1,862	627,000	2,401
Montana	54	48,964	-	15,106	1,492	466,000	1,893
Nebraska	540	397,279	6	1,454	1,479	444,000	1,861
Nevada	27	41,199	1	698	35	108,000	128
New Hampshire	5	188	2	46	69	24,000	89
New Jersey	16	2,434	4	1,377	135	48,000	176
New Mexico	117	534,547	1	5,820	1,651	575,000	2,146
New York	151	15,451	5	370	730	266,000	959
North Carolina	26	1,379	5	394	479	196,000	648
North Dakota	470	304,961	3	6,255	3,298	456,000	3,690
Ohio	625	62,685	26	3,644	831	280,000	1,072
Oklahoma	336	339,372	14	15,157	2,423	823,000	3,131
Oregon	348	324,233	15	11,610	1,321	316,000	1,593
Pennsylvania	162	15,538	58	6,864	816	281,000	1,057
Rhode Island	4	89	2	26	82	85,000	155
South Carolina	108	13,774	5	359	1,190	19,000	1,206
South Dakota	1,010	781,384	10	17,997	1,703	174,000	1,853
Tennessee	183	16,617	88	8,262	1,098	590,000	1,605
Texas	1,549	2,756,107	19	30,646	7,686	383,000	8,015
Utah	37	109,761	10	6,548	462	2,452,000	2,571
Vermont	55	3,352	38	2,138	203	193,000	369
Virginia	28	4,803	1	160	600	79,000	668
Washington	196	238,239	2	1,012	750	193,000	916
West Virginia	36	3,590	10	865	621	187,000	781
Wisconsin	154	21,369	6	1,861	1,187	130,000	1,299
Wyoming	116	142,512	10	15,333	1,201	398,000	1,544
Puerto Rico	8	1,556	1	340	57	346,000	354
Totals	13,313	8,920,658	793	240,625	52,177	16,200,000	66,109

Appendix Table 3: FY 2004 Contracts and Acres Offered and Accepted

State	Nmber of Offers	Acres Offered	Number Approved	Acres Accepted	Funds to GRP Participants	Technical Assistance Cost	FY 2004 GRP Funds
Alabama	181	35,294	10	2,637	645,000	205,685	850,685
Alaska	6	1,675	2	756	224,600	72,833	297,433
Arizona	56	85,033	1	1,389	722,505	192,011	914,516
Arkansas	102	19,276	18	4,090	731,052	167,577	898,629
California	115	277,430	7	6,187	1,600,000	402,986	2,002,986
Colorado	353	735,901	7	9,065	2,250,000	244,000	2,494,000
Connecticut	104	2,611	40	1,682	548,100	177,051	725,151
Delaware	3	125	2	50	233,000	32,600	265,600
Florida	123	63,501	1	3,795	1,138,500	263,163	1,401,663
Georgia	56	7,667	57	8,966	734,537	88,976	823,513
Hawaii	19	23,885	3	4,759	1,321,300	375,316	1,696,616
Idaho	117	69,129	3	1,184	1,110,000	187,000	1,297,000
Illinois	100	9,004	5	5,352	760,300	144,925	905,225
Indiana	269	18,235	19	1,649	886,139	169,699	1,055,838
Iowa	511	58,419	23	2,846	1,141,040	299,985	1,441,025
Kansas	488	169,437	35	15,770	4,532,970	329,965	4,862,935
Kentucky	192	21,435	1	849	1,103,977	133,680	1,237,657
Louisiana	72	9,596	23	4,297	555,000	159,910	714,910
Maine	21	1,306	13	1,060	396,700	80,452	477,152
Maryland	-	-	13	975	172,000	3,298	175,298
Massachusetts	34	714	27	605	600,950	174,403	775,353
Michigan	96	13,066	29	4,080	575,000	166,429	741,429
Minnesota	224	26,488	28	3,615	917,337	269,999	1,187,336
Mississippi	145	16,158	41	4,146	940,371	174,011	1,114,382
Missouri	978	131,496	126	15,493	3,322,276	796,999	4,119,275
Montana	300	675,987	3	10,353	1,883,402	304,912	2,188,314
Nebraska	262	123,763	11	1,538	1,377,520	409,639	1,787,159

Nevada	9	13,655	1	1,440	113,596	51,246	164,842
New Hampshire	10	743	3	172	560,100	50,199	610,299
New Jersey	20	1,302	14	888	226,498	33,230	259,728
New Mexico	94	430,997	3	16,676	3,091,000	231,076	3,322,076
New York	124	11,848	11	1,327	730,000	215,000	945,000
North Carolina	55	3,018	4	131	716,420	79,245	795,665
North Dakota	419	285,652	2	5,129	1,109,200	189,931	1,299,131
Ohio	600	59,038	96	10,290	1,301,500	330,000	1,631,500
Oklahoma	483	380,166	36	20,009	3,880,207	344,999	4,225,206
Oregon	244	321,347	17	7,962	1,154,416	213,580	1,367,996
Pacific Basin	-	-	-	-	-	-	-
Pennsylvania	169	15,039	51	4,057	800,000	160,367	960,367
Puerto Rico	12	2,364	12	2,364	436,356	126,814	563,170
Rhode Island	7	148	4	88	540,000	100,277	640,277
South Carolina	80	9,608	1	375	583,200	140,046	723,246
South Dakota	1,016	797,400	7	10,991	2,261,905	396,402	2,658,307
Tennessee	260	23,578	84	7,505	1,037,169	188,905	1,226,074
Texas	878	1,179,569	52	53,418	6,515,000	251,579	6,766,579
Utah	48	66,727	6	8,626	935,970	130,381	1,066,351
Vermont	88	4,782	42	2,107	602,308	155,754	758,062
Virginia	69	7,420	15	1,654	1,170,980	143,881	1,314,861
Washington	104	128,468	3	2,676	1,135,200	168,968	1,304,168
West Virginia	70	7,491	3	391	767,032	67,366	834,398
Wisconsin	242	37,239	40	7,277	1,897,045	270,917	2,167,962
Wyoming	94	161,734	1	600	972,600	144,997	1,117,597
Total	10,122	6,545,964	1,056	283,338	62,961,278	10,212,664	73,173,942

Appendix Table 3: FY 2005 Contracts and Acres Offered and Accepted

State	Number of	Acres	Number	Acres	Total	Technical	FY 2005
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	Offers	Offered	Approved	Accepted	Obligations	Assistance Cost	GRP Funds
Alabama	70	22,481	41	8,965	1,481,925	239,650	1,721,575
Alaska	23	3,825	9	2,074	261,525	315,639	577,164
Arizona	26	55,293	14	21,343	1,772,250	246,904	2,019,154
Arkansas	77	9,990	29	4,470	899,600	199,877	1,099,477
California	106	229,400	3	7,184	1,579,908	149,999	1,729,907
Colorado	123	437,281	4	17,845	988,372	310,000	1,298,372
Connecticut	24	705	13	572	844,978	261,642	1,106,620
Delaware	12	362	3	209	-	99,533	99,533
Florida	61	34,166	2	3,688	1,091,220	215,600	1,306,820
Georgia	82	8,942	82	8,942	817,629	85,114	902,743
Hawaii	10	17,930	6	6,960	1,282,680	348,602	1,631,282
Idaho	76	47,865	3	894	488,391	107,000	595,391
Illinois	13	785	3	1,024	40,326	119,857	160,183
Indiana	268	17,091	40	4,243	2,025,133	145,666	2,170,799
Iowa	257	33,505	29	3,382	1,422,576	209,987	1,632,563
Kansas	306	97,420	41	24,232	4,705,960	289,896	4,995,856
Kentucky	330	27,121	25	3,069	2,381,247	169,999	2,551,246
Louisiana	28	3,371	17	1,535	153,260	43,800	197,060
Maine	41	983	38	976	445,072	172,888	617,960
Maryland	17	1,136	16	1,084	119,378	32,100	151,478
Massachusetts	49	1,301	21	840	756,670	210,801	967,471
Michigan	43	4,240	10	1,196	78,543	144,128	222,671
Minnesota	102	11,948	31	2,124	1,052,843	177,635	1,230,478
Mississippi	49	5,409	23	3,047	809,107	198,453	1,007,560
Missouri	553	72,627	124	13,136	2,937,077	649,999	3,587,076
Montana	229	541,888	5	33,615	3,120,208	285,383	3,405,591
Nebraska	56	7,697	22	2,422	4,718,706	189,853	4,908,559
Nevada	1	6,640	2	6,640	-	99,009	99,009
New Hampshire	12	532	5	217	-	227,007	227,007
New Jersey							

	28	1,092	6	158	418,745	106,980	525,725
New Mexico	46	129,685	2	5,826	1,130,000	175,000	1,305,000
New York	98	10,385	27	3,779	1,413,391	170,600	1,583,991
North Carolina	9	577	3	526	348,776	127,637	476,413
North Dakota	232	193,916	7	19,560	1,055,524	250,147	1,305,671
Ohio	244	21,405	16	2,849	356,716	214,653	571,369
Oklahoma	470	364,661	9	9,570	1,844,624	359,946	2,204,570
Oregon	159	142,826	19	8,244	1,259,179	251,349	1,510,528
Pacific Basin	-	-	-	-	-	-	-
Pennsylvania	256	13,546	57	5,154	1,553,854	179,981	1,733,835
Puerto Rico	20	2,409	12	2,009	311,543	85,002	396,545
Rhode Island	9	174	3	130	1,609,338	165,265	1,774,603
South Carolina	22	1,938	7	3,115	-	170,885	170,885
South Dakota	1,084	904,165	7	11,214	2,378,486	230,201	2,608,687
Tennessee	141	14,223	52	5,744	771,232	169,908	941,140
Texas	784	1,078,268	39	104,835	2,382,970	294,203	2,677,173
Utah	42	65,417	2	3,686	-	55,699	55,699
Vermont	36	1,925	27	1,560	838,692	221,687	1,060,379
Virginia	25	2,882	10	1,195	760,082	103,263	863,345
Washington	238	60,054	22	6,455	1,018,642	76,199	1,094,841
West Virginia	97	9,114	4	398	-	146,862	146,862
Wisconsin	133	15,396	11	1,359	276,883	171,244	448,127
Wyoming	124	208,820	1	1,500	-	195,289	195,289
Total	7,341	4,944,809	1,004	384,794	56,003,261	9,868,021	65,871,282

Appendix Table 4: 2003 GRP Demand for State Allocations

State	2003 Applications	2003 Applications (%)	2003 Acreage	2003 Acreage (%)
Alabama	74	0.0015	46,542	0.0052
Alaska	20	0.0015	2,952	0.0003
Arizona	42	0.0032	73,240	0.0082
Arkansas	28	0.0021	4,307	0.0005

California	139	0.0104	265,095	0.0297
Colorado	378	0.0284	1,076,876	0.1207
Connecticut	52	0.0039	2,371	0.0003
Delaware	0	-	0	-
Florida	59	0.0044	34,261	0.0038
Georgia	246	0.0185	29,897	0.0034
Hawaii	34	0.0026	35,434	0.0040
Idaho	193	0.0145	173,562	0.0195
Illinois	251	0.0188	19,676	0.0022
Indiana	543	0.0408	32,472	0.0036
Iowa	322	0.0242	40,254	0.0045
Kansas	1015	0.0762	439,168	0.0492
Kentucky	257	0.0193	25,557	0.0029
Louisiana	188	0.0141	30,104	0.0034
Maine	49	0.0037	1,333	0.0001
Maryland	37	0.0028	3,455	0.0004
Massachusetts	5	0.0004	118	0.0000
Michigan	55	0.0041	9,378	0.0011
Minnesota	392	0.0294	53,796	0.0060
Mississippi	316	0.0237	35,651	0.0040
Missouri	2265	0.1700	305,331	0.0342
Montana	54	0.0041	48,964	0.0055
Nebraska	540	0.0405	397,279	0.0445
Nevada	27	0.0020	41,199	0.0046
New Hampshire	5	0.0004	188	0.0000
New Jersey	16	0.0012	2,434	0.0003
New Mexico	117	0.0088	534,547	0.0599
New York	151	0.0113	15,451	0.0017
North Carolina	26	0.0020	1,379	0.0002
North Dakota	470	0.0353	304,961	0.0342
Ohio	625	0.0469	62,685	0.0070
Oklahoma	336	0.0252	339,372	0.0380
Oregon	348	0.0261	324,233	0.0363
Pennsylvania	162	0.0122	15,538	0.0017
Puerto Rico	8	0.0006	1,556	0.0002
Rhode Island	4	0.0003	89	0.0000
South Carolina	108	0.0081	13,774	0.0015
South Dakota	1010	0.0758	781,384	0.0876
Tennessee	183	0.0137	16,617	0.0019
Texas	1549	0.1163	2,756,107	0.3089
Utah	37	0.0028	109,761	0.0123
Vermont	55	0.0041	3,352	0.0004
Virginia	28	0.0021	4,803	0.0005
Washington	196	0.0147	238,239	0.0267
West Virginia	36	0.0027	3,590	0.0004
Wisconsin	154	0.0116	21,369	0.0024
Wyoming	116	0.0087	142,512	0.0160
Total	13321		8,922,214	