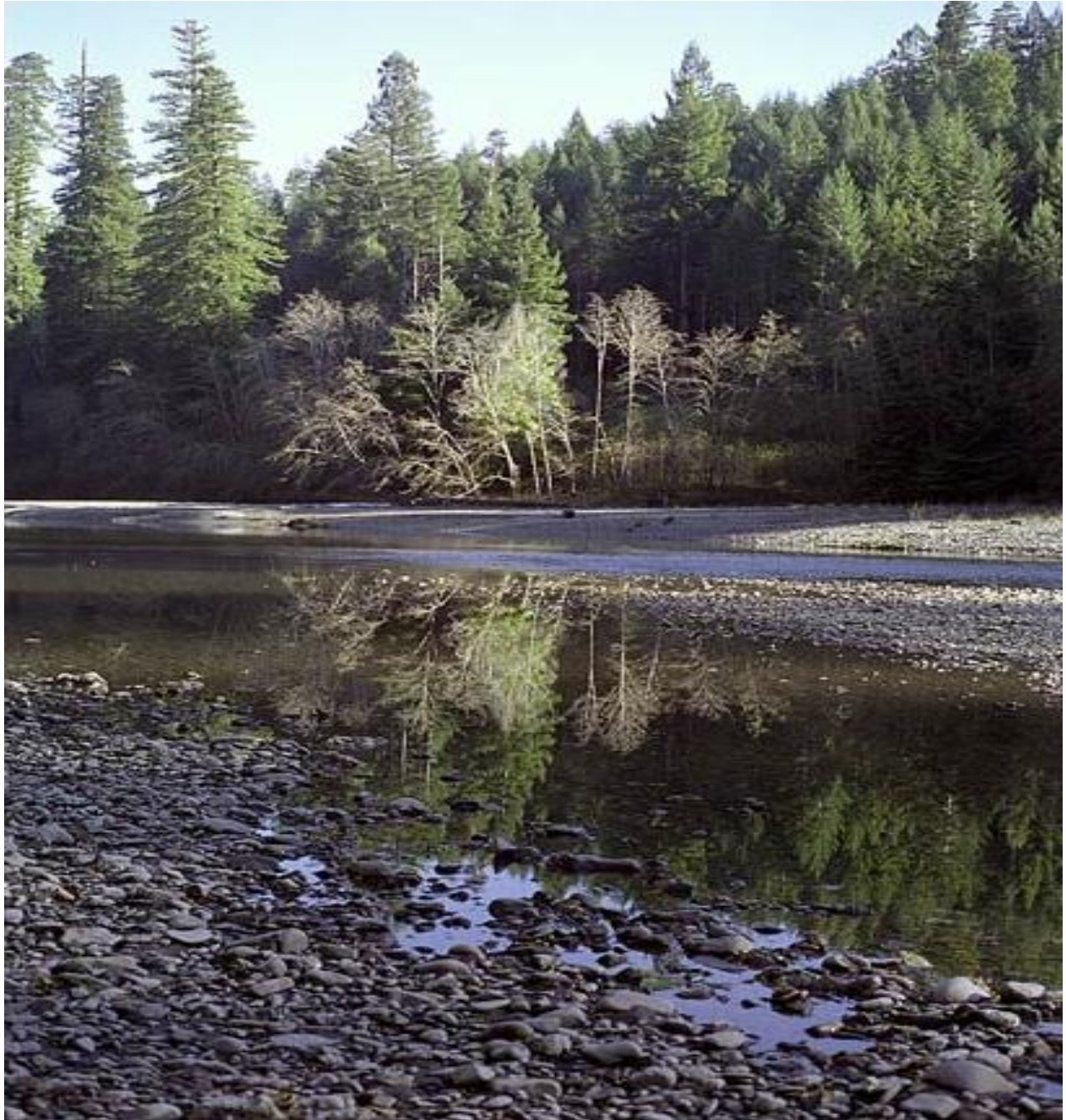


**Montana Department of Revenue
Forestland Productivity and Reappraisal Impact Report
2009 Reappraisal Cycle**



February 2009

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**DEPARTMENT OF REVENUE
FORESTLAND REVALUATION REPORT
2009 REAPPRAISAL CYCLE**

STATE OF MONTANA

BRIAN SCHWEITZER, GOVERNOR

MONTANA DEPARTMENT OF REVENUE

DAN BUCKS, DIRECTOR

COMPILED FOR

PROPERTY ASSESSMENT DIVISION

RANDY WILKE, ADMINISTRATOR
DALLAS REESE, MANAGEMENT ANALYST

February 2009

*SAM W. MITCHELL BUILDING
125 N. ROBERTS
PO BOX 5805
HELENA, MONTANA 59620
Home page: <http://www.discoveringmontana.com/revenue>*

Prepared By

RANDY PEARSON, PROPERTY TAX CONSULTANT

Overview

On January 1, 2009, the Department of Revenue (DOR) will implement a new forestland property reappraisal in Montana. The 2009 forestland reappraisal represents the most sweeping changes to the forest property tax system since the legislature enacted the Forestland Tax Act in 1991.

Since the current forestland tax system was first enacted, it has experienced three reappraisal cycles. In each of these previous reappraisal cycles, no statewide review was conducted of forestland acreage or forestland productivity. The forest income and expense data was updated each cycle for each forestland valuation zone. From 1993 to 2008, the only significant change was to move Lake County in northwestern Montana from Forest Valuation Zone 2 to Forest Valuation Zone 1.

The 2009 forestland reappraisal will see statewide changes in the following areas:

1. Update to forest income and expense data
2. Reduction of the number of forest valuation zones from five to four zones
3. Realignment of counties in three of the four remaining forestland valuation zones
4. Re-mapping of forest/nonforest boundaries on private forestlands with a subsequent change in forestland acreage
5. Re-evaluation of forestland productivity using new modeling techniques and improved data sources
6. Replace cubic feet volume with board foot volume as a measure of productivity estimates and valuation
7. An increase from four forestland productivity grades to five forestland productivity grades
8. Replacement of a manual, labor-intensive appraisal system with a fully automated Geographic Information System utilizing the state's cadastral ownership data layer

The work conducted on forest income and expense data and the forest valuation zone adjustments are addressed in a report titled *Forestland Valuation Report* by Randy Pearson and *Forest Appraisal Values and Timber Zones* by Dr. David Jackson. The primary purpose of this report is twofold:

1. Analyze the forestland assessment impacts created by the 2009 forestland reappraisal
2. Discuss the forestland productivity project and the basis for key technical decisions

Statewide, preliminary data indicates that commercial forest acreage changed less than six percent. This figure may change slightly when the Department of Revenue provides landowners with forest classification maps of their property in December. Landowners will be asked to identify possible mapping errors and bring them to the attention of the department. Estimated forest productivity did not change significantly on a statewide basis (less than two percent). While statewide forestland acreage and productivity figures exhibited little change, there may be significant impacts on a parcel- by-parcel basis and on a county-by-county basis.

Statewide, the per-acre forestland assessments are predicted to increase by approximately 49 percent. Ten counties will see a decrease in per-acre forestland assessed values.

Approximately 35 percent of this increase is due to changes in the forestland capitalization rates used in the forest valuation formula for each forest valuation zone. The forest valuation formula and the calculation of the capitalization rate are defined in state law. The Property Tax Class 10-forestland tax base is projected to increase by approximately 58 percent with a six percent increase in forestland acreage.

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Introduction

Major changes in forest valuation zones, the change in units of productivity measurement (cubic feet versus board feet) ¹, the use of arithmetic midpoints for wide ranging productivity grades and the change in the number and range of each forest productivity grade, make it difficult to accurately analyze the impacts of some individual components comprising the forest reappraisal. Each component of the forest reappraisal is working to either increase or decrease forest valuations in 2009. For example, a county might experience a substantial valuation increase from changes to forest income and expense data, but incur a major decrease in average forestland productivity. The overall impact is the sum of all the reappraisal components.

The analysis of 2009 forestland productivity and assessed values uses the volumetric weighted average of each productivity grade. Previous reappraisal cycles used manual applications that required the use of arithmetic volumetric midpoints and fixed valuation schedules. The implementation of GIS using spatial analysis allows the department move away from valuation schedules that assign a fixed value for each productivity grade. In the future, the weighted annualized yield in each forest productivity polygon will be directly applied to the valuation formula. This will produce a per-acre assessed value influenced by the cumulative impact of site quality within that productivity polygon.

The statewide re-evaluation of estimated forestland productivity will be virtually unchanged in 2009. However, individual landowners may experience significant changes in assessed value due to changes in forestland acres or forestland productivity. By far, the greatest impact on forest assessments is the decrease in capitalization rates used in the valuation formula.

2009 Forest Acreage:

Preliminary data indicates that forestland acreage will increase 5.8 percent in 2009. Forestland acreage is dynamic and changes on a day-to-day basis. Land transfers between private and public entities and land use changes have a direct impact on the private forestland tax base. In November 2008, statewide acreage was 3.88 million acres. On January 1, 2009, forest acreage is projected to be 4.1 million acres. Table 1 on page 8, illustrates December 2008 versus proposed 2009 forest acreage on a county-by-county basis. Table 2, on page 9 reflects the proposed 2009 commercial forestland acres by productivity grade on a county-by-county basis.

The 5.8 percent increase in forestland acreage that will occur in 2009 will result in a corresponding decrease in grazing land acres and a decrease in grazing land assessments.

¹ Productivity as expressed in this report is potential, not actual productivity.

Three reappraisal factors drive acreage changes in 2009.

1. New forestland productivity estimates based on updated modeling techniques and improved databases
2. A new minimum forestland productivity requirement for commercial forestland that is expressed in board feet rather than cubic feet
3. The manual digitizing of forest/nonforest boundaries using 2005 digital color photography and GIS

Two counties in eastern Montana that contain minor quantities of commercial forestland in 2008 will have no commercial forestland in 2009 (Garfield and Prairie counties). All forested land in those two counties will be classified as noncommercial forestland and be assessed as grazing land. One county that contains no commercial forestland in 2008 will contain a minor amount of commercial forestland in 2009 (Bear Paw Mountains in Liberty County).

The 2009 reappraisal forecasts a general decrease in forest productivity estimates in eastern Montana and the Rocky Mountain Front. This decrease in estimated productivity will translate into more noncommercial forestland on marginal forest producing sites and fewer acres of commercial forestland. A notable exception is Musselshell County, which will see a proposed 56,000-acre increase in forestland acreage.

A major obstacle in accurately mapping forest/nonforest boundaries is natural and man-made disturbances. Forest fires and heavy logging can obscure the original forest boundaries. When GIS staff view aerial photography of disturbed area, it is often impossible to identify the original forest boundaries.

Ground truthing is extremely time-consuming and not cost-effective. Catastrophic forest fires have eliminated forest cover over hundreds of thousands of acres in recent years. Forestlands disturbed by logging or natural disasters are still considered forestland. However, some of these areas will require many decades or longer to re-establish forest cover, particularly in eastern Montana. The decision to call some of these highly disturbed areas forestland or grazing land is somewhat subjective. It may behoove the department to develop more concise guidelines on classifying land on highly disrupted sites in the future.

2009 Forestland Productivity Estimates:

Land productivity is the basis for assessing forestland in Montana. Features that influence productivity on a forest site include soils, climate, slope, aspect and elevation. The classification system estimates potential, not actual, productivity. They are not synonymous. Potential productivity is constant, regardless of the standing inventory growing on the land. Insects and disease, overstocking, forest fires or logging activities do not influence potential productivity. In fact, standing timber is exempt from property taxation.

The things that make a forest productive are long growing seasons, plenty of sunlight, rainfall and fertile soils. This potential is inherent to the land, even when trees have recently been harvested or destroyed by natural events. Generally, direct measurement of potential productivity is not possible. The forestry profession deals with this problem by finding things that can be easily measured, which also is strongly related to potential productivity.

Mapping potential productivity on the Montana forest landscape is an integration of several technologies that represent state-of-the art capabilities in natural resource management. While it is true no one physically visited each forest property, it was visited electronically using spatial analysis and a geographic information system (GIS). The GIS contains data on the climate, soils and topography for each acre of the state. Forestry researchers have conducted fieldwork to collect actual index data from throughout the state, then applied statistics and mathematical models to estimate site quality and potential volume growth for each acre of forestland in Montana.

Potential productivity can be expressed in volumetric terms by first estimating site quality and then inserting that information into a forest growth model. The volumetric output of the growth model is expressed as the maximum average annual growth of wood that could be expected from a natural, fully stocked stand of coniferous trees over the *biological* rotation age⁴. Tables 9 – 12 on pages 16 – 19 provide biological rotation ages (CMAI) and estimated volumetric yields by site index for four annual precipitation zones in Montana.

Statewide, forestland productivity estimates will increase approximately 0.2 percent in 2009³. Table 7, on page 14 lists the county-by-county comparisons of productivity estimates in 2008 versus 2009. Table 8, on page 15 provides the annualized per-acre weighted average board foot yield at culmination on a county-by-county basis. Statewide, the weighted average board foot net yield is 193 bf/ac/yr @CMAI. This places the statewide weighed average yield in potential productivity grade 4 (175.1 – 250 bf/ac/yr @CMAI).

⁴ The maximum average annual growth is reduced by average annual mortality as reflected in normal yield tables.

³ The conversion of board feet and cubic feet to a common denominator introduces some minor error into this calculation. The 1.9 percent increase is based on the use of arithmetic midpoints for each productivity grade. The department will use weighted mean volumetric averages for each grade in the 2009 reappraisal cycle.

In 2009, the units of measurement for productivity will change from cubic feet to board feet. Additionally, forestland productivity will be displayed using five productivity grades rather than four grades. The additional productivity grade and the resulting narrowing of the grade bands is the result of improvements in the DOR's ability to estimate forestland productivity.

Approximately 80 percent of the private forestland acreage will fall in the poor or fair productivity classes. Less than six percent of the commercial forestland will fall in the two highest grades: good and excellent productivity. The following table displays the percent of forestland found in each forestland productivity grade for 2009.

2009 Forestland Acres by Productivity Grade
Yields are Expressed at Culmination of Mean Annual Increment

Grade	BF Range	Percent Forestland
1 (Excellent)	400.1 +	1.9%
2 (Very Good)	325.1 – 400	3.6%
3 (Good)	250.1 – 325	14.0%
4 (Average)	175.1 – 250	32.8%
5 (Poor)	100.0 – 175	47.6%

The original forestland productivity model may have been state-of-the-art technology in the early 1990's, but the productivity output contained substantial error. The 1990's model generally placed the lowest productivity estimates at the lower elevations and higher productivity estimates at higher elevations. The 2009 model produces more accurate estimates and generally places higher productivity estimates at lower to mid elevations and the lower productivity estimates at the higher elevations.

In 2009, forest productivity estimates will be significantly lower in most of south-central Montana and all of eastern Montana. The lowest potential productivity estimates are in southeastern Montana. Two counties; Garfield and Prairie will not longer have any commercial forestland. Improved techniques to address stockability problems related to low annual precipitation have reduced potential productivity estimates on drier sites in the state.

The upper productivity range in western Montana will expand in 2009. While only 5.6 percent of the commercial forestland acres will fall in the top two grades, prior to 2009 very few if any, forest acres fell in this estimated potential productivity range⁴.

It is more difficult to generalize about estimated productivity changes in western and north-central Montana. For instance, Lincoln, Ravalli, Sanders and Mineral counties will see major increases in estimated productivity. Missoula County will see a moderate increase and Lake County will see a minor increase in productivity estimates. Yet, Flathead County will see a slight decrease in productivity estimates. North-central Montana counties will in general, see very minor increases in estimated productivity. However, Chouteau and Hill Counties will experience double-digit increases.

⁴ Productivity estimates are based on arithmetic midpoints of productivity grades.

Three counties on the Rocky Mountain Front will see a significant productivity decrease⁵. The original productivity model classified thousands of acres noncommercial limber pine as commercial forestland. A special effort was made by the DOR to exclude limber pine stands from commercial forestland designation on the Rocky Mountain Front for 2009. Additionally, the 2009 productivity model estimates lower productivity on the remaining commercial forestland in all three counties.

The southwestern counties of Beaverhead, Carbon, Deer Lodge, Madison, Gallatin, and Park will also see a decrease in estimated forestland productivity. These counties contain a significant amount of forest acreage at higher elevations as well as large quantities of noncommercial tree species such as juniper, limber pine and whitebark pine.

Forty-five counties will have commercial forestland in 2009. The estimated potential productivity will decrease in 32 of those counties. Significant increases in northwestern Montana, where the majority of the private forestland is located offsets the reductions found in the majority of the remaining counties. Therefore, while there is virtually a zero change in statewide potential productivity estimates, individual counties may exhibit major changes in estimated productivity in 2009.

Natural Disaster Relief:

The Forest Tax Act of 1991, provided forestland owners with a 50 percent forest tax reduction on forestland destroyed by natural disasters. This relief is in effect for 20 years from the year after the loss only if the forestland owner applies for the relief. Until 2009, destroyed timber was manually delineated on forest classification maps. In 2009, the department's GIS will contain a digital layer that delineates timber destroyed by natural disasters. The work on this digital layer will be done in early 2009 and will most likely make some changes to the forestland acreage currently impacted by natural disaster relief. In 2008, the cumulative effect of this tax relief has been to reduce the statewide forestland tax base by 2.7 percent.

Natural disaster relief has been granted in 25 of the 46 counties that will have commercial forestland in 2009. Three counties have experienced double digit reductions: Broadwater, Mineral, and Ravalli counties. Broadwater County has experienced the largest natural disaster reduction at 16 percent. See Table 5, on page 12, for the county-by-county forestland assessment reductions due to natural disaster relief.

Forest Assessments:

Statewide, per-acre forestland assessments are estimated to increase 43 percent in 2009. Table 3, on page 10 reflects the change in forestland per-acre appraised values from 2008 to 2009 on a county-by-county basis. This table also lists the average per-

⁵ Glacier, Teton and Pondera Counties

acre change in dollar and percentage amounts. See Table 6, on page 13, for the county-by-county change in the total forestland tax base from 2008 to 2009, which is additionally impacted by a 5.8 percent increase in forestland acres for 2009.

Most of the overall valuation increase is directly attributable to a significant decrease in the capitalization rate used in the forest productivity formula⁶. Interest rates have dropped every reappraisal cycle since the forest tax system was implemented in 1991 and the 2009 reappraisal cycle will continue that trend. The average capitalization rate will decrease from roughly 8.4 percent in the current reappraisal cycle to 6.2 percent in the next reappraisal cycle⁷. Forest assessments are extremely sensitive to slight changes in the capitalization rate. The 2.2 percent decrease in the forestland capitalization rate will produce a 35 percent increase in forestland assessments.

Table 4 on page 11, attempts to quantify impacts due to the update of income and expense data, as well as the realignment of forest valuation zones. Approximately 41 percent of the increase in forest valuations in 2009 can be attributed to the update of income and expense data, as well as the realignment of forest valuation zones. Given that roughly 35 percent of the forestland assessment increase is due to changes in the capitalization rate, approximately six percent of the increase can be attributed to the realignment of forest valuation zones and the update of forest income and expense data, other than the capitalization rates. Approximately 2 percent of the statewide per-acre increase in assessed values can be attributed to an increase in estimated forestland productivity, which occurs primarily in northwestern and north-central Montana.

Most of the counties that were aligned in Forest Valuation Zone 4 for the 2003 reappraisal cycle will benefit from the realignment of valuation zones in 2009⁸. These counties will see an 11 to 12 percent decrease due to changes in income and expense data.

Counties that are aligned in Forest Valuation Zone 5 for the 2003-2008 reappraisal cycle but realigned into Valuation Zone 3 for 2009, will see a 74 to 76 percent increase due to changes in this component⁹.

Counties that are aligned in Forest Valuation Zone 3 for the 2003-2008 reappraisal cycle but realigned into Valuation Zone 2 for 2009, will see a 57 to 62 percent increase due to changes in this component¹⁰.

Conclusion

Statewide, forestland assessments will increase substantially in the 2009 reappraisal cycle. The majority of this increase is due to a large drop in the forestland capitalization

⁶ See the 2009 Forest Valuation Report for a complete discussion on the forest valuation process.

⁷ The method for calculating the forestland capitalization rate is defined in state law.

⁸ Cascade, Gallatin, Glacier, Meagher, Park, and Teton.

⁹ Blaine, Chouteau, Fergus, Golden Valley, Hill, Judith Basin, Liberty, Wheatland.

¹⁰ Beaverhead, Deerlodge, Jefferson, Lewis & Clark, Madison, Silver Bow.

rate. If interest rates stabilize, the capitalization rate used in the next reappraisal cycle will see little change.

The current taxable percent is 0.35% (.0035) for Property Tax Class 10 - Forestland. The 2009 Montana legislature will decide if this rate will be further reduced to produce a statewide forestland taxable value neutral reappraisal. The 2003 legislature chose not to make an adjustment to the taxable percentage for the 2003 - 2008 appraisal cycle.

The 2009 Montana legislature will have to decide whether to continue the current practice of phasing in any assessment increase over the length of the reappraisal cycle and immediately phasing in any assessment decrease in 2009.

The current method of updating forest income and expense data faces major problems in future reappraisal cycles. These problems are documented in the *December 2008 Forest Valuation Report*. The department may want to bring those issues before a technical working group early in the next reappraisal cycle to proactively address this problem.



Table 1
Forestland Acres
2008 to 2009

County Name	Forest Acres		Acre Change 2008-2009	Percent Change
	2008	2009		
Beaverhead	25,569	29,595	4,026	15.75%
Big Horn	74,055	26,965	(47,090)	-63.59%
Blaine	2,964	8,229	5,265	177.63%
Broadwater	32,194	52,383	20,189	62.71%
Carbon	11,407	6,506	(4,901)	-42.97%
Carter	21,857	10,142	(11,714)	-53.60%
Cascade	46,037	71,216	25,179	54.69%
Chouteau	13,818	20,289	6,471	46.83%
Custer	37,519	29,211	(8,307)	-22.14%
Deer Lodge	53,334	53,709	376	0.70%
Fallon	600	122	(478)	-79.60%
Fergus	123,897	155,398	31,501	25.43%
Flathead	438,427	430,406	(8,020)	-1.83%
Gallatin	140,022	124,939	(15,082)	-10.77%
Garfield	456	0	(456)	-
Glacier	1,529	3,223	1,694	110.83%
Golden Valley	11,393	13,732	2,338	20.52%
Granite	136,840	116,840	(20,000)	-14.62%
Hill	6,174	9,372	3,198	51.79%
Jefferson	41,735	64,107	22,372	53.60%
Judith Basin	14,736	14,829	93	0.63%
Lake	98,218	100,202	1,984	2.02%
Lewis And Clark	164,537	214,191	49,653	30.18%
Liberty	-	753	753	-
Lincoln	419,047	412,118	(6,929)	-1.65%
Madison	83,789	79,619	(4,170)	-4.98%
Meagher	124,584	183,608	59,024	47.38%
Mineral	90,403	89,259	(1,144)	-1.27%
Missoula	517,556	525,709	8,153	1.58%
Musselshell	156,157	212,286	56,129	35.94%
Park	127,169	134,560	7,391	5.81%
Petroleum	2,074	964	(1,110)	-53.51%
Phillips	1,563	2,342	779	49.81%
Pondera	853	1,184	331	38.78%
Powder River	17,431	39,730	22,299	127.93%
Powell	210,783	218,083	7,300	3.46%
Prairie	436	0	(436)	-
Ravalli	94,699	94,424	(275)	-0.29%
Rosebud	44,162	43,801	(361)	-0.82%
Sanders	271,978	265,490	(6,488)	-2.39%
Silver Bow	22,624	31,816	9,192	40.63%
Stillwater	63,134	55,251	(7,882)	-12.49%
Sweet Grass	70,733	97,422	26,689	37.73%
Teton	8,013	8,440	426	5.32%
Treasure	13,932	1,662	(12,270)	-88.07%
Wheatland	13,062	17,296	4,234	32.41%
Yellowstone	32,480	37,707	5,227	16.09%
Totals	3,883,979	4,109,130	225,151	5.80%

Table 2
2009 Forest Acres by Productivity Grade

County Name	Grade 1 Acres	Grade 2 Acres	Grade 3 Acres	Grade 4 Acres	Grade 5 Acres	Total Acres
Beaverhead				597	28,998	29,595
Big Horn					26,965	26,965
Blaine					8,229	8,229
Broadwater				4,437	47,946	52,383
Carbon				386	6,120	6,506
Carter				157	9,986	10,142
Cascade			25	9,848	61,343	71,216
Chouteau			1,519	12,581	6,189	20,289
Custer					29,211	29,211
Deer Lodge				5,932	47,777	53,709
Fallon					122	122
Fergus			3,919	38,199	113,280	155,398
Flathead	23	9,076	143,816	230,490	47,002	430,406
Gallatin			123	23,352	101,464	124,939
Garfield						0
Glacier			770	2,141	312	3,223
Golden Valley				87	13,644	13,732
Granite				45,984	70,856	116,840
Hill				3,892	5,480	9,372
Jefferson				3,978	60,129	64,107
Judith Basin			9	1,566	13,254	14,829
Lake	132	8,976	38,283	46,702	6,109	100,202
Lewis And Clark			6,030	77,250	130,910	214,191
Liberty				89	663	753
Lincoln	41,873	79,230	155,743	113,303	21,969	412,118
Madison				11,440	68,179	79,619
Meagher				4,236	179,372	183,608
Mineral	2,433	16,753	35,614	33,741	718	89,259
Missoula		6,501	90,148	340,023	89,037	525,709
Musselshell				1,484	210,802	212,286
Park			1,372	28,713	104,475	134,560
Petroleum				13	951	964
Phillips				566	1,776	2,342
Pondera				186	998	1,184
Powder River					39,730	39,730
Powell			9,054	103,925	105,104	218,083
Prairie						0
Ravalli		367	9,417	61,815	22,826	94,424
Rosebud				16	43,785	43,801
Sanders	35,633	26,805	80,547	109,886	12,619	265,490
Silver Bow				1,005	30,811	31,816
Stillwater				4,404	50,847	55,251
Sweet Grass				24,797	72,625	97,422
Teton				1,425	7,015	8,440
Treasure					1,662	1,662
Wheatland				283	17,013	17,296
Yellowstone					37,707	37,707
Totals	80,093	147,707	576,388	1,348,929	1,956,013	4,109,130
Percent	1.9%	3.6%	14.0%	32.8%	47.6%	100%

Table 3
Average Per Acre Assessed Values
2008 to 2009

County Name	Avg 2008 \$ Per Acre	Avg 2009 \$ Per Acre	Avg Change Per Acre	Avg Change Percent
Beaverhead	\$396.52	\$471.04	\$74.52	18.8%
Big Horn	\$208.36	\$233.38	\$25.02	12.0%
Blaine	\$205.98	\$318.85	\$112.87	54.8%
Broadwater	\$411.19	\$361.91	\$(49.28)	-12.0%
Carbon	\$239.37	\$264.05	\$24.69	10.3%
Carter	\$205.98	\$257.41	\$51.43	25.0%
Cascade	\$422.33	\$377.22	\$(45.11)	-10.7%
Chouteau	\$245.98	\$490.58	\$244.61	99.4%
Custer	\$205.98	\$225.21	\$19.23	9.3%
Deer Lodge	\$475.25	\$522.05	\$46.80	9.8%
Fallon	\$205.98	\$222.14	\$16.16	7.8%
Fergus	\$211.69	\$380.42	\$168.73	79.7%
Flathead	\$717.59	\$1,021.78	\$304.18	42.4%
Gallatin	\$551.90	\$380.00	\$(171.90)	-31.1%
Garfield	\$205.98	-	\$(205.98)	-
Glacier	\$858.46	\$566.96	\$(291.50)	-34.0%
Golden Valley	\$211.28	\$329.57	\$118.29	56.0%
Granite	\$543.30	\$608.47	\$65.17	12.0%
Hill	\$209.94	\$414.73	\$204.79	97.5%
Jefferson	\$346.22	\$496.53	\$150.31	43.4%
Judith Basin	\$213.45	\$369.27	\$155.82	73.0%
Lake	\$724.41	\$1,128.12	\$403.70	55.7%
Lewis And Clark	\$417.82	\$629.83	\$212.01	50.7%
Liberty	\$0.00	\$337.52	\$337.52	-
Lincoln	\$707.77	\$1,350.46	\$642.69	90.8%
Madison	\$388.90	\$503.04	\$114.14	29.4%
Meagher	\$425.90	\$370.16	\$(55.74)	-13.1%
Mineral	\$598.50	\$1,115.95	\$517.45	86.5%
Missoula	\$528.20	\$834.21	\$306.01	57.9%
Musselshell	\$205.98	\$251.46	\$45.48	22.1%
Park	\$558.07	\$379.18	\$(178.89)	-32.1%
Petroleum	\$205.98	\$277.49	\$71.51	34.7%
Phillips	\$205.98	\$276.83	\$70.85	34.4%
Pondera	\$673.88	\$411.72	\$(262.16)	-38.9%
Powder River	\$205.98	\$235.01	\$29.03	14.1%
Powell	\$506.78	\$672.47	\$165.68	32.7%
Prairie	\$205.98	-	\$(205.98)	-
Ravalli	\$426.21	\$765.96	\$339.75	79.7%
Rosebud	\$208.62	\$245.97	\$37.35	17.9%
Sanders	\$687.64	\$1,288.07	\$600.43	87.3%
Silver Bow	\$333.83	\$465.87	\$132.04	39.6%
Stillwater	\$209.59	\$265.53	\$55.94	26.7%
Sweet Grass	\$248.77	\$296.41	\$47.64	19.1%
Teton	\$703.01	\$392.47	\$(310.54)	-44.2%
Treasure	\$205.98	\$209.48	\$3.50	1.7%
Wheatland	\$215.45	\$347.78	\$132.33	61.4%
Yellowstone	\$205.98	\$228.22	\$22.24	10.8%
Totals	\$ 508.60	\$ 729.36	\$ 220.76	43.4%

Table 4
Change in Forest Valuation Due to Updated Income and Expense Data
and the Realignment of Forest Valuation Zones
2008 to 2009

County Name	Assessed Value Per Acre		Per Acre Value		Percent Change
	2008	2009	Change		
Beaverhead	\$ 396.52	\$ 634.06	237.54		59.90%
Big Horn	\$ 208.36	\$ 278.79	70.43		33.80%
Blaine	\$ 205.98	\$ 362.72	156.74		76.09%
Broadwater	\$ 411.19	\$ 366.23	-44.96		-10.93%
Carbon	\$ 239.37	\$ 314.11	74.74		31.22%
Carter	\$ 205.98	\$ 276.08	70.10		34.03%
Cascade	\$ 422.33	\$ 375.88	-46.45		-11.00%
Chouteau	\$ 245.98	\$ 427.83	181.86		73.93%
Custer	\$ 205.98	\$ 276.08	70.10		34.03%
Deer Lodge	\$ 475.25	\$ 771.85	296.60		62.41%
Fallon	\$ 205.98	\$ 276.08	70.10		34.03%
Fergus	\$ 211.69	\$ 372.02	160.33		75.74%
Flathead	\$ 717.59	\$ 1,063.06	345.47		48.14%
Gallatin	\$ 551.90	\$ 488.16	-63.75		-11.55%
Garfield	\$ 205.98	\$ -	-205.98		-
Glacier	\$ 858.46	\$ 753.79	-104.67		-12.19%
Golden Valley	\$ 211.28	\$ 371.35	160.07		75.76%
Granite	\$ 543.30	\$ 788.31	245.01		45.10%
Hill	\$ 209.94	\$ 369.17	159.23		75.84%
Jefferson	\$ 346.22	\$ 546.02	199.80		57.71%
Judith Basin	\$ 213.45	\$ 374.88	161.43		75.63%
Lake	\$ 724.41	\$ 1,073.53	349.11		48.19%
Lewis And Clark	\$ 417.82	\$ 671.33	253.51		60.68%
Liberty	\$ -	\$ 362.72	362.72		-
Lincoln	\$ 707.77	\$ 1,048.00	340.23		48.07%
Madison	\$ 388.90	\$ 620.71	231.81		59.61%
Meagher	\$ 425.90	\$ 378.98	-46.92		-11.02%
Mineral	\$ 598.50	\$ 868.16	269.66		45.06%
Missoula	\$ 528.20	\$ 766.47	238.27		45.11%
Musselshell	\$ 205.98	\$ 276.08	70.10		34.03%
Park	\$ 558.07	\$ 493.50	-64.57		-11.57%
Petroleum	\$ 205.98	\$ 276.08	70.10		34.03%
Phillips	\$ 205.98	\$ 276.08	70.10		34.03%
Pondera	\$ 673.88	\$ 593.85	-80.03		-11.88%
Powder River	\$ 205.98	\$ 276.08	70.10		34.03%
Powell	\$ 506.78	\$ 735.50	228.71		45.13%
Prairie	\$ 205.98	\$ -	-205.98		-
Ravalli	\$ 426.21	\$ 618.95	192.74		45.22%
Rosebud	\$ 208.62	\$ 279.08	70.47		33.78%
Sanders	\$ 687.64	\$ 1,017.13	329.49		47.92%
Silver Bow	\$ 333.83	\$ 524.33	190.50		57.07%
Stillwater	\$ 209.59	\$ 280.19	70.60		33.69%
Sweet Grass	\$ 248.77	\$ 324.82	76.05		30.57%
Teton	\$ 703.01	\$ 619.09	-83.92		-11.94%
Treasure	\$ 205.98	\$ 276.08	70.10		34.03%
Wheatland	\$ 215.45	\$ 378.13	162.69		75.51%
Yellowstone	\$ 205.98	\$ 276.08	70.10		34.03%
Totals	\$ 508.60	\$ 715.37	206.77		40.65%

Table 5
Impact of Natural Disaster Relief on Forestland Assessments

County Name	Percent Reduction
Beaverhead	0.44%
Big Horn	0.87%
Blaine	0.00%
Broadwater	16.44%
Carbon	2.96%
Carter	0.40%
Cascade	0.15%
Chouteau	0.00%
Custer	0.00%
Deer Lodge	0.00%
Fallon	0.00%
Fergus	0.28%
Flathead	1.34%
Gallatin	3.73%
Garfield	0.00%
Glacier	3.30%
Golden Valley	1.32%
Granite	4.65%
Hill	0.00%
Jefferson	1.39%
Judith Basin	0.00%
Lake	0.00%
Lewis And Clark	0.04%
Liberty	0.00%
Lincoln	0.48%
Madison	0.00%
Meagher	0.00%
Mineral	13.63%
Missoula	6.31%
Musselshell	1.86%
Park	5.46%
Petroleum	0.00%
Phillips	0.00%
Pondera	0.00%
Powder River	0.00%
Powell	0.00%
Prairie	0.00%
Ravalli	10.71%
Rosebud	1.10%
Sanders	1.79%
Silver Bow	0.00%
Stillwater	4.66%
Sweet Grass	8.60%
Teton	0.00%
Treasure	0.00%
Wheatland	0.00%
Yellowstone	3.83%
Total	2.74%

Table 6
Total Change in Forestland Tax Base
2008 to 2009

County Name	Assessed Value		Dollar Change	Percent Change
	2008	2009		
Beaverhead	\$ 10,138,550	\$ 13,940,415	\$ 3,801,866	37.50%
Big Horn	\$ 15,430,368	\$ 6,293,238	\$ (9,137,130)	-59.22%
Blaine	\$ 610,525	\$ 2,623,811	\$ 2,013,286	329.76%
Broadwater	\$ 13,237,729	\$ 18,957,870	\$ 5,720,141	43.21%
Carbon	\$ 2,730,360	\$ 1,717,824	\$ (1,012,537)	-37.08%
Carter	\$ 4,502,070	\$ 2,610,726	\$ (1,891,344)	-42.01%
Cascade	\$ 19,442,842	\$ 26,864,217	\$ 7,421,376	38.17%
Chouteau	\$ 3,398,924	\$ 9,953,543	\$ 6,554,620	192.84%
Custer	\$ 7,728,061	\$ 6,578,663	\$ (1,149,398)	-14.87%
Deer Lodge	\$ 25,347,052	\$ 28,039,064	\$ 2,692,012	10.62%
Fallon	\$ 123,588	\$ 27,188	\$ (96,400)	-78.00%
Fergus	\$ 26,228,209	\$ 59,116,724	\$ 32,888,515	125.39%
Flathead	\$ 314,611,489	\$ 439,778,774	\$ 125,167,285	39.78%
Gallatin	\$ 77,278,237	\$ 47,476,936	\$ (29,801,302)	-38.56%
Garfield	\$ 93,927	\$ -	\$ (93,927)	-
Glacier	\$ 1,312,422	\$ 1,827,400	\$ 514,978	39.24%
Golden Valley	\$ 2,407,229	\$ 4,525,513	\$ 2,118,284	88.00%
Granite	\$ 74,344,504	\$ 71,093,018	\$ (3,251,486)	-4.37%
Hill	\$ 1,296,263	\$ 3,886,983	\$ 2,590,721	199.86%
Jefferson	\$ 14,449,575	\$ 31,831,154	\$ 17,381,579	120.29%
Judith Basin	\$ 3,145,353	\$ 5,475,942	\$ 2,330,589	74.10%
Lake	\$ 71,150,532	\$ 113,039,860	\$ 41,889,328	58.87%
Lewis And Clark	\$ 68,746,665	\$ 134,902,916	\$ 66,156,251	96.23%
Liberty	\$ -	\$ 254,015	\$ 254,015	-
Lincoln	\$ 296,588,035	\$ 556,546,553	\$ 259,958,518	87.65%
Madison	\$ 32,585,310	\$ 40,051,371	\$ 7,466,060	22.91%
Meagher	\$ 53,060,115	\$ 67,963,949	\$ 14,903,834	28.09%
Mineral	\$ 54,106,330	\$ 99,609,057	\$ 45,502,726	84.10%
Missoula	\$ 273,370,754	\$ 438,551,649	\$ 165,180,896	60.42%
Musselshell	\$ 32,165,149	\$ 53,381,891	\$ 21,216,742	65.96%
Park	\$ 70,968,657	\$ 51,021,983	\$ (19,946,674)	-28.11%
Petroleum	\$ 427,203	\$ 267,557	\$ (159,646)	-37.37%
Phillips	\$ 322,002	\$ 648,334	\$ 326,333	101.35%
Pondera	\$ 574,821	\$ 487,391	\$ (87,430)	-15.21%
Powder River	\$ 3,590,439	\$ 9,337,039	\$ 5,746,599	160.05%
Powell	\$ 106,821,211	\$ 146,653,483	\$ 39,832,271	37.29%
Prairie	\$ 89,807	\$ -	\$ (89,807)	-
Ravalli	\$ 40,361,872	\$ 72,325,392	\$ 31,963,520	79.19%
Rosebud	\$ 9,212,997	\$ 10,773,922	\$ 1,560,926	16.94%
Sanders	\$ 187,023,016	\$ 341,969,486	\$ 154,946,470	82.85%
Silver Bow	\$ 7,552,710	\$ 14,822,014	\$ 7,269,303	96.25%
Stillwater	\$ 13,232,103	\$ 14,670,712	\$ 1,438,609	10.87%
Sweet Grass	\$ 17,596,127	\$ 28,876,316	\$ 11,280,189	64.11%
Teton	\$ 5,633,390	\$ 3,312,340	\$ (2,321,051)	-41.20%
Treasure	\$ 2,869,713	\$ 348,115	\$ (2,521,599)	-87.87%
Wheatland	\$ 2,814,176	\$ 6,015,189	\$ 3,201,013	113.75%
Yellowstone	\$ 6,690,313	\$ 8,605,432	\$ 1,915,119	28.63%
Totals	\$ 1,975,410,723	\$ 2,997,054,968	\$ 1,021,644,245	51.72%

Table 7
Change in Forestland Productivity Estimates
2008 to 2009

County Name	Avg 2008 BF Per Acre¹¹	Avg 2009 BF Per Acre	Percent Change
Beaverhead	168.4	133.2	-20.9%
Big Horn	144.9	120.8	-16.7%
Blaine	143.5	127.2	-11.4%
Broadwater	144.8	143.2	-1.1%
Carbon	163.8	137.1	-16.3%
Carter	143.5	133.6	-6.9%
Cascade	148.4	148.9	0.3%
Chouteau	167.8	191.1	13.9%
Custer	143.5	116.4	-18.9%
Deer Lodge	198.1	144.2	-27.2%
Fallon	143.5	114.8	-20.0%
Fergus	147.0	150.1	2.1%
Flathead	235.9	228.3	-3.2%
Gallatin	190.2	149.9	-21.2%
Garfield	143.5	0.0	-
Glacier	289.2	219.6	-24.1%
Golden Valley	146.7	131.1	-10.6%
Granite	201.6	162.9	-19.2%
Hill	145.9	162.9	11.6%
Jefferson	149.4	138.7	-7.1%
Judith Basin	148.0	145.9	-1.4%
Lake	237.9	248.0	4.2%
Lewis And Clark	176.4	167.5	-5.1%
Liberty	0.0	134.1	-
Lincoln	233.2	289.1	24.0%
Madison	165.5	140.1	-15.3%
Meagher	149.6	146.3	-2.2%
Mineral	218.9	272.3	24.4%
Missoula	196.9	211.6	7.4%
Musselshell	143.5	130.4	-9.1%
Park	192.2	149.6	-22.2%
Petroleum	143.5	144.2	0.5%
Phillips	143.5	143.9	0.3%
Pondera	229.6	161.8	-29.6%
Powder River	143.5	121.6	-15.2%
Powell	190.3	176.7	-7.1%
Prairie	143.5	0.0	-
Ravalli	165.1	196.8	19.2%
Rosebud	145.1	127.5	-12.2%
Sanders	227.4	277.6	22.0%
Silver Bow	144.7	132.1	-8.7%
Stillwater	145.7	137.9	-5.4%
Sweet Grass	169.5	154.3	-8.9%
Teton	239.0	154.6	-35.3%
Treasure	143.5	108.0	-24.7%
Wheatland	149.2	137.9	-7.6%
Yellowstone	143.5	118.0	-17.8%
TOTALS:	193.4	193.0	-0.2%

¹¹ Cubic foot estimates used in the 2003 reappraisal were converted to board feet using a 4.1 board feet to cubic foot ratio.

Table 8
2009 Reappraisal Cycle
Weighted Per-Acre Board Foot Yields By Productivity Grade
Annualized Net Yield @ Culmination

County Name	I	II	Grade III	IV	V	County Average
Beaverhead				180	132	133
Big Horn				204	121	121
Blaine				177	127	127
Broadwater			267	187	139	143
Carbon				186	134	137
Carter				179	133	134
Cascade			252	190	142	149
Chouteau			260	204	148	191
Custer					116	116
Deer Lodge				184	139	144
Fallon					115	115
Fergus			254	209	127	150
Flathead	420	343	277	210	147	228
Gallatin			258	186	142	150
Garfield						0
Glacier			275	210	150	220
Golden Valley				179	131	131
Granite			252	191	145	163
Hill				187	146	163
Jefferson				184	136	139
Judith Basin				187	141	146
Lake	411	339	286	212	145	248
Lewis And Clark			256	195	147	167
Liberty				183	127	134
Lincoln	448	356	285	217	146	289
Madison				186	132	140
Meagher				183	145	146
Mineral	421	354	281	214	160	272
Missoula		340	274	208	151	212
Musselshell				183	130	130
Park			258	192	137	150
Petroleum				182	144	144
Phillips				202	125	144
Pondera			167	198	155	162
Powder River				177	122	122
Powell			264	199	147	177
Prairie						0
Ravalli		341	278	202	147	197
Rosebud				182	127	127
Sanders	452	356	280	214	152	278
Silver Bow				182	130	132
Stillwater			256	193	133	138
Sweet Grass				195	141	154
Teton				193	147	155
Treasure					108	108
Wheatland				176	137	138
Yellowstone					118	118
Total	449	353	279	206	136	193

Table 9
Forest Site With More Than 18" Annual Precipitation

Site Index	Age @CMAI	Per-Acre Net Annualized Board Feet @CMAI	Per-Acre Total Net Board Feet @CMAI
44	134	99	13,325
45	130	109	14,175
46	124	119	14,728
47	118	129	15,181
48	112	139	15,531
49	106	149	15,774
50	100	159	15,911
51	100	170	16,953
52	100	180	18,010
53	100	191	19,080
54	100	202	20,164
55	100	213	21,262
56	99	224	22,150
57	98	235	23,030
58	97	246	23,900
59	96	258	24,761
60	95	270	25,611
61	92	281	25,889
62	89	293	26,108
63	86	305	26,267
64	83	318	26,366
65	80	330	26,401
66	79	343	27,059
67	78	355	27,702
68	77	368	28,331
69	76	381	28,944
70	75	394	29,542
71	74	407	30,124
72	73	420	30,690
73	72	434	31,240
74	71	447	31,772
75	70	461	32,286

Table 10
Forest Site With 16" Annual Precipitation

Site Index	Age @CMAI	Per-Acre Net Annualized Board Feet @CMAI	Per-Acre Total Net Board Feet @CMAI
44	134	82	10,979
45	130	90	11,679
46	124	98	12,135
47	118	106	12,508
48	112	114	12,796
49	106	123	12,997
50	100	131	13,109
51	100	140	13,968
52	100	148	14,838
53	100	157	15,720
54	100	166	16,613
55	100	175	17,518
56	99	184	18,250
57	98	194	18,974
58	97	203	19,691
59	96	213	20,400
60	95	222	21,101
61	92	232	21,330
62	89	242	21,510
63	86	252	21,642
64	83	262	21,723
65	80	272	21,752
66	79	282	22,294
67	78	293	22,824
68	77	303	23,342
69	76	314	23,847
70	75	325	24,340
71	74	335	24,820
72	73	346	25,286
73	72	357	25,738
74	71	269	19,077
75	70	380	26,601

Table 11
Forest Site With 14" Annual Precipitation

Site Index	Age @CMAI	Per-Acre Net Annualized Board Feet @CMAI	Per-Acre Total Net Board Feet @CMAI
44	134	66	8,812
45	130	72	9,374
46	124	79	9,739
47	118	85	10,039
48	112	92	10,270
49	106	98	10,431
50	100	105	10,521
51	100	112	11,210
52	100	119	11,909
53	100	126	12,617
54	100	133	13,334
55	100	141	14,060
56	99	148	14,647
57	98	155	15,229
58	97	163	15,804
59	96	171	16,373
60	95	178	16,936
61	92	186	17,119
62	89	194	17,264
63	86	202	17,370
64	83	210	17,434
65	80	218	17,458
66	79	226	17,893
67	78	235	18,318
68	77	243	18,734
69	76	252	19,140
70	75	260	19,535
71	74	269	19,920
72	73	278	20,294
73	72	287	20,657
74	71	296	21,009
75	70	305	21,350

Table 12
Forest Site With 12" Annual Precipitation

Site Index	Age @CMAI	Per-Acre Net Annualized Board Feet @CMAI	Per-Acre Total Net Board Feet @CMAI
44	134	50	6,644
45	130	54	7,068
46	124	59	7,344
47	118	64	7,570
48	112	69	7,744
49	106	74	7,865
50	100	79	7,933
51	100	85	8,453
52	100	90	8,980
53	100	95	9,514
54	100	101	10,054
55	100	106	10,602
56	99	112	11,045
57	98	117	11,483
58	97	123	11,917
59	96	129	12,346
60	95	134	12,770
61	92	140	12,909
62	89	146	13,018
63	86	152	13,097
64	83	158	13,146
65	80	165	13,164
66	79	171	13,492
67	78	177	13,813
68	77	183	14,126
69	76	190	14,432
70	75	196	14,730
71	74	203	15,021
72	73	210	15,303
73	72	216	15,577
74	71	223	15,842
75	70	230	16,098

