

# A Relationship of Trust: Are State “School Trust Lands” Being Prudently Managed for the Beneficiary?

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**Abstract** Every state entering the Union in the United States since 1803 received land grants from the federal government for the support of their public schools. Inherent in this federal grant is the fiduciary duty to prudently and effectively manage trust assets for the beneficiary, their school systems. This paper addresses the question of whether managers of trust lands are meeting their fiduciary responsibilities of “maximum economic benefit” for their beneficiaries. Realized market value-based economic returns from grazing lease revenues and capital appreciation for all twenty-three counties in Wyoming are compared with returns that may have been generated from alternative investment policy alternatives. Market values and capital appreciation for school trust lands in Wyoming are estimated from hedonic models formulated from ranch sales data and grazing revenue data.

## Introduction

Every state entering the Union in the United States since 1803 received land grants from the federal government for the support of public schools. In Wyoming, although a portion of the surface rights for “School Trust Lands” has been sold over time, the trust still manages in excess of 4.2 million acres of mineral estate and 3.5 million acres of surface estate from the original land grant. These lands and the permanent fund, which they have generated, are governed under Article 18 of the Wyoming Constitution and are reserved for the sole benefit of the designated beneficiaries. These beneficiaries are the common (public) schools and certain other designated public institutions in Wyoming. These are a unique form of public lands because of restrictions and the fiduciary responsibilities associated with the management of these lands.

The management of school trust land has been a contentious political topic for many years and will likely remain so. Numerous arguments can and have been made for and against current management policy that has focused on agricultural

grazing and mineral leases. This focus may be based on the importance of agricultural and natural resource industries to Wyoming's economy, the viability of the agricultural industry and/or the lack of other income producing alternatives. Rather than focusing on the political nature of the topic, the objective of this study is to estimate realized returns on surface rights being generated by trust lands through mineral and grazing leases. These realized rates of return are then compared to alternative investment returns that could be generated if the lands were sold and the proceeds were reinvested in accordance with state law. Based on this comparison, school trust lands will be assessed to determine if they are being managed in order to maximize the economic benefit to the trusts beneficiaries, the state school system.<sup>1</sup> Alternative strategies are also discussed, which are to increase grazing lease fees or adopting a variable fee system where grazing rates are based on market values of leased lands.

Because of the difference in scenic and recreational value of land between Teton County (Jackson Hole and Teton and Yellowstone National Parks) and the remainder of the state, the valuation of Wyoming school trust lands was operationalized using two multiple regression, hedonic models. One model estimates the value of the trust land in Teton County, while another estimates values of trust lands in the remainder of the state.<sup>2</sup> The state model focuses on characteristics that describe the productivity, as well as the scenic and recreational value of the land. The Teton County model, on the other hand, focuses on characteristics that capture scenic and recreational value. Based on estimated land values from both models, returns from the current policy involving grazing leases and capital gains are compared with the most likely alternative scenario that assumes the land was sold and the proceeds were reinvested in long-term U.S. Treasury securities.<sup>3</sup>

Based on the premise that higher rates of return, given equal or lower risk investments, more adequately fulfills the trustee's fiduciary obligation of maximizing economic returns, current returns on land market values are compared with returns for the most likely alternative management policy of selling select parcels of trust land and investing the proceeds in the permanent trust fund. The alternative is consistent with Wyoming statutes. The sale and reinvestment of proceeds may offer additional benefits since, once sold to private entities, the land is taxable, thus increasing the county's tax base. The sale of trust land would also enhance the diversity of trust assets and may reduce the volatility of the total trust value.<sup>4</sup>

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## Background and History

The U.S. Congress 1890 *Act of Admission*, which formally granted Wyoming statehood, states: "sections sixteen and thirty-six of each township were to be reserved for the benefit of the public school system. In the event these sections had already been disposed of by the U.S. Congress, equivalent were to be

substituted in lieu.” This act reaffirmed a similar land grant made by the *Organic Act* of 1868, which established a temporary government for the territory of Wyoming. The land grant made to Wyoming was similar to the land grants made to each new state since 1803.<sup>5</sup> Following the initial land grant, in accordance with section 7 of the *Act of Admission*, approximately, 5% of the newly granted land was sold and the sales proceeds were used to establish a permanent school fund. In order to protect the beneficiaries, should additional tracts of land be sold, section 5 of the *Act of Admission* required all sales be at public auction and required that the proceeds be deposited in a permanent trust fund. Section 5 of the *Act of Admission* states that only the interest generated by the permanent trust fund can be distributed to support the beneficiaries, thus protecting the trust’s corpus from being depleted, while providing a perpetual source of funding. The permanent trust fund established by this Act is still in existence and provides a significant source of funding for the beneficiaries, the public school systems.

According to the 2001 Annual Report from the Office of State Lands and Investments (OSLI) the original land grants were approximately 4.2 million acres spread evenly across the state. Since that time, a portion of the state trust land has been disposed of contributing to the size of the permanent trust fund. Current total assets contained in three different categories of the State Land Trust are: 3.5 million acres of surface estate, 4.2 million acres of mineral estate, and approximately \$986 million invested in financial assets (Wyoming OSLI, 2001). It has not been uncommon for states to dispose of land received from federal land grants as their needs have changed. Currently only twenty-two states manage trust lands, which total approximately 135 million acres.<sup>6</sup>

Despite the sizable land grant, only broad management guidelines were established, leaving substantial management discretion to the state. This management responsibility was endowed by Article 18, §3 of the Constitution of the State of Wyoming to the Board of Land Commissioners.<sup>7</sup> This article gives the Board the discretion over control, leasing and disposal of state trust land, subject to the limitation that the sale of lands must be at public auction. Section 5, of the *Act of Admission* provides some direction as to how the land can be managed by stating that the land can be leased for mineral, grazing, agricultural, or other purposes so long as the term of the agricultural and grazing leases do not exceed ten years. This provides for the land to be used in a manner that provides a stream of revenue, without having to dispose of the trust land. The flexibility afforded by the broad management guidelines has resulted in a combination of uses that include leases for grazing, oil and gas, other mineral leases and timber sales, but also leaves open the option of land sales when it is in the best interest of the beneficiary.<sup>8</sup>

From Exhibit 1, it is apparent that the state trust land’s primary revenue generating source is from grazing and mineral leases. Although grazing leases are the most common use, they generate only a small portion of the total income. On the other

**Exhibit 1** | State Land Revenue by Source FY-2001

Revenue Source	Revenue (\$)	Acres Leased <sup>a</sup>	Acres Under Prod. <sup>a</sup>
Oil & Gas	59,228,138	1,681,228	347,230
Coal	643,494	115,247	4,640
Grazing & Crop Share	3,744,329	3,540,857	3,540,857
Sodium, Trona, Metallic & Non-Metallic Rocks and Minerals	4,129,412	164,826	15,391
Timber Sales	432,196	—	—
Real Estate Sales	451,289	—	—
Easements	3,751,491	—	—
Bentonite	256,601	40,141	4,021
Sand and Gravel	130,689	2,950	814
Temporary Use Permits	236,638	—	—
Special Use Leases	282,907	28,581	—
Surface Damages	560,864	—	—
Uranium & Misc. Minerals	207,684	940	940
Other Fees & Payments	2,457,061	—	—
Liquidated Damages	10,000	—	—
<b>Total Revenue</b>	<b>76,522,793</b>	<b>5,574,769</b>	<b>3,913,893</b>

*Notes:*  
<sup>a</sup>Total leased acres is greater than the total amount of state trust land due to the possibility of multiple use.  
Source: Office of State Lands and Investments 2001 Annual Report.

hand, oil, gas and mineral leases generate more than 75% of the total trust land revenue while accounting for only a small portion of the total acres leased.

Since Wyoming is semiarid, has a deeply rooted agricultural tradition and is sparsely populated, grazing and mineral leases have historically been two of the few productive uses of the trust land. In addition to providing a stream of income for the trust beneficiaries, grazing and mineral leases provide additional benefits to the state. Even though the trust land is to be managed solely for the beneficiaries, it is common for other parties to derive some residual benefits. Under current management policy, oil and mineral leases benefit the state through the creation of jobs and the generation of taxes. Grazing leases enhance the viability of agricultural concerns, and the public benefits from open space that may be used for recreational pursuits.

Although management guidelines for trust lands are vague, the Wyoming Constitution (§ 36-5-105) requires that “all state lands leased by the state board of land commissioners, for grazing and other agricultural purposes shall be leased in such a manner and to such parties as shall insure to the greatest benefit to the state trust beneficiaries.” Although, under the current management policy revenues generated for trust beneficiaries are readily observable, it has been difficult to estimate market value realized rates of return because of the lack of dependable trust land market values. This study provides the mechanism for estimating market values using hedonic modeling.

The option to sell trust land, however, is limited by the Wyoming Constitution (§ 36-9-101), which states “the board shall sell such subdivisions as it shall deem for the best interests of the state land trust. The board shall not sell state land unless the board finds that the proceeds from the sale are protected from inflationary effect and the proceeds earn a significantly higher rate of return than can be realized through retention of the surface estate.” The public’s misunderstanding of the purpose of trust lands further complicates the sale of surface rights. Even though the constitution clearly states the trust land is to be managed for the benefit of the beneficiaries, many view trust land as public land that should be managed as such.

According to the 2001 Annual Report published by the Office of State Lands and Investments: “... these lands are known as ‘state’ lands. While ownership rests with the state, the benefits accrue solely to the beneficiaries who were named in the grants.” Confusion results when these lands are perceived as ‘public’ lands, much like federal lands whose primary mandates are to be managed for multiple-use purposes. The conditions imposed when state lands were granted require that the lands be managed for revenue purposes to benefit public schools and other institutions.

In a 1996 address to the State Land Task Force, former Wyoming Governor Jim Geringer acknowledged the difference between the state trust land and public land but explained why many view the land in an alternative light: “These are not state lands or public lands in the sense of a State Park, but are viewed this way by much of the public. When we look at the trust obligations it has its requirements. But then there are the long time traditional users of the land—agriculture ... Agricultural impacts on the beneficiaries in the sense of leasing surface acreage have been long-standing. It is part of our culture. In fact, agricultural producers feel they have an inherent right to continue to use these lands, which have been demonstrated to possess a permit value. Deeded lands that have been transferred with accompanying state leases have been shown to possess permit values.”<sup>9</sup>

Although the state constitution requires that school trust land be managed for the sole benefit of the trust’s beneficiaries, Governor Geringer acknowledged that other factors have been given consideration in their management. Given that state trust land grazing leases significantly increase market values of leaseholders’ ranches

and farms, it follows that lease rates are likely priced below market rates and are expected to remain so in the future. Therefore, current lease rates in essence provide subsidies to leaseholders at the beneficiary's expense.<sup>10</sup> As a result of the observed subsidy, it is apparent that current management policy does not provide the maximum benefit to trust beneficiaries.<sup>11</sup>

In addition to other factors, the surge in real estate prices due to farms and ranches being subdivided and sold for recreational rather than agricultural purposes during the previous decade, particularly in Teton County, warrants the consideration of selected land parcels to be sold.

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## Data and Models

Under current management policy, trust land returns on surface rights are generated from grazing revenues and appreciation of surface right values. Annual grazing revenues were obtained from the State of Wyoming and current estimated market values were determined using hedonic MRA models.

Two hedonic models are used to estimate trust land fair market values. The state model, using statewide ranch sales, estimates values of trust lands throughout the state except for Teton County. The second hedonic model estimates the value of state school trust lands in Teton County.

In both models, the dependent variable is defined as the sale price per acre. The linear models force the intercept through the origin, since it is unreasonable to assume a given parcel of land can be worth more or less than zero when no acreage exists and all other attributes are zero.<sup>12</sup>

The hedonic approach, as applied, estimates values for school trust parcels assuming they are integral parts of operating farms or ranches. Since many farms or ranches rely on public leases to provide economy of scale and economic viability for their operations, the possibility of trust lands being unavailable and the possibility of not renewing leases would provide individual ranchers' incentives to negotiate sales prices similar to estimated values. Since sections 16 and 36 in each township were designated, as school trust lands, it is reasonable to assume that each school section's value is similar in value to adjacent private ranch lands with similar attributes. However, it is likely that these leases and their market values are higher as integral parts of operating farms and ranches than to external investors. The difference in value between existing lessees and external investors/bidders results from the preferred right of renewal, the fact that some states are fence-out states, a possible access problems, and the fact that much of the trust land is located within the boundaries of existing farms and ranches. From the external investor's viewpoint, trust lands may be overpriced. Thus, due to the structural factors that affect the demand for school trust lands, this study suggests that school and trustees seek to change the method by which land is sold. Currently, school trust lands are required to be sold at public auction.<sup>13</sup>

## State Model

The statewide model was formulated using 1,617 arms-length ranch/farm sales occurring between January 1989 and December 2001. The data was subsequently trimmed to 1,372 sales to ensure the model was representative of a typical ranch/farm sale in the state. Sales involving less than 100 acres were omitted as ranches/farms of this size are typically hobby ranches/farms and are generally not large enough to sustain a viable agricultural operation. Additionally, sales including leased or deeded land outside of Wyoming were also excluded, as well as sales with incomplete data. The final data set had a mean sale price of \$600,500 and an average of 3,864 deeded acres with 1,968 deeded animal unit months (AUM).<sup>14</sup>

The state model uses explanatory, independent variables to represent the physical, productive and esthetic characteristics that influence land values. These include, size, location, scenic/recreational value, the productive capacity of the land, sale date, the condition of sale and presence of leased lands. A description of the specific variables can be found in the Exhibit 2.<sup>15</sup>

The date of ranch sales during the period of study is controlled by applying the Bryan and Colwell (1982) methodology.<sup>16</sup> This method defines each sale date as a linear combination of the end points of the half-year period in which the sale occurs.<sup>17</sup> Ranch sale prices were generally rising during the study period.<sup>18</sup>

To control for productive capacity, the variable *QUALITY*, the ratio of deeded AUMs to deeded acres (*DAUMs/DACRES*), was included and the log of deeded acres (*LDACRE*) is used to control for the expected nonlinear relationship (economy of scale) between sale price per acre and the size of the farm or ranch, as defined by deeded acres.

Although the valuation of state trust land would not have grazing leases connected to the sale, per say, in formulating both valuation models, it is important to incorporate the type and characteristics of grazing leases associated with each farm and ranch sale since farms and ranches with leases may sell at a premium relative to those without leases.<sup>19</sup> Once both models are formulated, this allows value estimates for ranches and farms with or without grazing leases. Both models are then used to estimate the value of defined state trust lands.

Typically, grazing leases are based on forage rather than acreage as the amount of forage can vary from year to year and from region to region. The amount of forage available on both deeded and leased land is measured by the number of deeded and leased animal unit months (AUMs). AUMs are the standard measure of forage for deeded, as well as federal, state and private leases.<sup>20</sup>

In 1993, a study conducted by the USDA/USDI of three western states, including Wyoming, classified regionalized forage values into clustered intrastate allotments based on twenty-one different ecoregions (see Exhibit 3). The ecoregions are used to differentiate the region studied based on differences in soil, vegetation, land form, climate and use. Using the six ecoregions found in Wyoming (*ECO3, ECO4,*

**Exhibit 2** | Description of Independent Variables: State-Wide Data

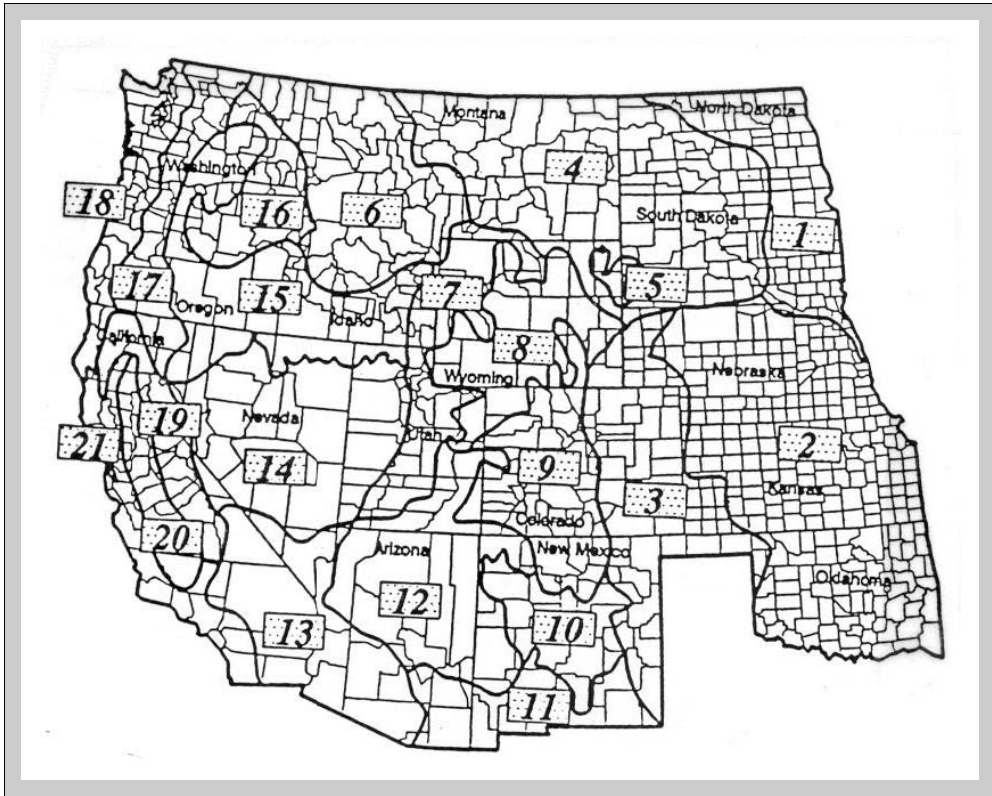
Category	Variables	Description
Sale Price	<i>SALEP</i>	Sale price per deeded acre
Real Property	<i>RPROP</i>	Estimated dollar value of real property improvements
	<i>RACRE</i>	Real property per acre
Grazing Leases	<i>BLM15AUM</i>	Section 15 BLM grazing lease AUMs
	<i>BLM3AUM</i>	Section 3 BLM grazing lease AUMs
	<i>STATEAUM</i>	State grazing lease AUMs
	<i>FORSTAUM</i>	Forest Service grazing lease AUMs
	<i>PRVTAUM</i>	Private grazing lease AUMs
Land Quality	<i>QUALITY</i>	The ratio of deeded AUMs (DAUMs) per acre; designed to measure the productivity of the land
Scenic Value	<i>FAIR</i>	Dummy variable for ranches with little or no scenic and/or recreational value
	<i>AVERAGE</i>	Dummy variable for ranches with average scenic and/or recreational value
	<i>GOOD</i>	Dummy variable for ranches with above average scenic and/or recreational value
	<i>EXCELLENT</i>	Dummy variable for ranches with a high degree of scenic and/or recreational value
Location	<i>ECO3, ECO4, ECO5, ECO7, ECO8 and ECO9</i>	Dummy variables representing location based on ecoregion
Type of Sale	<i>ARMS LENGTH</i>	Sales involving arms-length transactions
	<i>AUCTION</i>	Sales by auction
	<i>STRESS</i>	Sales where landowner is forced to sell
	<i>FORECLOSE</i>	Sales due to foreclosure by a creditor
Date of Sale	<i>B89S1 to B02S1</i>	Time-weighted variables representing the beginning of the semi-annual periods from 1989 to 2002

*ECO5, ECO7, ECO8 and ECO9*), a dummy variable was set up to control for the location within the state.<sup>21</sup>

Scenic and recreational attributes may have significant influences on farm and ranch values as they provide opportunities for multiple use rather than productive agricultural use only. The relative scenic and recreational value of each farm and ranch was subjectively assessed and assigned one of four ratings: *FAIR, AVERAGE, GOOD* or *EXCELLENT*.<sup>22</sup>

A dummy variable was also used to control for type of sale. Most sales were categorized as *ARMS LENGTH* transitions, but some sales transactions involved



**Exhibit 3** | Map of Ecoregions

Source: USDA/USDI, 1993.

*AUCTION, STRESS* or *FORECLOSURE* sales. It was important to include type of sale in the model as state statutes require trust land to be sold at public auction.

### Teton County Model

The model used to estimate land values in Teton County is similar to the state model, but only includes lands within Teton County. This model, formulated by Spahr and Sunderman (1999), focuses more extensively on the scenic and recreation attributes rather than the land's productivity. These attributes include the number of deeded acres, the location within Teton County, the view of the Teton Mountains and especially Teton Peak,<sup>23</sup> the presence of streams and the topography of the land. A complete description of each variable can be found in the Exhibit 4.<sup>24</sup>

Due to the limited availability of private land in Teton County, there were no directly comparable sales for some of the trust land in the county.<sup>25</sup> Two full

**Exhibit 4** | Description of Independent Variables: Teton County Data

Category	Variables	Description
Sale Price	<i>SPRICE</i>	Sale price
	<i>PRICE/ACRE</i>	Sale price per deeded acre
Real Property	<i>RPROP</i>	Estimated dollar value of real property improvements
	<i>RACRE</i>	Real property per acre
Size	<i>ACRES</i>	Size in acres
Location	<i>L31, L32, L41, L42, L51, L52, L61, L62, L91 and L92</i>	Dummy variables representing location
Vegetation	<i>HAY</i>	Hay fields
	<i>GRAZE</i>	Grazing land
	<i>TREES</i>	Some trees
	<i>MATURE</i>	Mature vegetation (lots of trees)
Topography	<i>FLAT</i>	
	<i>ROLLING</i>	
	<i>SLOPE</i>	Slightly sloped or a combination of rolling and sloped
	<i>STEEP</i>	Steeply sloped
Water	<i>NONE</i>	No streams or footage on the Snake River
	<i>STREAMS</i>	Containing or adjacent to running streams
	<i>SNAKE</i>	Footage on the Snake River
Scenic Value	<i>FAIR</i>	No view of the Tetons; less than average, perhaps effected by manmade effects
	<i>AVERAGE</i>	Poor Teton view / Average view
	<i>GOOD</i>	Teton view, plus other attributes
	<i>EXCELLENT</i>	Full Teton view; trees / water
Date of Sale	<i>B89, B90, B91, B92, B93, B94, B95, B96, B97 and B98</i>	Time-weighted variable for the beginning of listed year

Note: The source is Spahr and Sunderman (1999).

sections of state trust land are located within the boundaries of the Bridger Teton National Forest. Consequently, they do not fall into one of the Multiple Listing Areas. In an effort to make the model conservative, yet reasonable, an average of the price per acre across the county was used for these two sections. This is a very conservative assessment of the land's value as these sections are some of the most attractively located parcels with a high degree of privacy. They are also surrounded by national park land and do not face the possibility of nearby development.<sup>26</sup>

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## Empirical Results

### State Model

The results from the analysis of the statewide model can be found in Exhibit 5. The resulting model had an adjusted  $R^2$  of .9022.

As expected, the scenic and recreational value is very important. Parcels with *AVERAGE*, *GOOD* and *EXCELLENT* ratings carry \$96.70, \$259.26 and \$283.39 per acre premiums, respectively, when compared to land with a rating of *POOR*. Likewise, the location within the state is also significant. Each ecoregion has a negative coefficient when compared to ECO7. Typically, land in ECO3, ECO4, ECO5, ECO8 and ECO9 sold for \$231.13, \$158.36, \$168.86, \$144.85 and \$115.41 less per acre, respectively. Additionally, farms and ranches sold at public auction for \$45.06 per acre less than arms-length ranch sales.<sup>27</sup> The presence of BLM3 and BLM15 leases were not significant, but the presence of state trust grazing leases was both significant and positive. The observation that grazing leases increase farm or ranch values is an indication that school trust grazing lease rates are likely below market levels where the difference is capitalized into farm and ranch prices.

### Teton County Model

The Teton County model results are found in Exhibit 6. This model has an adjusted  $R^2$  of .9644.<sup>28</sup>

As expected, the type of vegetation present and the topography of the land had a significant impact on land values in Teton County. Parcels with *HAY*, *TREES* and *MATURE* sold at \$4,267, \$8,251 and \$12,727 per acre premiums respectively, when compared to *GRAZE*. Likewise, parcels with an *AVERAGE*, *GOOD* or *EXCELLENT* view of the Teton Mountains typically sold at \$5,607, \$18,426 and \$18,730 per acre premiums, respectively, when compared to parcels with a *FAIR* view. The presence of a stream adds \$5,266 per acre when compared to land without a stream, while footage along the Snake River carries a premium of only \$1,476 per acre. This was perhaps the most interesting result as one might expect the footage on the Snake River to carry a larger premium than *STREAM*.<sup>29</sup> However, the possibility of the land being in a flood plane may explain this result.

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## Valuation and Returns on Trust Lands

School trust land values in Wyoming were estimated by applying the two models described above assuming that trust lands have values similar to adjacent deeded lands. Based on estimated values, both the returns from current management policy and the alternative investment returns that may have been generated if the

**Exhibit 5** | State of Wyoming Data

Variable	Parameter Estimate	t-Statistic
<i>LDACRES</i>	-70.805	-15.16
<i>BLM15AUM</i>	-0.003	-0.61
<i>BLM3AUM</i>	-0.002	-0.33
<i>STATEAUM</i>	0.054	4.22
<i>FORSTAUM</i>	-0.012	-0.50
<i>PRVTAUM</i>	0.090	2.17
<i>QUALITY</i>	49.321	19.75
<i>RACRE</i>	1.597	41.45
<i>FAIR</i>		
<i>AVERAGE</i>	96.699	7.88
<i>GOOD</i>	259.255	16.56
<i>EXCELLENT</i>	283.391	11.02
<i>ECO3</i>	-231.135	-6.52
<i>ECO4</i>	-158.359	-7.43
<i>ECO5</i>	-168.858	-7.86
<i>ECO7</i>		
<i>ECO8</i>	-144.850	-8.03
<i>ECO9</i>	-115.407	-5.34
<i>ARMS LENGTH</i>		
<i>AUCTION</i>	-45.059	-2.38
<i>STRESS</i>	-68.077	-1.74
<i>FORECLOSE</i>	24.914	0.43
<i>B89S1</i>	613.167	7.56
<i>B89S2</i>	697.566	11.79
<i>B90S1</i>	733.314	14.35
<i>B90S2</i>	738.293	15.82
<i>B91S1</i>	711.097	15.04
<i>B91S2</i>	672.185	14.32
<i>B92S1</i>	676.334	14.56
<i>B92S2</i>	709.522	15.40
<i>B93S1</i>	731.117	15.34
<i>B93S2</i>	684.909	15.21
<i>B94S1</i>	758.381	16.05
<i>B94S2</i>	761.703	16.14
<i>B95S1</i>	804.281	16.79
<i>B95S2</i>	821.890	17.73

**Exhibit 5** | (continued)

State of Wyoming Data

Variable	Parameter Estimate	t-Statistic
B96S1	764.884	13.84
B96S2	868.125	16.84
B97S1	840.730	15.42
B97S2	876.960	16.67
B98S1	852.627	15.48
B98S2	1031.367	18.89
B99S1	889.867	16.60
B99S2	988.160	18.43
B00S1	1029.982	19.31
B00S2	904.096	16.86
B01S1	1028.957	15.28
B01S2	1296.859	18.72
B02S1	1099.657	8.20

Notes: The dependent variable is *Price Per Acre*. The number of observations is 1,372. The adjusted  $R^2$  is .9022.

lands were sold are calculated. The alternative investment returns were calculated using current and historical average 20-year Treasury bond rates to show the amount of income that may have been generated given land proceeds had been reinvested. The current 20-year Treasury bond yield results in the most conservative estimate of investment income as interest rates are near their lowest level in several decades. However, the average 20-year Treasury bond yield will likely provide a more reasonable estimate of future income, as yields are unlikely to remain at the currently low levels. These returns are compared to investment returns generated from the current management policy, which is to continue leasing the land for grazing purposes.<sup>30</sup>

Based on the model results, the average value of land across the state (excluding Teton County) was \$873 per acre, while the average price per acre in Teton County is \$108,550. The 3.6 million acres of trust land from across the state are valued at over \$3.1 billion, while the 3,358 acres of trust land in Teton County are valued at more than \$386 million. The results for the entire state are shown, by county, in Columns four and five of Exhibit 7.

As seen in Exhibit 8, assuming sales proceeds were invested to earn a current 20-year Treasury yield of 4.83%, the sale of trust land across the state would generate \$150 million in investment income each year; whereas the sale of trust land in

## Exhibit 6 | Teton County Model

Variable	Parameter Estimate	t-Statistic
DUMMY (Crescent H Sale)	87,999.00	11.4
GRAZE		
HAY	4,267.15	1.1
TREES	8,251.16	3.9
MATURE	12,727.00	4.2
LDACRES	-8,744.78	-7.5
STREAMS	5,266.24	2.7
SNAKE	1,476.36	0.6
FAIR		
AVERAGE	5,607.57	2.0
GOOD	18,426.00	5.8
EXCELLENT	18,730.00	4.3
L31	14,361.00	2.5
L33	6,719.54	1.3
L41	16,016.00	2.8
L42	1,266.00	0.2
L51	8,203.52	1.3
L61	24,561.00	4.3
L62	6,672.46	1.2
L91	2,325.47	0.4
L92	8,791.39	1.5
L7	5,145.75	1.0
L10	4,059.51	0.7
B89	16,150.00	1.9
B90	32,262.00	3.7
B91	28,671.00	3.3
B92	38,191.00	4.6
B93	30,653.00	3.8
B94	37,850.00	4.8
B95	35,319.00	3.9
B96	33,692.00	4.5
B97	40,439.00	5.2
B98	21,426.00	1.5

Notes: The dependent variable is *Price Per Acre*. The number of observations is 101. The adjusted  $R^2$  is .9644.

**Exhibit 7** | Estimated Trust Land Income and Value

County	Deeded Acres <sup>a</sup>	AUMs <sup>a</sup>	AUMS/ Dacre	Estimated Mkt Value <sup>b</sup> (\$)	Estimated Price/ Acre (\$)	Lease Rev (2003) (\$)	Yield (%)	Current Est. Annual Investment Inc. <sup>c</sup> (\$)	Difference (\$)	NPV of Investments (\$)	NPV of Land Holdings
	1	2	3	4	5	6	7	8	9	10	11
Albany	213,135	56,085	0.26	187,678,925	881	226,583	0.12	10,322,341	10,095,757	329,764,204	129,838,008
Big Horn	71,883	10,817	0.15	64,462,790	897	43,701	0.07	3,545,453	3,501,753	113,265,358	43,793,633
Campbell	186,077	55,495	0.30	156,678,803	842	224,200	0.14	8,617,334	8,393,134	275,294,952	109,215,737
Carbon	318,747	72,355	0.23	277,744,639	871	292,314	0.11	15,275,955	14,983,641	488,015,581	191,135,196
Converse	253,434	71,920	0.28	224,327,011	885	290,557	0.13	12,337,986	12,047,429	394,157,299	155,655,333
Crook	116,628	40,157	0.34	103,425,179	887	162,234	0.16	5,688,385	5,526,151	181,724,836	72,429,105
Fremont	254,139	50,833	0.20	224,553,292	884	205,365	0.09	12,350,431	12,145,066	394,554,890	153,802,489
Goshen	84,642	30,152	0.36	63,381,271	749	121,814	0.19	3,485,970	3,364,156	111,365,058	44,912,677
Hot Springs	82,974	19,254	0.23	71,859,811	866	77,786	0.11	3,952,290	3,874,503	126,262,411	49,502,390
Johnson	219,215	56,056	0.26	206,613,184	943	226,466	0.11	11,363,725	11,137,259	363,032,941	142,396,698
Laramie	148,123	48,367	0.33	112,779,322	761	195,403	0.17	6,202,863	6,007,460	198,160,680	79,414,703
Lincoln	107,036	26,473	0.25	98,394,041	919	106,951	0.11	5,411,672	5,304,721	172,884,796	67,791,541
Natrona	389,955	85,219	0.22	322,788,219	828	344,285	0.11	17,753,352	17,409,067	567,160,112	222,240,092
Niobrara	162,887	56,672	0.35	133,111,845	817	228,955	0.17	7,321,151	7,092,197	233,886,259	93,692,646
Park	155,103	42,624	0.27	155,868,348	1,005	172,201	0.11	8,572,759	8,400,558	273,870,930	107,455,500

**Exhibit 7** | (continued)  
Estimated Trust Land Income and Value

County	Deeded Acres <sup>a</sup>	AUMs <sup>a</sup>	Estimated AUMS / Mkt Value <sup>b</sup> Dacre (\$)	Estimated Price / Acre (\$)	Lease Rev (2003) (\$)	Yield (%)	Current Est. Annual Investment Inc. <sup>c</sup> (\$)	Difference (\$)	NPV of Investments (\$)	NPV of Land Holdings	
Platte	123,419	36,366	0.29	104,144,203	844	146,919	0.14	5,727,931	5,581,013	182,988,208	72,546,032
Sheridan	115,939	42,414	0.37	125,841,800	1,085	171,353	0.14	6,921,299	6,749,946	221,112,313	87,515,216
Sublette	112,781	28,248	0.25	105,887,174	939	114,122	0.11	5,823,795	5,709,673	186,050,722	72,931,266
Sweetwater	179,344	19,944	0.11	141,297,181	788	80,574	0.06	7,771,345	7,690,771	248,268,433	95,634,359
Uinta	49,159	10,555	0.21	41,732,419	849	42,642	0.10	2,295,283	2,252,641	73,326,603	28,688,870
Washakie	100,105	21,313	0.21	89,983,015	899	86,105	0.10	4,949,066	4,862,961	158,106,070	61,721,337
Weston	113,652	29,720	0.26	94,784,720	834	120,069	0.13	5,213,160	5,093,091	166,542,982	65,705,450
State	3,558,377	911,039	0.26	3,107,337,192	873	3,680,598	0.12	170,903,546	167,222,948	5,459,795,640	2,148,018,277
Teton*	3,558.2	1,290	0.36	386,242,507	108,550	5,212	0.001	21,243,338	21,238,126	678,653,466	1,173,572,734

*Notes:*

<sup>a</sup>Source: Office of State Land & Investments.

<sup>b</sup>Estimate of market value for Teton County is in 1997 rather than 2002, as more recent data was not available.

<sup>c</sup>Investment income based on a 5.5% rate of return.



**Exhibit 8** | Estimated Trust Land Income and Value

Assumed ROR	Estimate of Annual Income			Estimate of Annual Income Foregone		
	State (\$)	Teton County (\$)	Total (\$)	State (\$)	Teton County (\$)	Total (\$)
Grazing Lease Income	3,680,598	5,212	3,685,810	—	—	—
4.83% <sup>a</sup>	150,084,386	18,655,513	168,739,899	146,403,788	18,650,301	165,054,089
6.76% <sup>b</sup>	210,055,994	26,109,993	236,165,987	206,375,396	26,104,781	232,480,177
8.05% <sup>c</sup>	250,140,644	31,090,522	281,231,166	246,460,046	31,085,310	277,545,356

*Notes:*  
<sup>a</sup>The current 20-year Treasury bond yield A/O December 31, 2002.  
<sup>b</sup>The average 20-year Treasury bond yield from January 1989 to December 2002.  
<sup>c</sup>The average 20-year Treasury bond yield from January 1981 to December 2002 (the longest 20-year Treasury yield available).

Teton County would generate approximately \$18.6 million annually. If the proceeds were reinvested assuming the less conservative average 20-year Treasury rate of 6.76%, the state and Teton County proceeds would generate approximately \$210 million and \$26.1 million annually. Despite current 20-year Treasury yields being near historic lows, the sale of trust land and subsequent reinvestment of the proceeds would increase the annual investment income by \$146.4 million and \$18.6 million on the state and Teton County trust land, respectively, as compared to the current revenues being generated by trust land from grazing leases. Under the current management policy, grazing leases have increased from \$1.65 per AUM in 1981 to \$4.04 in 2003, an annualized growth rate of 4.15%. They are generating only \$3.7 million (0.12% yield) across the state and \$5,212 (0.001% yield) on the trust land in Teton County (Exhibit 7, Columns 6 and 7).<sup>31</sup>

Given a minimal level of income generated from surface grazing leases, the majority of total returns on trust lands results from land appreciation, which varies from year to year based on economic conditions within the state. From 1989 to 2001, ranch land appreciated, on average, 4% each year, but included in this time period were five years where land values declined. Likewise, real estate values were also increasing in Teton County over the same period, but at a much greater rate, on average 12% annually. Using the expected cash flows from the two investment alternatives over the next thirty years, the net present value (NPV) of each alternative was calculated to determine which alternative would generate the greatest benefit for the trust's beneficiaries.<sup>32</sup> The NPV of the sale and reinvestment alternative is \$5.46 billion, while the NPV of holding land for grazing purposes is \$2.15 billion. A similar analysis of Teton County shows the NPV of the sale and investment option is approximately \$678 million while the NPV of holding the land for grazing purposes is \$1.17 billion (see Exhibit 7, Columns 10, 11 and 12). Not only would the sale and subsequent investment of the trust land across the state result in a significantly higher NPV, but the level of current income available to the beneficiaries would also increase by \$167 million per year based on an investment return of only 5.5% (see Exhibit 7, Column 9). Conversely, the NPV of holding the land in Teton County is higher due to the assumption that the rapid rate of appreciation in the area will continue. This result, however, is based on the average annual appreciation rate of 10%, which may not be sustainable for an extended period of time. Should the appreciation rate slow to 8% (approximately twice the state average), the NPV of the two alternatives would be approximately equivalent.

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## Conclusion

The analysis indicates that current management policy for Wyoming school trust lands fails to fulfill the fiduciary responsibility of maximizing benefits for the beneficiary, the public schools of Wyoming. Currently and historically, management policy involved predominately the leasing of trust lands for grazing and agricultural use. This policy in the past may have represented the best use of

the school trust land; however, this policy appears to have failed to evolve with changing market values and conditions. A surge in real estate prices during the previous decade has reduced market value yields on trust lands, and as a result, better management policies may have also evolved. A better management policy containing additional management alternatives may involve raising lease rates, setting variable lease rates depending on the value of the individual parcel of trust land and/or selling selected parcels of the trust lands and reinvesting the proceeds in the permanent trust fund. Even though the sale of trust land would provide significantly more income (cash flows) for the trust's beneficiaries, it would not be feasible or prudent to sell all of the land, particularly in a short period of time. Such a move could not only drive down real estate prices, but could be in violation of state law as it may require the termination of existing grazing leases.<sup>33</sup> Also, due to Wyoming statutes requiring that school trust lands be sold at public auction, and the lack of access to some land parcels and lack of potential bidders, sale prices may be lower than estimated above.<sup>34</sup> For this reason, sales of trust lands should use either a public auction that includes a non-truncated bidding process containing minimum bids or that lawmakers attempt to change the state's statutes to allow negotiated bidding. Models, such as those developed above, may be used to estimate individual trust land parcel values for setting minimum acceptable bids.

Due to the far-reaching consequences of trust land policies, other factors should be considered such as public access, the dependence of local ranchers on grazing leases and the sanctity of the trust land. Although this study aims not to examine the political nature of trust land policy, these issues must be given consideration in the context of the "maximum benefit" fiduciary responsibility. Alternative management policies must consider both current and future requirements of the beneficiary. While the sale of the trust land may increase current revenues, it cuts off growth opportunities from land appreciation and may, in the long run, provide lower future returns to the beneficiary. Conversely, current management policy provides an opportunity for land appreciation, but is accomplished at the expense of current cash receipts.<sup>35</sup> In Wyoming, as well as for many other western states, current school funding requirements are critical. Current Wyoming Governor Freudenthal has clarified that court-mandated capital construction cost for the public school systems are currently estimated between \$500 million to \$1.3 billion (*Wyoming Tribune-Eagle*). Instead of considering the suggested alternative management strategy for school trust lands that would help fund such gaps, he has opted to first look to increasing property taxes.

The sale of selected trust land parcels may create a financial strain on existing leaseholders who may depend on state lands for their operation's viability and would almost certainly feel required to bid on the land. However, those parcels that have limited scenic and/or recreational attributes where their values are determined mainly by productivity may not be the prime candidates for sale and reinvestment.<sup>36</sup> Returns on these non-scenic lands may already be sufficiently high as to not warrant their sale. Trust lands that possess scenic and/or recreational value, however, may be better candidates for sale; however, these sales may limit

public access. Although the land is not designated for public access, it has historically been available for multiple use and would be considered a loss by the general public.

To mitigate such issues, the sale of carefully selected sections could minimize impacts of trust land sales and provide the state school system with additional revenues. However, this approach may not result in the sale of a significant portion of trust land, and would have less impact on agribusiness in Wyoming.

The sale of sections that are land locked or otherwise inaccessible to the public, would not further limit public access.<sup>37</sup> When a parcel is land locked, leaseholders in essence gain all of the benefits normally afforded a landowner, thus current grazing fees may under compensate the school system and not reflect the true intrinsic value of the leased property. Given this situation, it may be appropriate to consider raising lease rates or establishing a system of variable lease rates depending on the value of the individual lease parcel.

Many of the high value trust lands are located in close proximity to National Forests, National Parks, recreation areas, lakes, etc. In areas frequented by recreationists, these lands may be redesignated by the state for recreation use only, since grazing fees represent a miniscule return on investment.<sup>38</sup> Alternatively, the state or federal governments may purchase these lands to add to state or national parks or national forests, since their highest and best use is undoubtedly recreation. This would still leave a substantial portion of trust land available for grazing, thus having minimal impact on agribusiness. Sale of some school trust land also would increase local property taxes since there would be more land on the tax roles.<sup>39</sup>

Because trust lands in Teton County have appreciated at the highest rate in recent years, lease revenue on these lands are providing a miniscule benefits to the public school system, yet the greatest benefits are derived by a select group of leaseholders. It would almost certainly be in the best interest of the beneficiary to sell these lands when current grazing leases expire as this appreciation rate is likely unsustainable. With the value of trust lands in Teton County approaching \$400 million, reinvesting the proceeds would generate between \$18 and \$28 million each year assuming a 4.5% to 7% return on investment.

One final point for consideration is the comparison of the NPV of management options. A comparison of the NPV of the trust land given current management policy relative to the NPV of the sale/reinvestment alternative is startling; where the sale and reinvestment alternative has a NPV \$3.5 billion greater than current policy. Teton County, on the other hand, has a greater NPV when holding the land, assuming the past 10% annual appreciation rate continues. However, as previously mentioned, it is doubtful that this appreciation rate can continue. If an appreciation rate of 8% (approximately twice the state average) is assumed, the sale and reinvestment alternative is preferable.

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## Endnotes

- <sup>1</sup> The purpose of this paper is to draw attention to current policy and suggest possible alternative policy for the management of school trust lands. However, the hedonic approach developed could be applied to each individual school parcel to estimate each parcel's unique value and rate of return. If adopted as management policy, this model could be used to set variable lease rates based on individual parcel values. A similar hedonic approach is currently being used to determine assessed values for residential real estate in Wyoming and could be used in a similar manner for valuing each parcel, estimating market-based returns and lease rate determination for each individual parcel of school trust land.
- <sup>2</sup> It was necessary to use two separate models as real estate values in Teton County are inflated, in relation to the remainder of the state, due to the scenic and recreational value of land in close proximity to Grand Teton National Park and Yellowstone National Park.
- <sup>3</sup> The differences in risk between U.S. Treasuries and returns on leased school trust lands are considered; however, the returns on the most likely investment that proceeds from the sale of school trust lands would be reinvested in are compared. This is U.S. Treasuries. Given that U.S. Treasuries stochastically dominate (first-order stochastic dominance) existing lease returns, this would seem to be sufficient incentive for considering the sale and reinvestment alternative.
- <sup>4</sup> Due to the Wyoming's dependence on natural resources, the economy tends to be very cyclical and real estate prices are often positively correlated with the state's economy. Therefore, the sale of trust land and subsequent investment in assets with a low degree of correlation could reduce the volatility of the trust's principal.
- <sup>5</sup> These lands were a gift, but with strings attached. They were part of an agreement, where each state would not tax federal lands within its borders if the school trust lands were granted (NASBE, 1997).
- <sup>6</sup> The states are Alabama, Alaska, Arizona, California, Colorado, Hawaii, Idaho, Louisiana, Minnesota, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Texas, Utah, Washington, Wisconsin and Wyoming (Macke, 2002).
- <sup>7</sup> The Board of Land Commissioners includes the Governor, the Secretary of State, the State Treasurer, the State Auditor and the Superintendent of Public Instruction.
- <sup>8</sup> Section 36-9-101 of the Wyoming Statutes states "the board of land commissioners may at any time direct the sale of state lands subject to any lease thereof ... . The board shall sell such subdivisions as it shall deem for the best interests of the land trust. The board shall not sell state land unless the board finds that the proceeds from the sales are protected from inflationary effects and the proceeds will earn a significantly higher rate of return than can be realized through retention of the surface estate and if the board finds that the sale will: (i) Make state lands more manageable where the lands are not otherwise manageable; (ii) Meet a specific need of a school or community for land; (iii) Better meet multiple use objectives of the beneficiaries of the trust; or (iv) Realize a clear long-term benefit to the trust which substantially exceeds the present and probable future benefit from continued ownership."
- <sup>9</sup> This was also the conclusion of Spahr and Sunderman (1995), where they suggest that permit values on grazing leases increase the market value of ranches due to the long term nature of the leases and the below market rate lease rate.

- <sup>10</sup> Section 36-5-105 of the Wyoming Constitution states: “An applicant who is the holder of an expiring lease, and is qualified under the provisions of § 36-5-101, shall have a preferred right to renew such a lease by meeting the highest bid offered which is based on the fair market value, using the formula developed by the board pursuant to § 36-5-101(b), for the same or similar use of the land.”
- <sup>11</sup> For further discussion, see Sunderman, Spahr and Kunkle (2002).
- <sup>12</sup> Little sensitivity of the models was found with respect to allowing an intercept or forcing it through zero. Granted, econometric texts would suggest allowing an intercept and not forcing the intercept through zero if zero is out of the data range. However, given the objective of the hedonic model to provide the best estimate of market value, and the deduction that an intercept of zero is not out of the data range, the intercept was depressed. An observation with no attributes (all independent variables are zero) reasonably would result in zero market value.
- <sup>13</sup> Public auctions result in lower prices for sales of deeded properties as compared to conventional arms-length sales because of the structural reasons discussed above. Thus, it is reasonable to assume a similar case for trust lands. If school trust lands were sold in a non-truncated bidding process with a minimum acceptable bid, prices may more closely approximate estimated values.
- <sup>14</sup> An animal unit month is a standardized measure of forage necessary to sustain a mature cow with calf, a horse or five sheep for one month (U.S. General Accounting Office, 1992).
- <sup>15</sup> It is important to note that actual sales of school trust lands are included in the data set and since sections 16 and 36 were designated as school sections, the attributes of school trust lands generally are very comparable to the attributes of the deeded ranch land surrounding it. Thus, in no way should the valuation of school trust lands be considered an out of sample estimation.
- <sup>16</sup> This approach was also applied by Sunderman and Spahr (1994), Spahr and Sunderman (1995, 1998), Colwell, Munneke and Trefzger (1998) and Sunderman, Spahr, Birch and Oster (2000).
- <sup>17</sup> Date of sale variables  $B(y)$ , are proportionate weights. There is a date of sale variable for each half-year in which sales occurred, with half years beginning on January and July 1 for all years in the study. For example, if a sale occurred in September 1990,  $B90S2$  is 0.583,  $B91S1$  is 0.417 and all other  $B(y)$  variables are zero. Since the sale was closer to July 1, 1990 than to January 1, 1991,  $B90S2$  is larger and given more weight than  $B91S1$ . This approach allows the rate of change in prices to be different for each half-year and allows for a monthly price continuum. The Bryan and Colwell method (1982) may seem like overkill in this application, because when sales are occurring over this long a period, calibrating to the specific month may seem unnecessary; however, this approach is employed in this study.
- <sup>18</sup> The tendency for ranch price to rise over time has been shown in studies by Torell and Fowler (1986), Thompson (1998) and Sunderman, Spahr, Birch and Oster (2000).
- <sup>19</sup> For example, see Sunderman and Spahr (1994).
- <sup>20</sup> In order to control for the presence, type and forage available from grazing leases, variables were included to account for the number of AUMs available on each type of lease. For example, private grazing leases (*PRIVATEAUM*), state leases (*STATEAUM*), section 15 BLM leases (*BLM15AUM*) and section 3 BLM leases (*BLM3AUM*). Section 3 BLM leases generally consist of larger acreage or tracts of land that may represent an

interest in a grazing association or at least represent a larger scale lease. Section 15 BLM leases generally are those tracts that are interspersed among ranches' deeded acres. Often, section 15 tracts are lands that were never homesteaded or purchased from the federal government. These tracts usually have the least desirable terrain and usually contain little water.

<sup>21</sup> Ecoregion was selected to control for location rather than county as county lines represent an arbitrary political boundary that is not influenced by the physical attributes of the land.

<sup>22</sup> Parcels with a *FAIR* rating would contain very little scenic and recreational value, while parcels with a rating of *EXCELLENT* would possess very attractive scenic and recreational attributes. Farms and ranches with *EXCELLENT* ratings may be located in close proximity to lakes, have streams present, or be in or near mountains where hunting, fishing and other recreational activities are possible. The remaining ratings of *AVERAGE* and *GOOD* are assigned to parcels with progressively improving features. Scenic and recreational value ratings were accomplished with the assistance of Farm Credit Services appraisers.

<sup>23</sup> Although Teton County is very scenic as a whole, some areas provide a better view of the Teton Mountains.

<sup>24</sup> To account for the location, the sales within Teton County were classified by their location within the following Multiple Listing Areas:

1. Teton Village
2. Racquet Club/Teton Pines
3. West of the Snake River and north of Wilson
4. West of the Snake River and south of Wilson
5. Skyline Ranch, north of Highway 22 to Sagebrush Drive and west of Spring Gulch
6. North of Jackson and south of Gros Ventre Junction
7. North of Gros Ventre Junction and Kelly and Moran
8. Town of Jackson
9. South of Jackson to the Snake River Bridge
10. South of Snake River Bridge to the county line

To better define the location within the county and account for land characteristics, areas 3, 4, 5, 6 and 9 were each divided into two parts.

<sup>25</sup> A significant portion of Teton County is either national forest or national park land.

<sup>26</sup> The physical characteristics of the land was accounted for by adding dummy variables for the view of the Teton Mountains (*FAIR*, *AVERAGE*, *GOOD* or *EXCELLENT*), the type of vegetation present and the presence of water. The type of vegetation on each parcel was categorized as grazing land (*GRAZE*), hay meadows (*HAY*), some trees (*TREES*) or lots of trees (*MATURE*). Finally, the presence of water was included to show no water (*NONE*), streams (*STREAM*) or footage along the Snake River (*SNAKE*).

<sup>27</sup> It was noted that farms and ranches sold at public auction sell at a lower prices than for comparable ranches sold through the arms-length, negotiation process. This is perhaps due to market inefficiencies, the lack of market liquidity, the timing of sale, land access problems and a number of other possible factors. Due to the difference between public auction and negotiated sales prices, the findings indicate that public auctions with minimum bids or possibly changing statutes to allow negotiated sales be used for the sale of school trust lands.

<sup>28</sup> The model also contains a zero-one dummy variable to account for the Crescent H sales that were believed to have caused a structural shift in the market for rural real estate in

the Jackson Hole valley. Setting the dummy variable to zero prior to the Crescent H sale implies that the original sale of 1,300 acres and the subsequent sales of 35- to 40-acre parcels from the subdivision of the Crescent H property had not occurred. Subsequently, when the dummy variable is set to one to identify post Crescent H sales, the impact on property values including both the original Crescent H sale and the subsequent subdivision into 35- to 40-acre lots is observed. It is apparent that the dummy variable, *DUMMY*, is very significant with a coefficient indicating that a premium of approximately \$88,000 per acre was paid for the Crescent H sales. For more detail, see Spahr and Sunderman (1998).

- <sup>29</sup> Through the Jackson area, the Snake River it is a small stream during most of the year and a ragging torrent in the spring. As a result, the river bed tends to be a very wide area of debris and gravel within which the river meanders. In many locations, dikes are built to keep the river from spreading further outside its already wide banks. Further, land ownership extends to the “thread” of the river. As a result, land holdings may have several acres of unusable land that has no other use than as a buffer from other properties (Spahr and Sunderman, 1998).
- <sup>30</sup> The income derived from mineral leases was excluded from the analysis, as it is common for the state to retain the mineral estate when the surface estate is sold. Therefore, only grazing lease income would be lost due to the sale of surface rights.
- <sup>31</sup> These figures represent an estimate of grazing lease income based on the current rate of \$4.04 per AUM, but could vary from year to year due to the possibility of contested grazing leases.
- <sup>32</sup> The NPV calculation was conditioned on the following assumptions:
1. Sale proceeds can be invested to earn 5.5% annually.
  2. State land continues to appreciate 4.56% each year.
  3. Teton County land continues to appreciate 10% each year.
  4. The current Grazing rate of \$4.04/AUM will continue to increase 4.15% each year.
  5. A discount rate of 6%.
  6. The calculation used the estimated cash flows for the next thirty years with the land being sold at that time for the FMV assuming the appropriate appreciation rate.
  7. Trust land is sold in 640-acre parcels.
- <sup>33</sup> Section 36-9-101 of the Wyoming statutes authorizes Board of Land Commissioners to sell state trust land so long as to “realize a clear long-term benefit to the trust which substantially exceeds the present and probable future benefit from continued ownership.”
- <sup>34</sup> For example, public auctions sales for the state-wide model resulted in land selling for an average of \$45 less per acre for arms-length negotiated sales (see Exhibit 7). Also, school trust lands, where public access is nonexistent or very costly to obtain, under current management policy may sell at substantial discounts in price as compared to prices determined in this study. Since only the farmer or rancher whose property may surround the land would have incentive to place a bid, other controls must be put in place to counter this monopoly situation.
- <sup>35</sup> One possible solution that would address both the current and future needs of the trust’s beneficiaries would be to place a cap on the market value of land held by the state trust fund. When the value of the trust lands exceeds the cap (which could be indexed for inflation), for example \$2 billion, trust land would be reviewed for sale. A policy such as this would allow the trust to continue growing over time, while increasing the size of the investment pool as the value of the land appreciated, thus increasing the income available for distribution each year.



- <sup>36</sup> Continuing to lease the least valuable land may be the best alternative. These lands will generate the highest returns based on market values given the current leasing policy. Also, the highest and best use of these lands probably is for grazing. On the other hand, farmers or ranchers may desire to purchase the least valuable trust lands because it may be within the boundaries of their farms or ranches and values would depend mostly on productivity. From the farmers' or ranchers' perspective, these properties may represent the most operationally viable investment.
- <sup>37</sup> In the situation that a section is land locked, private land owners are under no obligation to grant a right-of-way easement; in situations where a lease holder's parcel is land locked, it can take a costly and time consuming battle to gain a right-of-way easement (Sunderman, Spahr and Kunkle, 2002).
- <sup>38</sup> In this situation, the state could purchase the land from the school trust or operate these recreational areas on a fee basis.
- <sup>39</sup> By assuming the market value of school trust lands are comparable to the value of other privately owned adjacent lands, the hedonic approach has already included capitalized tax liabilities in land values. Because of the capitalized tax liabilities, land values are lower and school trust lands would sell at a lower value than if the liability did not exist. Thus, not including new taxes would exclude the new marginal cash flow, benefits, accruing to the state and counties.

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