PUBLIC BENEFITS OF PRIVATE LANDS CONSERVATION: SUMMARY OF ALTERNATIVE COMPENSATION ESTIMATES

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Conservation easements are a primary public policy tool to encourage stewardship of public benefits from private lands. A landowner voluntarily restricts his/her private property rights by removing the right to develop the land in an alternative use. The landowner can receive compensation for entering into an easement agreement up to the amount of economic loss suffered due to the restriction, also known as opportunity cost.

Conservation programs will be more attractive to landowners if they can capture a greater share of the public good generated through the easement rather than merely cover their losses (opportunity cost). We explore the current appraisal system for evaluating conservation easement payments, as well as several alternative compensation mechanisms. Conservation easement payments array from opportunity cost recovery at the low end and public benefit of private lands conservation at the high end of compensation.

Across the diverse ecosystems of Colorado, conservation easements on private lands account for 2.4 million acres. An average acre of conserved land in Colorado contains 37% grassland, 25% forest, and 23% shrubland. The ecosystem services stemming from the 0.8 million acres of conserved private lands in Southeast Colorado tend to differ from the state as a whole, where an average acre of conserved land contains 56% grassland, 23% forest, and 15% shrubland.

We use a benefit transfer approach to estimate the total value of the ecosystem services on private lands protected by conservation easements to Coloradoans. If we consider an average acre of conserved land in Colorado, annual ecosystem service benefits per acre range from $849 (using minimum values) and $995 (using maximum values) per acre per year and in the range of $2-2.3 billion in total value per year (2018 dollars).

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The subset of Southeast Colorado conserved land accounts for a third of total conserved lands in Colorado and contains more grassland on average compared to all of Colorado. An average acre of conserved land in Southeast Colorado generates slightly lower public benefits compared to the state, ranging from $814 to $921 per acre-year. Total annual benefits to Coloradoans provided by Southeast Colorado conservation easements range from $620 million to $702 million per year.

We convert these annual perpetual benefits into a 2018 dollar value, or present value, using a 5% discount rate. Over the lifetime of the easements, Coloradoans receive between $40 and $47 billion and an average conserved acre provides between $17,000 and $20,000 of benefits. Southeast Colorado provides a total of $12 billion to $14 billion of benefits, and an average acre of conserved land provides between $16,000 and $18,000.

These ranges of public benefit values should provide the theoretical upper bound on what the public should be willing to pay annually to receive these benefits. If this were the annual public rental rate in exchange for these ecosystem service benefits, then the public purchase price for such a parcel would be $17,000 - $19,900 per acre, in addition to its remaining value in production agriculture, using a 5% discount rate.

The benefits generated from conservation do not come without a cost, however. Using actual conservation easement transaction data from the Colorado land trust community, we find an average state-funded payment of $899 per acre conserved, or about 78% of the appraised value. Additional 'compensation' comes in the form of participation in tax credit programs for the value of the donated portion of the easement up to the total appraisal value of the easement.

We take state funded conservation easement payments as the lower bound cost to taxpayers and appraisal value as the upper bound. Private land conservation, which costs on average between $899 (without tax credits) and $1,151 (with maximum tax credits, federal match, etc) per acre to conserve through an easement purchase, generates between $17,000 and $19,900 per acre in public ecosystem service benefits. This translates into an average return on investment of $13 – $21 in the form of public ecosystem services for every $1 invested in conservation easements in the state of Colorado.

Appraisal method payments for conservation easements in Southeast Colorado mirror our previous results of slightly lower benefits than for the State of Colorado. An average payment for a conserved acre in Southeast Colorado is $613, or about 93% of the appraised value of $655. These conservation easements generate between $16,000 and $18,000 per acre in public ecosystem service benefits. This translates into an average return on investment of $24 -$29 in the form of ecosystem services for every $1 invested in conservation easements in Southeast Colorado, a greater estimated return on investment than the state average.

In 2012, NRCS established GARCs for the Grassland Reserve Program (GRP) and Wetland Reserve Program (WRP) with rate caps ranging from $170 per acre to $2,240 per acre-year depending on the easement type, the region and the land type conserved. For illustration, the average GARC payment for a parcel in our dataset would have been $1,061 per acre-year conserved (2018 dollars). Estimated annual benefits provided by these easements fall between $4.4 million and $4.6 million. The annualized benefits in perpetuity provide $88 -$93 million, using a 5% discount rate. Under the GARC methodology, the payment would have been 4-15 percent more per acre than under the appraisal-based system. This suggests that landowner participation under GARC could be expected to increase.

Our results show that, regardless of payment methodology, private lands conservation using conservation easements provides positive benefits to the state of Colorado, and that these benefits far exceed the costs. Moving toward a public benefits valuation approach from the current opportunity cost approach has the potential for improved returns to taxpayer dollars due to attracting higher valued properties to the programs.

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