

Land Use and Landscape Change in the Rockies: Implications for Mountain Agriculture

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1 Introduction

Agriculture has historically been an important economic driver in many states in the Rocky Mountain region of the United States.¹ Over half of all grassland pasture and range in the United States is located in the Mountain Region, and grassland pasture and range makes up over half of all land in the Mountain Region (Nickerson et al. 2011). While the mix of agricultural production varies throughout the region, cattle production is one of the top commodities in terms of value in many Rocky Mountain States. Globally, the outlook for livestock products is promising, with recent FAO projections indicating that beef prices are expected to increase 18 % by 2020, compared to current levels (OECD-FAO 2011). However, even with an expectation of increasing beef prices, the area available for livestock grazing in the United States has been declining over time. The percentage of total land area used for grazing decreased by 24 % from 1949 to 2007 (Nickerson et al. 2011). The Mountain Region has contributed to this decline, with a decrease of around 11 % over the period.

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¹ Throughout this paper, we focus on the U.S. portion of the Rocky Mountain range, and use the U.S. Bureau of Census definition of the Rocky Mountain region, which includes the following states: Idaho, Montana, Wyoming, Nevada, Utah, Colorado, Arizona, and New Mexico. References to the Mountain Region from USDA sources include the same list of states.

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Although agriculture varies throughout the Rocky Mountain States, many mountain farmers face similar challenges. Much of the previous literature has noted that ranchlands in the west do not offer competitive profit or return on investment; some yield negative returns. It is argued that many ranches across the west are marketed or sold at above their agricultural value (Gosnell and Travis 2005). The high prevalence of publically-owned lands throughout much of the region contributes to the scarcity of land that is available for purchase and development. About 40 % of all federal lands in the United States are located in the Rocky Mountain region (Nickerson et al. 2011). In addition, the abundance of natural amenities including scenic mountain vistas, recreational opportunities, and clean air and water, have made many of these communities desirable for migrants, retirees, and tourism. The resulting development pressures and high land prices have made it more difficult to maintain viable agricultural operations throughout the region.

However, even with this increased demand for residential and commercial land uses, significant public benefits are derived from the natural amenities provided by agricultural landscapes in many areas of the Rocky Mountain States. The maintenance of working ranches and farms can help to avoid the increasingly fragmented landscapes in mountain communities, providing economic and ecological benefits including wildlife habitat and natural resource provision. Previous research has shown that the preservation of agricultural working landscapes and associated way of life is valuable to residents and tourists in many mountain communities in the region (Rosenberger and Walsh 1997; Rosenberger and Loomis 1999; Orens and Seidl 2009; Cline and Seidl 2009; Ellingson et al. 2011; Magnan et al. 2012).

In order to capitalize on these values placed on working landscapes, mountain farmers have begun to consider various options to enhance the viability of farms and ranches. One option is the development of agritourism operations to help supplement revenues. Other policy options such as conservation easements and subsidies can provide additional opportunities for many mountain farmers to maintain viable ranching and farming operations in the face of pending development.

This chapter discusses the challenges facing mountain farmers in the Rockies, focusing on the viability of ranching in mountain communities facing development pressure from residential and commercial land uses. The next section outlines historical trends in agricultural production in the region. The following section discusses trends in land use and land use change in the Rocky Mountains. A summary of the literature measuring the non-market benefits supplied by ranchlands in the Rocky Mountains is provided, followed by a discussion of potential ways to capitalize on these values and possible policy options to improve the future viability of ranches throughout the Rocky Mountain region. The final section provides conclusions and policy implications.

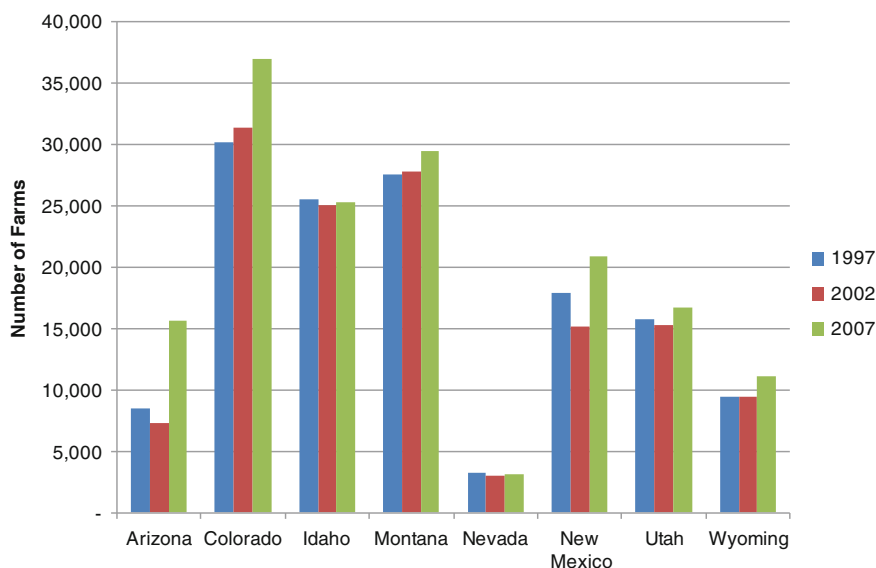


Fig. 1 Number of Farms in Rocky Mountain States, 1997–2007

2 Agricultural Production Trends in the Rocky Mountain Region

The Rocky Mountains are a major mountain range in North America, stretching more than 3,000 miles (4,830 km) from British Columbia in western Canada, to New Mexico in the southwestern United States. The highest point in the Rockies is Mount Elbert in Colorado, at 14,440 ft (4,401 m). A large part of land in the region is protected by state and national forests and parks. Economic resources in the region are diverse, including timber, minerals, agriculture, and tourism.

Agriculture has historically been an important economic driver in parts of the Rocky Mountain region. Trends in U.S. Agricultural Census data in recent years show an increase in the total number of farms in many of the Rocky Mountain States (Fig. 1), while the average size of farms decreased in many states between 1997 and 2007 (Fig. 2). The number of farms remained relatively stable, with slight decreases in some states, between 1997 and 2002. Between 2002 and 2007, the number of farms increased throughout the region, with the largest percentage increases in Arizona, New Mexico, Colorado, and Wyoming. The average farm size increased slightly in all states but Colorado between 1997 and 2002. In recent years, average farm size has decreased more significantly in many states, with a percentage decrease of over 10 % in Arizona, New Mexico, Wyoming, Colorado, Utah, and Nevada between 2002 and 2007.

The market value of livestock and poultry production was greater than crop production in all states in the Rocky Mountain region except Arizona in 2007

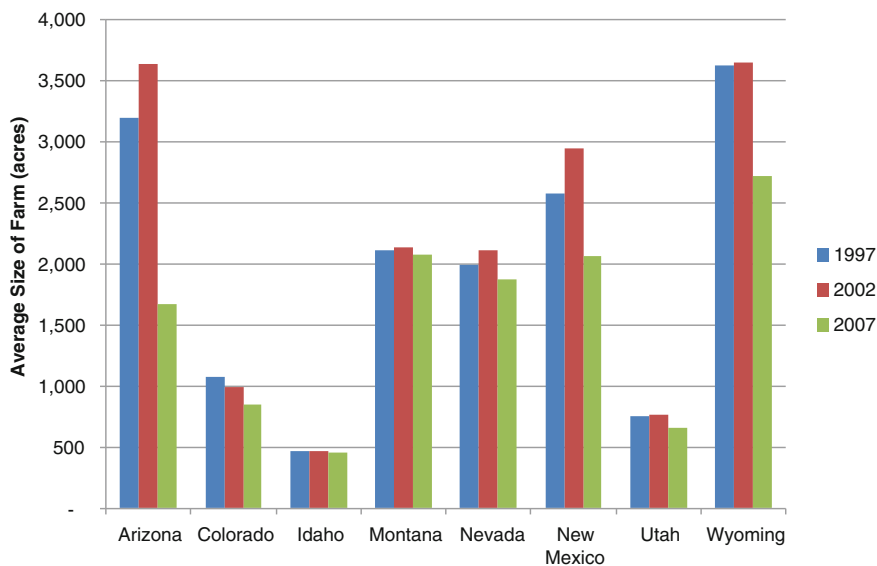


Fig. 2 Average Size of Farm in Rocky Mountain States, 1997–2007

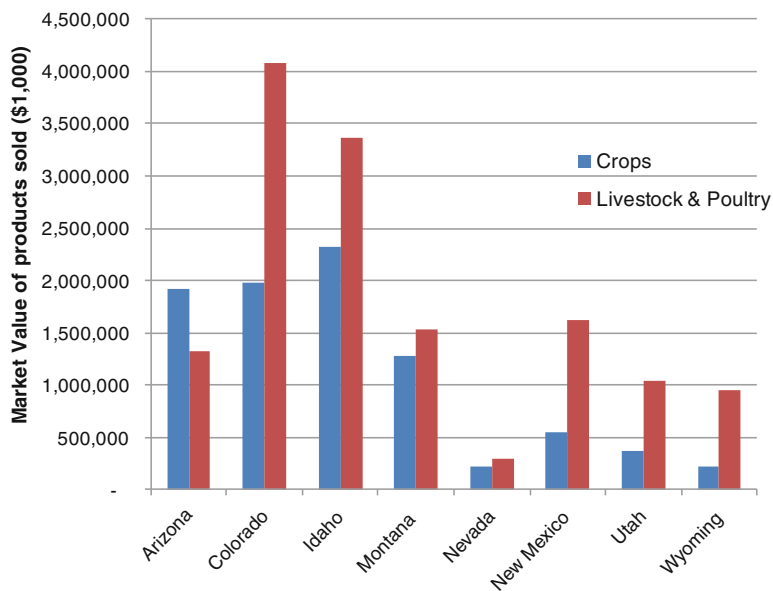


Fig. 3 Market Value of Products Sold in Rocky Mountain States, 2007

(Fig. 3). Market value was largest in Colorado, with livestock and poultry almost twice as large as crop production. The value of livestock and poultry production

was also significantly greater than crop production in New Mexico, Utah, and Wyoming.

Recent statistics show that the majority of agricultural land in many states in the region is used for pasture. While the mix of agricultural production varies throughout the region, cattle production is one of the top commodities in terms of value in many Rocky Mountain States. Particularly within the mountain areas of these states, grazing and ranching have traditionally made up a large part of agricultural activity.

As shown in the state level statistics above, on average, farms in the region are getting smaller, while the total number of farms is increasing. The reduction in size of farming operations is occurring in the mountain areas of these states as well. Competition for land from other uses has led to increased fragmentation of the agricultural landscape. The next section discusses these trends in more detail.

3 Land Use and Landscape Change

A significant portion of all land in the United States is used for agricultural purposes. The most recent data available from the United States Department of Agriculture (USDA) indicates that in 2007, grassland and range made up 27 % of total land area, and cropland made up another 18 %, while urban uses made up only 3 %. Land use for urban and rural residential uses has been increasing significantly, however, with a quadrupling of urban land uses between 1945 and 2007 throughout the United States (Nickerson et al. 2011). In recent decades, growth in urban land use has continued to increase, with a 17 % increase since 1990, and a 2 % increase between 2002 and 2007 (Nickerson et al. 2011).

Residential land uses have been increasing in many rural areas as well. Rural residential acreage outside urban areas increased 29 % between 1997 and 2002, and 10 % between 2002 and 2007 (Nickerson et al. 2011). This increasing development in the rural–urban fringe has threatened agricultural landscapes in many rural communities throughout the United States. Between 1992 and 2001, an average of 2.2 million acres of farmland in the United States was converted to urban uses per year (Nickerson and Hellerstein 2007).

Similar trends have been ongoing in the Rocky Mountain region in recent years. Land acreage in urban uses increased by 2 % for the Rocky Mountain States between 2002 and 2007. Population growth in the Rocky Mountain States has contributed to regional land use changes. The rapid population growth occurring in the Rocky Mountain West and its implications for agricultural production have been discussed for decades (Diemer 1979).

These trends have affected land use change in mountain areas in the Rocky Mountain States. Population growth and an increased number of migrants moving to mountain areas, along with greater levels of tourism to the area have led to increased demand for the limited private lands in many counties. In many cases, large land areas used for agriculture or ranching have been split into smaller

parcels and sold for hobby farms, “ranchettes”, or other types of development. This type of development can lead to a more fragmented landscape that can affect the local community. Riebsame et al. (1996) noted the landscape change during the 1990s throughout the Colorado mountains. Demand from residential and commercial interests in the area has led to land use conversion, primarily from agricultural to residential uses, due in large part to demand for second homes. A number of other studies have documented similar landscape changes throughout the Rocky Mountains.

Gosnell and Travis (2005) conducted three case studies of ranch sales in mountain counties between 1990 and 2000. The three locations included Routt County, CO, a resort area; Sublette County, WY which is near the resort area of Jackson Hole, WY; and Carbon County, MT which is a more rural location. The trends in ranch sales varied in the three counties over the time period of the study. Routt County showed the largest number of sales and the largest acreage sold of the three case studies. Sublette County saw the largest percentage of ranches change hands during the study period. The largest percentage of sales and total acreage sold (over half) went to amenity buyers in both Routt and Sublette Counties. Only 15 % of ranches in Carbon County changed hands during the study period, with a smaller percentage of total sales going to amenity buyers. The results of these case studies suggest that amenity buyers have a significant effect in many areas of the Rocky Mountain West, although there may be a tipping point of number of sales or acreage sold before a large-scale landscape change occurs. The location of the county with respect to resorts or other amenity buyers may influence the speed with which landscape change occurs.

Gosnell et al. (2006) conducted another analysis of ranchland ownership change from 1990 to 2000 in the area around Yellowstone National Park, encompassing 18 million acres in Montana, Idaho, and Wyoming. They found that most entrants into the land market were not traditional farmers and ranchers, leading to a transition from ranchers that were mainly involved in meat production to a more diverse set of landowners including: absentee owners focused on amenity or conservation values instead of or in addition to livestock, investors, and land developers. Most of the land that changed hands in the counties being studied actually stayed in large, undeveloped parcels. About 22 % of the large agricultural landholdings changed hands during the period, with sales dominated by amenity buyers, traditional ranchers, and investors, in that order. Developers and conservation organizations made up much smaller percentages of the total sales. The results of this study suggest that fragmentation due to exurban development is proceeding more slowly in more rural areas than in areas with resorts and near urban areas. Although some parts of the area already have as many (or more) non-traditional ranchers as traditional ones. In order to help reduce fragmentation, prime targets for conservation easements in the future could be in areas where there is a fragmented landscape and greater demand for development.

Overall, these studies show that in many areas of the Rocky Mountain region, demand for land on the valley floor by non-traditional ranchers is beginning to lead to farms and ranches being divided into smaller parcels. The rate of conversion and

number of farms affected may depend on a number of factors, including the location of the site. More rural locations, and those further away from resort or other high amenity locations seem to be at less risk for development currently than those areas closer to resorts or urban areas.

4 Natural Amenities and Valuation of Agricultural Landscapes

As discussed above, agricultural lands in many areas of the Rocky Mountains have faced increasing competition from residential and commercial land uses in the recent decades. When comparing the value of different land uses, the productive values of each use are often considered. However, valuing agricultural lands at the value of their livestock or crop production is likely to understate the total economic benefit these lands provide to the local community. Agricultural working landscapes provide many ecosystem and cultural benefits to residents and visitors alike in mountain communities. Specific benefits can include habitat for wildlife and endangered species, recreational opportunities, water quality and quantity regulation, and open space, as well as cultural benefits related to ranching and rural lifestyles. Coupal et al. (2004) discuss the importance of private and public ranchlands in supporting habitat for wildlife in Wyoming, and point out that although ranchers can receive some benefits such as access fees, most economic impacts accrue to other businesses related to tourism. Although the values that individuals place on the environmental and cultural characteristics of working landscapes are not included in the market price of agricultural lands, understanding the value of these non-market benefits is important for policy decisions about land use planning in mountain communities.

The total economic value of ranching includes not only the market benefits of the goods provided, but also the non-market benefits of the ecosystem and cultural goods and services discussed above. Seidl (2006) provides an overview of the different categories of non-market economic value with respect to ranchlands in mountain communities. Use values, generally described as the values that individuals receive from being in direct contact with the resource, can be categorized as consumptive use or non-consumptive use. Activities such as hiking, fishing, and wildlife viewing undertaken on agricultural lands can provide consumptive use values, while non-consumptive use values can be derived from viewing pastoral landscapes, water filtration, and flood control. Non-use values, or values that individuals place on a good even though they may not have direct contact with it, are generally categorized as existence, bequest or option values. Examples of existence values (benefits that an individual derives from a good that they will not directly experience) obtained from ranchlands could include habitat for threatened or endangered species. Bequest values are derived from providing the benefits for future generations; and in the case of agricultural lands may include maintenance

of rural lifestyles, and well as the provision of habitat for wildlife and endangered species. Option values are derived from maintaining the possibility of using the resource in the future, which in the case of agricultural lands could include future land uses that may be precluded if lands were converted to residential or commercial uses.

Non-market valuation methods are often used to estimate values for environmental goods and services such as those provided by agricultural lands. Revealed preference methods are able to uncover or “reveal” the value that individuals place on an environmental good by observing their behavior in a related market. For example, travel cost (TC) analysis is often used to estimate values for different site characteristics by observing (generally through survey data) the amount individuals are willing to incur in travel costs to visit sites with different attributes or different levels of environmental quality. Hedonic analysis is another revealed preference technique that isolates the value of an environmental good out of a bundle of characteristics of a particular good, such as a house. Stated preference methods take a different approach by asking individuals what value they place on a particular environmental good or service. Contingent valuation (CV) uses survey methodology to derive values for different levels of environmental quality by asking respondents how much they would be willing to pay for the provision of or the change in the quality or quantity of a given environmental good. The contingent behavior (CB) method is another stated preference technique that is used to assess how individuals would change their behavior given a change in price or environmental quality. Individuals are asked to state how their behavior (for example trips taken per year or season) might change given a particular change in environmental quality, price or access to the site.

With the conversion of agricultural lands to other uses, a number of research studies have been conducted to attempt to estimate the value of the non-market attributes provided by these lands (see Bergstrom and Ready 2009 for an overview). Most of these studies have focused on measuring the value of the open space amenities that these lands provide. Several authors have used hedonic methods to estimate the value of agricultural or ranchland open space to residents (Geoghegan 2002; Ready et al. 1997), while others have used hedonic methods to estimate these values for tourists by looking at rental prices for cottages in rural areas (Vanslebrouck et al. 2005; Le Goffe 2000). A number of other authors have estimated the value of agricultural lands to residents using contingent valuation methods (Bergstrom et al. 1985; Bowker and Didychuk 1994; Ready et al. 1997; Rosenberger and Walsh 1997). Other studies have been conducted to estimate the value of farm and ranchlands to tourists using contingent behavior and travel cost information (Rosenberger and Loomis 1999; Orens and Seidl 2009).

These methods have been used in several studies to estimate the non-market benefits of agricultural lands in the Rocky Mountain region. A number of studies were conducted in mountain communities in Colorado beginning in the 1990s to estimate the value of open space provided by ranchlands to community residents and tourists (Rosenberger and Walsh 1997; Rosenberger and Loomis 1999; Orens and Seidl 2009; Cline and Seidl 2009; Ellingson et al. 2011; Magnan et al. 2012).

Table 1 Non-market valuation studies of agricultural land in the Rocky Mountain region

Citation	Location	Method ^a	Population	Value ^b	Years
Magnan et al. (2012)	Routt County, CO	CV	Resident	\$220	2004
Orens and Seidl (2009)	Gunnison County, CO	CB	Tourist	\$0.002	2003
Rosenberger and Loomis (1999)	Routt County, CO	CB	Tourist	\$0	1993
Rosenberger and Walsh (1997)	Routt County, CO	CV	Resident	\$107–256	1993
Ellingson et al. (2011)	Routt County, CO	CV/CB	Tourist	\$129	2005
Cline and Seidl (2009)	Chaffee County, CO	CB	Tourist	\$5–73	2007

^a CV Contingent Valuation, CB Contingent Behavior

^b Values in this table are not directly comparable due to different methodologies and different units across studies

Table 1 provides a summary of non-market valuation studies estimating values for amenities associated with agricultural lands in the Rocky Mountain region. The table shows estimated willingness to pay to protect open space and other details for each study, although values across the studies should not be directly compared due to different methodologies and different measurement units across studies.

Studies were conducted in the 1990s and 2000s to estimate the value of ranchland open space to residents of Routt County, Colorado. Routt County is home to the town of Steamboat Springs and a well-known ski resort. Routt County lost around 20 % of its valley ranchland between 1990 and 1995, leading to interest from various stakeholder groups about options for maintaining agricultural lands in the area. This interest led to a study by Rosenberger and Walsh (1997) which estimated the value of ranchland open space to county residents using the contingent valuation method. Although their results showed that local residents had a positive willingness to pay for the non-market benefits of open space in the region (with a range of \$107–256 annually per household depending upon the percentage of acres protected), the regional marginal values were not sufficient to dominate land prices for development uses. A decade later, Magnan et al. (2012) used information from the 1993 survey and a survey from 2004 to determine if changes in population and demographics affected the residents' willingness to pay. The study used the CV method to determine residents' WTP to protect ranch open space. The mean WTP was found to be \$220 in 2004. The study found that concern for open space and WTP to protect open space did not change significantly over the 10 year period. This empirical result contradicts the assertion that urban to rural migration will negatively affect support for agricultural open space.

Several studies have also been conducted that estimate the WTP of tourists for agricultural open space in Colorado mountain communities. Rosenberger and Loomis (1999) assessed the value of ranchland open space to summer tourists in Routt County, Colorado. This area includes the resort area of Steamboat Springs, which draws a large number of tourists for various outdoor recreation activities in both the summer and winter. Survey information was obtained from visitors to the

county on their trip to the area as well as how they would change their visitation with a decrease in the amount of ranchlands in the area. The potential change in consumer surplus was estimated for visitors to the county based on a decrease in the amount of ranchland in the county. Their results showed that 25 % of the sample would reduce visitation and 23 % would increase visitation with a decrease in the level of ranchland open space in the county. Overall, the results showed that there would be no net change in visitor consumer surplus in this area with a decrease in the amount of ranchlands in the county. An update to this study was completed by Ellingson et al. (2011) in the summer of 2005. The study compared the results of two different research methods: contingent valuation and contingent behavior. Using the CV methodology, the authors found a decrease in WTP of \$129 per trip day if ranch lands were converted to urban uses. The percentage of respondents saying they would reduce their visitation to Routt County with a reduction in ranchland open space was 50 % in this sample, compared to 25 % in the earlier Routt County tourist study by Rosenberger and Loomis (1999). The study found the CV measure to be twice that of the CB estimate.

Other studies have been undertaken that estimate the value of ranchland open space in other mountain communities in Colorado. Orens and Seidl (2009) estimated the value of working landscapes to winter tourists in Gunnison County, Colorado. Gunnison County attracts many winter tourists is to ski areas in Crested Butte, and agricultural lands provide much of the scenic landscape on the drive to the ski areas. Information from tourist surveys was used in the estimation of a contingent behavior model to assess the value of working landscapes to winter tourists in the region. The survey results showed that a loss of all ranch open space would result in decreased visitation by winter tourists to Gunnison County. The median WTP per acre per visitor day to protect open space was estimated at \$0.002, or \$685 per acre for the entire winter tourist season (estimated for all winter tourists).

Cline and Seidl (2009) estimate the value summer tourists place on open space amenities of agricultural working landscapes in Chaffee County in the Rocky Mountains in central Colorado. Chaffee County draws many tourists during the summer months for activities such as whitewater rafting, hiking, camping, horseback riding, and off-road vehicle use, but is lacking many of the resort-type amenities available in the locations mentioned in the studies outlined above. This study used CB information from a survey of tourists to estimate the WTP of visitors to Chaffee County for changes in the level of open space, as well as potential related decreases in water quality. The estimation results showed a decrease in consumer surplus of \$15 for a loss of 75 % of the agricultural open space in the county. The results show that an associated decrease in water quality would result in a substantially larger decrease in consumer surplus.

These studies show that both residents and tourists in the Rocky Mountains place considerable economic value on agricultural landscapes in the region. The results seem to indicate that these values may vary depending upon the location and type of site (resort area or more rural location). Additional research could be undertaken to provide more insight into how these values vary across different

locations. Overall, the evidence indicates that there is some additional economic value placed on open space and other attributes of agricultural lands in the Rocky Mountains that are not currently being captured in the market.

5 Capturing Non-market Amenity Values

Several options exist that may allow farmers and ranchers to take advantage of the non-market values from agricultural working landscape amenities to help maintain the viability of their agricultural operation. These options can include taking advantage of agritourism or other niche businesses that may provide opportunities to capitalize on the non-market values tourists hold for agricultural working landscapes. Other policy options also exist such as conservation easements and other subsidy programs that may provide some financial assistance to farmers and help them to maintain working landscapes that provide amenity values to the community and to area visitors.

Agritourism, loosely defined as tourism related in some way to cultural, culinary or natural resource aspects of agriculture, has been considered more frequently in recent years as a way for farmers and ranchers to diversify their business (Wilson et al. 2006). Agritourism can include a wide range of different activities including outdoor recreation, educational activities, guest services, entertainment, and on-farm sales. Farm-based recreation activities have been developing throughout the United States, although a recent study by Brown and Reeder (2007) found both distance from a city and presence of natural amenities to be positively related to farmer involvement in a farm recreation business.

Farmers can benefit from agritourism not only through the additional income received but also as a way to diversify their business and help act as a cushion against uncertainty. Although other motivations may also drive farmers to consider expanding into agritourism ventures, economic motivations seem to dominate most decisions to expand. For example, Nickerson et al. (2001) found that Montana farmers most often noted economic motivations as their reason for entering into agritourism activities.

The remote nature and abundance of natural amenities in much of the Rocky Mountain region makes this area promising for the development of agritourism operations. In particular, wildlife-related recreation activities such as hunting, fishing, and wildlife viewing are often mentioned as having high potential in the region (Wilson et al. 2006; Coupal et al. 2004). Based on previous research that shows tourists to the region have a positive willingness to pay for agricultural amenities, it seems that significant potential exists for expansion of agritourism in the region.

Conservation easements are another option that has been exercised by many farmers and ranchers throughout the United States to maintain land in agricultural production while providing some financial incentives to the farmer that may assist in maintaining profitability. Conservation easements are voluntary, legally binding

agreements between the land owner and another entity (often a non-profit land trust) that restrict future development and certain land uses in order to preserve societal benefits (natural and cultural amenities). Options exist for the landowner to sell the easement, to donate the easement and obtain tax benefits, or to engage in a hybrid of the two approaches (Keske et al. 2009).

Conservation easements and land trusts have been increasing in number in the Rocky Mountain States as the threat of development has grown in recent years. Albers et al. (2004) noted that Arizona, Colorado, New Mexico, and Utah had increased their protected area by 1,600 % in the previous 10 year period. Although land trusts have been popular throughout the region as a land conservation strategy, several studies have raised issues with the way markets are structured and noted specific areas of concern from landowners in the region.

A few recent studies in the Rocky Mountain region have assessed the attitudes of landowners with regard to their attitudes and experiences related to conservation easements. A recent study by Miller et al. (2010) found that most Wyoming and Colorado landowners surveyed were interested in conserving wildlife habitat, preserving open space, and maintaining land in agricultural production. Landowners believed that recreational opportunities were important to the general public, but felt that it would be important to be compensated for such use. Some of the main concerns of respondents included easements in perpetuity and requirements of public access (Miller et al. 2010). Marshall et al. (2002) found that Colorado landowners surveyed initially expected financial returns to be the main benefit from establishing conservation easements; however, benefits from land protection outcomes were more satisfying in the end.

Keske et al. (2009) also note three common market failures that affect markets for conservation easements: information failures, thin markets, and uncertainty. They suggest several reforms that may help to improve the efficiency of conservation easement markets including investments in government communications and research to reduce information failures, educating landowners and conservation organizations about each others' preferences to increase the depth of the market, making tax benefits progressive rather than regressive, and taking steps to reduce the uncertainty of future earning power. Providing better information and additional options (such as term easements) to landowners may help to make conservation easements a more feasible alternative for farmers in the region.

6 Conclusions and Policy Implications

Agriculture, particularly ranching and livestock production, has traditionally been important in the Rocky Mountain region, both economically and culturally. While the global outlook for livestock products is promising, certain other challenges exist for farmers in the region. In particular, the demand for non-agricultural land uses, and associated landscape change and land price effects are likely to continue to impact agricultural producers in the region. The abundant natural amenities in

the Rocky Mountain region are likely to continue to draw amenity migrants and retirees to the area. This increased demand, along with the scarcity of privately-owned land in many counties in the Rocky Mountains, is likely to continue to put increasing pressure on farmers in the region to subdivide and sell their land for residential or commercial uses.

As shown in this chapter, a number of empirical studies conducted in the Rocky Mountain region have shown that there is considerable economic value embodied in these natural amenities, which continue to draw tourists and residents from other regions of the country. The non-market valuation estimates that have been calculated show that the “draw” of this region lies in the abundance of natural cover and the diversity of species that reside within that habitat. While this places pressure upon the land values as undeveloped areas are sought for conversion, it also provides an opportunity for local residents and farmers to capture some of this economic value.

A wide range of options exist that may allow local residents of this region to better capture the economic value that has been measured in the non-market valuation literature. Among these options are the development and promotion of agritourism operations that allow local producers to generate revenue from a wide range of visitors interested in the wildlife habitat and natural amenities supported by agriculture, on-farm educational and cultural opportunities, entertainment, and on-farm direct sales. Other options to help capture this value can include the sale or donation of conservation easements and associated tax benefits that come from those activities. Other state and federal assistance programs may also be combined with these activities to help enhance the profitability of agricultural operations. The specific set of options chosen by individual farmers will vary depending on many factors including the location of the farm, the preferences of the community and visitors to the area, and government assistance available in the state.

Federal, state, and local governments, as well as farmer outreach groups can provide farmers with information to determine the appropriate mix of available options that make the most sense for their farm. Additional training and support for agritourism ventures is an important area for expansion, since this is outside of the traditional area of expertise for both farmers and support groups and agencies. Furthermore, the markets for conservation easements should be reviewed to deal with inefficiencies. Addressing the reasons for non-participation will be important in moving these markets forward.

Farming and ranching will likely continue into the future in the Rocky Mountain region, however, specific issues stemming from land use and landscape change will need to be addressed. The natural amenities and public lands available throughout many areas of the Rocky Mountains make the area unique, but also create unique challenges. In order to maintain viable agricultural operations in the future, area farmers and ranchers will likely have to diversify and take advantage of new options such as agritourism, conservation easements, and government assistance alongside traditional farming and ranching activities.

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