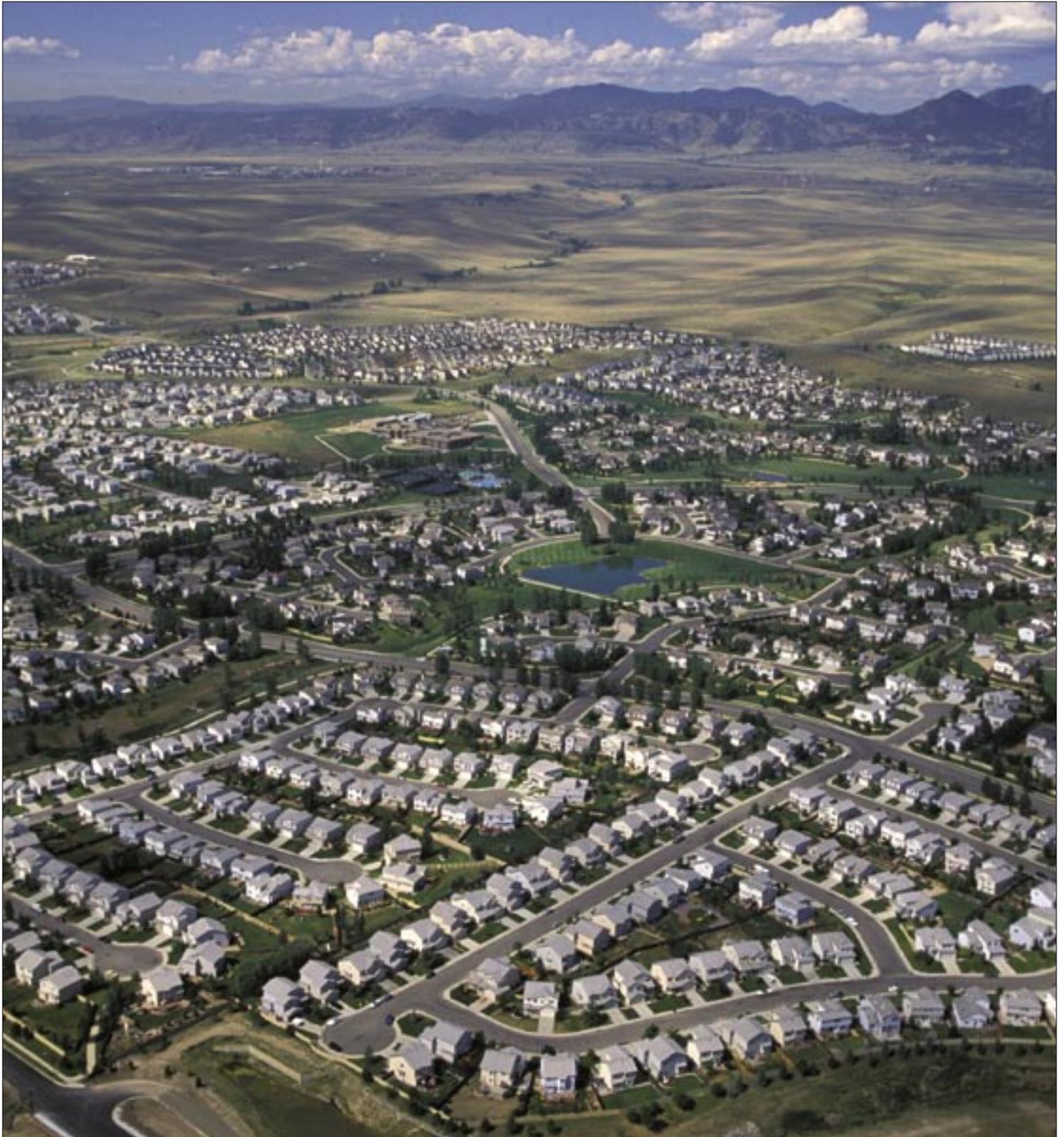


# LOSING GROUND

COLORADO'S VANISHING AGRICULTURAL LANDSCAPE



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# Executive Summary

Colorado's finest ranches and croplands are disappearing faster than ever before. Since 1992, Colorado has lost 2.89 million acres of agricultural land. Increased rural large-lot development and weakening agricultural economies contribute to the rapid loss of agricultural land, now nearly 690 acres per day, threatening the future of rural Colorado, our statewide economy, and key natural resources.

## Summary of Agricultural Land Loss

Between 1997 and 2002 Colorado lost 1.26 million acres of agricultural land, averaging 690 acres per day. Colorado is third in the nation, behind Texas and New Mexico, for overall agricultural land lost in the past five years.

- The state's total acreage of cultivated cropland declined by 29%.
- Mesa County lost 17,000 acres; Elbert County lost 35,000 acres.
- The Eastern Plain counties of Lincoln, Kit Carson, and Cheyenne lost over 400,000 acres combined.

Between 1987 and 2002:

- Colorado lost over 2.5 million acres of agricultural land with an average of 460 acres per day.
- Weld County, the state's highest and the nation's fifth highest grossing county in agricultural sales, lost 271,491 acres of agricultural land. Yuma County, Colorado's second highest grossing county in agriculture sales, lost 112,121 acres of agricultural land.
- El Paso and Pueblo counties lost 11% and 9% respectively of their total agricultural land, almost 200,000 acres combined.
- La Plata and Larimer counties lost over 40,000 acres each.
- The resort communities were hit particularly hard, led by Eagle County which lost 46% of its agricultural land in this 15 year period.

## Future Projections

If present trends continue, Colorado will continue to lose considerable amounts of agricultural land in the coming decades.

- By 2022 Colorado will lose 3.1 million more acres of agricultural land.
- Large-lot, rural development is projected to increase by at least 42%; close to 3 million acres of rural land will be developed before 2030.
- Ranchland loss will transform the geography of the state. For instance, 17% of the land area in Saguache and 21% in Montrose County would be transformed from today's usage.

## Why Colorado is Losing Agricultural Land

Colorado is losing a large portion of its agricultural land to rural development and faltering agricultural economies.

The biggest threat to agricultural land is large-lot residential development, commonly classified as one house per 2 to 40 acres. Between 1960 and 1990 the land area developed into exurban homes and rural ranchettes grew three times faster than the population growth rate.

Land policy regulates development under 35 acres, but larger lots are exempt from the subdivision review process. Currently, subdivisions 35 acres and greater are proliferating in Colorado's open spaces.<sup>1</sup> Between 1972 and 2000, 2 million acres of agricultural land was lost in tracts sized just big enough to avoid regulation.

Farmers and ranchers face increasing economic pressure to sell as farm and ranch land is appreciating in value. The average real estate value for agricultural land increased 16% between 1999 and 2003, to \$730 per acre. The yearly interest accrued from the profits

of a multi-million dollar sale of ranchland is often more than property owners can earn from ranching in that same year.

In addition, agriculture in Colorado has become relatively less profitable in recent years. While a drought plagued producers in 2002, overall farm sales in real dollars have been in a steady decline since 1990. In 2002, 60% of Colorado's farms and ranches had total annual sales of less than \$10,000. Since 1992 the average farm size has decreased by 21%, and between 1997 and 2002 the amount of debt versus equity for Colorado farms rose to 18% as average production costs increased.

Social factors also influence trends in rural areas. Many children of farmers and ranchers are choosing careers outside of agriculture, leaving no one to operate family farms. The average age of farmers is 55, up from below 50 in 1972.

## Impacts

Colorado's farm and ranchlands are some of the state's most valuable assets; the loss of this scenic open space impacts Coloradans' quality of life as well as threatens those who profit economically from Colorado's natural landscape.

### Economic

- 33% of Colorado counties report that agriculture plays a crucial economic role; losing family farms to residential development halts economic growth in rural locations and stops towns from creating wealth locally.
- Municipal budgets will be tightly squeezed. Large lot rural developments in Colorado represent \$1.65 in infrastructure costs for every tax dollar they bring in; private agricultural land provides almost double the revenue than it costs to deliver their services.
- \$550 million in revenue from the tourism industry will be threatened. Statistics from Gunnison

County visitors indicate that 58% of tourists would limit their visits to the area if the farms and ranches were transformed into developments.

### Environmental

- Lost open space leads directly to a decline in water quality and an increase in pollution. New septic systems increase waste nutrient counts in surface and ground water, and pollutants are unable to filter naturally through topsoil as rainwater runs directly off paved surfaces into drains.
- Air quality will suffer following increased development. By 2020 drivers will be spending twice as much time in their cars as their homes get further from urban centers, and emission levels will elevate.
- Large lot development fragments habitats. Roads and other associated buildings cut through once open ranchland. Habitats are altered and isolated, and the ecosystem balance is disturbed.

## Recommendations

Colorado is at a crucial stage—as a state, we must take action to protect Colorado's working landscapes, or else we risk losing much of the agricultural land that protects Colorado's environmental well being, provides the state with a solid economic foundation, and sustains our rural communities.

Leaders from all stakeholder groups should unite to begin an open and productive discussion to identify a set of policy options that are politically and socially feasible for combating agricultural land loss. Ideas for discussion could include, but are not limited to: developing strategies that would make it easier for local farmers and ranchers to keep their land in production, studying the mechanics and feasibility of increasing conservation funding, and exploring options for managing growth. Working together, Coloradans can effectively mitigate the harms of agricultural land loss in a way that protects the interests of all involved.

# Introduction

“The eastern half consists of sterile lands, beautifully fertile level, or slightly undulating plains, with valleys and silvery mountain streams interspersed affording the finest pasturage and farm lands on the continent. . . [the] mountains. . . are cleft with deep and awe inspiring canons, through which numerous swift, strong streams find egress to plain land, whose waters are being trained through numerous channels to spread out over the naturally fertile lands, which only await irrigation and cultivation to laugh with a harvest.”

Excerpt from “Farm Lands in Colorado.” Rocky Mountain News Printing Company. Denver, 1879.

The environmental community and the agricultural community have not always been on the same page with land use issues, though concrete policy differences have often been due to lack of communication and cultural differences more than vastly divergent goals. Both interests have much more in common than either side usually admits. Environmental groups and agricultural groups both care deeply about the land—its place in Colorado’s past and the continuing role of our working landscapes in defining our cultural heritage, as well as the importance of these open spaces for our environmental well-being and quality of life. Most importantly, the environmental community understands and embraces the role that farmers and ranchers play as stewards of the land. It is essential, however, that as a state we value this role and lend agricultural interests our support in preserving one of the most precious and beautiful of Colorado’s natural resources.

Now is the time to work together towards this common goal. Colorado is at a critical juncture as it faces a staggering crisis of agricultural land loss. If current trends continue, the state stands to lose another 3.1 million acres of agricultural land by 2022. Many farms will certainly not survive; already the state

is losing the equivalent of five farms each week. This phenomenon threatens Colorado’s environmental wellbeing, the state’s economic foundation, and the future of agricultural production.

Fortunately, recognizing the scope of the problem is the first step in working towards a solution. By bringing interested parties together around a shared vision for Colorado’s landscape, progress can be made towards alleviating the economic strain on agricultural producers and reinforcing the value of ranch and croplands. Working towards developing a statewide recognition of the value of buying locally produced products is essential, and creating incentives for landowners to form collective associations to resist development pressures would make it easier for farmers and ranchers to keep their land in production. More comprehensive right-to-farm laws will also strengthen the local agricultural communities, as will state efforts to manage growth and infrastructure development in a way that protects productive lands. For those landowners who want to exercise their right to sell, policies encouraging sale for clustered development will help minimize the impacts and retain open space. Finally, increased funding for conservation efforts is critical, both through private incentives for buying easements as well as statewide public efforts.



# The Decline Of Colorado's Working Landscapes

“ (A) To adapt production to market requirements; (B) to make rural home life attractive; (C) to interest children in practical farm work and farm home life through club work; (D) to develop progressive communities. ”

Colorado's Code of Agriculture. <sup>2</sup>

## The State of Colorado Agriculture Today

Agribusiness contributes close to \$16 billion annually<sup>†</sup> to Colorado's economy.<sup>3</sup> Cattle are the top agricultural commodity in Colorado; the state's ranchlands are home to over 2.5 million head. Livestock industry exports, encompassing sheep, lamb, and wool production, rank fifth in the nation and comprise close to seventy-five percent of the \$5.5 billion in cash receipts taken in by Colorado's agricultural industry.<sup>4</sup>

13% of Colorado's agricultural land is harvested cropland. Corn, wheat, hay, and potatoes are the leading four crops produced and have a combined value of \$921.3 million. Many of the crops today are grown as feed for livestock on the ranches, such as proso millet, in which Colorado ranks number one for production in the nation. Sugar beet production ranks eighth nationally. In addition, Colorado also has a large local food market as well as a \$1 billion export market.<sup>5</sup>

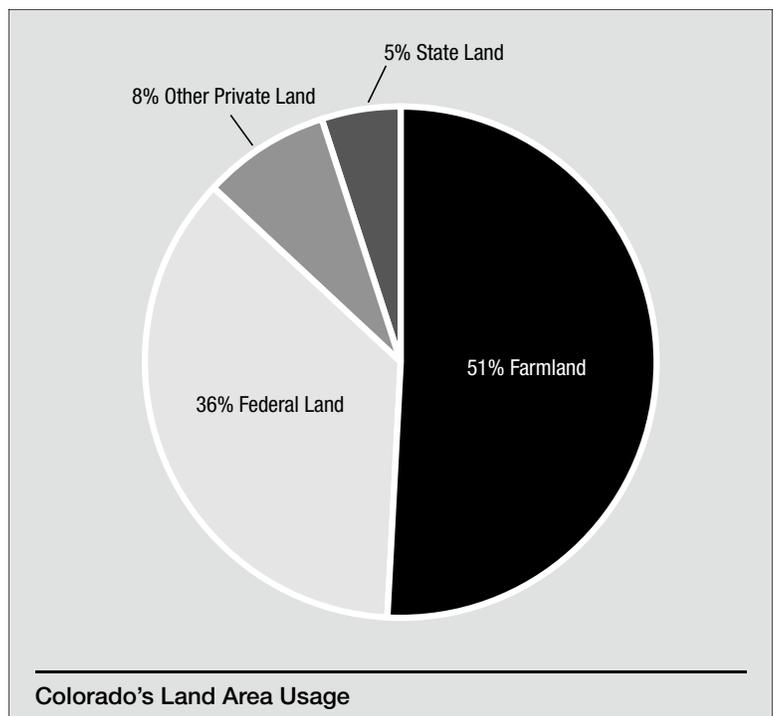
One-third of Colorado counties are either dependent on agriculture or classified as "agriculturally important." Furthermore, the agribusiness income from many individual counties plays a crucial role in the statewide economy. These counties are mostly

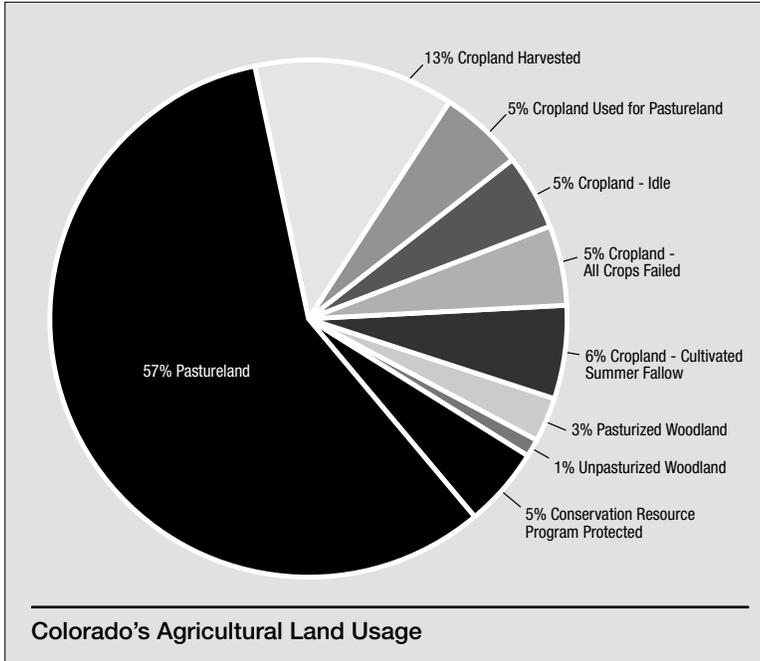
<sup>†</sup> This figure is based on 1997 data. Analysis based on 2002 data will be released this fall by DOLA, and an increase is expected.

concentrated in the northeast, southeast, and south central regions of the state.

- 15 Colorado counties receive more than 15% of their income from agribusiness.
- 17 counties employ 25% of their population in agribusiness.
- 30% of Colorado counties depend on agribusiness for over 20% of total jobs.<sup>6</sup>

Today, agricultural land comprises around half of Colorado's total land area. The federal government (primarily the Forest Service and Bureau of Land Management) owns around one-third of land in Colorado. The remainder of land in Colorado is either state-owned, privately owned (non-agriculture), or in Conservation Reserve Programs. Currently, around ten percent of the total land area of Colorado is classified as protected from conversion into something other than its natural state.<sup>7</sup>





Cattle ranches make up 57% of agricultural land. Most of the land used for grazing by ranchers is short-grass prairie. Short-grass prairie lands account for almost ten million acres (15%) of Colorado's total land area.<sup>8</sup> These prairies are also an integral habitat for many wildlife species, and ranch preservation is crucial for retaining this biodiversity. Less than one percent of these lands are protected from development.

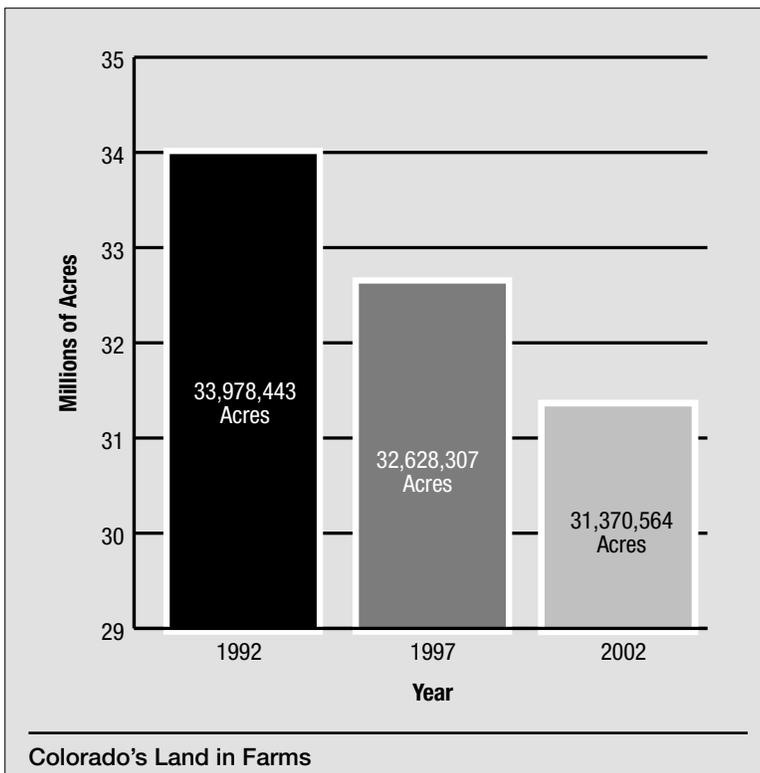
Dry land crops make up the majority of cropland concentrated in eastern Colorado and a small portion of the cropland in the northwest region. These dry land crops include wheat, proso millet, rangeland grasses, and sunflowers. Irrigated cropland is clustered around the South Platte, Arkansas, and San Luis Valley aquifers in the northeast, southeast, and south central regions of the state. Common irrigated crops are alfalfa hay, corn for grain, potatoes, beans, and sugar beets.<sup>9</sup>

## Agricultural Land Loss

Between 1997 and 2002 Colorado lost 1.26 million acres of agricultural land, averaging 690 acres per day. The state ranks third behind Texas and New Mexico for the most agricultural land lost during that period.<sup>10</sup> The total acreage of cultivated cropland in Colorado declined 28.7% in the same five-year period.

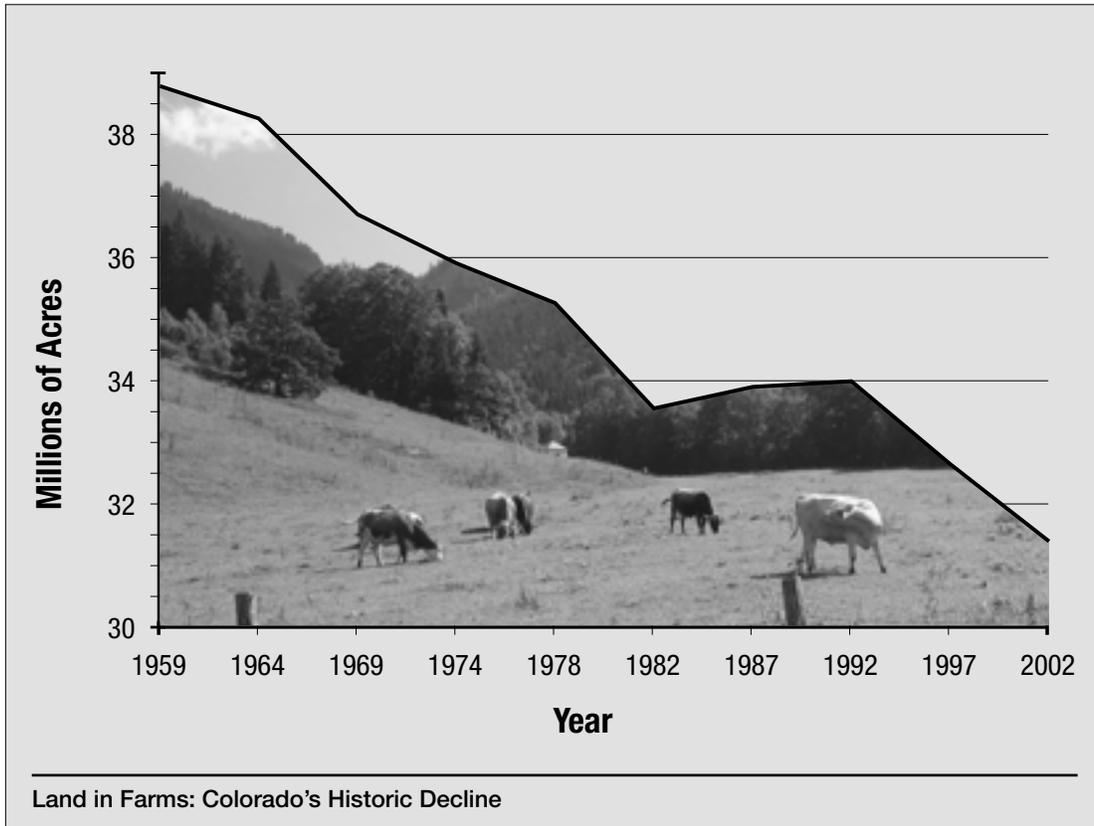
From 1987 to 2002 the amount of cropland actually harvested fell from 5,522,216 to 4,346,955 acres, resulting in a loss of 1,175,261 productive acres.<sup>11</sup> Weld County, the state's highest and the nation's *fifth* highest grossing county in agricultural sales, lost 271,491 acres of agricultural land. Yuma County, Colorado's second highest grossing county, lost 112,121 acres of agricultural land.<sup>12</sup>

Other counties also suffered in this 15-year period. El Paso County lost one hundred thousand acres—11% of its total agricultural land area. Pueblo County lost 9% of its agricultural land for a total of seventy-seven thousand acres. La Plata and Larimer counties have lost over 40,000 acres each. In addition, the resort counties were hit particularly hard. Eagle County has undergone a significant



transformation, losing 46% of its agricultural land—a loss of almost one hundred thousand acres. Pitkin County has lost 25% of their agricultural land, Gunnison 27%, and Routt County 20%. Just between 1997 and 2002 Summit County lost 6,095

acres, almost 20% of the total agricultural land in the county. With the state average for farm size down to a low of 991 acres, Colorado has lost the equivalent of close to five farms every week since 1997.<sup>13</sup>



## Agricultural Land Loss by Region

Known to native Coloradans as “Colorado’s outback,” this open range corner of the state is characterized by its golden fields of wheat and large livestock operations. It borders the ranching state of Wyoming and generally enjoys a milder climate and better access to water resources.

The South Platte River Valley provides irrigation for the major crops of wheat, hay, and corn. The northeast is also the most important region in Colorado for livestock production and sales. The relatively flat pasturelands are ideal for ranching, and the great access to grain gives the region the ability to raise a large amount of cattle and calves.

### Northeast Region

**Counties:** Boulder, Broomfield, Jefferson, Larimer, Logan, Morgan, Sedgwick, Weld

**Total Land Area (acres):** 7,603,488

**Regional Agricultural Land Loss 1987-2002 (acres): -367,000**



Adjacent to Kansas, this region is mostly made up of short grass prairies and endless wheat fields. Historically, agriculture on the high plains of eastern Colorado revolved around livestock production, as the semi-arid climate made it difficult for crops to grow with any regularity.

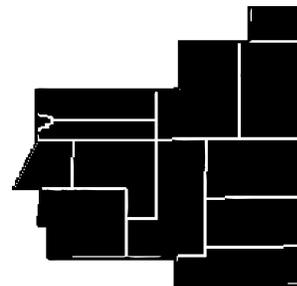
Today, with technological advances in irrigation and crop management, this region contains much of the wheat that Colorado produces and grows sunflowers for the production of sunflower oil.

### East Central Region

**Counties:** Adams, Arapahoe, Cheyenne, Denver, Douglas, Elbert, El Paso, Kiowa, Kit Carson, Lincoln, Phillips, Washington, Yuma

**Total Land Area (acres):** 13,348,491

**Regional Agricultural Land Loss 1987-2002 (acres): -891,000**



First explored by the United States in 1806-1807 by Army Captain Zebulon Pike, the Southeast region’s Arkansas River feeds the hay fields in Otero, Bent, and Prowers. It was here in 1833 where Bent’s Fort, the first agricultural settlement in Colorado was established along the Santa Fe Trail.

The southern corner of this region is the lowest elevation in the state, providing Baca County with abundant wheat fields. The northern counties of this region boast a rich inventory of cattle and calves.

### Southeast Region

**Counties:** Baca, Bent, Crowley, Custer, Fremont, Huerfano, Las Animas, Otero, Prowers, Pueblo

**Total Land Area (acres):** 12,053,452

**Regional Agricultural Land Loss 1987-2002 (acres): -439,000**



## Agricultural Land Loss by Region

Tucked in between the San Juan and the Sangre de Cristo mountains in south central Colorado, this region is recognized as the world's largest and highest alpine valley. The valley was historically farmed by Hispanic settlers in the area and later by Mormon, Dutch, and Japanese farmers as the railroad expanded through Alamosa.

Today, the Rio Grande meanders through the gentle hills, providing rich soil and irrigation for potatoes, oats, corn for silage and a few other crops. Water is a crucial resource here, and important in maintaining agricultural viability. Because this region is ideal for growing barley, Colorado is one of the top three states for beer production. The farmers in this region take pride in the fact that they produce the bulk of potatoes in Colorado—the state is the fourth-largest producer of potatoes in the nation.

The Anasazi Indians settled here around 500 A.D. on the cliffs of what is now known as Mesa Verde National Park, a World Heritage Site. The Anasazi are the earliest known inhabitants of the area, as well as the first farmers. Towns such as Durango and Telluride offer some of the best recreational tourist activities in Colorado.

The Black Canyon and Gunnison River provide irrigation for many of the fertile lands, including the Mancos Valley. The major crops in the area today are hay (mainly alfalfa), Corn, Beans, Wheat, and some fruit orchards. While cattle and sheep ranching was once a primary agricultural industry in this region, ranching has steadily decreased in recent years.

This region contains the most recognizable features of Colorado's landscape. The mountains of Vail, Aspen, Steamboat Springs, and Breckenridge attract tourists from all over the world. The Dinosaur National Monument is located in the northwest corner of this region where thousands of dinosaur fossils were found in the early 1900s.

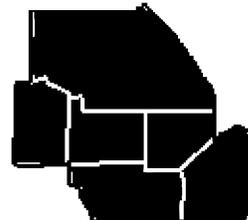
Due to varied soils, changing elevation, and a short growing season, there is less agricultural cropland in this area compared to the rest of the state. However, the northwest corner does have large numbers of cattle raised for beef, around 15% of the state total. Hay production in this area is also high and profitable.

### San Luis Valley Region

**Counties:** Alamosa, Conejos, Costilla, Mineral, Rio Grande, Saguache

**Total Land Area (acres):** 5,249,523

**Regional Agricultural land Loss 1987-2002 (acres): 0**

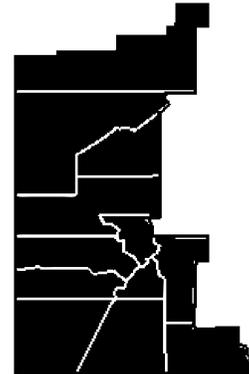


### Southwest Region

**Counties:** Archuleta, Delta, Dolores, Garfield, Hinsdale, La Plata, Mesa, Montezuma, Montrose, Ouray, San Juan, San Miguel

**Total Land Area (acres):** 13,733,961

**Regional Agricultural land Loss 1987-2002 (acres): -188,000**

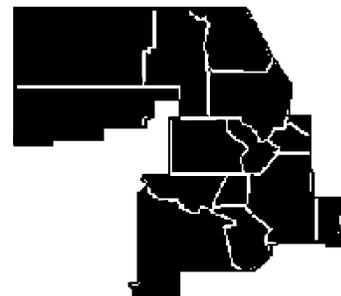


### Northwest and the Mountains Region

**Counties:** Chaffee, Clear Creek, Eagle, Gilpin, Grand, Gunnison, Jackson, Lake, Moffat, Park, Pitkin, Rio Blanco, Routt, Summit, Teller

**Total Land Area (acres):** 16,060,175

**Regional Agricultural land Loss 1987-2002 (acres): -655,000**



# Projections

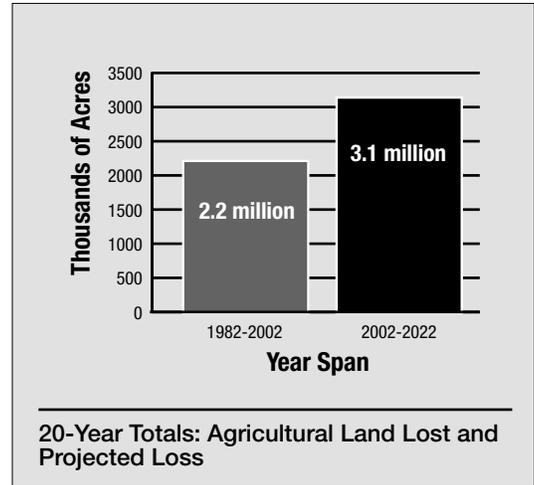
## Future Agricultural Land Loss

If current trends persist, between 2002 and 2022 Colorado will lose an additional 3.1 million acres of agricultural land. This represents a 10% loss in total agricultural land. Each region in the state will continue to see its countryside transformed; the Southeast region will lose close to 1 million acres, the Northwest/Mountain region will lose 12% of its remaining agricultural land, and the San Luis Valley stands to lose one quarter of its farm and ranch land.<sup>14</sup>

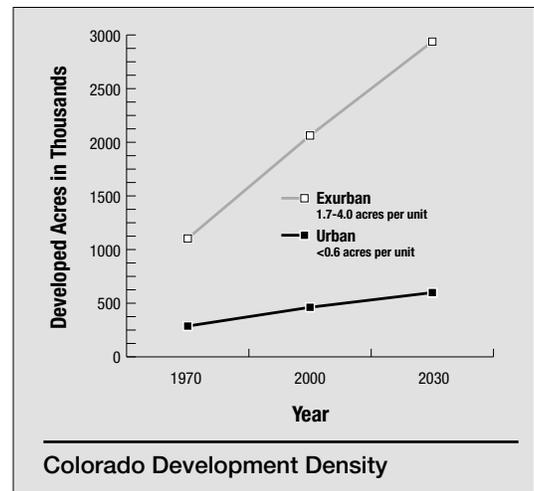
Other studies confirm a similar trend. Research by the American Farmland Trust indicates that Colorado has 4.8 million acres of prime ranchland that are threatened by low-density residential development. Prime lands are those tracts best suited for production—close to publicly owned lands and a water supply with a mixture of grass and tree cover and good vegetation diversity. By 2020 Saguache and Montrose counties together stand to lose 636,160 acres of ranchland that has been identified as at risk. These lands comprise 17% and 21% of the counties' *total land area*, respectively.<sup>15</sup>

## Development as a Driving Force<sup>16</sup>

Development trend studies also reinforce these land loss projections. While not all lost agricultural land is converted to development, and not all development is occurring on converted farm or ranchland, significant overlap does exist. According to the National Resources Inventory, prime agricultural land is being developed the fastest.<sup>17</sup> Over 2 million acres of land had been converted to exurban and large-lot development by 2000; close to 3 million acres of rural land is projected to be developed by 2030.<sup>18</sup> Exurban growth of 1 unit per 2-40 acres increased by 87% between 1970 and 2000, covering an additional 960,000 acres of land.<sup>19</sup> Exurban counties close to metro areas, like Douglas County, grew at some of the fastest rates nationally. Overall, the population of



western rural counties grew an average of 20.7% in the 1990's, over 1% faster than western metro areas. (Both rates were the fastest in the nation.)<sup>20</sup> Over the next twenty years development on converted agricultural land is expected to surpass urban and suburban development. Growth will be in more remote areas that do not already have adequate infrastructure to support the development. If not properly planned for, large-lot development of agricultural land will increase by another 42%, causing the significant decrease in productive land.<sup>21</sup>



## Projections by Region

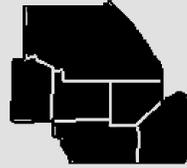
### Northeast Region

Loss from 1987 - 2002: -367,000  
Projected loss from 2002 - 2022: -555,000



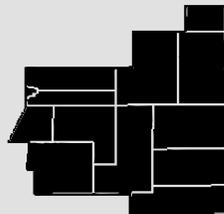
### San Luis Valley Region:

Loss from 1987 - 2002: 0  
Projected loss from 2002 - 2022: -391,000



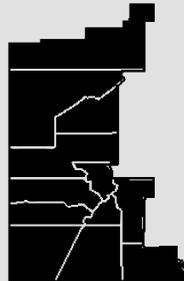
### East Central Region:

Loss from 1987 - 2002: -891,000  
Projected loss from 2002 - 2022: -298,000



### Southwest Region:

Loss from 1987 - 2002: -188,000  
Projected loss from 2002 - 2022: -508,000



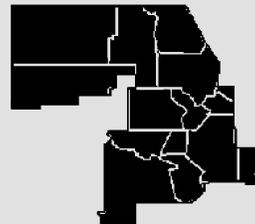
### Southeast Region:

Loss from 1987 - 2002: -439,000  
Projected loss from 2002 - 2022: -936,000



### Northwest and Mountain Region:

Loss from 1987 - 2002: -655,000  
Projected loss from 2002 - 2022: -398,000



# Why Are Agricultural Lands Disappearing?

Colorado is losing a large portion of agricultural land to rural development, faltering agricultural economies, and changing social dynamics. Population growth rates in Colorado are increasing, but development rates are rising even faster. Farmers and ranchers are facing social and economic challenges to keeping their land agriculturally productive.

Colorado's population continues to climb rapidly. US Census data shows a 30.6% increase in population between 1990 and 2000. Beginning with the boom of the 1970s, however, Coloradans started to migrate from traditional urban centers to more rural regions. In the last ten years especially, population growth in remote, rural areas has increased at an accelerated pace. Between 1990 and 1998, rural areas grew faster than urban areas in over 60% of western counties.<sup>22</sup>

Although population is expanding quickly, housing development in the Southern Rockies is actually taking place at a much faster rate. The land area developed into exurban homes and rural ranchettes grew three times faster than the population growth rate between 1960 and 1990.<sup>23</sup> Population statistics also do not accurately represent the complete impact on Colorado's landscape due to the proliferation

of vacation homes around the state. According to the census bureau, close to 83% of the homes in select areas of the Southern Rockies are considered "vacant."<sup>24</sup>

As indicated by these trends, the biggest threat to agricultural land is large-lot residential development, commonly classified as one house per 2-40 acres. Currently, state land use policy allows the subdivision of land into parcels of at least 35 acres without governmental review. As of 2000, an estimated 2 million acres of land had been lost in tracts just big enough to avoid subdivision review.<sup>25</sup>

With the demand for this type of development increasing, farmers and ranchers are under economic pressure to sell their land. Flat, well-irrigated land is well suited for development and consequently is highly valued. Rolling, mid-elevation ranchland is attractive to those who want to live in a beautiful "rural" environment and breathtaking mountain views can add millions of dollars to property values.<sup>26</sup> Between 1999 and 2003 farm real estate value in Colorado (a measure of all land and buildings on farms) increased 16% to \$730 per acre. Irrigated cropland alone was at an average value of over \$2000 an acre, a \$300 increase per acre since 1999.<sup>27</sup> The yearly accrued interest from the profits of a multi-million dollar sale of ranchland is often more than property owners can earn from ranching in that same year.

Coupled with the rising value of agricultural land, agriculture itself has also become less viable in recent years, intensifying the pressure to sell. Overall, farm sales in real dollars have been decreasing since 1990 and average farm size also continues to shrink.<sup>28</sup> In 2002, 60% of Colorado's farms and ranches had total annual sales of less than \$10,000. While Colorado did experience the worst drought conditions in recorded history in 2002, sales have been steadily declining throughout the past decade. In addition, average production costs rose 13% between 1997 and



2002 as farmers and ranchers have had to contend with rising fuel prices for their heavy equipment as well as other increases. By 2003 the amount of debt versus equity for Colorado farms had increased to 18%– up .8% since 1997. The national level during this 5-year period decreased 0.1%.<sup>29</sup>

Rural development creates a snowballing effect; the more agricultural land that is developed, the greater the value of the nearby land and the greater the pressure on remaining farmers and ranchers to sell. Their lands are being encroached upon by subdivisions and rural large-lot development, and their neighbors on still-intact ranches are increasingly likely to be non-locals seeking a particular lifestyle who bought the ranchland for far above its agricultural value. In Routt County, over 64% of the total ranch acreage sold between 1990 and 2001 went to “amenity buyers” who purchased the land for its ambience and recreational opportunities.<sup>30</sup> The value of ranchland increases dramatically as other lots in the area are sold, once the first developer assumes the cost of providing new infrastructure and a trend develops. Real estate becomes more desirable as high prices are paid for neighboring lots. For instance, in Gunnison County the average agricultural acre has a market value of \$1,154. This has been increasing over the past thirty years as the East River Valley has grown in popularity. The value of land per acre in Gunnison is almost twice the statewide average.<sup>31</sup>

The snowballing affect is also reinforced as nearby land becomes *less* attractive for agriculture due to development. Homes, highways, and shopping centers are closer to working fields, and farmers and ranchers are challenged on numerous levels by neighbors uninvolved in agriculture and impatient with production practices. Water and crop quality decline due to runoff, smog, theft, or even vandalism as city life gets closer to rural farms.<sup>32</sup> It is also more difficult for ranchers to drive their cattle to pasture through an increasingly residential landscape. Furthermore, as many potential next generation farmers and ranchers are pursuing alternative careers, local businesses that support agricultural activities can also no longer survive. It is even more difficult to hang on when the entire agricultural community is eroding.<sup>33</sup>

On top of the economic concerns, farmers and ranchers face mounting social pressure to take advantage of this bull market. With the average age of farmers and ranchers at a high of 55, there is a significant generational transition set to take place. It is estimated that more than half of the ranches in the West will be sold or inherited in the next ten years, and it is likely that most of the recipients of the land will want to maximize its value in the market. In addition, many children inheriting the family land face the burden of paying off an inheritance tax when the ranch is valued at more than the federal maximum of \$2 million. While it is possible to avoid this with expensive estate planning, the bottom line is that many families do not. Without any liquid assets, they often have to sell all or a portion of the ranch.<sup>34</sup>



# Impacts

Agricultural land loss affects more than just the physical landscape and the environmental health of the state; Colorado's economic climate will also be adversely affected if this trend continues. The success of the agriculture industry clearly hinges on the continued use of this land for livestock production and crop growth, and the tourism industry also relies on open ranch and farmland providing an attractive landscape for visitors. If agricultural land continues to be converted, Coloradans will experience a decline in revenue from both these sources. Furthermore, the state will experience an increase in pollution, a loss of important habitats, and the decline of agriculturally based rural communities.

## Economic

Agriculture is a crucial sector of the *statewide* economy. If Colorado continues to lose agricultural land at the current rate, a major source of state income will be eroded and Colorado will become more dependent on outside sources for agricultural products.



Agriculture is the second largest primary industry in Colorado, employing almost 40,000 people.<sup>35</sup> Farm, and farm related employment comprise 13.2% of the total employment in the state (385,373 jobs).<sup>36</sup> Agribusiness gross sales add \$16 billion to the state economy,<sup>37</sup> and Colorado's agriculture exports have a value close to \$1 billion.<sup>38</sup>

Lost farms have an impact on the *local* level. Economic vibrancy of rural towns and counties will be threatened as communities experience a decline in economic activity. For instance, the Eastern Plains, Western Plateau, and the San Luis Valley rely on farming and ranching for over 15% of their income.<sup>39</sup> Nearly one-third of Colorado counties are either economically dependent on their cattle ranches or have officially reported that their ranches play an economically important role. Yet Colorado's inventory of cattle and calves on-hand has dropped to its lowest amount since 1987.<sup>40</sup> Support for the agriculture industry is an investment in *community* infrastructure; as an avenue for creating wealth *locally*, productive agricultural land is a boon to local government finances.<sup>41</sup>

As an economic void is created, communities based around farming will stagnate. Each family that sells their farm or ranch and leaves a small rural community significantly impacts the community it leaves behind. Rural schools rely on each child for state funding, and a critical number of pupils must be retained in order for the school to operate successfully.<sup>42</sup> Furthermore, as the homes that crop up on farm and ranch land are bought as vacation getaways by people who do not become invested year-round residents, important social institutions around which the community is based suffer from a human capital drain. School boards, churches, 4-H clubs, and other critical community infrastructure experience this decline, further weakening the vitality of the rural community.

Agricultural land development creates a decline in tax revenue and an increase in municipal outlays. Local taxes on private agricultural land consistently create more revenue for the government than it costs to provide services to the farm.<sup>43</sup> For instance, in Saguache County only 35 cents are spent for every dollar of revenue that comes from working and open land. Large lot rural developments, however, often require much more of the town and county tax dollars to be spent on water, sewer, garbage, and road maintenance than the owners are paying into the tax base. A Colorado State University report found that such developments in Colorado cost local governments and schools \$1.65 in services for every dollar of tax revenue generated.<sup>44</sup> One Larimer County road, for example, costs the county \$7,000 annually in maintenance although only \$800 in property taxes is collected from the properties serviced by the road.<sup>45</sup> Furthermore, over 2 million acres of land have been developed into lots over 35 acres. Many primarily residential “ranchettes” are able to receive the tax exemption intended for agricultural lands by demonstrating that they meet the “farm” or “ranch” definition despite not being involved in larger scale production. For instance, 22% of Larimer County’s 3,800 ranchette style lots have qualified for these exemptions, reducing property taxes from thousands of dollars to often less than \$100 despite still incurring high infrastructure costs.<sup>46</sup>

Colorado’s tourism industry will also suffer a decline as agricultural lands and cattle pastures are transformed by development. Tourism spending contributed close to \$8.5 billion to Colorado’s economy annually, and 8% of the state’s workforce is in this sector.<sup>47</sup> \$550 million in revenue for the state and local governments is brought in annually by the tourism industry.<sup>48</sup> This hotbed of economic activity is dependent on the preservation of wildlife habitats, open space, and scenic landscapes. Gunnison County, for example, directly relies on ranching and ranch lands to attract summer vacationers. The lands add value in the winter also as travelers enjoy the picturesque backdrop while skiing. 97.2% of those polled in a survey by researchers from the Colorado State Department of Agriculture and Resource Economics responded that their decision to go to Gunnison County was contingent on its “relatively

undeveloped and open, rural and agricultural characteristics.” 58% reported that they would limit their visits to the area if the farms and ranches were transformed into higher density developments. The analysis stemming from this research indicates that the projected economic loss if Gunnison’s ranches were sold and developed, including multipliers, is close to \$14.6 million.<sup>49</sup>

Another study done in Routt County further illustrates that the market will often undervalue the contribution of ranchlands to a society. Market indicators for values such as culture and environmental quality do not exist, and the scenic view/recreational values are only indirectly captured. Unfortunately, this failure results in less ranchland than would actually be “socially desirable.” However, a 1994 study documented the tangible economic value of these rangelands outside of their productive value and found that on average, people would pay a maximum of \$182.02 to the county government to protect “local ranch open space.” This amount increased to \$220.38 when the survey was repeated in 2004, and using this mean value over thirty years, the total accrued value of these lands to Routt residents is between \$20-30 million. Ranch open space also ranked 2<sup>nd</sup> out of 6 county characteristics that were the most important to residents both in 1994 and in 2004. (The number one asset was the



natural environment.)<sup>50</sup> Tourists confirmed the value residents placed on these lands; an overwhelming majority responded that the “unique natural and man-made assets of ranch land open space” contributed to the quality of their vacation. In 1994, almost half (46%) of tourists said they would consider locations besides Steamboat Springs if ranches were developed. The study also had tourists place a dollar value on the land, respondents valued open ranch land at a mean of \$20 per day. Annually, the “agricultural image” of ranch open space contributes a mean value of 7.5 million dollars to the tourism industry in Steamboat Springs alone.<sup>51</sup>



## Environmental

Agricultural land provides substantial environmental benefits. Open agricultural land is critical in maintaining the state’s biodiversity, as well as preserving the natural cycles that clean and renew the air and water.

Development increases water pollution and lowers drinking water quality. Storm water runs off pavement directly into drains without the opportunity for the pollutants to filter naturally through the topsoil. In addition, the septic systems required for low-density subdivisions have a greater potential to increase the waste nutrient count in surface and ground water than farming.<sup>52</sup> High nutrient counts have become a concern in mountain areas where resort development has increased. A water quality assessment of the South Platte River Basin by the USGS found that the overall quality of surface-water was higher in forested mountain sectors, yet when development was introduced in these mountain drainages, the concentrations of dissolved solids, suspended sediment, and nutrients in the surface water became elevated.<sup>53</sup> Studies indicate that Dillon and other reservoirs in the state may be severely affected by the increased phosphorus levels due to their naturally high water quality. Eutrophication has accelerated in these bodies of water due to the higher phosphorus concentrations. The most threatening source of pollution in the Arkansas River is also municipal runoff. Runoff from urban areas increases the pollution loading in streams, leading to high sediment loads and a faster stream flow which results in erosion.<sup>54</sup> Furthermore, more developed areas like Clear Creek have lower densities of invertebrate species as well as fewer invertebrate taxa than the Cache La Poudre River above Fort Collins that has over 2,000 more animals per square meter.<sup>55</sup>

Air quality decline also follows development. Currently, 11% of Coloradan workers are commuting more than 40 minutes to work. If current development patterns continue, by 2020 urban drivers will be spending twice as much time in traffic as they do today.<sup>56</sup> Harmful auto emissions will increase, and the dependence on fossil fuels will only deepen. Low-density development will exacerbate this trend even more.

The open space and food provided by agricultural lands are essential for maintaining the balance and sustainability of ecosystems across the state. One study comparing biodiversity across three different rural land uses—conservation land, ranchland, and ranchette development— in the foothills of the North Fork of the Cache la Poudre River Watershed, found that ranchland best protected rangeland ecosystems. Ranches did maintain a slightly larger number of native plant species, but the more significant statistical difference came in species richness and canopy cover of *nonnative* plants. Exurban development areas had over twice as many invasive plant species (including harmful weeds) than did ranchlands, and also had 8% more bare ground exposed. The human presence on nature reserves and developed areas likely introduces non-native species through roads and trail systems. Landscaping yards with nonnative plants also is a contributing factor. Ranchette owners often still have some livestock, and feeding them uncertified hay and allowing the cattle to overgraze native cover increases bare ground and gives weeds an opportunity to dominate.<sup>57</sup> Non native plants change ecosystems; ecological processes are impacted and the wildlife habitat declines in quality.<sup>58</sup> More importantly, though, the presence of cattle on the rangeland is important for this area which historically has experienced a pattern of natural disturbances from grazing bison. Cattle seem to be an effective substitute, and removing them may contribute to the degradation of the rangeland.<sup>59</sup>

Large-lot development of these lands into rural ranchettes also threatens the natural habitat by fragmenting the landscape.<sup>60</sup> Research indicates that impact zones for developed areas extend much farther than the actual site of construction, altering and diminishing wildlife populations. The lower the density of the development, the greater the impact is to the area. The ecosystem is “fragmented” because impact zones will not overlap as they would in clustered development. Furthermore, the introduction of roads and other buildings into the area carve up once open space,<sup>61</sup> hindering animal migration and

isolating particular habitats. Human activity is one of the most important ways that wildlife is disturbed, but the introduction of dog and cat populations, nonnative plants, and vehicular traffic also has a marked affect.<sup>62</sup> A “zone of influence” has been found to extend 180 meters from a development site, and within it bio density and species diversity is altered. Analyses of avian densities are used as an indicator of impact; “human sensitive” species with particular habitat and food needs had significantly lower densities than in undeveloped areas. Other wildlife species are affected within this radius, especially considering the introduction of dogs and cats as predators. Coyotes and red foxes are found further away from developed sites.<sup>63</sup>

Development often occurs in low to mid-elevation ecosystems that are the most biologically diverse and crucial to Colorado’s native species. Across the state the black tailed prairie dog’s habitat is shrinking,<sup>64</sup> songbirds such as the towhees or vesper sparrows are disappearing, and domestic dogs and cats are far more popular than badgers and bobcats. Mountain lions and black bears that are still seen occasionally on these properties do not represent a pristine wilderness environment, but rather “anomalies of species” that are disappearing from these areas.<sup>65</sup>



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# ■ Recommendations

Colorado is at a critical juncture – act now to protect Colorado’s working landscapes, or lose much of the agricultural land that protects Colorado’s environmental wellbeing, provides the state with a solid economic foundation, and sustains rural communities.

If the trend that has developed through the nineties continues unabated, the state stands to lose another 3.1 million acres of agricultural land by 2022. With much at stake, now is clearly the time to rise above politics as usual. Conservationists and agriculturalists, developers and politicians, city planners and business interests must come together to find viable solutions that will help preserve agricultural land, promote economic vitality, and provide a future for rural Colorado.



Leaders should unite to create an open discussion to identify a set of policy options that are politically and socially feasible for combating land loss and agricultural decline. Ideas for discussion could include, but are not limited to:

- 1) Developing strategies that would make it easier for local farmers and ranchers to keep their land in production.** These could include “buying local” initiatives to make local farming more profitable, more comprehensive right-to-farm legislation to ease the pressure from residential neighbors, and incentives for landowners to form collective associations to resist development pressures.
- 2) Studying the mechanics and feasibility of increasing conservation funding,** for instance creating private incentives for buying easements or adopting statewide public efforts.
- 3) Developing options for managing growth.** Potential strategies include conducting public infrastructure projects with the intent to protect private agricultural lands, as well as encouraging land to be sold for clustered developments. Both would help minimize negative impacts and retain open space.

Many strategies are available to effectively curb the harms that stem from agricultural land loss. The first step towards implementing lasting policy that protects the interests of all involved is beginning a meaningful dialogue about the problem. It is in the interest of all the citizens of Colorado to preserve and protect our agricultural heritage, and this recognition ought to be enough to bring key leaders together.

# Appendix A:

## Colorado's Past and Projected Change in Land in Farms – by County

Year	1987	1992	1997	2002	2007	2012	2017	2022
Colorado	33,886,698	33,978,443	32,628,307	31,371,000	30,697,782	29,889,579	29,086,507	28,284,071
Adams	711,874	685,813	673,713	637,345	673,733	666,535	659,337	652,139
Alamosa	209,556	207,448	189,987	216,374	137,101	112,798	88,494	64,190
Arapahoe	295,183	322,823	332,940	319,507	245,248	220,999	196,750	172,501
Archuleta	161,009	155,465	112,670	111,587	97,577	86,869	76,161	65,454
Baca	1,304,716	1,257,229	1,142,327	1,095,660	1,141,269	1,115,971	1,090,673	1,065,376
Bent	855,503	796,892	784,273	751,595	755,236	746,942	738,649	730,356
Boulder	155,488	157,493	128,146	112,518	81,983	65,276	48,569	31,862
Chaffee	105,275	84,172	85,608	71,508	58,455	49,226	39,996	30,767
Cheyenne	862,745	914,094	795,815	694,461	761,848	738,685	715,523	692,361
Clear Creek	8,435	7,129	5,114	0	3,761	3,421	3,081	2,742
Conejos	301,699	304,592	284,676	292,311	213,840	185,803	157,766	129,729
Costilla	292,125	330,826	363,220	361,179	310,641	300,930	291,219	281,509
Crowley	408,649	423,785	389,724	388,688	400,818	397,008	393,198	389,387
Custer	150,334	156,801	144,247	126,605	120,223	105,122	90,021	74,920
Delta	269,036	260,728	281,889	277,650	247,224	239,559	231,893	224,228
Denver	0	D	74	0	0	0	0	0
Dolores	159,872	167,106	155,741	154,768	166,037	166,894	167,752	168,609
Douglas	212,011	231,364	204,360	199,351	160,085	141,036	121,988	102,939
Eagle	213,441	213,004	185,032	117,288	139,030	121,977	104,923	87,869
Elbert	1,015,333	1,105,614	1,095,248	1,060,494	1,059,900	1,058,724	1,057,549	1,056,374
El Paso	917,824	857,404	866,953	820,473	707,475	655,566	603,657	551,748
Fremont	305,137	331,639	283,490	276,194	245,770	222,927	200,084	177,241
Garfield	483,929	440,851	427,161	421,939	412,055	403,880	395,705	387,530
Gilpin	15,540	13,296	8,771	5,847	7,831	7,405	6,979	6,553
Grand	319,578	299,142	251,202	227,426	244,748	234,823	224,899	214,974
Gunnison	225,220	177,333	195,030	164,183	177,138	166,847	156,556	146,265
Hinsdale	9,899	9,021	8,834	8,834	1,297	0	0	0
Huerfano	643,050	641,755	641,124	629,731	587,103	566,616	546,129	525,642
Jackson	460,078	472,018	477,063	442,698	490,557	501,644	512,731	523,817
Jefferson	92,351	103,470	97,623	87,861	46,086	30,512	14,937	0

(D) = Data not available.

(O) = Projections cannot be made with accuracy.

Year	1987	1992	1997	2002	2007	2012	2017	2022
Kiowa	996,785	878,447	913,801	865,554	923,415	922,471	921,527	920,582
Kit Carson	1,415,879	1,341,738	1,345,724	1,233,910	1,325,220	1,326,172	1,327,125	1,328,077
Lake	11,045	14,411	17,188	16,233	15,181	15,417	15,653	15,888
La Plata	613,579	587,339	580,135	573,011	554,036	542,888	531,741	520,593
Larimer	574,802	540,412	542,259	529,083	458,537	426,858	395,180	363,502
Las Animas	2,149,828	2,286,947	2,214,992	2,373,574	2,219,587	2,215,145	2,210,702	2,206,260
Lincoln	1,615,140	1,660,146	1,648,323	1,447,605	1,567,601	1,564,686	1,561,770	1,558,855
Logan	1,081,703	1,066,453	1,128,756	1,132,835	1,097,833	1,094,083	1,090,334	1,086,584
Mesa	436,841	420,233	416,613	399,990	310,980	274,405	237,830	201,255
Mineral	12,033	15,539	0	0	213	0	0	0
Moffat	1,032,623	1,159,813	1,031,091	1,043,390	1,002,699	978,496	954,293	930,090
Montezuma	843,904	834,018	935,330	826,360	821,811	810,595	799,378	788,162
Montrose	430,594	447,412	371,881	346,056	324,439	300,017	275,596	251,174
Morgan	743,263	751,517	741,007	760,059	708,823	697,231	685,639	674,047
Otero	731,609	633,279	579,647	549,457	547,965	525,394	502,824	480,253
Ouray	0	119,287	116,906	107,913	113,044	107,907	102,770	97,632
Park	400,090	388,902	311,182	305,040	271,002	246,452	221,903	197,353
Phillips	450,277	459,659	463,376	450,930	447,569	443,862	440,154	436,447
Pitkin	33,401	32,072	25,209	25,209	3,620	0	0	0
Prowers	882,165	1,004,360	862,953	877,200	887,158	876,631	866,105	855,578
Pueblo	892,183	896,994	822,584	815,211	664,762	590,868	516,975	443,082
Rio Blanco	505,471	546,538	466,272	388,045	397,837	377,285	356,733	336,181
Rio Grande	221,155	219,612	231,734	175,339	212,781	213,031	213,281	213,531
Routt	589,386	576,397	520,618	469,495	491,385	472,021	452,656	433,292
Saguache	472,194	462,086	481,541	486,642	464,927	460,687	456,448	452,209
San Juan	D	D	D	0	0	0	0	0
San Miguel	169,253	200,674	161,937	161,937	175,548	176,205	176,862	177,518
Sedgwick	324,286	310,394	294,185	254,280	281,611	274,688	267,765	260,842
Summit	34,368	38,467	34,541	28,446	25,193	22,806	20,420	18,034
Teller	83,281	104,010	83,443	77,185	64,521	56,500	48,478	40,456
Washington	1,391,208	1,333,577	1,394,238	1,376,651	1,354,953	1,348,853	1,342,753	1,336,652
Weld	2,105,149	2,086,292	1,913,603	1,833,659	1,881,831	1,833,839	1,785,846	1,737,853
Yuma	1,478,313	1,433,111	1,365,183	1,366,192	1,387,637	1,380,094	1,372,552	1,365,009

(D) = Data not available.

(O) = Projections cannot be made with accuracy.

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# Appendix B:

## Projection Methodology

This report uses the USDA's National Agricultural Statistics Service (NASS) Agricultural Census data to document trends from the year 1959 to 2002 and to forecast those trends into the future.<sup>†</sup>

The projections were made using a linear regression formula for the state and each county. The formula is as follows:

$$y = mx + b$$

**Where:**

$$\text{slope} = m = \frac{n(\sum xy) - (\sum x)(\sum y)}{n(\sum x^2) - (\sum x)^2}$$

**And:**

$$\text{Intercept} = b = \frac{\sum y - m(\sum x)}{n}$$

While the final calculations are our own, the decision to use the regression method on the entirety of the 1959-2002 data set (instead of computing the rates of change only from the more recent data which would have resulted in slightly more precise picture of recent trends) is based on analysis done by Professor Dave Theobald at Colorado State University. This regression accounts for changes that have occurred in survey methods over the course of the last 50 years. The formula charts trends from each county's data set for the years 1959-2002. After the linear regression has been figured from each data set, it was then projected for the future years of 2007, 2012, 2017, and 2022. This is a forecast based only on past trends of change in agricultural land. The projections do not take into consideration variables like population growth estimates and trends, the potential of agricultural land to be converted into conservation programs and other uses rather than developed or otherwise, agricultural land being developed into more clustered developments, and other variables that could modify the amount of agricultural lands in the future.

<sup>†</sup> While the census data has been adjusted for coverage in the years 1997 and 2002 (to make up for non-response to the census), the NASS did not adjust the data for the years 1959-1987.

# Notes

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- <sup>3</sup> Colorado Department of Agriculture, "Colorado Proud Facts." <http://www.ag.state.co.us/mkt/COProud/2003/facts.html>.
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- <sup>7</sup> Theobald, David, "Targeting Conservation Action through Assessment of Protection and Exurban Threats," *Conservation Biology*, Vol. 17, No. 6, 1630, 2003.
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- <sup>9</sup> United States Department of Agriculture: Colorado Agricultural Statistics Service, *2002 Census of Agriculture*.
- <sup>10</sup> United States Department of Agriculture: Colorado Agricultural Statistics Service, *2002 Census of Agriculture*.
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- <sup>13</sup> Economic Research Service, USDA. State Fact Sheet: Colorado. <http://www.ers.usda.gov/statefacts/CO.HTM>
- <sup>14</sup> see Appendix B
- <sup>15</sup> American Farmland Trust, "Strategic Ranchland in the Rocky Mountain West: Mapping the Threats to Prime Ranchland in Seven Western States," 2002.
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