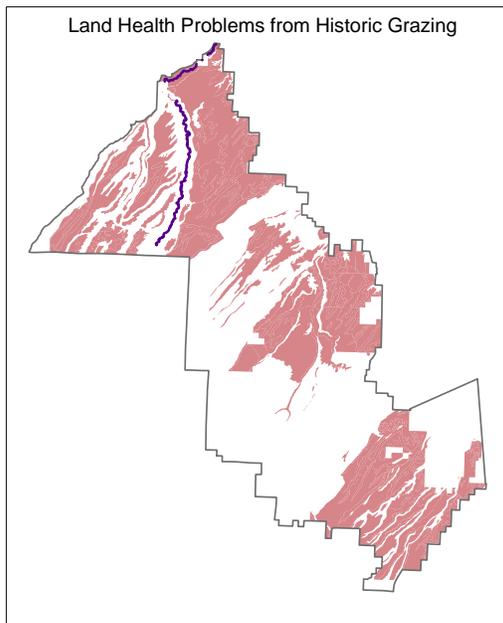


## Roubideau Landscape Health Assessment

### CAUSATIVE FACTOR DETERMINATION

Causative factors behind land health problems are addressed here for all standards taken together. The reason behind this is that one cause may impact several indicators and health standards at once. In addition, most of the land health problems observed in the landscape unit are not clearly linked to one causative factor, nor are they always related to a cause that is presently occurring. Often, causes were indirectly suggested, using the condition of indicators as evidence. In many areas, problems are occurring as a result of several causative factors which overlap spatially. As a result, acreage figures reported below may overlap for various causes.



**Historic Grazing:** The removal of the Ute Indians in the early 1880s opened the way for large unregulated livestock operations to graze the area. Ranchers had free and unlimited use of unreserved, unappropriated public lands until the Taylor grazing act of 1934. The primary purpose of this act was “to stop injury to the public grazing lands by preventing overgrazing and soil deterioration, to provide for their orderly use, improvement, and development, to stabilize the livestock industry dependent upon the public range, and for other purposes.” Congressman Taylor was a Representative from Grand Junction and he represented the area covered by the assessment. His observations of the impact of unregulated livestock grazing on the livestock industry and the vegetation of this and

neighboring areas probably led to his sponsoring this legislation.

Regional accounts of settlement in this part of Colorado indicate that livestock numbers grazing the public rangelands were once many times what they are now (accounts vary widely ranging from 10-100 times the current number), and that the vegetation changed dramatically following the introduction of livestock. The Uncompahgre Plateau because of its abundant grass, plentiful water, and relatively low elevation was preferred as cattle range. It was not until the passage of the Taylor Grazing Act that the current system of individual grazing allotments was established and implemented.

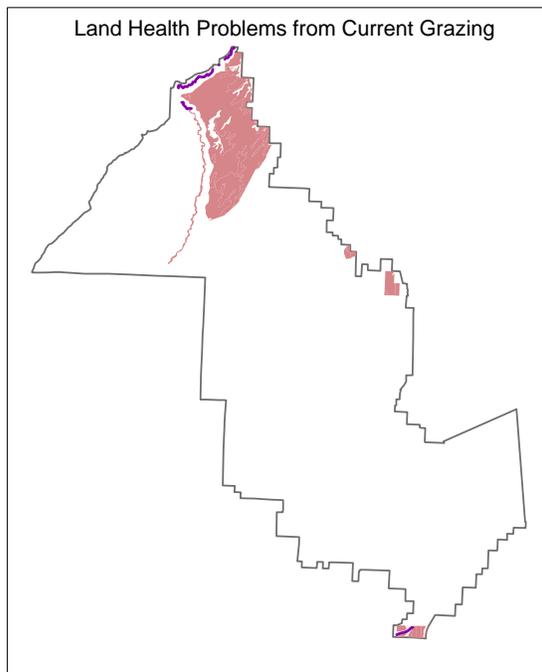
Prior to the Taylor Grazing Act, areas close to Olathe and Montrose had heavy winter, spring and fall use by livestock until the middle of the 20<sup>th</sup> century mostly by small ‘farm flocks and herds’. This was because these areas were lower elevation and the milder climate allowed wintering livestock to exist without supplemental feeding at all or very limited feeding.

The interdisciplinary team used a number of factors to infer that historic grazing was contributing to problems in an area. Types of problems included a lack of cool

season grasses in otherwise grassy communities, lack of forbs, or dominance by annuals, unpalatable plants, or woody species. Historic grazing was a more significant problem in areas which were easily accessible to livestock and close to ranching communities, along major stock trails, or long established watering areas, and in areas with deep and productive soils. When the problems listed above coincided with these locations, historic grazing was considered a likely cause.

The interdisciplinary team identified 12,570 acres where historic grazing impacts had probably contributed to a polygon failing to meet either Standard 1 or 3. An additional 39,273 acres were rated as meeting either Standard 1, 3 or 4 with problems, and historic grazing was cited as a factor. Historic grazing was determined to be a contributing factor behind 10.3 miles of stream meeting Standards 2 and 5 with problems.

**Current Grazing:** Several types of evidence were used to conclude that current livestock grazing was causing problems with soil or vegetation. These included signs of heavy use (such as abundant cow pies or sheep pellets, crowned grass plants, terracing of slopes from livestock paths) in poor condition areas, or heavy use on four-wing saltbush or other palatable species. This was typically coupled with unduly long season and duration of use on the grazing permit. Utilization information would be stronger evidence, however this has not been gathered very consistently nor uniformly across the area in the past.

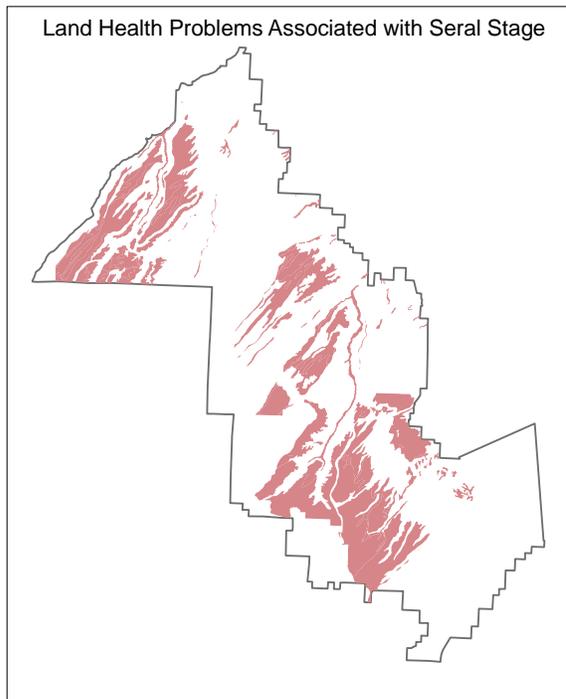


additional 2,122 acres met Standards 1 and 3 with problems that were related to current grazing, and 3.4 miles where grazing was causing a stream to meet Standards 2 or 5 with problems.

**Seral Stage:** The age class of plant communities (seral stage) contributed to problems meeting standards in some instances. Some seral stages appear to naturally have diversity, understory and soil problems. While these stages would naturally occur on the

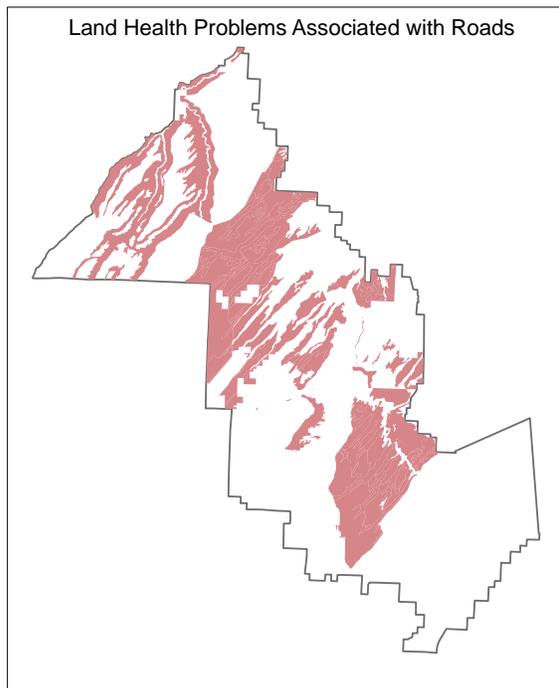
Timing of grazing and watershed condition were also used to infer if grazing might be contributing to problems with water quality. There were no indications that recent livestock grazing had a direct influence on water quality based on water testing. Impacts on riparian areas were evident when abundant cattle sign was coupled with heavy utilization on woody and herbaceous species. There were also some polygons where the team was not sure whether grazing was contributing to problems and identified the need to monitor impacts more closely.

There were 6,132 acres where the ID team identified current grazing practices as probably contributing to a polygon failing to meet Standards 1 or 3. Current grazing was not found to contribute to any stream miles failing to meet Standards 2 or 5. An



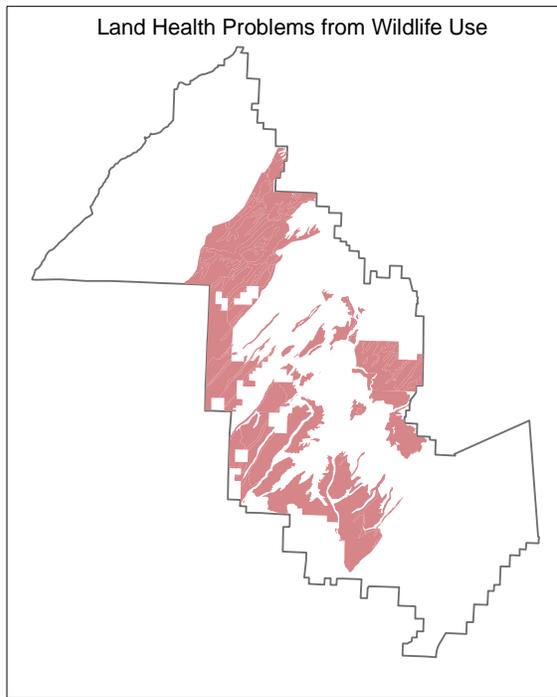
landscape in certain proportions, if they occupy a disproportionate amount of the landscape they cause an undue stress to the health of the land. These stages become imbalanced in several ways—one by excessive vegetation treatments, and secondly by disruption of natural disturbance patterns such as caused by fire suppression. Both fire suppression and tremendous levels of chaining have occurred on this landscape unit over the past 50 years.

Seral stage was cited for contributing to 5,350 acres not meeting Standards 1 or 3; and seral stage contributed to 19,925 acres meeting Standards 1 or 3 with problems. Standards 2, 4 and 5 were not affected by seral stage.



**Roads:** Poor road placement, road maintenance, and weeds associated with road maintenance cause problems with soil and vegetation indicators. These include causing high bare ground, runoff drainage problems, gullying, noxious weed infestation and exotic plant dominance. Roads were a contributing factor for 10,167 acres failing to meet either Standard 3, and 26,863 acres meeting Standards 1 or 3 with problems. Standards 2, 4 and 5 were not evidently affected by roads. The nearly completed road inventory for the area also showed a substantial mileage of the road segments are contributing to gullying which was not detected during the health assessment.

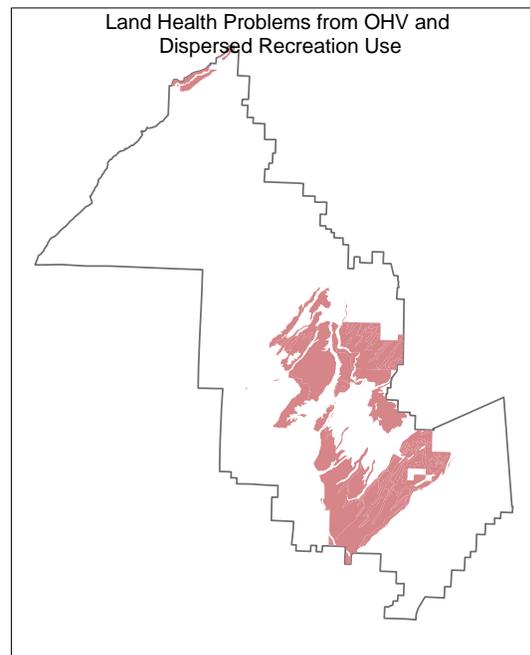
**Heavy Browsing on Shrubs:** Heavy browse utilization caused by grazing animals (primarily deer and elk) causes shrubs to have a compact growth form, and often reduces shrub vigor. Heavy browsing can be an indication that deer and elk populations are too high for available habitat. Heavy browsing contributed to 7,747 acres failing to meet

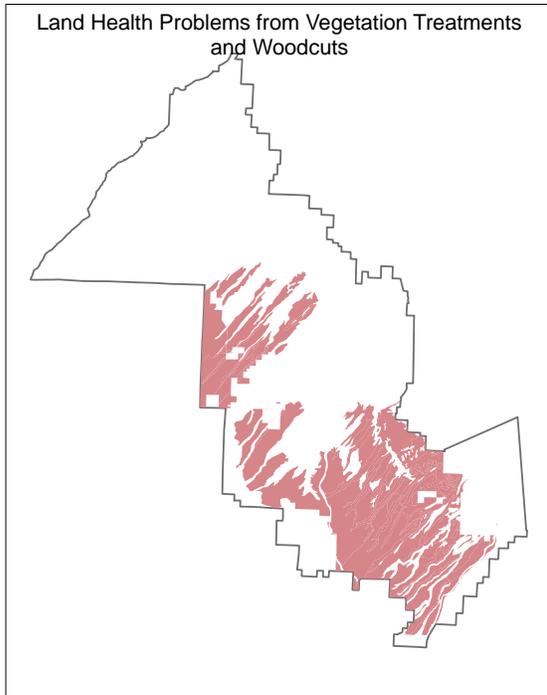


Standard 3, and another 21,216 acres to meet Standard 1 or 3 with problems. Standards 2, 4 and 5 were not clearly affected by wildlife browsing. However, historic wildlife use was responsible for most of the acres (16,048) having problems with meeting Standards 1 and 3. This reflects long term impacts from several decades back when deer populations were substantially higher than they are now.

**OHV Use and other Dispersed Recreation:**

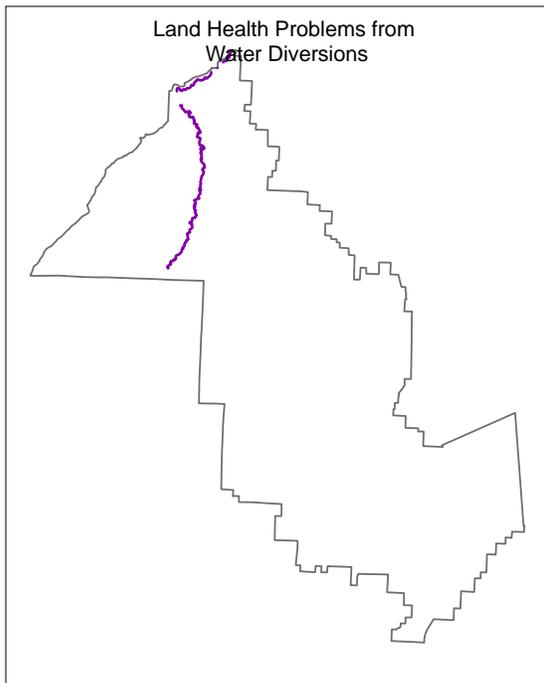
Off-road driving whether by motorcycle, ATV, or four wheel vehicle can cause problems with high bare soil, excessive runoff drainages, reduced understory cover, and exotic plants. Together, this type of recreation contributed to 8,230 acres failing to meet Standard 1 or 3. Another 11,534 acres had problems meeting Standards 1 and 3, in part because of OHV and dispersed recreation impacts. Standards 2, 4 and 5 were not obviously affected.





### Past Vegetation Treatments and Woodcuts:

Many vegetation treatments done over the past 50 years were either poorly implemented, not seeded, seeded with nonnative species like crested wheatgrass, or poorly managed after treatment. Some woodcuts suffer from similar problems, and are also likely to be weed-infested. Indicators like diversity, exotic plants, herbaceous species cover, bare soil and pedestalling sometimes reflected poor health for soils and vegetation as a result. Vegetation treatments and woodcuts contributed to 9,910 acres not meeting either Standard 1 or 3, and contributed to an additional 21,719 acres meeting Standard 1 or 3 with problems. Standards 2, 4, and 5 were not thought to be substantially impacted by old vegetation treatments.



**Water Diversions:** Water diversions, primarily for irrigation purposes, have altered flows and contributed to channel morphology and riparian vegetation changes along many streams in west central Colorado. Water diversions contributed to 10.9 miles along Roubideau Creek meeting Standards 2 and 5 with problems.

**Other Causes:** A variety of other causes were also cited for some polygons failing to meet a standard, or meeting with problems. These problems are listed below.

<b>Cause</b>	<b>Acres Not Meeting</b>	<b>Acres Meeting w/ Problems</b>	<b>Miles Not Meeting</b>	<b>Miles Meeting w/ Problems</b>
Drought	5,352	842	0	3.4
Interspersed w/ private lands, weedy region	2,013	0	0	0
Right of Ways	1,359	5,212	0	0
Poor reservoir design, maintenance	0	2,699	0	0
Noxious or invasive weeds	0	418	0.8	15.9

**Causes of Large Scale Problems:** The long term trend for this landscape unit is one in which vegetation seral stage is advancing, the average patch size is getting larger, the amount of “edge” is decreasing, the size and quality of browse stands are declining. This has been addressed to a large extent by the Spring Creek/Dry Creek Vegetation Management Strategy. If this strategy is fully implemented, the problems listed above should be overcome.

Concerns about tree invasion causing major land health problems are lessening in light of the ongoing drought and recent research on pinyon dendrochronology and stand structure on the Uncompahgre Plateau. This research indicates that many woodland stands have experienced density increases followed by density declines over the past several centuries, and these appear to be linked to climate fluctuations (Eisenhart 2004). Two prolonged wet periods over the past century are likely contributing to the increases in tree density, both within woodlands and invasion into new communities. Land management practices are probably also contributing, as livestock grazing may enhance tree establishment, and young trees have reappeared in the woodland chainings from the mid 20<sup>th</sup> century. However, the drought has recently killed many of these “invading” trees, with tree death in some “invaded” areas as high as 90%. As yet there is no evidence that frequent fire in the shrub communities repelled tree invasions, so the effects of fire repression are not yet implicated.

Other, more difficult landscape level issues include the low levels of truly late stage vegetation due to the many vegetation treatments of the past 50 years. In addition, human development is expanding and causing fragmentation of key habitats for several species, and the abundance and amount of area supporting exotic and noxious vegetative species is increasing. Because of these, this area, as well as much of the adjacent landscape, is declining in overall quality for many species, and is becoming more favorable for weedy, invasive, typically nonnative species, with cheatgrass being the principle species of concern.

## **DECISION RECORD**

DECISION: It is my decision to accept this determination of cause for problems associated with the Standards for Rangeland Health found during the Roubideau Landscape Health Assessment.

RATIONALE: The determination was based on extensive data collection coupled with review by an interdisciplinary team familiar with the landscape unit and the history of land uses that have occurred there.

SIGNATURE OF AUTHORIZED OFFICIAL:

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Barbara Sharrow, Field Office Manager  
Uncompahgre Field Office

DATE SIGNED: