

SOME ECOLOGICAL IMPACTS ASSOCIATED WITH TRESPASS/FERAL CATTLE IN BAND

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Feral and other trespass cattle have been an administrative problem at BAND ever since permitted cattle were removed after the assumption of NPS control in 1932, and they have almost certainly been a significant perturbation to natural ecosystems within the current park boundaries since the 1880's (Allen 1989:145-148). Historic impacts of cattle (and other) livestock grazing in BAND include: 1) gross alterations in the species composition of local vegetation associations; 2) major reductions in herbaceous plant and litter ground cover, thereby acting as a primary cause of accelerated soil erosion; and 3) **de facto** suppression of natural fires in the late 1800's and early 1900's through overgrazing-induced reductions in the quantity and continuity of the herbaceous fuels which were carrying the fires.

In the last decade trespass cattle activity has been largely focused in two areas of the park: 1) along the Rio Grande and the lower portions of its tributary canyons; and 2) the montane meadows west of FR 289 along the base of Scooter Peak, in the 1977 Upper Frijoles Accession. The remainder of this document will focus on the ecological impacts associated with recent cattle grazing in these two areas.

Areas along the Rio Grande and the lower portions of its tributary canyons:

Currently, the most ecologically significant problems from cattle grazing in the park are taking place along the Rio Grande and the lower portions of its tributaries. In the last two years the feral cattle have largely concentrated their use in the relatively lush riparian zones along the Rio Grande from the NE boundary of the park through the Alamo Bottoms area, avoiding the dry and relatively barren mesa tops. As of March 1991, recent cow sign could be observed throughout this area, but use was obviously focused in the lower portions of Alamo and Lummis Canyons, and the adjoining low ridges. The cattle use the abandoned Rio trail between Lummis and Frijoles Canyons, and indeed continue to trail along the west side of the Rio Grande at least as far north as the White Rock townsite (the NE park boundary fence along the Rio has been down for years) as well as south to the park boundary.

Cattle impacts in this area have been evident for many years. Soil and vegetation surveys in the 1970's (Earth Environmental Consultants 1974, 1978) found evidence of widespread cattle grazing in the these lower canyons as well as the adjoining mesas of BAND; this cattle grazing was considered to be a significant factor in the poor and declining vegetation and soil conditions present throughout this area, particularly on the low benches along the Rio Grande (see attached maps).

Observations in this area over the past two years indicate the following current, environmental impacts:

- 1) The cattle have caused severe disruption of the riparian

zone of lower Alamo Canyon, including overgrazing of herbaceous plants, damage to desirable woody plants (e.g., willows and cottonwoods), trampling disruption of stream banks, and severe pollution of Alamo Creek by cattle urine and droppings. These problems are greatly exacerbated by the cattle's tendency to focus their use on areas in and adjacent to the stream - much of lower Alamo currently has the appearance of a livestock pen. These livestock impacts are illustrated in the accompanying slides.

2) Lower Alamo Canyon is the major roost area for overwintering bald eagles in the Bandelier/Cochiti Lake area, with one to several dozen birds present each winter. This area coincides with the area of maximum trespass livestock impact described in 1) above. Through rubbing actions the cows may be reducing the life expectancy of the snags which the federally endangered eagles favor as roost trees. The ground disruption by the cattle certainly hampers ongoing research efforts to collect the eagles' castings, which contain eagle diet information important to management efforts to protect these birds.

3) The cattle have also damaged the riparian zone and wetlands all along the Rio Grande, with impacts similar to those described above in 1). The wetlands at Cottonwood Flats and the delta at the mouth of Alamo Canyon display significant impacts. Particularly noteworthy impacts to these wetlands are: a) the eating and trampling of cattails and wetland grasses; and b) the selective browsing of the most desirable woody species, willows and cottonwoods, along the wetland margins.

4) Just upstream of the park, on the LANL land which BAND patrols and on the county parkland below White Rock, trespass cattle have severe impacts on the vegetation and water quality of a number of major springs in White Rock Canyon. These spring oases contain a number of rare plant species which locally grow nowhere else, including western cardinal flower (*Lobelia cardinalis*), helleborine orchid (*Epipactis gigantea*), and silverweed (*Potentilla anserina*).

5) In upland areas near lower Alamo Canyon, such as the ridges between lower Lummi Canyon and Alamo and White Rock Canyons, trespass cattle impacts include: a) overgrazing of grasses and severe trampling of soils in localized areas, which exacerbate the local soil erosion problem (see accompanying slides); and b) damage to cultural resources, primarily by trampling on structural, ceramic, and lithic materials.

Montane meadows near the roads in the 1977 Upper Frijoles Accession:

Cattle are also continually appearing in the montane meadows near the NM 4/FS 289 intersection, usually along the base of Scooter Peak. These cattle are apparently intruding from the Baca Location, most likely following elk trails up through the forests on the north side of Scooter Peak and entering Bandelier across our unfenced boundary near the pullout on NM 4 on the caldera rim. (It is possible that someone is driving the cows up toward our land, as they have to pass uphill through a large

expanse of forest to reach our boundary from the Valle Grande meadows.)

Ecological impacts of these cattle to BAND include pollution of water resources through excrement and wallowing, grazing disruption of the vegetation (cows do not graze exactly the same as native ungulates), and some trailing through these meadow areas. The cattle are also an aesthetic intrusion to many visitors who seek to escape the omnipresent cowpies of USFS/BLM rangelands, and the persistence of this problem may indicate and/or be fostering disrespect for our boundary and management goals in this area. However, in general the ecological impacts of recent cattle intrusion in this montane area are less severe than those observed near the Rio Grande, largely due to the moister climate, more resilient vegetation, and relatively low numbers of cattle involved.

References Cited

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