

## 2. RANGE CONDITION AND GRAZING

### TASK 2: DESCRIBE THE RELATIONSHIP BETWEEN RANGE CONDITION AND CATTLE AND ELK GRAZING

Current and historic range condition are described in this section followed by a through discussion of how ecological condition relates to elk and cattle grazing. Completion of this task is closely related to Task 4. Areas of grazing overlap are described in detail in Section 4. Over 10,000 elk locations from MTFWP studies were overlain with ecological condition using GIS. The areas with lower ecological conditions appear to be related to areas receiving high levels of dual use by cattle and elk. This was derived by comparing the current ecological condition (from 200-plus SIs collected) with historic information on plant community composition and historic and current grazing use.

#### 2.1 CURRENT RANGE CONDITION

The NRCS no longer uses the term “range condition,” but defined it in the National Range and Pasture Handbook (USDA NRCS, 1997) as,

The present status of vegetation of a range site in relation to the historic climax or natural potential plant community for the site. Range condition is expressed as a percentage of the climax plant community presently occurring on the range site and grouped into the following range condition classes: Excellent (76—100 percent), Good (51—75 percent), Fair (26—50 percent), and Poor (0—25 percent).

Another way to judge ecological condition of rangeland habitats, as it relates grazing, is to track percent cover of species which increase under heavy grazing. The National Range and Pasture Handbook (USDA NRCS, 1997) identifies these species as “increasers” and defines them as follows.

The climax native plants in a community of different plants that, under excessive continuous grazing by livestock, are not selected initially, and increase in abundance. If the heavy grazing continues, livestock will reduce the more palatable plants and shift to the increaser species causing them to decrease in abundance.

The most common increaser found throughout the rangeland habitats of the Phase II study area is Idaho fescue. HCPC, quantified by the Technical Range Site Descriptions, only allow up to 20% composition by weight of Idaho fescue, except for the Shallow to Gravel range site which allows up to 50% (see Table 1.2-2). ERG, at every SI point, tracked percent composition by weight for every species on site, this data, queried for percent cover of Idaho fescue, can help shed light of areas which have consistently received high levels of use.

In the North Crow EHU 78 (50%) of the SIs recorded over 20% composition by weight of Idaho fescue, however 16 of these SIs were in Shallow to Gravel range sites. The Kimber EHU had 25 (37%) of the SIs with over 20% composition by weight of Idaho fescue, with three of these in Shallow to Gravel range sites. The highest percent composition by weight of Idaho fescue (66%) was found in Sagebrush Creek, which is in the very southern portion of the North Crow Allotment.

Current range condition of the North Crow and Kimber EHUs will be discussed; first with the North Crow EHU which was mapped in 2004 and then Kimber, which was mapped in 2005.

Insert %EC with Elk Points Map

Figure 2.1-1 Ecological condition with elk locations

### 2.1.1 North Crow Elk Herd Unit

Of the 141 SIs recorded in 2004 within the North Crow Allotment, 78% are in “excellent” condition, 21% are in “good” condition, 1% are in “fair” condition, and none are in “poor” condition. The USFS’ stand stage ratings for the North Crow Allotment rate the condition of the rangeland habitats as follows: 27% in stand stage one, 60% in stand stage two, 8% in stand stage three, and 5% in stand stage four. Stand stage data, collected in 2002, relates present condition of rangeland habitats to HCPC, with stand stage one being closest to HCPC and stand stage four being the most removed from HCPC. Comparing these two data sets it is clear that the rangeland habitats in the North Crow Allotment are in acceptable condition.

The ecological condition of the rangeland habitats is lowest on the southwest facing slopes in the Crow Creek drainage, within the boundaries of the North Crow Allotment. This is similar to the USFS’ stand stage data, with a concentration of stand stage threes and fours in the same area (Figure 1.2-5). Encroachment of conifers and noxious weeds are problems in this area and influence the ecological condition in the area. The southwest facing slopes in the Crow Creek drainage are utilized by elk during the winter, spring, and fall, as well as by cattle during the grazing season. These findings are consistent with similar research done that found cattle in summer and fall had  $\geq 60\%$  foraging niche overlap with elk in spring, indicating that, in spring, elk foraged in many of the same places (Torstenson, 2006). However, upland utilization standards by stand stage, established by the USFS and laid out in the 1995 North Crow Allotment Management Plan (AMP), are very restrictive for areas with stand stage rankings of threes and fours (USDA Forest Service, 1995). For example, a permittee would be in non-compliance if a stand stage four area was utilized over 5%. These restrictions are in place to allow these rangeland habitats to recover. After 10 years since upland utilization limits by stand stage were put in place, the ecological condition in these areas remains low relative to other areas.

The map on the previous page (Figure 2.1-1) depicts the ecological condition for the rangeland habitats in the North Crow Allotment by percent. Allotment pastures and elk location points were included so areas receiving dual use could be visualized. A map demonstrating utilization rates for allotment inside the WMU is presented in Section 3, and maps of cattle distribution are presented in Section 4.

Other areas with low ecological conditions ratings are found in the high elevation parks north of Eagle Basin, the northern portion of the Shep’s Gulch Pasture, in the Cold Springs Area, the parks along Eureka Creek and in Longfellow Park. The lowest ecological condition was found in the Hidden Basin area (the head of Weston Creek), with 47% of HCPC. All of these areas receive dual use.

The ecological condition of rangeland vegetation was highest in the Eagle Basin area, with one site at 99% HCPC. The Eagle Basin area has high elk densities during the winter and spring seasons, as well as mid- to late-summer grazing by cattle. Other areas with high percentages of ecological condition were found on the

ridge separating Eagle Creek from Eureka Creek, in the eastern portion of the Badger Pasture, and north of Indian Creek just inside the USFS boundary.

### 2.1.2 Kimber Elk Herd Unit

Of the 68 SIs recorded in 2005 for the rangeland habitats within the WMU for the Kimber EHU, 57% are in “excellent” condition, 38% are in “good” condition, 5% are in “fair” condition, and none are in “poor” condition. The USFS’ stand stage ratings for the four allotments within the WMU in the Kimber EHU rate the condition of the rangeland habitats as follows: 21% in stand stage one, 68% in stand stage two, 11% in stand stage three, and <1% in stand stage four. Stand stage data, collected in 2002, relates present condition of rangeland habitats to HCPC, with stand stage ones being closest to HCPC and stand stage fours being the most removed from HCPC. The rangeland habitats in the Kimber EHU are in acceptable condition, but when compared to the ecological conditions in the North Crow EHU, the rangeland habitats in Kimber are significantly lower.

Figure 2.1-1 depicts the ecological condition for the rangeland habitats in the Kimber EHU by percent. Allotment pastures and elk location points were included so areas receiving dual use could be visualized in relation to the layout of the allotments. A map demonstrating utilization rates for allotment inside the WMU is presented in Section 3, and maps of cattle distribution are presented in Section 4.

The three SIs recording “fair” ecological condition were dominated by non-natives. Two SIs in the Upper Staubach pasture that had ecological conditions of 30–40% had large amounts of Kentucky bluegrass, Timothy (*Phleum pratense*), Dalmatian toadflax (*Linaria dalmatica*), and cheatgrass; however, were very productive sites, averaging over 1,300 pounds (oven dry weight) production. The only other SIs which recorded “fair” ecological condition was located in the Whitehorse pasture of the Whitehorse Allotment, and had Kentucky bluegrass, timothy, and large amounts of Idaho fescue.

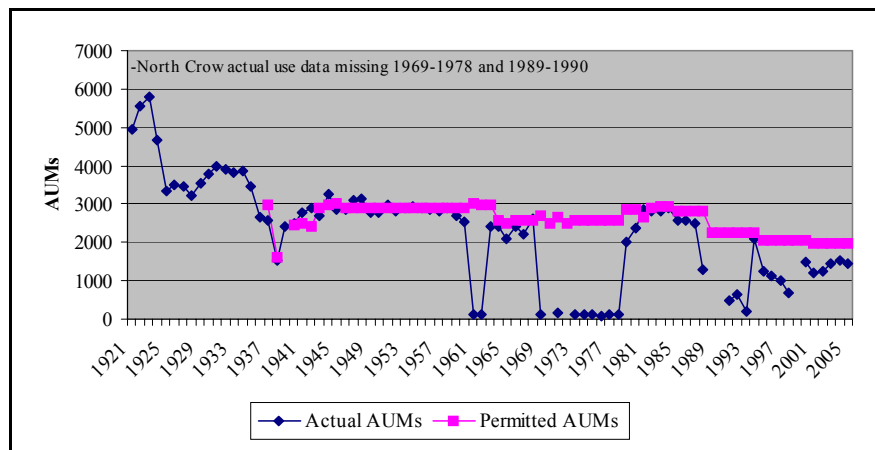
## 2.2 HISTORIC RANGE CONDITION

Figure 2.2-1 shows rangeland vegetation in the Cold Springs area after several years of heavy grazing and drought. This photograph was taken August 24, 1939 and the caption reads, “Shows range and soil deterioration resulting from drought, grasshoppers, and overgrazing” (USDA USFS, 2210 Files). The North Crow Allotment utilized 2,588 AUMs in 1939, the lowest number of AUMs on record in this area.



**Figure 2.2-1 Cold Springs Pasture of the North Crow Allotment in 1939**  
(Source: USDA USFS, 2210 Files)

Figure 2.2-2 presents historic grazing data for the two allotments inside the WMU in the North Crow EHU. Since 1939 the USFS has taken actions to help correct the downward trend of the rangeland vegetation which was observed in 1939. Stocking rate limits were established and rangeland monitoring systems were initiated. Parker 3-Step plots were not established until the mid- to late-1950s. Thus, the Parker 3-Step plot data collection started as vegetative communities were rebounding from the effect of overgrazing earlier in the century.



**Figure 2.2-2 North Crow EHU cattle grazing history for allotments inside the WMU (USDA USFS, 2210 Files)**

Figure 2.2-3 presents historic grazing data for the allotments inside the WMU in the Kimber EHU. Cattle allotments in the Kimber EHU inside the WMU include Pole Creek, North Beaver, Whitehorse, and East Pacific. Notice how the actual use during the 1990s was substantially less than permitted, in contrast to the levels of use up to mid-1960s. This difference is mainly due to USFS established

use standards being met early. The standards were not set until the early-1990s.

Table 2.2-1 presents the total forage consumed by cattle in 1923 in the North Crow EHU, inside the WMU, compared to the total forage used by cattle and elk in 2005 in the North Crow EHU, inside the WMU. The total forage consumed by cattle and elk in 2005 is 42% of the forage consumed by cattle in 1923.

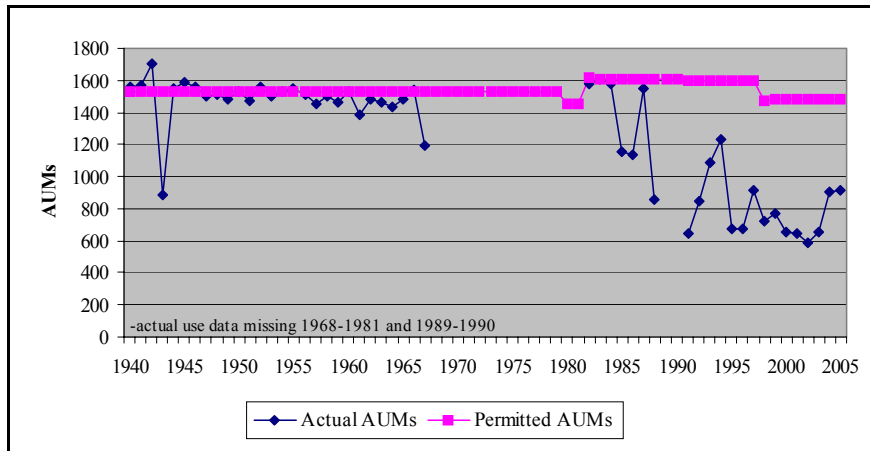


Figure 2.2-3 Kimber EHU cattle grazing history for allotments inside the WMU (USDA USFS, 2210 Files)

Table 2.2-1 1923/2005 Total Forage Consumed Comparison

1923 Cattle	2005 Cattle	2005 Elk	2005 Total	2005 as a percentage of 1923
4,574,100	1,134,243	810,197	1,944,439	43%