

**East Kootenay Wildlife-Cattle Vegetation Monitoring:
Implications of Long-term Results for Agriculture,
Wildlife and Forest Management**

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Executive Summary

In 1990, the East Kootenay Trench Agriculture/Wildlife Committee (EKTAW) was formed to mitigate long-standing conflicts concerning forage allocation among cattle, elk and deer in the Rocky Mountain Trench in southeastern British Columbia. A habitat monitoring program was initiated in 1991 on four wildlife winter ranges. Vegetation data were collected between 1991 and 1994 and a report was completed in 1997 summarizing results. This project extends that report by re-sampling the original sites and evaluating the effects of 18 years of wildlife and cattle grazing.

The Skookumchuck Historical Exclosure was constructed in 1951 and sampled at about 10 intervals from 1960 to 2009. Both the grazed and ungrazed areas were in Poor range condition in 1951 and were dominated by Sandberg's bluegrass, low pussytoes, prairie Junegrass and needle-and-thread. Over the 60 years of protection inside the exclosure, bluebunch wheatgrass and needle-and-thread initially increased and then declined while rough fescue and Idaho fescue increased. Since 1970, rough fescue and Idaho fescue have jointly dominated the plant community. By 1982, range condition inside the exclosure was rated as Good and it has remained unchanged to 2009. On the grazed site, range condition has remained Poor for nearly 60 years with no sign of improvement.

The Skookumchuck Prairie "Three-way Exclosure" was divided into three grazing treatment areas to allow differential access to cattle, wildlife, and cattle and wildlife together. An exclosure was also constructed to prevent all ungulate grazing. In 1991, all four sites were rated in Poor range condition and little change was apparent in any of treatment areas until 2003. By 2003, range condition in the Ungulate Exclosure had advanced from Poor to Fair but range condition has not improved since. Range condition on the Cattle Only Area also improved from Poor to Fair between 1991 and 2009 mostly because of an increase in rough fescue. There were no changes in range condition in the Wildlife Only and Combined Use Areas from 1991 and 2009. Except for sulphur cinquefoil, noxious weeds such as spotted and diffuse knapweed, hound's-tongue and Dalmatian toadflax were absent.

Range condition at Premier Ridge and Pickering Hills was assessed as Poor in 1991 and it remained Poor inside and outside the exclosures in 2009. No noxious weeds were found at Premier Ridge but sulphur cinquefoil, diffuse knapweed, and spotted knapweed were all found as trace species in the Grazed Area at Pickering Hills.

Evaluation of range condition on East Kootenay ranges can be challenging. Results from this study indicate that Idaho fescue and rough fescue are Decreaser species on the sites sampled, while bluebunch wheatgrass, needle-and-thread and Richardson's needlegrass act as Increasers. With mixed ungulate grazing, Saskatoon should also be regarded as a Decreaser species, while bitterbrush appears to increase under mixed ungulate grazing.

Plant community assessments conducted in this study revealed that range condition on some sites has not improved for up to 60 years. Continued heavy and/or sequential

forage use have stagnated these sites leaving them in a steady state that is not easily reversible and unlikely with grazing management alone.

The exclosures at the Skookumchuck Historical Site, and the Ungulate Exclosure and Cattle Only Area at the Three-way Exclosure Site, demonstrate that these rangelands are much more resilient than perhaps previously thought and they have a capacity to recover given proper management and sufficient time. The outcome of recovery, however, will likely be plant communities containing a mix of native dominant species and naturalized alien plants that have reached a new “steady state” (potential natural community).

While much can be done with improved livestock and wildlife management, external management inputs may be necessary to achieve desired plant communities. Fire, chemical, or mechanical treatments may be required to shift bitterbrush-dominated communities across the threshold from their current lower-seral steady state to a higher seral stage that has less bitterbrush and more desirable shrubs such as Saskatoon, low Oregongrape and buckbrush.

The most important objective for the sustainability of integrated resources is land management, and in particular, management of soils, herbaceous forage species, and browse. Instead of independent management of all ungulates the landscape unit should be managed holistically with livestock and wildlife considered as components of the system. Some of the main recommendations from this study include:

- Site-specific plant community objectives should be established based on obtainable ecological, production and social goals. Desired plant communities should represent realistic targets, which reflect these goals but may not always aim to achieve the climax ecological potential.
- Range management practices, such as modified herd sizes, shorter grazing periods, improved distribution of water, range riders, and salt should be used to obtain even livestock distribution.
- Cattle stocking rates should be set relative to the seasonal availability of preferred forages and known distribution patterns of cattle.
- Wildlife management planning must balance wildlife numbers and distribution with livestock numbers and distribution to ensure wildlife objectives do not negate benefits gained from livestock management.
- Livestock turn-out dates on key wildlife winter ranges should be adjusted to provide a rest period for forage plants between winter/spring wildlife use and cattle grazing.
- Monitoring should be conducted to evaluate the results of ecosystem restoration, and range and wildlife habitat management activities.
- Ecosystem restoration activities should be continued with an emphasis on reducing forest cover on traditional grassland and maintaining open forest sites.