

# Beyond the Browse Line

## Eye on the Environment

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Community  
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As you travel through the Swan Valley you may notice the dramatic browse line evident in the winter range areas of the upper valley. A browse line is a visibly barren area in the understory of the forest where much of the vegetation has been consumed by foraging deer and elk.

Wildlife biologists, hunters, and experienced outdoors people recognize dramatic browse lines are direct indicators of an ecosystem in trouble. The browse line in the upper Swan Valley has developed rapidly over the last half decade and should be of concern to area resource and land managers as well as anyone concerned about ecosystem health.

The upper Swan Valley from roughly the Swan-Clearwater watershed divide to roughly Goat Creek is in a weather shadow. This means less snow and rainfall occur here because of the influence of the highest elevation mountain mass of the Mission Mountains to the west.

The weather shadow creates a unique and favorable overwintering environment for hooved big game animals. Deer and elk from a large chunk of the Northern Continental Divide Ecosystem including the Mission Mountains Wilderness, western Bob Marshall Wilderness, Swan Valley and parts of the upper Clearwater river drainage basins come here for the high winter range values. Topography, snow depths, distance and many other factors determine and limit where big game animals can winter.

When vegetation communities are damaged enough to produce dramatic browse lines the recovery time for both plant and animal communities become extended usually into decades. The lower limbs of the trees are killed back by needle and stem stripping, the shrubs are over browsed, and the lichens take a considerable time to grow back and accumulate.

Damaged or non-functional wintering environments in the Swan Valley have a ripple effect across the landscape, for big game and a whole suite of other species in our ecosystem.

Why is this damage occurring? Usually the simple answer is that there are too many animals for the available range base. In the upper Swan Valley, however, the answer is more complex than that.

In contrast to winter ranges east of the continental divide where wind scouring or chinook evaporation can remove snow to make forage available for wintering big game, the deep snow winter ranges west of the divide rely heavily upon multi-storied forest canopy to modify snow depths. Such forest cover intercepts snow, which lessens the snow depths for wintering big game so that they can forage and travel about once winter sets in.

Thick forest canopies also buffer temperatures keeping nighttime temperatures 10 to 15 degrees warmer at night. Over the winter, this cumulative gain greatly reduces the caloric demand on wintering animals increasing their chance of survival.

When you overlay the current land ownership pattern on top of the natural boundaries of the winter range, it becomes evident that very little of the forest cover is being managed to accommodate big game winter range.

The Forest Service forest plan requires public lands to take big game winter range into account. Private and industrial landowners have no legal mandate to do the same, and so the historic winter range is becoming increasingly fragmented and non-functional.

In everyday conversation I hear the idea that clearcutting mimics natural fire effects. Evidence shows, however, that most of the core winter range is in dry warm habitat types, which historically experienced non-lethal or mixed severity surface fires. These fires burned frequently at low intensities stimulating the understory plants and leaving large older age ponderosa pine, douglas fir and larch in the mid and overstory.

What we have now is almost the inverse of that description. We have simplified the structure and diversity of the forests and removed most of the large fire resistant trees. In doing so, we have also reduced the biological resilience of our forests to normal stresses of fire, disease, insects, weather and normal climate variation.

I began looking closely at upper Swan Valley winter range values and relationships over 30 years ago when the Montana Department of Fish, Wildlife and Parks was supporting a major winter range research project. Following that, I accompanied a biologist who worked for Burlington Northern and a state biologist on their established transects through core winter range in the Swan Valley. I have participated in other research and survey efforts in Glacier and Yellowstone National Parks and the Bob Marshall Wilderness looking at wildlife and habitat relationships in winter.

To me, the evidence is clear that when the next really big winter comes in the Swan Valley, the picture will not be pretty. The damage and impact to plant and animal communities will be long term and far reaching. We have set ourselves up to experience larger die offs of deer and elk when those inevitable winters do arrive and longer recovery times. The damage to plant and animal communities affects scores of species not easily observed and therefore dramatically degrades ecosystem integrity.

But don't take my word for all this. Come mid winter put on a pair of snow shoes and strike off anywhere in the upper Swan Val-

ley winter range and keep track of where you find big game animals. Excluding those areas where deer and elk are being fed or are concentrated by the availability of tree lichens in active logging areas, you will find a consistent and striking pattern across the valley. Wintering big game are concentrated where multistory forests still exist and those forests show dramatic browse lines.

Erasing browse lines would be just one of a long list of benefits of implementing good ecosystem management across all ownerships. This entails hard work by citizens, community groups, and agencies coming together to identify problems and develop solutions. Groups such as the Blackfoot Challenge, the Clearwater Resources Council and the Swan Ecosystem Center are doing just this and they need our support and participation.