A Highway 40 North Demonstration Project Update
Putting Natural Disturbance Research to Work

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How Will It Happen on the Ground?

Perhaps the most important lesson that Mother Nature offers us is that a landscape is an holistic entity – an *ecosystem*. Managing only pieces of a landscape ecosystem, or the bits of it on one side of an administrative boundary, is not particularly natural.

By definition, timber management occurs only on that part of the landscape that is capable of producing harvestable, merchantable trees. Most non-forested areas, forested areas of low productivity or low density, socially or ecologically sensitive forested sites, and many treed riparian zones are not actively managed – certainly not through disturbance management. Yet our own research clearly shows that such areas were historically affected by disturbance almost as often as the rest of the landscape. How well are we really managing landscape ecosystem dynamics by focusing our deliberate activities within only 45-85% of their area? (the estimated range of potentially merchantable forest on forest management areas, or FMAs, In Alberta).

The Hwy40 strategy for managing the whole landscape is to integrate harvesting with prescribed burning on an operational scale. More specifically, the planning team identified the following as prescribed burn opportunities within the Hwy40 event (see Updates #13, 14 and 15).

1) Non-forested areas dominated by grasses, herbs, moss or shrubs.
2) Merchantable and non-merchantable post-harvest residual vegetation patches.
3) Riparian zones of various vegetation types.

Using prescribed fire within a cultural disturbance event allows us to introduce one more critical natural pattern feature: *partial disturbance*. FMF research suggests that partially disturbed island remnants are common within natural wildfire events on this landscape. The good news is that partial burn prescriptions not only offer a wider window of burning opportunity, but also can be done with less risk to the surrounding landscape. For example, it is not unreasonable to expect we could burn within some non-forested areas while there is still snow in forested areas.

It is also possible to mitigate prescribed fire risk and increase our odds of (natural pattern objective) success by integrating the details of planning. Towards this, the Hwy40 planning team agreed that the forest management and fire management experts would jointly develop a list of potential disturbance residual candidates. The beauty of this strategy is that it is not necessary, nor desirable, to achieve all of the prescribed burns or harvest residuals on the list to achieve the ultimate *disturbance event pattern* objective. The candidate list represents scenario possibilities that offer a flexible framework for the planners. In the end, we have vastly increased the chances of achieving the desired pattern results while minimizing risk.

It is important to understand just how innovative it is to combine harvesting and prescribed burning in this manner. For obvious reasons, the use of prescribed fire in or near forest management areas (FMAs) is extremely rare. Of the very few prescribed burns that have occurred within an FMA in Alberta, few have specifically targeted non-forested and non-merchantable areas, none involved significant areas of merchantable timber, none were particularly interested in partial burns, and none targeted residuals.

Why is Hwy40 different? Once we all agreed that harvesting and prescribed burning (and road building, and…?) were mere tools with which to achieve a disturbance pattern objective, it was not a difficult logical leap to consider how to combine them. We just changed the roles.

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