Ecosystem Restoration in Review

by Maurice Hansen and Tim Ross

The goal of the ER program was a fire-maintained ecosystem 'restored' condition on a designated area by a certain date.

Aldo Leopold, thought of as the father of conservation said this of ecosystems:
"A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it does otherwise"

If we go with Aldo it follows that we should judge the Ecosystem Restoration program on the integrity, stability and beauty resulting from operations.

The primary ER operation and the priority for examination here has been NDT4 harvest conducted by licencees in their areas of influence and additional harvest carried out under a Non-Renewable Forest Licence (NRFL) program. These operations have resulted in some ER benefits while at the same time creating some unacceptable outcomes.

ER Benefits:

- Opening the canopy. This is a significant benefit and a first step toward stabilizing what should be a fire-maintained ecosystem biotic community.
- The ER program has been ongoing since 1996 with close to 50,000 hectares treated.
- Professional biologists and agrologists have been involved in the planning.
- Many projects have had a monitoring component.
- Bunchgrass cover and forage production have increased on many of the monitored sites.
- Aside from livestock and wild ungulates, many wildlife species are also using these sites.

Post-harvest Issues:

- Most harvested sites have consistent spacing of leave trees no matter what the landform, soil type, slope/aspect, or microclimate.
- Road and landing density is extreme.
- The ability of increased light and moisture to reach the soil surface and "release" existing vegetation is compromised on some sites by a smothering layer of slash and/or woody debris, which inhibits vegetation recovery and forage use by grazing animals.
- Damaging degree of soil disturbance on some sites from skidding.

- Large landings and enormous slash piles on grasslands.

- Fragile grassland soils are not respected. The post harvest operations on landings and skid trails are, respectively, ripping and hoe-grubbing. Uprooted stumps are added.

- There are sites where the slash is deep enough to smother the existing vegetation, or where skidding has uprooted much of what was there. Skidding has often been straight downhill or in gullies in hilly country, which will contribute to soil erosion.

- Invasive plant species are now common on many sites due primarily to soil disturbance. Where an extensive road network has been constructed, increased recreational vehicle traffic has likely abetted the spread of various invasive plant species.

Summarizing NDT4/ER harvest results

If Leopold's stability, integrity, and beauty criteria are to apply post harvest, then a second, fairly massive operation is required to clean up debris, restore roads, landings, and skid trails, and to re-establish the native vegetation community where it has been destroyed. None of these are the responsibility of the licencees carrying out harvest. This illuminates a rather large problem - who is responsible?

The original concept was that prescriptions should be designed according to landform, slope aspect, soil type etc.. For example, forest stocking would be higher on moister sites such as north and east slopes and low spots. In contrast, lower residual stocking would be found on drier south and west aspects. Operations such as clearcutting a northeast slope with nil understory vegetation is a fiber-acquisition operation only. This is fine, but recognize that no real benefits will accrue to the ER program.

Opening the canopy is the chief NRFL benefit. If one is able to obtain a commanding post-harvest viewpoint, the openness can be appealing. Balance this appeal against the issues bulleted above, add the untended regeneration layer evident on most sites and the appeal is significantly limited. Without a follow-up program to control the regeneration layer, especially where dominated by Douglas-fir, it can be expected that the cycle will continue.

Burning Program

If restoration of a fire-maintained ecosystem is the goal, dramatic operational shifts are required. Initially, prescribed fire was thought to be the tool for managing conifer regeneration. However, the burning window allowed is so small that only a minority of the targeted sites are burned or are ever likely to get burned. The burning program requires a brutal reassessment to determine what is required to make it effective. The outcome from such deliberations will have large implications for the ER program.

Conclusion

The ER program must continue. The effort expended, knowledge gained, and operations conducted are an enormous accomplishment.

Having come so far, not going forward to finish the job would be tragic. However, the entire program must be re-examined and re-calibrated by the stakeholders. The vision, goals, objectives, strategies etc. exercise must be thorough. In future, operations must be tested against the vision and goals more frequently under a policy of continuous planning and re-planning. A great danger with the program is that the activity becomes the goal. In the case of ecosystem restoration, the landscape itself is the highest ranking stakeholder. Therefore public interest that supports ecosystem health should have the guiding hand in decision making. Government and industry must play supporting roles