

# Proactive Forest Management: making the decision to disturb

Although disturbance is necessary to maintain forest health, it can occur on a scale that causes long-term changes to wildlife habitat, watershed processes, and the people who choose to live or work in the forest.

Strategically applied disturbance can generate the conditions required for a healthy forest in locations that will most benefit from disturbance, and on a scale that causes less long-term impact.

## What strategic disturbance options are there?

### Prescribed fire

By emulating wildfire in a controlled manner, prescribed fire can be used by forest managers to achieve site-specific landscape and ecological objectives. Unlike wildfire, prescribed fire can be managed to protect wildlife corridors, nesting areas and fish habitat within the project area. Prescribed fires are designed to burn less intensely than wildfires, causing little or no damage to organic material in the soil. Prescribed fires can also be implemented when weather conditions are best for minimizing the effects of smoke.

### Forest harvesting

Like fire, harvesting removes the tree canopy allowing a new forest of light-loving species like pine to be established. This is a good management option when the risks to human safety from large-scale disturbance events like wildfire are too high – such as in sites near communities or in watersheds that supply drinking water. As with prescribed fire, harvest design and timing can also be implemented to protect wildlife corridors, nesting areas, fish habitat and other resource values.

Harvesting can have other ecological and safety benefits, like reducing the spread of mountain pine beetle, introducing fuel breaks and emulating wildfire. There are economic and social benefits as well: the forest industry contributes over \$8 billion annually to Alberta's economy, and provides approximately 52,000 jobs for Albertans.

Despite its many advantages, some people object to harvesting; mostly for aesthetic reasons. Alberta is researching and implementing new harvesting techniques that address these and other social values relating to our forests.

The goal of modern harvesting is to create landscapes that more closely resemble results that would be created by natural disturbances. This produces complex patterns (patch size, residual stand structure) and landscape variability (species composition and age class distribution). By emulating natural disturbances on a small scale, forest management can better maintain the full range of native species and conserve biodiversity in that particular region. The small, non-block harvest pattern is more visually acceptable to those who look to forest managers to provide a healthy forest that is also picture perfect.



## Deciding which, where and when

A great deal of applied science and careful thought goes into each prescribed fire and harvest plan.

The landscape itself is the first arbiter of which tool will be more effective to apply. For example, on steep mountain slopes a prescribed fire would be a more efficient tool than a harvest operation. In such a case, rocky peaks and cascading rivers that would be desired as natural firebreaks would make the cost of harvesting prohibitive.

Where terrain is not the deciding factor, the desired results of the disturbance will be. Prescribed fire will promote a different vegetation regime than harvesting by burning material on the forest floor that harvesting would have left.

Environmental, social and economic impacts must also be considered. The size of the project may have a short-term impact on a watershed, or a viewscape. The timing could impact bird migration or fish spawning. Industrial activities may be supported or inhibited.

For these reasons the Government of Alberta works with community and industry partners to identify prime areas for disturbance and affirm desired forest health outcomes. A specific set of conditions are identified to ensure the execution of the project is safe for the forest and its dependent communities. Biologists, agrologists, hydrologists, land use planners and other resource experts within Sustainable Resource Development review the project plan and advise changes as required. The planning process can also include other Alberta government ministries, local landowners, municipalities, parks representatives, conservation agencies, the federal government and research organizations. Individual members of the public are invited to contribute to the planning process at the proposal phase and through subsequent information sessions and open house events.

## Adaptive, science-based forest management

The Government of Alberta is committed to managing our forest resources in a sustainable and ecologically sound manner. The management of Alberta's forest ecosystems continues to function within an adaptive format, based on the best science available.

## Research to watch

- ☞ **University of Alberta** - the Ecosystem Management Emulating Natural Disturbance (EMEND) project is investigating the similarities and differences of ecosystem processes following harvesting and fire. This unique long-term project began in 1998, and is slated to run for an entire stand rotation 80 to 100 years. The University of Alberta coordinates the project in collaboration with several research agencies, provincial and federal governments, and forest companies in northwest Alberta.
- ☞ **The Foothills Research Institute** - Healthy Landscapes Project. Through analysis of natural disturbance patterns over 14 years, this initiative provides a common ground for integrating basic indicators of biodiversity and historical ranges of variability in regional and sub-regional land planning.