



## Not Satisfactorily Restocked (NSR) Area in BC

**ENSURING STAND ESTABLISHMENT AND ADEQUATE DEVELOPMENT AFTER** harvesting and disturbance is of utmost importance in managing, protecting, and conserving the forest resources of British Columbia. Therefore, I would like to offer my perspectives regarding the issue of reforestation and minimizing not satisfactorily restocked (NSR) lands in BC, particularly in light of current catastrophic disturbances such as mountain pine beetle (MPB) and wildfire.

It is too early to definitively determine how much of the mountain pine beetle impacted area will ultimately require reforestation funding because harvesting and regeneration of dead pine stands will continue for the next few years. Also, when considering the numbers associated with actual and potential NSR, it is essential to understand the assumptions that go into the numbers being stated. For example, what is the definition of NSR, how much area will regenerate naturally, and how much area will be harvested?

In BC, there is about 715,000 ha of currently identified NSR. This includes about 479,000 ha of recently harvested areas that are managed and reforested under legal obligations by tenure holders and BC Timber Sale.

The remaining 236,000 ha is made up of 149,000 ha of 'backlog' caused by disturbances (e.g. logging, wildfire) that occurred prior to 1987 and 87,000 ha from disturbances that occurred after 1987. The 87,000 ha of post-1987 NSR is identified from surveys and as surveys are completed on the areas of catastrophic disturbance the number of NSR hectares may increase. I will describe later what we estimate this increase might be.

To date, the Forest for Tomorrow (FFT) program has surveyed over 400,000 ha of mountain pine beetle and wildfire impacted stands. The NSR found in these surveys contribute to the post-1987 NSR.

From 1990 to 2001 the Ministry provided a complete summary of the status of productive forest land. This summary included 2.1 million ha of Low Site, and low priority sites. This 2.1 million ha is not included in the timber harvesting land base (THLB) that and does not contribute to the allowable annual cut. The stocking status on most of these areas is not a result of past harvesting. Of this 2.1 million ha approximately 300,000 ha is low productivity sites (e.g. coastal lowlands), 930,000 ha of non-commercial brush, (e.g. productive sites occupied by non-commercial species) and approximately 970,000 ha of non-productive brush areas (e.g. low or non-productive sites occupied by non-commercial species). These areas are a very low priority for reforestation. They are scattered, often remote, and very costly to treat and, as I said previously, these areas are outside the current THLB.

As of 2010, 17.5 million ha have experienced some level of MPB-caused mortality. Of this, 9.9 million is in the timber harvesting land base and 5.1 million ha of this contains more than 50% pine. The forest industry is focusing their harvesting on this 5.1 million ha and it is estimated they will be able to harvest and regenerate, with associated legal obligations, between 2 and 2.9 million ha of this area.

This leaves between 2.2 to 3.1 million ha that have the potential to become NSR. However, research and operational surveys show that about 70-80% of these stands have advanced regeneration in quantities that can regenerate these sites successfully. This results in an estimate of between 525,000 to 775,000 ha that could become NSR and could likely benefit from treatment. We estimate that a significant proportion of this area will not be practical to treat due to steep slopes, worker safety and site productivity.

The FFT program has focused approximately 143,600 ha of surveys on wildfire and immature MPB impacted sites that are most likely to have little advanced regeneration or lower natural regeneration potential. Of this surveyed area, about 34,300 ha have been identified as having planting opportunities. Over the past five years, FFT has surveyed over 400,000 ha and planted over 54 million trees on both non-salvaged MPB and wildfire areas.

Through our forest health overview surveys and the collaborative work between the wildfire management branch and resource practices branch, we are assessing the degree of impact of current and past insect, diseases, and wildfires to identify feasible and practical opportunities for rehabilitation.

In 2011/12 FFT will be surveying about:

- 150,000 ha of current and past insect, disease and wildfire impacted forests (operational ratio is between 1 ha NSR for every 10 ha surveyed to 1 ha NSR for every 4 ha surveyed depending on ecosystem)
- 100,000 ha for potential to improve growth rates through thinning and fertilization to offset impacts of current and past catastrophic events
- 80,000 ha of pre-1987 backlog NSR will be reviewed for current status
- 75,000 ha of plantations burnt in the 2010 wildfires in conjunction with the major licensees

However, regardless of the numbers or definitions being used to describe NSR, reducing the impacts of catastrophic disturbances such as wildfire and pest is a primary focus of the Ministry of Forests, Lands and Natural Resource Operations Land Based Investment Strategy.

In addition, collaboration between industry and government is focusing harvesting on MPB and fire-killed stands where we can capture



Photographer: Michael Bednar

current timber value and reforest these areas in a timely manner. It is particularly difficult to predict how much additional harvesting and regeneration will occur as a result of government and industry initiatives to encourage new uses of beetle-killed wood (e.g. new capacity, new products etc.)

In areas where it is clear that harvesting will not be an option (e.g. beetle killed immature pine), we are focusing our resources and using innovative and cost effective techniques to inventory and reforest areas that currently do not have adequate stocking.

It will take the collective effort of all forest professionals to address these pressing issues and I look forward to your continued thoughts and ideas on how we might best address these stewardship issues as they arise. 🌱

*Jim Snetsinger, RPF, is BC's chief forester and his main duties include: allowable annual cut determinations, setting forest stewardship policy, establishing standards for practices and providing leadership to the Stewardship Division. Jim joined the BC Forest Service in 1986 after working with BC Hydro as a forester for about five years. He graduated from the University of Toronto in 1979 with a BSc in Forestry before starting his career with a Prince George forestry consulting firm.*

### NSR, Wildfires and Forests for Tomorrow

Since 1998/99 about 1.4 million ha has been potentially impacted by wildfire. This figure is for the total area within the identified burn perimeters. As wildfire does not burn uniformly through areas, it will leave some areas untouched and others NSR. Similar to action on mountain pine beetle, where feasible, the burnt areas are harvested and reforested by licensees generating legal reforestation obligations.

The Forests For Tomorrow program began in 2005 and the initial focus was on reforesting non-salvaged productive areas of the 2003 and 2004 wildfires. To date, the surveying and planting of the feasible areas within the 2003 and 2004 wildfires has been completed. With the very large wildfires of 2010 the focus of FFT will once again shift more towards surveying and rehabilitating the non-salvaged areas of these fires.