2012 Nadina District FREP Summary: Timber (Stand Development Monitoring)

Stand Development Monitoring (SDM) assessments help determine the health and productivity of young stands. The protocol is used on stands between the ages of 15 and 40 years. SDM data can be used for a variety of purposes in tracking how stand attributes change in managed stands.

This report summarizes key findings and provides recommendations to improve on-the-ground resource management practices and decision making.

Key Findings:

- **31** samples were collected between 2010 and 2012 (15 in the Lakes TSA and 16 in the Morice)
- The mean establishment planting density of these stands was **1325** ± 70 SE 35, range of 905-1590 sph.
- Mean age of sample stands at time of free-growing declaration was **15** and is now **26** years (SDM survey).
- Total stand density decreased by **8%**; free-growing density decreased by **7%;** well-spaced density decreased by **15%**
- **48%** (15/31) stands had free-growing density of >1000 sph; **45%** (14/31) stands had a free-growing density of 700 to 1000 sph
- **6%** (2/31) of stands had a free-growing density of <700 sph, falling below the minimum free-growing stems per hectare
- **Pine** was the leading species on 24 of 31 cutblocks and the average percent pine on the pine-leading stands was **79%**
- There was **no change** in leading species on any cutblock
- **Hard pine rust** (western gall rust, commandra and stalactiform) was the most common forest health agent; Unacceptable forks ranked second, followed by vegetation competition.

Research staff compared SDM data to TIPSY projections of current stand conditions using silviculture survey data from the prior survey (WS density), the planted spatial distribution, SDM measured Site Index and default OAFs.

Preliminary Findings:

- SDM matches TIPSY for the number of largest trees in pine leading stands (> 12.5 cm dbh) (524 vs 573 sph) but there are **more trees** 7.5-12.5 cm dbh in pine leading stands than TIPSY predicts (725 vs 324).
- SDM top height for lodgepole pine-leading stands is **significantly lower** than TIPSY (8.8 vs 10.4 m)
- SDM measured Basal Area in lodgepole pine leading stands matches that projected by TIPSY if forest health agents are <u>not</u> taken into account, but when forest health agents <u>are</u> taken into account, the Basal Area is **26% less than TIPSY projects** (TIPSY 15.9 vs 11.7 square meters of healthy pine Basal Area).
- Well-spaced density at prior survey was 1109 ± 38, SE 25 and is now 942 ± 50, SE 25 (Range 660-1220) (to be consistent with TSR assumptions, **well-spaced densities should be 100-200 sph higher at age 25**).

Recommendations for Continued Improvement of Timber (Managed Stand) Resource Management:

- Consider climate change adaptation and account for local forest health and site conditions, and their anticipated long-term impacts in the following ways:
  - Plant a mixture of species, utilizing a mixed bag planting strategy
  - Plant a higher density at crop establishment
  - Use the most current stand development monitoring data to assist in the development of forest stewardship plan stocking standards
  - Consider partnering with the government in establishment of species trials

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