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UNB researcher receives \$522,000 research award Dr. Paul Arp leads national research team to improve timing of logging operations in hydrologically sensitive areas

Fredericton, New Brunswick . . . Principal Investigator Dr. Paul Arp will receive \$522,000 over three years to lead a national research team to demonstrate how the mapping of hydrologically sensitive upland and lowland forested areas can be improved across Canada. This work will be done at selected research sites in Alberta and Ontario at a geo-spatial resolution of 10 metres or better. “Knowing how ground conditions vary across landscapes, seasons and years has been rather elusive to date,” says Arp. “Just assuming ground conditions are suitable for tree planting or forest harvesting can yield some nasty surprises for forest managers.”

Ground conditions may be either too wet, too dry, too hard or too cold, or even frozen for tree planting as well as too soft or still unfrozen to warrant ready machine access across a particular terrain or particular tree planting site. In addition, in sensitive areas subject to flooding, river and stream flows can change unexpectedly, or roads and access trails can get washed out or become impassable. If the ground is too soft in other areas, deep rutting caused by machinery can occur. If the ground is too cold, dry or wet, a whole cutblock might need to be re-planted. All of these examples can create expensive delays for forest operations and create various other environmental challenges.

Knowing the extent and prevalence of hydrologically sensitive areas at sufficiently high geo-spatial resolution and reliability will lead to new and radically innovative forest operations planning tools. The research will create new field-verifiable wet-areas, flow-channel, and shore-line maps. With this new information, forest managers will be able to better situate the placement of roads and culverts, access trails, landing sites and cutblock boundaries. They will be better able to identify subtle variations in riparian habitats to protect them against sediment and flooding chemical leaching from upslope locations. They will be able to improve the planning for tree planting efforts, and ascertain the best time and placement for forest operations from summer through winter by considering wet versus dry and frozen and unfrozen ground conditions.

Dr. Arp’s proposal went through an extensive scientific peer-review process. His project received significant support from the Governments of Alberta, British Columbia, Newfoundland and Labrador, and Ontario as well as forward-thinking forest industries including Abitibi-Consolidated Inc., Alberta-Pacific Forest Industries Inc., Bowater Inc., Daishowa-Marubeni International Ltd., J.D. Irving Limited, Tembec Inc. as well as Ducks Unlimited Canada, Kamloops Indian Band, Little Red River Cree First Nation and Moose Cree First Nation

Dr. Arp will be supported by Dr. Jim Buttle, Trent University; Dr. Irena Creed, University of Western Ontario; Dr. Kevin DeVito, University of Alberta; Dr. Markus Weiler, University of British Columbia; Dr. Paul Sibley, University of Guelph, and Dr. Ronald Trooper, University of British Columbia.

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