

TITLE: COMBINING REFORESTATION APPROACHES: TARGETED UTILIZATION OF NATIVE PLANTS AND HERBICIDES TO BATTLE UNDESIRABLE VEGETATION

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The development of a functional forest plant community includes incorporation of vegetation diversity and structure and is accomplished by the inclusion of trees, shrubs and herbaceous species. There continues to be increasing public and regulatory pressure to restore industrially disturbed lands to a forested state; this is evident across Canada and more specifically within Alberta where industrial developments have created many disturbances (of varying size) across the boreal landscape. However, noxious weeds and other non-native vegetation poses challenges for the development of forest plant communities on disturbed sites, specifically in urban and agricultural proximity where weed pressure is high. There is a need to find approaches to forest establishment using techniques that are tailored to the unique set of challenges faced by many industrial operators throughout Alberta.

This project aims to comparatively test the principle of accelerating cover dominance of native plant communities to the exclusion of undesirable pioneer species on reclamation sites from two scales of implementation. The first was to test a series of treatments anticipated to have immediate, short term effects (halting or stalling) on the ingress of non-native species while the second scale (applied concurrent with the first) was to use native species to fully occupy the industrial site (effectively removing the available real estate for non-native plant invasion). Halt or stalling treatments included: wood mulch, plastic mulch, pre-emergent herbicides or rototilling. Native plant species treatments included: (i) 'roots in a bag', where nursery-produced, root material from native pioneer species was deployed mechanically, (ii) 'hitchhiker'-planting of woody and forb species or (iii) cover cropping with native grasses.

In this presentation we will cover the operational constraints in deploying these techniques as well as the first growing season of results in terms of woody species growth and survival as well as the degree of successive in precluding development of non-native species.



SPEAKER BIO(S):

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Dr. Amanda Schoonmaker obtained a B.Sc. in Forest Sciences from the University of British Columbia in 2006 and completed a Ph.D. in Forest Biology and Management at the University of Alberta in 2013. She joined the NAIT Boreal Research Institute in 2011 as a Reclamation Field Research Coordinator. In 2015, she was awarded a 5-year renewal federal research chair grant by the National Sciences and Engineering Research Council (NSERC). Her research program is focused on methods and practices of reclamation and reforestation of upland landscapes. This includes testing methods of soil adjustment and preparation, developing appropriate sequencing of vegetation management options and testing suitability of herbaceous cover crops and deployment of woody species.

ECKEHART MARENHOLTZ, B.S.C., M.S.C., OWNER AND FOREST RECLAMATION SPECIALIST, CHICKADEE RECLAMATION SERVICES

Eckehart Marenholtz owns and operates Chickadee Reclamation Services, a small environmental consulting company that provides reforestation services on reclaimed sites and collects and processes native seeds. Eckehart completed a masters in forest management at the University of Alberta in 2009 and is a registered professional forester in Alberta. He has worked in the reclamation field since 2008 and is passionate about developing reforestation solutions that restore forests on disturbed sites as quickly as possible. Eckehart also operates Chickadee Farm Herbs, an organic herbal tea farm, with his family near Flatbush, Alberta.

