

Reforestation pilot experiments at Parc national des Îles-de-Boucherville: the study's conclusions

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Since May 2004, reforestation pilot experiments have been under way at Parc national des Îles-de-Boucherville to establish the best strategies for accelerating plant succession. This natural return to the forest should take place very slowly at the park, given its rich agricultural past and the numerous constraints present: small abundance of seed-bearing trees; dense herbaceous vegetation that adversely affects the establishment of tree seedlings; major presence of rodents; large white-tailed deer population.

The study carried out by Étienne Laliberté, a Master's level student at Université de Montréal, and by Alain Cogliastro and André Bouchard, his professors at the Institut de recherche en biologie végétale, made it possible to highlight various elements. The absolute necessity of protecting plantations from the white-tailed deer was the first element to emerge. In this respect, two types of techniques were tested: exclosures (fences) and protective sleeves (cylinders made out of fabric which allow light to pass through but which protect against deer and rodents). The use of sleeves proved to be the more interesting option but the results for the two types of techniques are equivalent in terms of protecting plantations from deer. Sleeves could also have a beneficial effect on tree growth during the establishment phase. In addition, they offer several logistical advantages over exclosures; easier to install, they are also reusable.

Furthermore, the study reveals that for the silver maple, the red ash and the bur oak, the planting of rooted tree seedlings grown in a greenhouse is the option which guarantees the best survival and the best growth, in comparison with trials involving cuttings or set blocks involving certain species such as red ash and cottonwood. The microtopography is also a key factor to be taken into consideration in order to optimize the success of hardwood plantations in the park. It seems that water can accumulate in too great a quantity in ground depressions which adversely affects the optimum growth of trees, even if no surface water is visible.

In addition, the sites having low herbaceous vegetation (which block less sunlight) should be favoured as potential plantation sites, as opposed to sites having taller herbaceous vegetation. It would also be preferable to opt for denser plantations in order permit a faster closing of the tree canopy. By quickly creating a forestry environment, the establishment of seedlings of forest species will be favoured and, as a result, the succession from field to forest will take place faster.

Finally, from a purely ecological standpoint, it would be advantageous if the future plantations were as far as possible from existing wooded areas in order to maximize the future potential of the natural regeneration of trees in abandoned fields. Indeed, in a temperate environment, the succession from field to forest is greatly limited by the dispersion of seeds. By establishing patches of forest far from wooded areas, the growth of trees is favoured in places where the natural regeneration would be slower. These trees will in turn become seed-bearers once they have attained sexual maturity. Thanks to the results of this research project, park managers are better equipped to successfully carry out future actions related to the ecological restoration of forest landscapes on the territory.

