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Branching out

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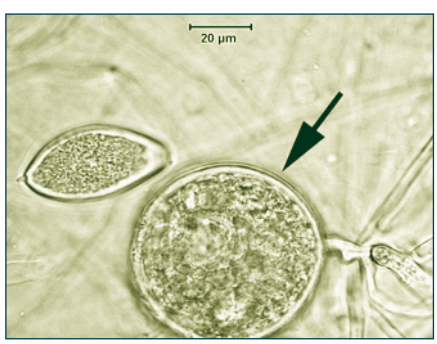
Exotic forest pests: molecular diagnosis to the rescue

Brown spruce longhorn beetle.
Photo: K. Bolte

Detection is a key element in any plan for the prevention of the proliferation of exotic forest pests. With this in mind, researchers at the Canadian Forest Service (CFS) have been working for a number of years on developing detection tools, including molecular diagnostic kits that are specifically targeted towards those pests that pose the greatest threat to our forests.

At the request of the Canadian Food Inspection Agency (CFIA), our researchers have targeted two of these pests: the brown spruce longhorn beetle (BSLB), an exotic insect that was introduced into the country in 1999 (Nova Scotia), and sudden oak death (SOD), a disease caused by the *Phytophthora ramorum*, a half-fungus, half-algae microorganism. In the case of BSLB, the diagnostic kit makes it possible to monitor the propagation of the insect in Canada, and to identify the insect from eggs and larvae. In the case of SOD, the kit allows the CFIA to quickly identify any presence of the disease in plants when they are imported into Canada.

In 2004 the SOD diagnostic kit was put to work very successfully during the last outbreak of SOD in British Columbia. The quick results and especially the precision of the diagnosis made it possible to confirm the effectiveness of quarantine procedures and the destruction of the infected plants. At the same time, the CFIA allowed the sale of plants that were subsequently declared to be healthy, thereby significantly limiting the financial losses of crop producers.



Phytophthora ramorum.
Photo: D. Rioux

The CFIA has recognized the effectiveness of the molecular diagnostic kit developed by the CFS, and uses it in the detection of SOD. The American agency responsible for plant protection, the USDA – APHIS, is currently doing studies to compare the CFS's method with methods developed in the United States. Molecular detection seems to be the choice of the future for the protection of forests against exotic pests.

USEFUL LINK:

CFIA
www.inspection.gc.ca

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