

Worrisome beetle found in New Brunswick

BSLB advances: citizens are no further ahead

by Christopher Majka

On August 31, 2011, the Canadian Food Inspection Agency (CFIA) announced that it had collected specimens of the Brown spruce longhorn beetle (*Tetropium fuscum*) (BSLB) in Kouchibouguac National Park in New Brunswick. The CFIA suspected that the beetle may have been transported to New Brunswick on firewood. This was the first report of the BSLB in New Brunswick and the first outside of Nova Scotia.

The CFIA also announced that materials that could contribute to the dispersal of the beetle (i.e. wood) would be restricted from moving in and out of a minimum one-kilometer area surrounding the find-site in the park, and that further restrictions might be required. Should New Brunswickers be concerned? Yes – not about the BSLB, but about the regulatory nightmare and attendant costs that might be inflicted on the province as a result of this finding.

In a series of articles published in 2009 in the *Atlantic Forestry Review*, I outlined a central problem with respect to the entire CFIA containment, eradication, quarantine, and regulation effort related to the BSLB – there is no scientific evidence that this beetle is even a pest.

In the smallest possible nutshell: the BSLB is without doubt an alien species, but this doesn't necessarily imply that it is an invasive one. Only a very small proportion of the former become the latter. It has been very well studied in Europe, where it is not invasive, and there are many scientific reasons to believe that it is behaving no differently in Nova Scotia than it is throughout its European range. There, and here, they feed on dying trees that have reached a certain stage of ill health where they are colonized by various wood and bark boring insects – part of the natural process of decay in forests. In Nova Scotia, they feed almost exclusively on Red spruce. Virtually all investigators now agree on two key points: Brown spruce longhorn beetles do not attack healthy Red spruce, and when a tree becomes of sufficiently ill health, BSLBs will feed on it.

The essential question is this: Is that

level of ill health any different than is the case with respect to the many native wood and bark boring insects already common in our forests? If so, then the BSLB could be considered an invasive pest. If not, then it has simply joined an already existing suite of insects that, from an ecological perspective, do exactly the same thing the BSLB does: help in the natural processes of decay and nutrient recycling in forest ecosystems. BSLB or no BSLB, Red spruce are dying and insects help in that process of decomposition.

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Why don't we know the answer to this question? Because the CFIA have never asked it and have never commissioned the relatively simple and inexpensive scientific trials that would be required to do so. It appears that the decision was made at the outset by the CFIA to simply regard the BSLB as an invasive species, and there's been no attempt to actually provide evidence that this is so.

A first and central principle of risk assessment and risk management processes must be to actually determine if there is a risk. Otherwise, we fail to distinguish between *bona fide* invasive species and introduced species that are not.

Since 2009, my articles have received considerable attention. I've testified about the matter to the Resources Committee of the Nova Scotia Legislature and more recently before the Canadian Parliament's Standing Committee on Environment and Sustainable Development. I've been contacted by federal and provincial officials interested in the experiment I proposed that would determine if the BSLB is a pest or not. However, no fieldwork has actually been done that would help settle the question. So, we are no further ahead in 2011 than we were in 2009, or even in 2000.

There is, moreover, another dimension to this issue that bears attention. Since the 1960s forest biologists have been documenting the decline in health and vigor of Red spruce in the United States. In some stands in northern New

England, 30 to 60 percent mortality of Red spruce has been observed, and the vigor of surviving trees is diminished. In the Maritime provinces there are similar concerns. Potential causes of this decline in health are climate change, air pollution (particularly acid rain), insects, and disease.

In one important study conducted in New York and western New England (Proceedings of the National Academy of Sciences, 85: 5369–5373), investigators determined that climatic variations – unusually warm summers followed by unusual cold snaps during the winter – were important factors, responsible in part for the decline in Red spruce health.

Such increasingly pronounced fluctuations in weather are precisely what is predicted to occur during the course of climate change. Climatologists in broad terms predict that climate change will accentuate current patterns: dry areas will experience more droughts; wet areas, more precipitation; heat waves will be more severe; cold snaps colder; forest fires more frequent; extreme weather events will occur more often.

Consequently, it would be reasonable to expect that, as climate change proceeds, Red spruce in Eastern Canada will continue to be affected by such weather fluctuations. It will suffer corresponding declines in health and vigor, and more suitable trees will become available for the BSLB – and for many other native species including the Eastern larch borer (*Tetropium cinnamopterum*), Ribbed pine borer (*Rhagium inquisitor*), and the Black spruce borer (*Asemum striatum*), all of which colonize Red spruce to feed on. We may, therefore, see a deterioration of Red spruce in the coming decades – not one caused by an invasive species, but one caused by climate change. This would mean that the BSLB's appearance may be a symptom of the problem and not the cause.

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