Worrisome beetle found in New Brunswick

BSLB advances: citizens are no further ahead

Image by: Klaus Bolte

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.

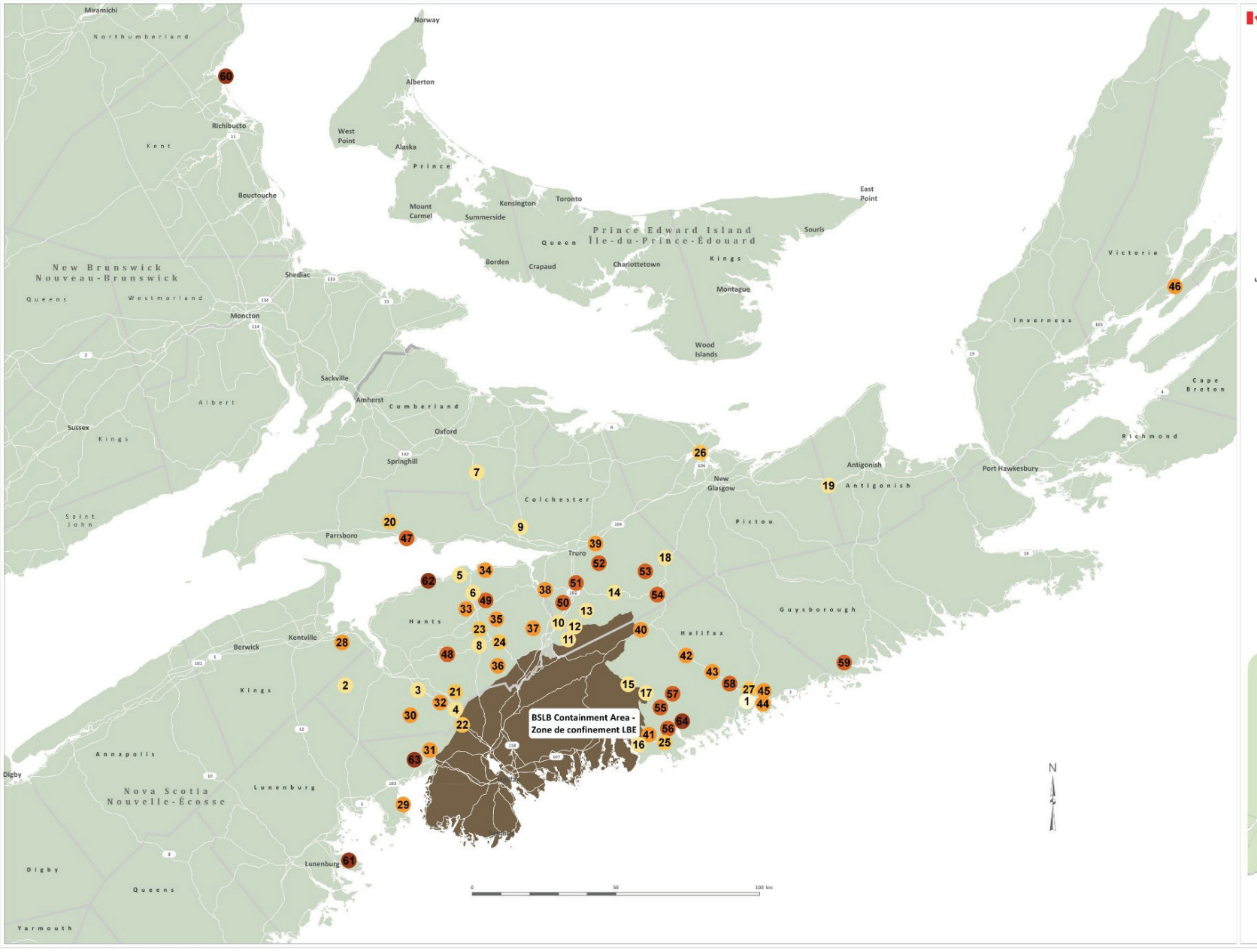
In the smallest possible nutshell: the BSLB is without doubt an alien species, but this doesn't necessarily imply that it is an invasive one. Only a very small proportion of the former become the latter. It has been very well studied in Europe, where it is not invasive, and there are many scientific 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 decayand nutrient recycling in forest ecosystems. BSLB or no BSLB, Red spruce are dying and insects help in that process of decomposition.

PRINCIPLE IGNORED

Why don't we know the answer to this question? Because the CFIA has never asked it and has 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 manage-



Canadian Food Inspection Agency | Agence canadienne d'inspection des aliments

2006 - 2011

Brown Spruce Longhorn Beetle
Longicorne brun de l'épinette

Positive Sites Outside Containment Area
-
Sites positifs à l'extérieur de la zone de confinement

Interim Survey Update
Mise à jour intérim de l'enquête:
14 SEPT 2011

Legend / Légende

Year - Année	Label - Étiquette
2006	(1)
2007	(2 - 19)
2008	(20 - 27)
2009	(28 - 46)
2010	(47 - 59)
2011	(60 - 64)

Date: 4 OCT 2011

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ment 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 then 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),

Beetle update

This past fall, the Canadian Food Inspection Agency (CFIA) announced that the BSLB had been found on nine properties around the town of Lunenburg. The CFIA has prohibited the movement of spruce logs, bark, or wood chips from these properties – about 14 hectares in total. In the coming months and years, the residents of Lunenburg can expect to experience the same problems that citizens in the Kouchibouguac area – and countless Nova Scotia communities have faced – in the endless pursuit of this beetle, all without having ascertained if there is any valid reason to be concerned with the presence of this species. ●

First New Brunswick beetle – firewood stowaway?

Mid-September interim results from the 2011 Brown spruce longhorn beetle survey identified five new sites where the beetle was found outside the "containment area" that surrounds the original site in Halifax. The Canadian Food Inspection Agency (CFIA), which has jurisdiction over exotic pests, expected to complete its final survey report by December.

The CFIA did not plan to change its regulatory approach to containment in light of the first-time find in New Brunswick, but in the forest industry this development gave rise to uncertainty about wood movement within Atlantic Canada in the event of an expanding infestation, as well as concern about possible restrictions on U.S. trade.

In May, 2011, the United States Department of Agriculture implemented a requirement that imports of spruce logs from Nova Scotia must be heat treated, unless the wood is consigned to an approved U.S. facility operating under a compliance agreement. (An existing heat treatment requirement for all hardwood firewood from Canada was also expanded to cover softwood firewood.) Citing the risk of spreading the Brown spruce longhorn beetle, the federal order included the additional requirement that imports of spruce logs from provinces other than Nova Scotia now require a certificate of origin.

Mark Arsenault, president and CEO of the New Brunswick Forest Products Association, said there is some movement of wood from his province to Maine, and so far the beetle find has not triggered new restrictions at the U.S. border.

"With the regular reporting and disclosures we're making, I think there has been a comfort level there. Obviously that would likely change if there were ever an infestation," he said. "It's one beetle in a trap, and it's over 160 kilometers from the nearest find, so right now we're hoping this is a one off, and because of the circumstances surrounding this find, there's a possibility that is the case. My understanding is there will be more traps put out. We use a pheromone lure which is very effective, mixed with a stressed tree scent."

Arsenault said New Brunswick already has a moratorium on shipments of wood from Nova Scotia during the beetle's summer flying period. "If it spreads, then we'll start getting into prohibitions on movement of wood. It's enough to cause us to keep our eyes on it. There were traps near or in the regions of every single sawmill in New Brunswick and along the routes, so there's been a vigilant lookout for them. If it's duplicated, there are a whole series of questions."

Ken Hardie, manager of the New Brunswick Federation of Woodlot Owners, was also cautiously optimistic that the pest is being contained. "We're already in a compromised situation market wise. If we have a quarantine, it's going to be devastating. I hope they take appropriate action," he said. "If in fact it is a small infestation or it's more than one beetle, I would hope they do a cleansing harvest to take the food source out of there." ●

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 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.

(Christopher Majka is an entomologist and research associate with the Nova Scotia Museum specializing in the study of beetles.) ●