## EAB Treatments for 2014 – Where might you expect to get benefit?

Shortly after emerald ash borer was detected in Colorado a thorough evaluation was begun of the existing recommendations for its management. Prominent among the issues was determining the underlying rationale for the note in the Midwest EAB insecticide options publication (http://www.emeraldashborer.info/files/Multistate_EAB_Insecticide_Fact_Sheet.pdf) indicating treatment was recommended up to 15 miles from where the insect was known to be present. To better understand this specific recommendation, and other EAB issues, frequent contacts have been made with most of the main authors of the publication to assist in developing the best recommendations for the present Colorado situation.

The rationale underlying the 15 mile radius recommendation was to provide guidance for areas during the explosive phase of an EAB outbreak. In these areas, EAB populations are extremely high, tree mortality is occurring rapidly, and the EAB infestations are spreading extensively over a very broad front. Often where this is occurring there has been a relaxation of efforts to attempt and map all known areas of where EAB is detectable; the edge of where detectable EAB infestation is present becomes quite blurred. As a result, when recommendations for these areas were developed, a generous number of miles were included in the radius guidelines. Developed as a maximum guideline for these conditions, a 15 mile radius can be safely assumed to cover any area during peak outbreak phase that conceivably might have EAB populations sufficient to cause significant harm to trees in the upcoming year.

Also, this recommendation was made in 2009, at a fairly early stage in the EAB infestation (being discovered in North America only seven years earlier) during a period when we knew considerably less about how to control this insect most effectively and what to expect from treatments. Presently we have much information on how to reliably and effectively use the control options present. And, if used correctly, these can be expected to effectively "turn-around" trees that have up to 30% EAB-related crown thinning (perhaps even up to 50% with TREE-age). And to produce 30% EAB crown thinning takes several years in early stages of the outbreak, such as is presently occurring in a part of Boulder now. Probably no more than a few dozen trees in Boulder, most all in very poor sites, may have progressed to have sustained that much damage to date.

(There is sometimes confusion between "dieback" with "crown thinning" in this discussion. The effect of EAB is to produce a generalized thinning throughout the canopy, not to progressively cause dieback on individual limbs, or kill individual limbs, one by one. For a photo of what is used in the crown thinning estimates there are a series of pictures in the publication: http://bspm.agsci.colostate.edu/files/2014/02/EAB-control-options-February-11.pdf.)

So, many of the assumptions present within the 2009 Midwest recommendation do not exist in Colorado *at this point in time*. EAB is an insect the Colorado urban forestry community has known about for a long time and people have been trying hard to detect it for many, many years -

mentioned so frequently at forestry-related workshops in Colorado over the past decade that some people were getting sick of hearing about it. And so far we have only found it in one location. And when a systematic survey of that one location was done it pretty much showed that it was very largely restricted to a small area, being detected in only 5 mile-square sections out of 38. And even within those blocks, EAB numbers were quite low (except for a couple of trees). The available evidence is that the present Colorado infestation has arisen from a point source in Boulder from which it is now spreading.

It is inarguable that this insect is always somewhere beyond where it has been detected. That is why a reasonable recommendation should be made to extend the boundary of where people can be expected to possibly get benefit from an EAB treatment in 2014 to some area beyond where it has been actually detected. *Given the present situation, it is suggested that creating a buffer area of 5 miles beyond where it has been detected is suitable, if not overly generous, to cover the in-state EAB situation in the upcoming year*.

Given the low populations and the limited area where EAB is known to occur in the state, it is very likely that the area within 5 miles of the present detection would catch at least 99%, probably much more, of all the ash trees in Colorado that would get a benefit from an EAB treatment in 2014. And, if we happen to find a few EAB-affected trees that are outside this ring in 2014, then there are treatments that could be applied in 2015 that could rescue most, probably all, of those that people then choose to treat.

Next year (2015) could be entirely different. People will be looking far harder for infestations of EAB this summer and we may find it to be already established in more sites. And, of course, some insects could spread many miles given the right set of conditions. So, in 2014, a few adults may fly miles and disperse to new areas where, in 3-5 years, they may build in sufficient numbers so that they are causing sufficient damage to cause them to be detected. There is little doubt that in 5-10 years we will find ash trees in the entire Metro Denver area to be EAB-infested.

So in 2015, things get reevaluated. And in 2016. And in 2017.....

But in 2014, the best information we have on the Colorado situation is that they are in a restricted area and the numbers are fairly low. One can speculate that they may be more widespread and that the actual situation in some part of Colorado may be different, >but there is no evidence at this time to indicate otherwise.< For example, EAB may be established in some trees in Broomfield as wood from trees later found to be EAB infested is thought to have been taken there. But it may well not even be established there; we don't know. So, treating an area prophylactically on speculation that it may be present now is extremely expensive insurance, with negligible, if any, benefit. Particularly since one can still treat most any early-infested trees effectively after the insect is actually determined to be present.

This insect is going to cost a lot of Coloradoans a lot of money in many different ways. If they decide they are going to treat trees for EAB, they will be signing up for a program of treatments forever as there is nothing to indicate that this problem will ever go away. But, for people who are on the cusp of this present known infestation (e.g., beyond 5 miles of known infested locations) a strong case could be made that the best use of their money in 2014 might be to consider purchasing new trees for replacement or taking other measures that could mitigate the effects of EAB when it does come roaring through the neighborhood in a few years. Then reevaluate the situation for 2015.

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