Emerald Ash Borer Workshop

What should MT communities do to prepare for EAB?

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- Develop Comprehensive EAB Management Plan now
  - New/Update Tree Inventory
    - Identify trees worth saving (i.e. males in good and fair condition, trees in right place, large value trees)
  - Secure Funding
  - Develop Support (political, and community)
  - Develop EAB treatment plan to save canopy
  - Do Inspections, do branch sampling

What should MT communities do to prepare for EAB?

- Trees are only city infrastructure that appreciates over time
- Present ash tree replacement values to City Council
- Present tree environmental services to City Council
- Use EAB Cost Calculator (Emerald Ash Borer PLANning Simulator (EAB-PLANS)) to convince the council to treat ash trees to delay costs.

Great Falls City Forester's Recommendations

- -Be proactive , not reactive like Great Falls with Dutch elm disease
  -Have a good inspection program looking for new insects and diseases
  -Pick signature trees to maintain and treat if necessary
  -Focus on replanting a diversity of species
  -Need Good sanitation. You need to tub grind EAB damaged trees twice to less than 1' diameter size pieces. They could burn trees but you need a burn permit and the green trees are hard to burn. Another option is to treat and cover and bury 18" below grade.
  -Get Abatement of Dead and Diseased Trees ordinance approved to remove dead and dying trees rapidly like Great Falls

Emerald Ash Borer PLANning Simulator (EAB-PLANS)

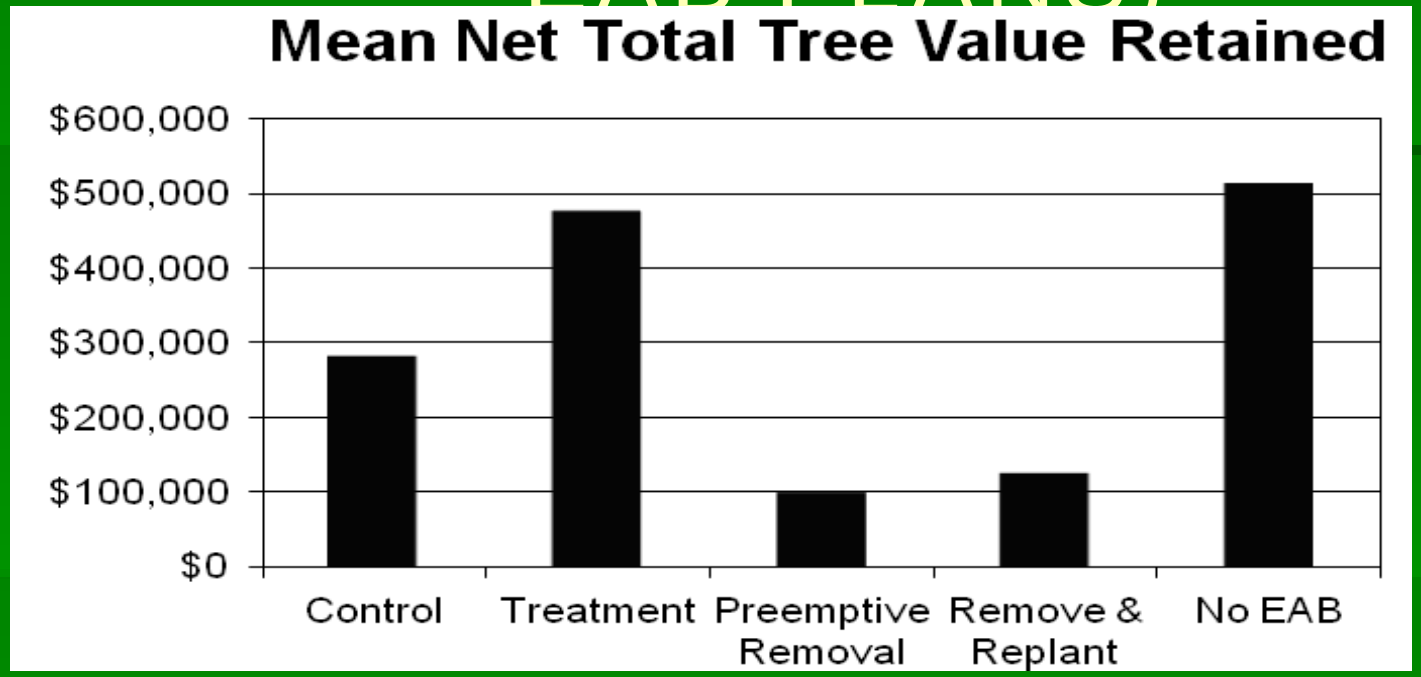
- Sidney's ash data (number of ash trees=632, and average DBH=11.27") were run through the EAB PLANning Simulator using default values in model.
- The EAB-PLANS model (Vannatta et al. 2012) was used over the EAB Cost Calculator (Sadof 2008), because it accounts for net value of remaining trees
- Model is appropriate for EAB planning in situations where EAB is not yet an issue
- Model is a long term 20-year planning tool that takes into account existing and growing tree values, rather than to guide management in invasion "wave".

Emerald Ash Borer PLANning Simulator (EAB-PLANS)

Mean net total tree value retained for the analysis is the calculated tree value or tree management cost

The higher the value, the greater the value of the urban forest ... higher values are better

Emerald Ash Borer PLANning Simulator (EAB-PLANS)



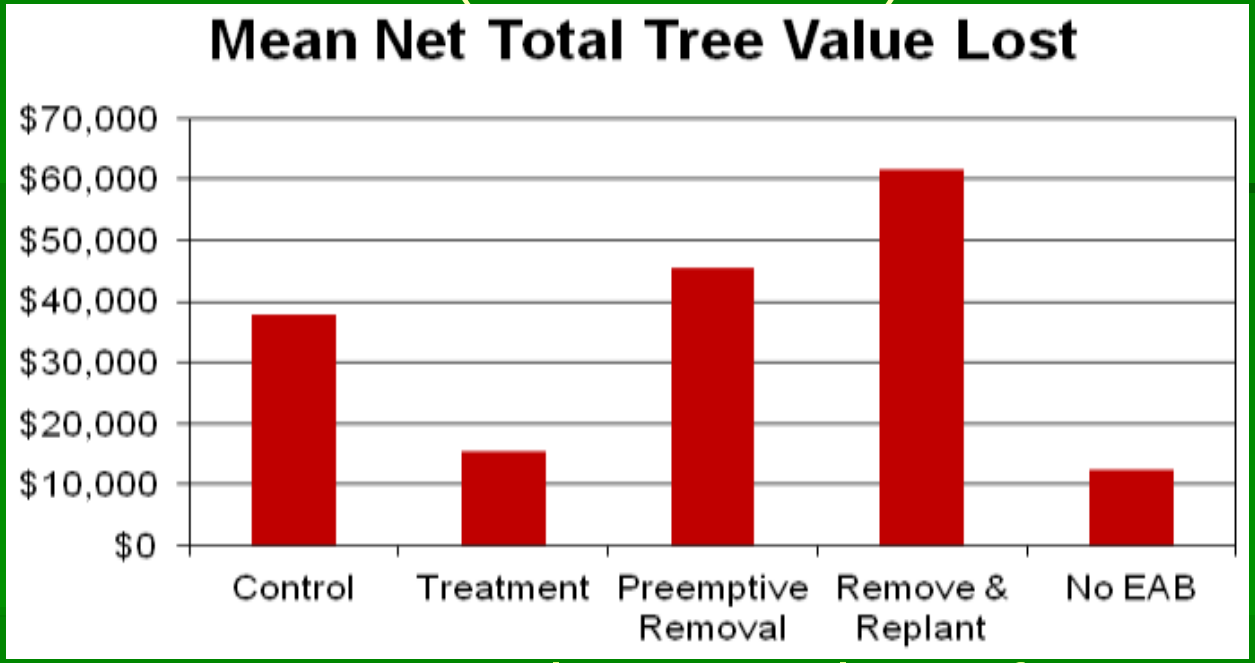
The greatest value of ash trees is retained when no EAB is present, but if EAB is present, treating the trees retains the most value over the 20 year planning time frame. Doing nothing also retains more value than preemptively removing trees, or preemptively removing and replanting trees.

Emerald Ash Borer PLANning Simulator (EAB-PLANS)

Mean net value for the lost tree analysis is the calculated tree value plus tree management cost.

The lower the value, the less value lost from the urban forest ... lower values are better

Emerald Ash Borer PLANning Simulator (EAB-PLANS)

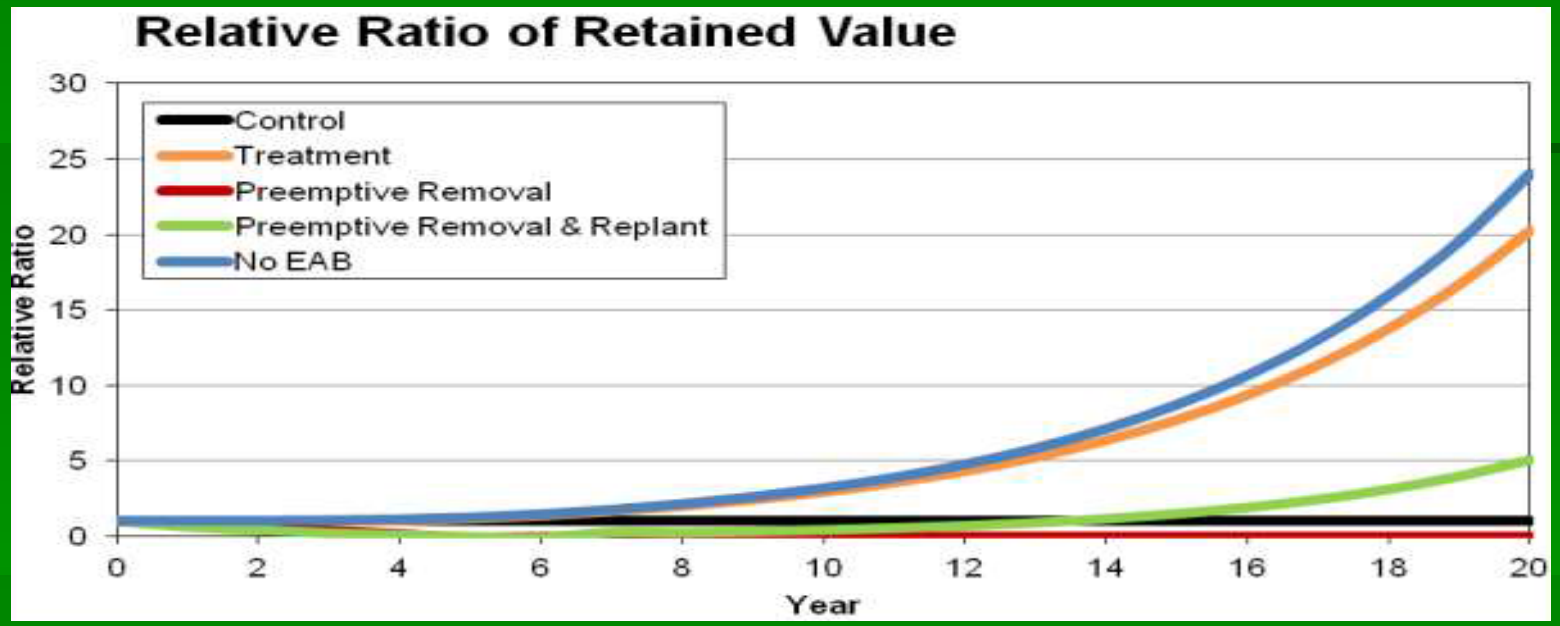


Graph shows the mean net total tree value of trees lost to EAB are similar to the results from the previous graph. When EAB is present and killing trees, the greatest tree value is lost by preemptively removing trees, or by preemptively removing and replanting trees. Besides when no EAB is present (tree value is still lost because of normal aging and death of trees), treating the trees provides for the smallest loss of tree values.

Emerald Ash Borer PLANning Simulator (EAB-PLANS)

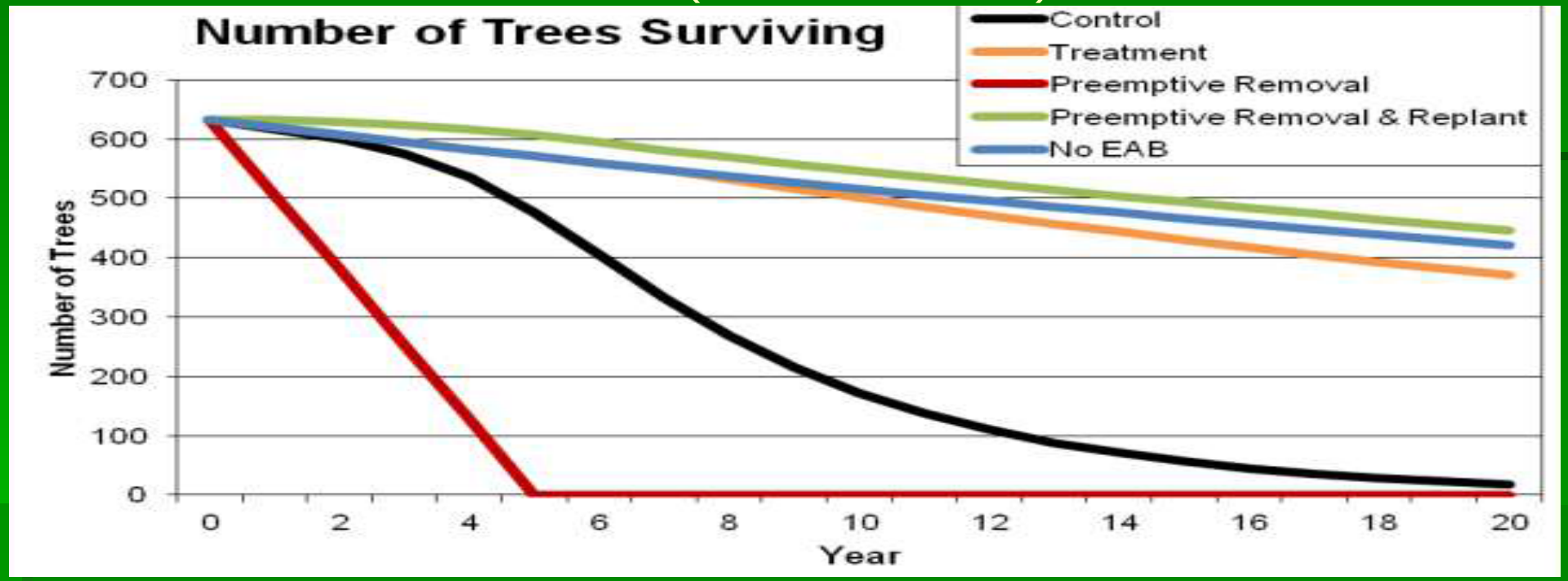
- Relative Ratio: A value of > 1 suggests that an alternative is better than the control (doing nothing)
- Net value of management option divided by the net value of the control option

Emerald Ash Borer PLANning Simulator (EAB-PLANS)



This graph shows that the relative ratio of value of remaining trees is similar when trees are treated with the pesticide and when no EAB is present. Both preemptive removal, and preemptive removal and replanting fall below a relative ratio of 1, two years into the simulation. This indicates that the tree value retained with these options drops and stays below the value retained by doing nothing.

Emerald Ash Borer PLANning Simulator (EAB-PLANS)



Graph shows the number of trees surviving under various treatment options. A large portion of the urban forest is lost if trees are preemptively removed and not replanted. When trees are replanted, the number of trees in the simulated urban forest after 20 years (447) is higher than both treatment (370), and when no EAB is present (422). This option provides for the long term growth of the simulated urban forest.

Because large, mature ash trees are replaced with small (2”) trees, considerable value is lost in the short term. The model shows that after 20 years of preemptively removing and replanting trees the value of the forest is $61,933, but when the ash are treated with pesticides, the value of the simulated urban forest is $248,882! It is most economically efficient to treat ash trees during the invasion wave because 1) more value is retained in the remaining trees, and 2) removal costs can be spread over several years rather than straining budgets with a big pulse of expenditure concentrated in a few years.