Ashes to ashes.

The introduction of invasive species into a new environment can have devastating environmental impact. Since it was first found in Michigan in 2002, the Emerald Ash Borer (EAB) has devastated parts of the Midwest and Pennsylvania destroying over 70 million ash trees. Recently, 39 trees in Cattaraugus County, New York have been found infested by this beetle.

1) Discuss possible state-wide strategies for slowing down the spread of the EAB and minimizing the damage to New York's ash tree population. Naturally, you will also want to include cost/effectiveness estimates for your suggestions.

2) One of the major difficulties is the fact that the early stages of EAB-infestation are hard to determine: newly infested trees exhibit few, if any, external symptoms. You should model the effect of this "detection latency" on the effectiveness of your plan.

3) The early detection measures require resources, which could be otherwise spent on dealing with the areas already known to be infested. Suggest a method for balancing these two efforts – the goal is still to minimize the overall (state-wide) infestation.

Judges' comment: this is a large problem and we encourage you to focus on any aspects of it, which you find particularly interesting. You could concentrate on a very careful model for the spread of the EAB population and then test only one or two strategies. Or you could use a simple model for population spread and then focus on evaluating many different state-wide measures. Alternatively, you could use simple models for both the spread and the measures, but focus on the effects due to latency of detection. The choice is yours. But please make sure that your manuscript clearly indicates which of these options you have selected.