

ACT 148 AND THE EARTHWORM *AMYNTHAS AGRESTIS*, AN UNDER-ESTIMATED FOREST PEST

Contact: Josef Görres, Plant and Soils Science, UVM, jgorres@uvm.edu



Figure 1: *Amynthus agrestis* in mulched bed

Amynthus agrestis, aka Crazy Snake Worm (Fig.1)

This earthworm is very invasive and is considered a forest pest although few states recognize it as an invasive organism. Wisconsin Natural Resources Law lists it as a prohibited species together with other usual suspects such as the Emerald Ash Borer and the Asian Longhorn Beetle. This aggressive forest invader changes nutrient cycling in forests, indirectly reduces the regeneration of canopy species, reduces understory biodiversity (Fig. 2) and affects salamanders and ground nesting birds.



Figure 2: Un-invaded forest (left), invaded (right)



Figure 3: Invaded mulched beds with nursery stock. *A. agrestis* is present in the burlap root balls.

Likely vectors: Horticulture?

A. agrestis is a relatively recent addition to the earthworm fauna of Northern New England. Plant material imported from the Far East is suspected to have brought it to the US, but now there are several vectors. Wisconsin Natural Resources law cites the movement of plants, mulch and compost as vectors of this threat. Here in Vermont, horticultural activities seem to promote it. It is often found in mulched beds, ornamental /vegetable gardens with rich organic amendments, compost in community gardens, nurseries, and sometimes in flower pots.

Economic damage of *A. agrestis* invasion

The loss of forest habitat of some forest creatures and the reduced biodiversity of forests vegetation is well documented. Forestry is big part of Vermont's economy, with forest products and tourism being

top earners. Horticulture is not only a vector but also a victim of the *A. agrestis* invasion. As more horticulturalists become aware of *A. agrestis*, they recognize the telltale signs of costly crop damage done by this organism. Hostas, primroses and lady slippers appear to be affected. Consequences of the invasion may incur some costs.

Act 148 and *A. agrestis*: From One Garden to Many Gardens to Forests

Act 148 requires organic wastes to be diverted from landfills. This will most likely involve composting of yard and horticultural wastes with subsequent sales to the public, horticulture and institutional gardens. Figure 4 shows how this may contribute to the spread of *A. agrestis*. An infested garden may contribute via a composting facility to many different gardens when the compost is sold.



Figure 43: Amplification of the earthworm threat: From one garden to many gardens and beyond.

Are organic amendments really the culprit?

What comes first, chicken or egg? A similar question can be asked for earthworms: Are *A. agrestis* attracted to compost, woody mulch and municipal leaf mulch, or do they travel with it? This is a good question which hitherto has not received much attention. However, what we know is that *A. agrestis* is found in horticultural amendments and thus distribution with it is likely.

Certified Earthworm Free Compost?

Earthworms can survive even thermophilic composting. They move from the hot parts of a windrow to the margins with temperatures closer to ambient. How can the spread of this serious forest invader be avoided? There are no feasible strategies for controlling this pest. There has been little research done on bio-control of *A. agrestis* and even less thought given to how to inspect a compost product for the presence of earthworms. The implementation of Act 148 is a pivotal event that may make *A. agrestis* much more common in our yards and forests. To tackle this problem, composters, researchers and environmental managers need to add this issue to the system analysis for Act 148, and work together to develop biological or chemical controls and a process that certifies earthworm free compost.