

## It's Spring and the Worm Is Turning

In recent weeks, Minnesotans have begun to notice earthworms emerging from their winter hideouts. Although not exactly cuddly, earthworms are to many of us welcome signs of spring. Trouble is they're an invasive species and they may be upsetting Minnesota's ecology, especially forest health. That's right.

As the University of Minnesota's "Great Lakes Worm Watch" website says: "Ask anyone on the street if earthworms are good for ecosystems and you will undoubtedly receive a resounding "YES!" When asked why, they may say something like 'earthworms mix and aerate the soil.' It is a basic ecological concept that we may have learned as early as kindergarten.

But the same experts know the truth: once-native Minnesota earthworms were wiped out with the last glaciation. And the earthworms we typically see in the state now were introduced by European settlers. (There are native worms in Minnesota, but no native earthworms.) They came with rocks and dirt used as ballast and in plants whose soil may have included earthworms or egg cases.

Why's that a problem? Because U of M researchers have documented dramatic changes in native hardwood forest ecosystems when exotic earthworms invade, including losses of native understory plant species and tree seedlings, changes in soil structure and declines in nutrient availability.

Says Cindy Hale of the University of Minnesota's Natural Resources Research Institute in Duluth: "When earthworms invade these previously earthworm-free forests, they mix the thick layer of spongy, slowly decomposing matter we call duff into the soil, which changes the structure, the chemistry, and the biology—the living organisms in the soil—literally eating the rooting zone out from under the forest understory plants."

Changes caused by invasive earthworms may lead to further changes in the forest that:

- undermine small mammal, bird and amphibian populations;
- increase the impacts of herbivores like white-tailed deer;
- and facilitate invasions of other exotic species such as European slugs and exotic plants like buckthorn and garlic mustard.

"These results suggest that exotic earthworms may pose a grave threat to the biodiversity and long term stability of hardwood forest ecosystems in the region. Much more research is needed," says the U.

What can be done?

The way to control earthworms is to control the ways in which they spread by carefully managing:

- Bait worms, most of which are non-native species, including
- those sold as night crawlers, Canadian crawlers, leaf worms, or
- angle worms. Unused bait shouldn't be dumped on the land
- or water.
- Compost, leaf mulch and topsoil
- Landscape plants or trees with soil around their roots
- Soil movement during road building
- Vehicle tire treads that carry soil including:
- Construction, farming and logging equipment, all terrain
- vehicles, mountain bikes.

There is hope. "Without humans moving them around, earthworms move slowly, less than a half mile over 100 years", says Hale. So if we get a handle on the unintentional ways we introduce and spread earthworms, we may be able to keep them from invading new areas.