Impacts on Nutrient Cycles

Another problem with earthworm invasions is their ability to alter nutrient cycles. Depending on the earthworm species invading, the forest floor may shift from a place where carbon dioxide is absorbed to a place where carbon dioxide is produced. This is due to increased bacterial activity where earthworms are present in soil. Total soil carbon, a measure of how much carbon dioxide the forest is storing rather than releasing into the atmosphere, was 28% lower in sugar maple forests invaded by earthworms than forests not invaded. A similar decrease in carbon dioxide absorption has also been reported in invaded aspen forests. This means that these forests are releasing 28% more carbon dioxide than they normally would be. This is a concern because carbon dioxide is a gas that can contribute to climate change.

Earthworms can also influence nitrogen cycling. In soils near streams in Michigan, earthworm invasions have resulted in more nitrogen being washed away in streams. This increased nitrogen can have effects on water quality and can result in more algae in the water.

Reflections:

1. What kinds of nutrients and chemicals are the earthworm invasions affecting? Why are these nutrients important?

2. What do you know about CO_2 and the climate change? Why is increased CO_2 a potential problem?

Adapted From: Cameron, E., Boyce, M. (2013) Don't dump your worms! Earthworms are trashing our forests. *Alberta Outdoorsmen*, Volume 15 (2), 16-18.

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