

WILD INVASIVES & THEIR IMPACT ON OUR SOILS 1

A new type of earthworm is becoming more present in Canada, inhabiting areas in Ontario (Toronto, Hamilton, Windsor, Essex County), Quebec, New Brunswick, Nova Scotia.

The *Jumping Worm* first arrived in the USA in the late 1800s, travelling in on imported nursery plants. Their confirmed residence in Canada was found in 2014 and is a greater concern due to climate change.

Jumping Worms get their name from their thrashing reaction when disturbed. They can be identified by their smooth light grey/white clitellum (thick raised band found near the head), which in our “native” earthworms is bumpy and their typical body colour. They have an annual lifecycle! Great! Although some jumping worms can reproduce asexually, making them effective at creating colonies in new habitats.

Bad News Bears - Jumping Worms are harmful to the soil! They live on the soil surface just under the natural debris, of which they consume and digest rapidly. With such a voracious appetite they grow quicker and mature faster than other earthworms. The castings they leave on the soil surface are grainy similar to coffee grounds. It is the castings that are the problem for the soil, they seem to be a denser structure, comparable to clay soil, meaning they reduce the ability of water to penetrate through to soil. This also impacts the cycle and ability of nutrients to move into the soil, and will result in a significant portion of nutrients running off and not being available to local plants.

Some nutrients are able to move from the castings to the soil, but this depends on their water solubility and soil mobility. Nitrogen is highly water soluble and soil mobile, Phosphorus has low water solubility and soil immobile, and Potassium is in the middle. Research has noted that in areas with larger populations of Jumping Worms soils have higher Nitrogen concentrations. This disrupts many parts of the ecosystem, for example: Fungi, they become starved and populations reduced because there is reduced need for plants to exchange sugars for Fungi’s nutrients as there is readily available Nitrogen. With reduced Fungi in the soil, the balance of microorganisms is flipped where bacteria populations become dominant. Organic Matter breakdown slows as fungi take care of the tough plant materials like lignin and cellulose. And in many cases, harmful pathogens will thrive with excess nitrogen creating a greater risk of diseases impacting plants.

Invasive species impact ecosystems at every level, not only at the macro level which the human eye can see, but also at the micro level inches beneath our feet.