Exploring the Facilitative Relationship Between Rhamnus cathartica and Lumbricidae

Enneking-Norton, Flannery (School: Saint Paul Academy and Summit School)

Rhamnus cathartica (common buckthorn) and members of the family Lumbricidae (earthworms) are two invasive species to Minnesota that negatively affect native plant growth and contribute to overall forest decline (Frelich and Reich 2009). Previous studies have shown a relationship between the two organisms, including that the removal of buckthorn led to diminished earthworm population size in a controlled experiment in hardwood tree stands. This experiment sought to expand the results of the previous research to establish a pattern in the relationship between buckthorn and earthworms across multiple ecological sites, as well as explore how buckthorn removal affects the level of earthworm invasion. There was no significant difference in the overall abundance of earthworms between sites of buckthorn removal. However, there was a significant reduction in the abundance of Lumbricus terrestris (nightcrawlers) in areas of buckthorn removal, which suggests that buckthorn removal may be one avenue for regulating earthworm populations, specifically of L. terrestris, which are indicative of the highest level of invasion. Keywords: invasive species, buckthorn, earthworms, invasion

Awards Won: