Abstract:

Invasive to northern hardwood forests, earthworms are ecosystem engineers that can modify the chemical properties and physical structure of soil and alter the herbaceous understory. On Camel's Hump, Vermont, ongoing herbaceous surveys on plots established in 1965 have documented increasing Jack-in-the Pulpit (*Arisaema triphyllum*) abundance, one of the few native plants that thrive under presence of exotic earthworms. I surveyed earthworm presence, herbaceous understory, and soil on thirty historical plots along an altitudinal gradient of 1800-2600ft. Data from sampling was used to estimate the location and species composition of invasive earthworms on the mountain, assess changes in soil chemical and physical composition, and investigate further the increase in Jack-in-the-pulpit in relation to other native species. Two earthworm genus, *Approctodea* and *Octolasion*, were found on four sites along 2000 ft elevation. On the earthworm -invaded sites, the less acidic soil had a thinner organic layer and contained higher calcium, lower iron and lower aluminum levels than surrounding non-invaded sites. There was no significant difference in abundance and diversity as quantified by total herbaceous percent cover and the Shannon-Wiener index. However, historical herbaceous surveys indicate that current increase in Jack-in-the-Pulpit beginning in 2006 is related to earthworm presence. Additionally, according to 1965, 2006, and 2010 herbaceous surveys, earthworms invade areas of historically high sugar maple (*Acer saccharum*) seedling abundance.