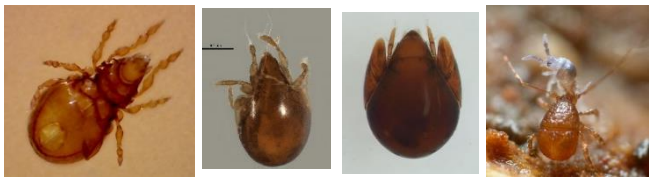
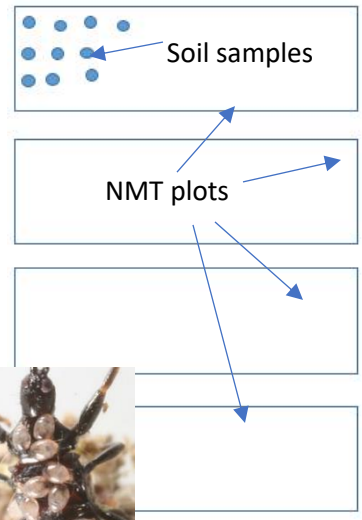
Below-ground invertebrates in Native Meadows which have Transitioned from Agricultural Production

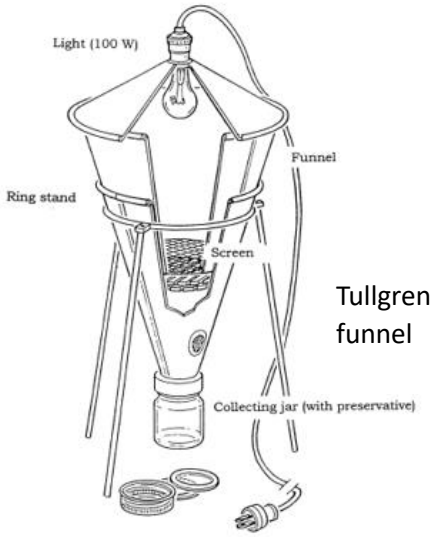
Objectives:

1. Quantify the community composition of soil dwelling **microarthropods** over time as the crop fields transition to Native Meadows
2. Quantify the community composition of beneficial (native) **entomopathogens** over time as the crop fields transition to Native Meadows
3. Explore relationships between below-ground invertebrates and above ground invertebrates and plants

- **Microarthropods** such as soil mites and tiny insects such as springtails provide critical decomposition and nutrient cycling services.
- These organisms are extracted from the soil using Tullgren funnels. Samples of soil are collected from the plots and placed on the funnels. Live microarthropods tunnel down to avoid the light bulb and are collected in a jar.



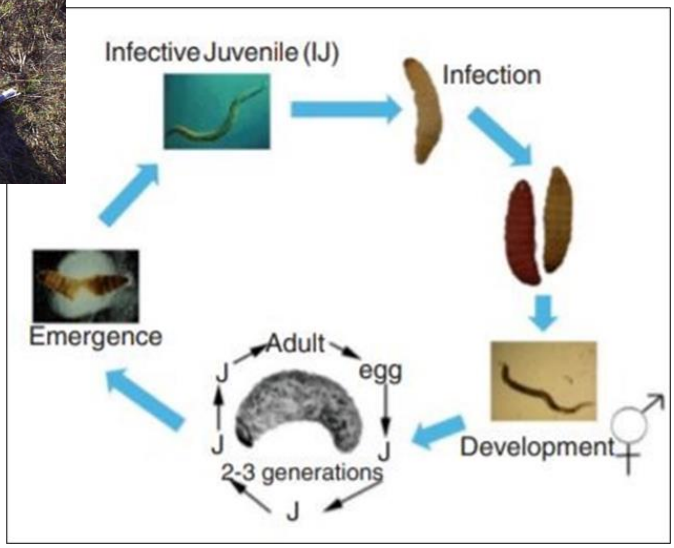




Tullgren funnel

Phoretic mites on an insect – mites often cling to insects as a dispersal mechanism

1. **Entomopathogenic nematodes (EPN),** which are ubiquitous in good healthy soil, can provide pest suppression services
2. Indigenous species of EPN require an insect host In which to complete their life cycle.
3. They target insects that come in contact with the soil, frequently caterpillars or beetle grubs that go underground to pupate
4. EPN are extracted from the soil using bioassay technique
5. Samples of soil are baited with organisms (Waxworm caterpillars) that have no immunity to soil-dwelling EPN
6. After one week, symptoms of the deceased caterpillars will indicate the presence of different species



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