Key findings and discussion ideas

1. Relative niche positions of different ecological groups in the isotopic space **relatively consistent across sites**: endogeic species (*A. caliginosa*, *A. trapezoides*, and *A. chlorotica*) *>* anecic species (*L. friendi*) > epigeic species (*L. rubellus*)

* Suggestive of **resource use partitioning** between different ecological groups in relation to their feeding habits and vertical habitat uses
* Isotopic niche patterns can provide support for the classification of different earthworm ecological groups

1. Generally **low to moderate degrees of core niche overlaps** (percentage of overlapping SEAb) between species of different ecological groups, as well as **significant differences in their total niches** suggested by PERMANOVA and PERMDISP (*A. caliginosa* vs. *L. friendi*, *A. caliginosa* vs. *L. rubellus*, *A. trapezoides* vs. *L. rubellus,* and *L. friendi* vs. *L. rubellus*):

* Evidence of resource use partitioning between different ecological groups

1. **Asymmetrical (one high, one low) percentage core niche overlaps** (SEAb) between species of same ecological group (endogeic species, e.g.*, A. trapezoides* and *A. chlorotica* in BDTR1, *A. caliginosa* and *A. trapezoides* in BDTR2 and BARC):

* A result of niche size differences > **generalists vs. specialists** within same ecological group > generalists capable of utilizing a wider range of resources; specialists performing better in their narrower niches > a potential mechanism for species coexistence

1. Core niche size (SEAb) comparisons: quite **variable** within endogeic species;anecic and epigeic species **in between** endogeic species:

* Generalists vs. specialists among ecological groups

1. Distinct isotopic niche of *D. canoliniana*:

* Unique feeding habits allowing for coexistence with other species in human-disturbed habitats

1. Variations in niche patterns of *A. caliginosa* and *A. trapezoides*: **similar patterns in BDTR1 and BARC** (isotopic niche of *A. caliginosa* above *A. trapezoides*; SEAb of *A. caliginosa* slightly smaller than *A. trapezoides*) but **quite different in BDTR2** (isotopic niche of *A. caliginosa* overlapping *A. trapezoides*; SEAb of *A. caliginosa* much larger than *A. trapezoides*):

* Isotopic niches of these two species may change in response to the available resources in the habitats (BDTR1 and BARC mainly C4 inputs; BDTR strong C3 inputs)