

A habitat comparison between two ramp species in Pennsylvania, *Allium tricoccum* and *Allium burdickii*



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Background

- Allium tricoccum* and *A. burdickii* are also known as ramps, wild onion or leeks.
- Both species native range is throughout the eastern US into southern parts of Canada. Full distribution of *A. burdickii* is not yet understood.
- A. burdickii* is visually similar to *A. tricoccum* with shorter and narrower leaves and fewer flowers per umbel. When comparing phenology, *A. burdickii* leaves begin to senesce and fruit production begins earlier than in *A. tricoccum* (Sitepu, 2018).
- Before my study, *A. burdickii* had yet to be documented in Pennsylvania
- Very little has been published on ramp habitat, but previous research suggests *A. burdickii* grows in more Ca rich areas compared to *A. tricoccum* (Bernatchez et al., 2013)
- Previous research suggests *A. burdickii* grows in drier areas compared to *A. tricoccum* (Jones, 1979). Ramps are prone to water stress because their bulbs grow close to the soil surface and they have shallow, short roots.

Hypotheses

- 1) *A. tricoccum* and *A. burdickii* sites will differ in soil chemistry.
- 2) Soil moisture content at *A. tricoccum* sites will be greater than soil moisture content at *A. burdickii* sites.



Methods

Collect field data at established ramp sites on:

- Soil chemistry (Mg, P, K, pH, Ca)
- Soil moisture content

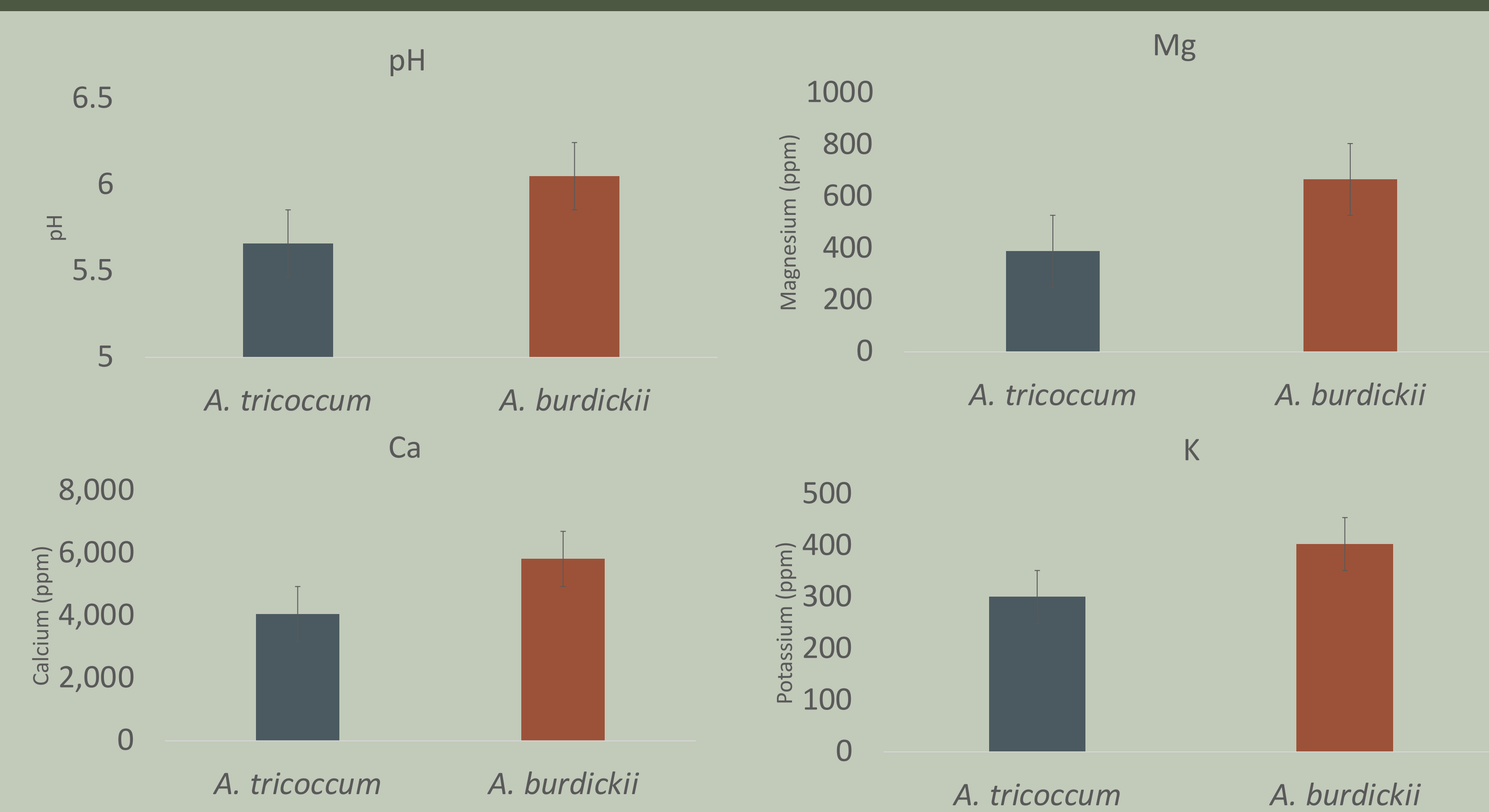


Revisit designated plots every other month from May-October to collect soil moisture data with Theta ML3 soil moisture probe

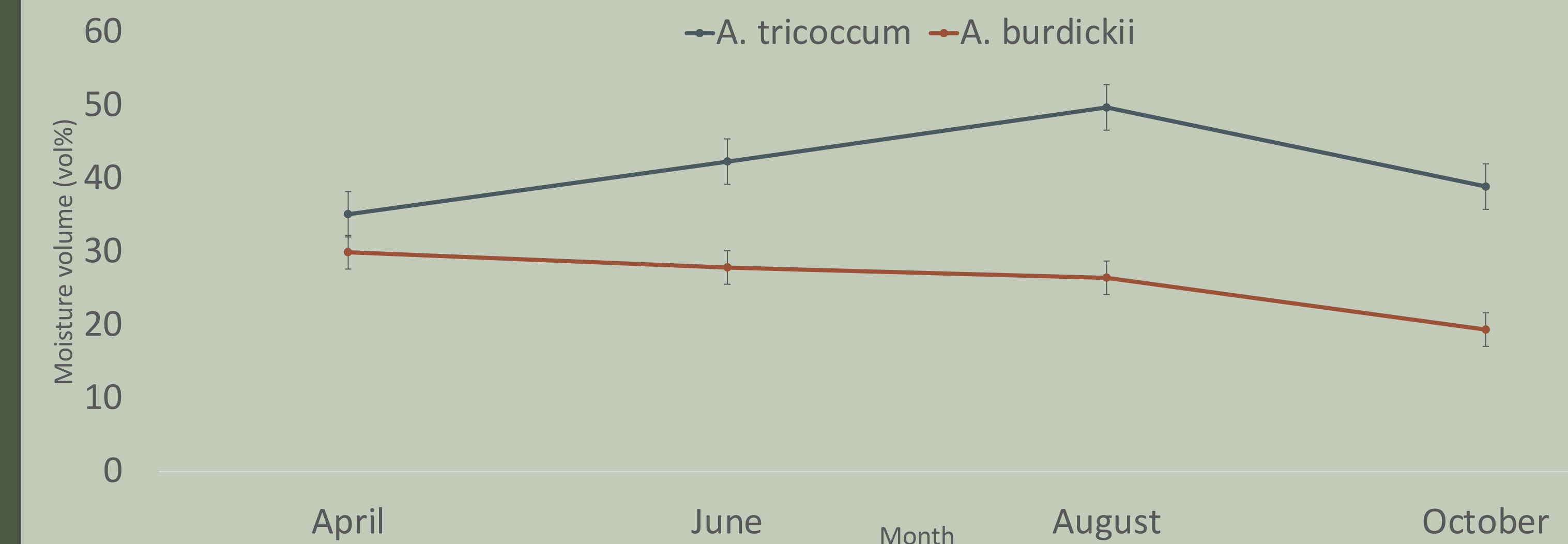


A. burdickii on the left and *A. tricoccum* featured on the right.

Results



Soil moisture content results



Discussion

- A. burdickii* sites had higher pH, magnesium, calcium and potassium levels than *A. tricoccum* sites.
- At *A. burdickii* site soil moisture content was lower compared to *A. tricoccum* site. Soil moisture content between the two species was closer in the spring and began to diverge the fall.
- These preliminary results are part of a broader study on ramp habitat that includes a detailed analysis on flora and topography associated with ramps.

Importance and Implications

- Continued study of *A. burdickii* habitat in PA can assist with additional population discovery and habitat conservation.
- A better understanding of habitat of both ramp species can assist with promotion of forest farming for *A. tricoccum*. Forest farming strategies could be put in place to commercially grow and harvest ramps rather than forage wild populations.

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References: Bernatchez, A., Bussi eres, J. & Lapointe, L. Testing fertilizer, gypsum, planting season and varieties of wild leek (*Allium tricoccum*) in forest farming system. *Agroforest Syst* 87, 977–991 (2013). <https://doi.org/10.1007/s10457-013-9613-1>; Jones, A. (1979). A Study of Wild Leek, and the Recognition of *Allium burdickii* (Liliaceae). *Systematic Botany*, 4(1), 29–43. doi:10.2307/2418663; Sitepu, B. 2018. An Integrative taxonomic study of Ramps (*Allium tricoccum* Aiton) complex. Ohio University.