



BACKGROUND

Herbaria are collections of pressed and dried plant specimens that serve as physical records for:

- Geographical distribution
- Abundance
- Morphology, anatomy, and physiology
- Phenology
- Genetic biodiversity
- Ecology of plants
- Tracking invasive emergence and persistence

These plant records, which span hundreds of years, are increasingly relevant to climate scientists tracking changes in plant communities over time. The digitization of herbaria increases accessibility to this information and allows for the compilation of larger databases.

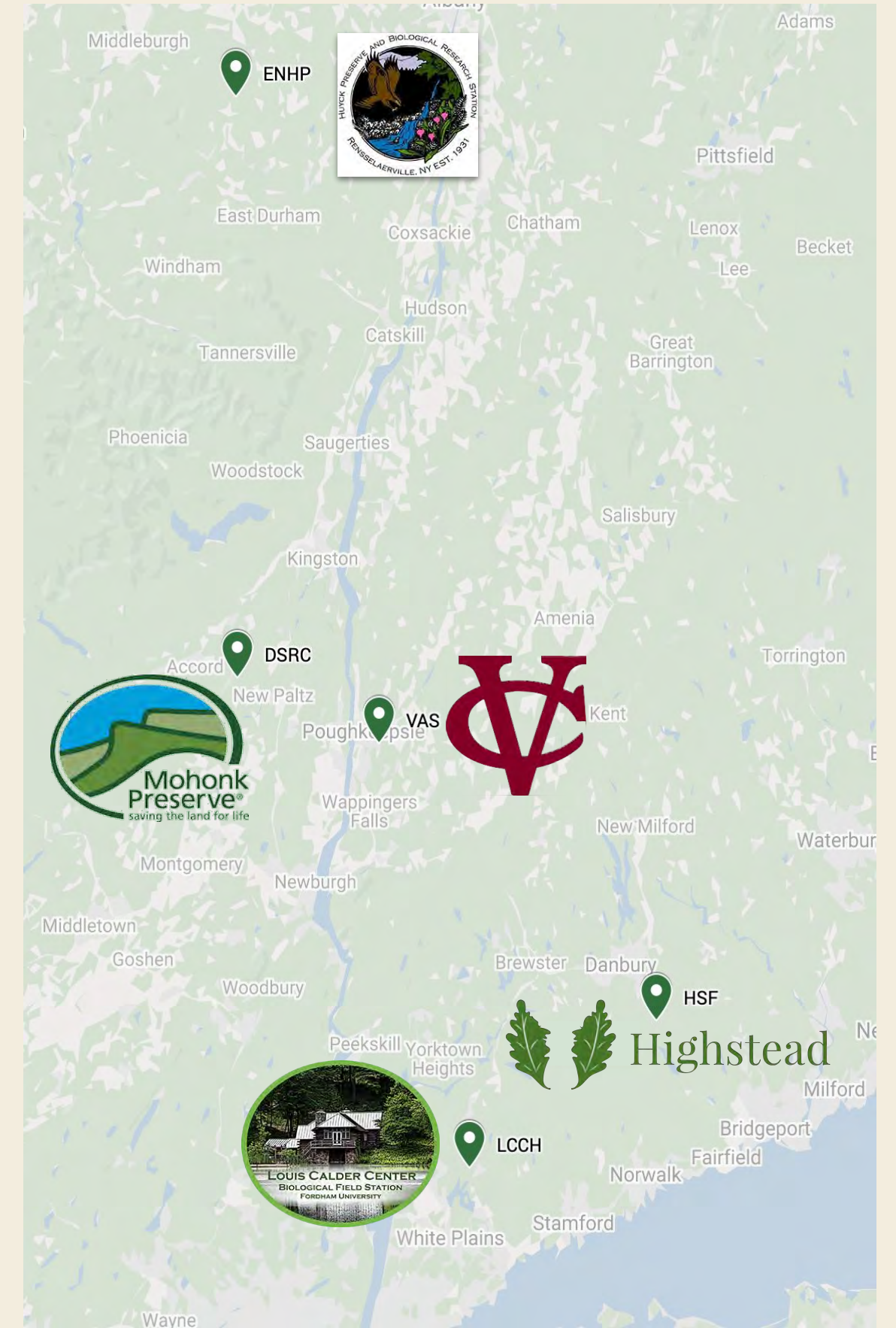


Figure 1: A herbarium specimen of *Allium tricoccum* Ait. var. *tricoccum* (left) and a naturally occurring *Allium tricoccum* Ait. var. *tricoccum* (right)

LOCATIONS

The Hudson Valley Environmental Monitoring & Management Alliance (EMMA) is an group of institutions that work together to manage nature preserves, seven of which have herbaria.

- Edmund Niles Huyck Preserve (ENHP)
- Highstead Arboretum (HSF)
- Louis Calder Center (LCC)
- Mohonk Preserve (DSRC)
- New York Botanical Garden (NY)*
- Pace University*
- Vassar College (VAS)



* These herbaria, while part of EMMA, will not be digitized by Vassar.

METHODS

Pre-Imaging

- Affix unique barcodes
- Update nomenclature through annotation

Imaging

- Standardize with color checker & ruler
- Position specimen in light box

- Capture RAW image
- Convert image to archival quality TIFF

Transcription

- Record occurrence remarks, collection information, and updated nomenclature
- Compile specimen data in spreadsheets

Provide standardized images and data to Vassar's library for database creation

RESULTS

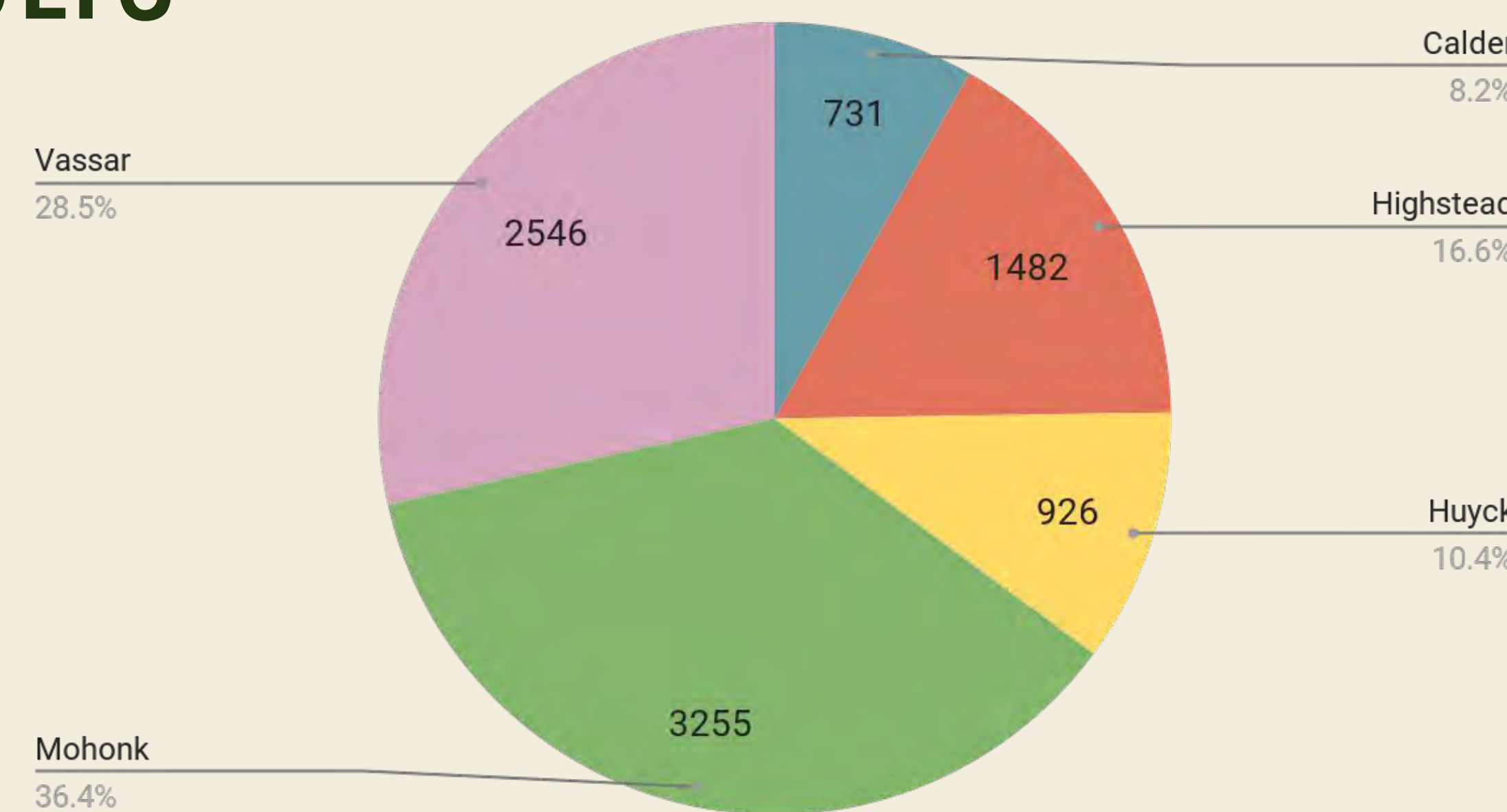


Figure 2: Number of specimens imaged at each herbarium and the percentage of total specimens imaged by our mobile digitizing team.

Family	Scientific Name	Common Name	Calder	Highstead	Huyck	Mohonk	Vassar
Araliaceae	<i>Kalopanax septemlobus</i>	Castor aralia					10/6/2018
Symplocaceae	<i>Symplocos paniculata</i>	Sapphireberry					6/30/2021
Viburnaceae	<i>Viburnum dilatatum</i>	Linden arrowwood		8/17/2018			7/20/2018
	<i>Ampelopsis brevipedunculata</i>	Porcelain berry	7/16/1993				10/16/1996
Euphorbiaceae	<i>Euphorbia cyparissias</i>	Cypress spurge	4/27/1999	7/6/2004		6/15/1971	5/1/1996
Caprifoliaceae	<i>Lonicera maackii</i>	Amur honeysuckle					6/21/1995
	<i>Phellodendron amurense</i>	Amur corktree					7/18/2018
Sapindaceae	<i>Acer platanoides</i>	Norway maple	9/17/1993	4/9/1999		6/7/1983	9/29/1986
Brassicaceae	<i>Alliaria petiolata</i>	Garlic mustard	6/3/1994	6/8/2004	6/8/2004	5/7/1979	4/16/1981
Celastraceae	<i>Celastrus orbiculatus</i>	Oriental bittersweet	9/8/1993	9/28/1990	6/15/1950	9/29/1975	6/21/1995
Caprifoliaceae	<i>Lonicera morrowii</i>	Morrow's Honeysuckle	6/12/1999			5/25/1970	5/22/1982
Rosaceae	<i>Rosa multiflora</i>	Multiflora rose	6/18/1993	7/14/2004		6/16/1978	6/14/1995

Figure 3: Comparison of common invasives at each EMMA location we visited and their documentation in the herbarium and/or on site.

Blue	observed on site, documented in herbarium
Red	observed on site, not documented in herbarium
Yellow	not observed on site, not documented in herbarium

NEXT STEPS

- Compile complete database
 - Estimated completion: Spring 2022
 - To be completed by Vassar students (BIOL 393) and library staff.
- Complete EMMA floral records
 - Ongoing among EMMA organizations
 - Address discrepancies in observed & documented occurrences.
 - Could be completed as a series of independent projects.
- Anticipated uses of the database
 - Starting as early as Fall 2021
 - Continued usage of EMMA herbaria by general scientific community to assemble larger data relevant for climate studies.
 - Increased accessibility to herbaria for people outside of the scientific community.



Visit the VC Herbarium website for more updates

ACKNOWLEDGEMENTS

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EMMA
Environmental Monitoring and Management Alliance

