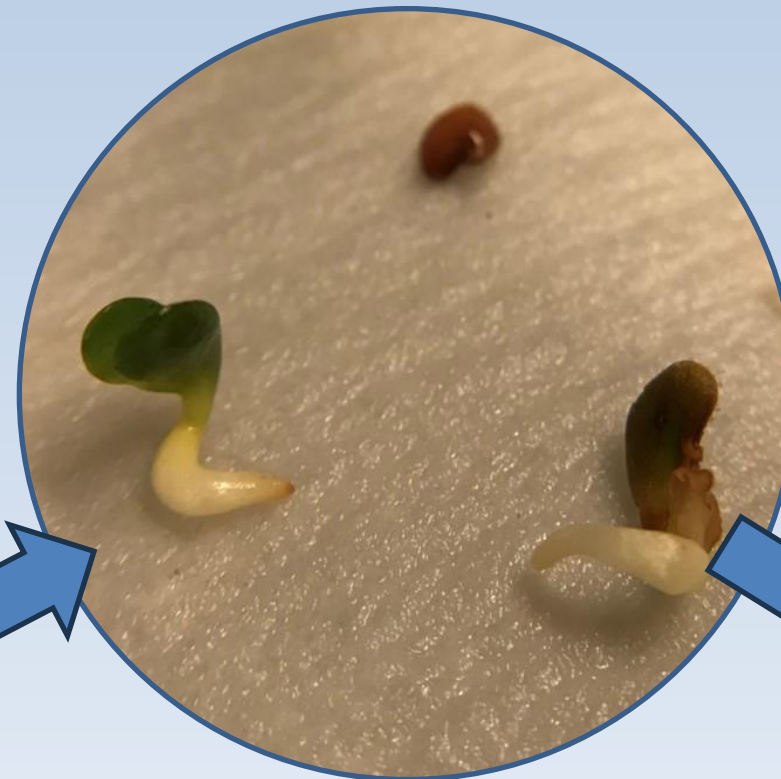
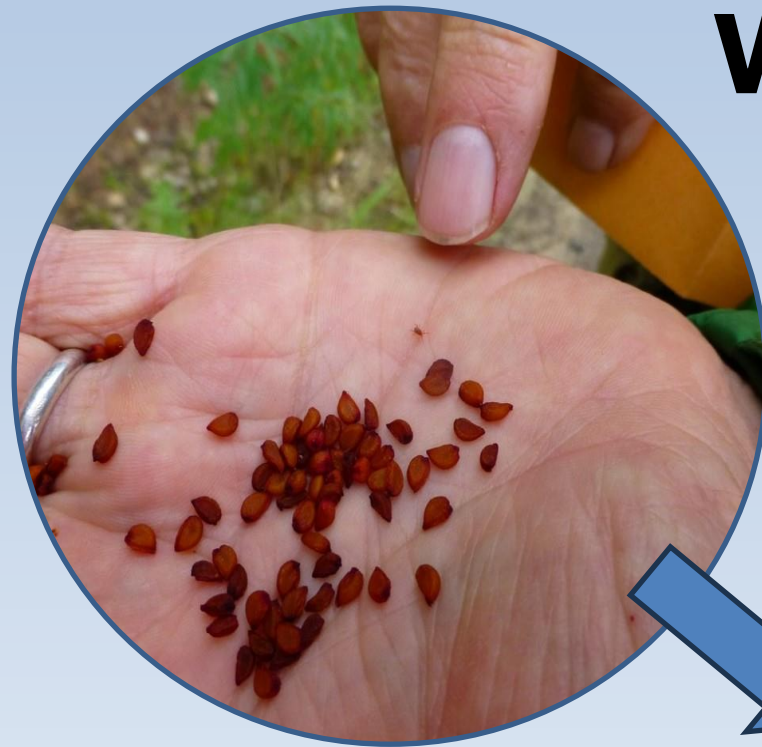


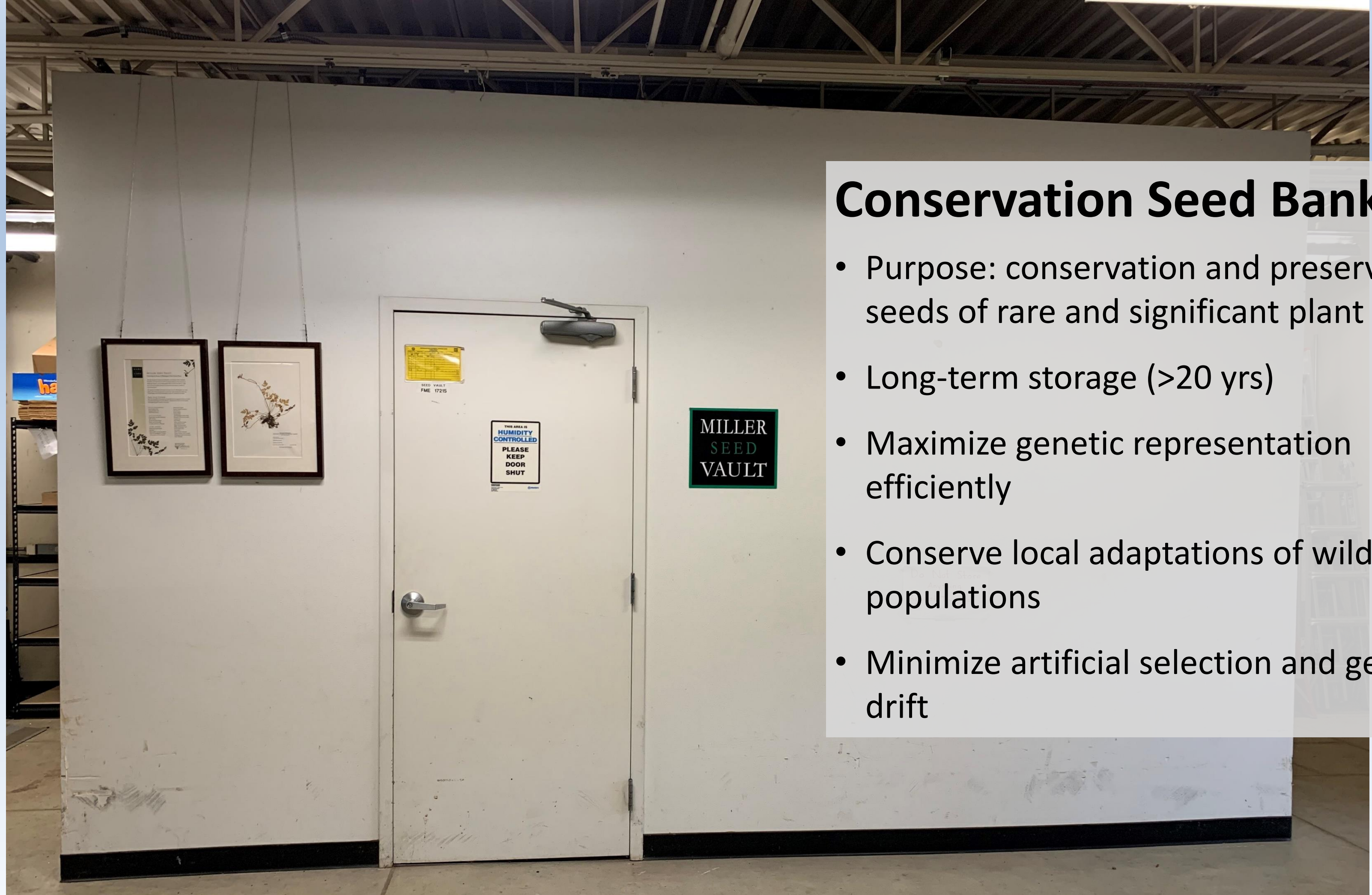
Ex Situ Seed Conservation

Wendy Gibble, UW Botanic Gardens



Conservation Seed Banks

- Purpose: conservation and preservation of seeds of rare and significant plant species
- Long-term storage (>20 yrs)
- Maximize genetic representation efficiently
- Conserve local adaptations of wild populations
- Minimize artificial selection and genetic drift





Key Components of Conservation Seedbanks

- Cold storage facilities
- Equipment to dry seeds
- Data management system
- Agreements for backup
- Viability testing
- Distribution policy

Storage method depends on desiccation tolerance of seeds*

Conventional



Orthodox seeds – seeds that tolerate desiccation

Cryopreservation

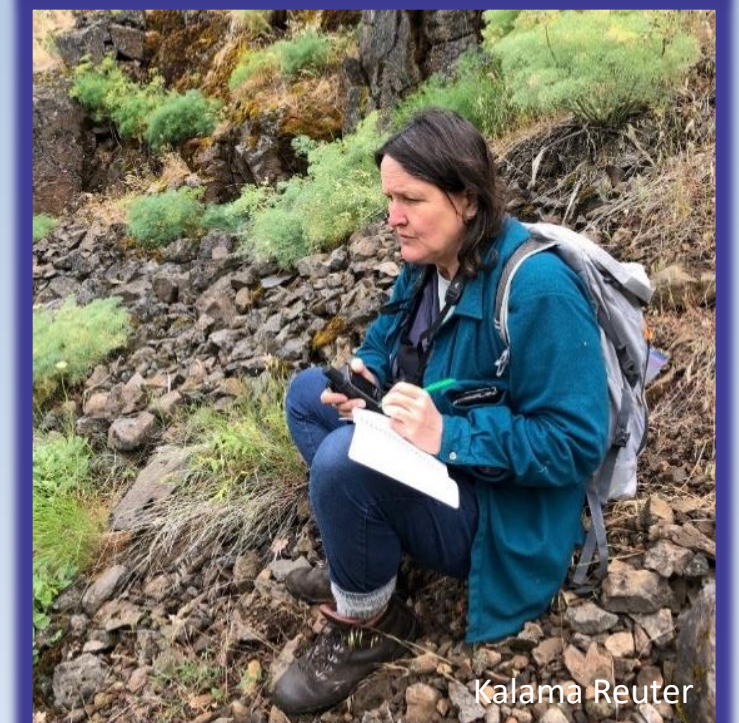
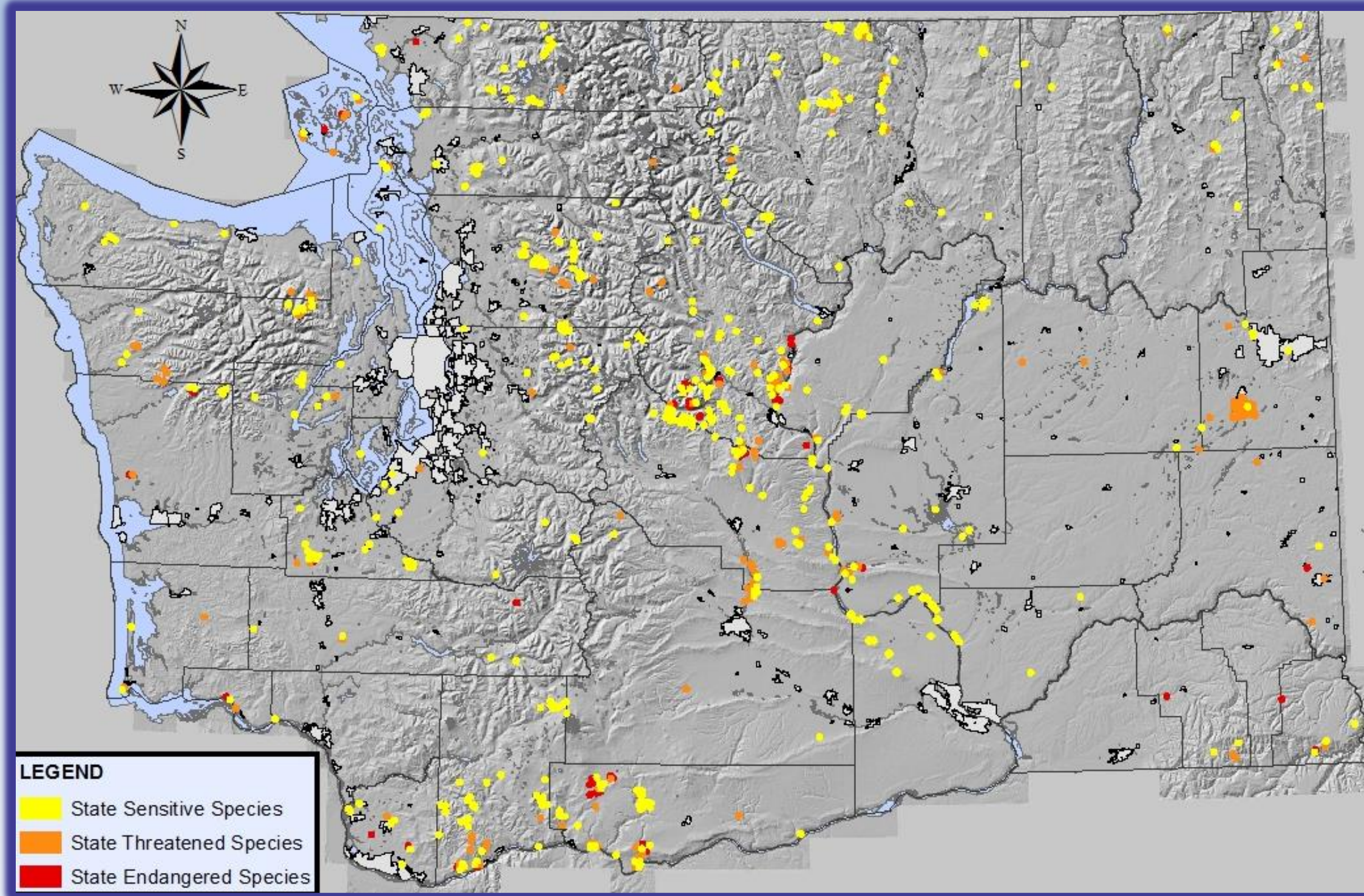


Recalcitrant seeds – seeds that do not tolerate desiccation
Intermediate – seeds that tolerate some desiccation

*Can vary by population or individual

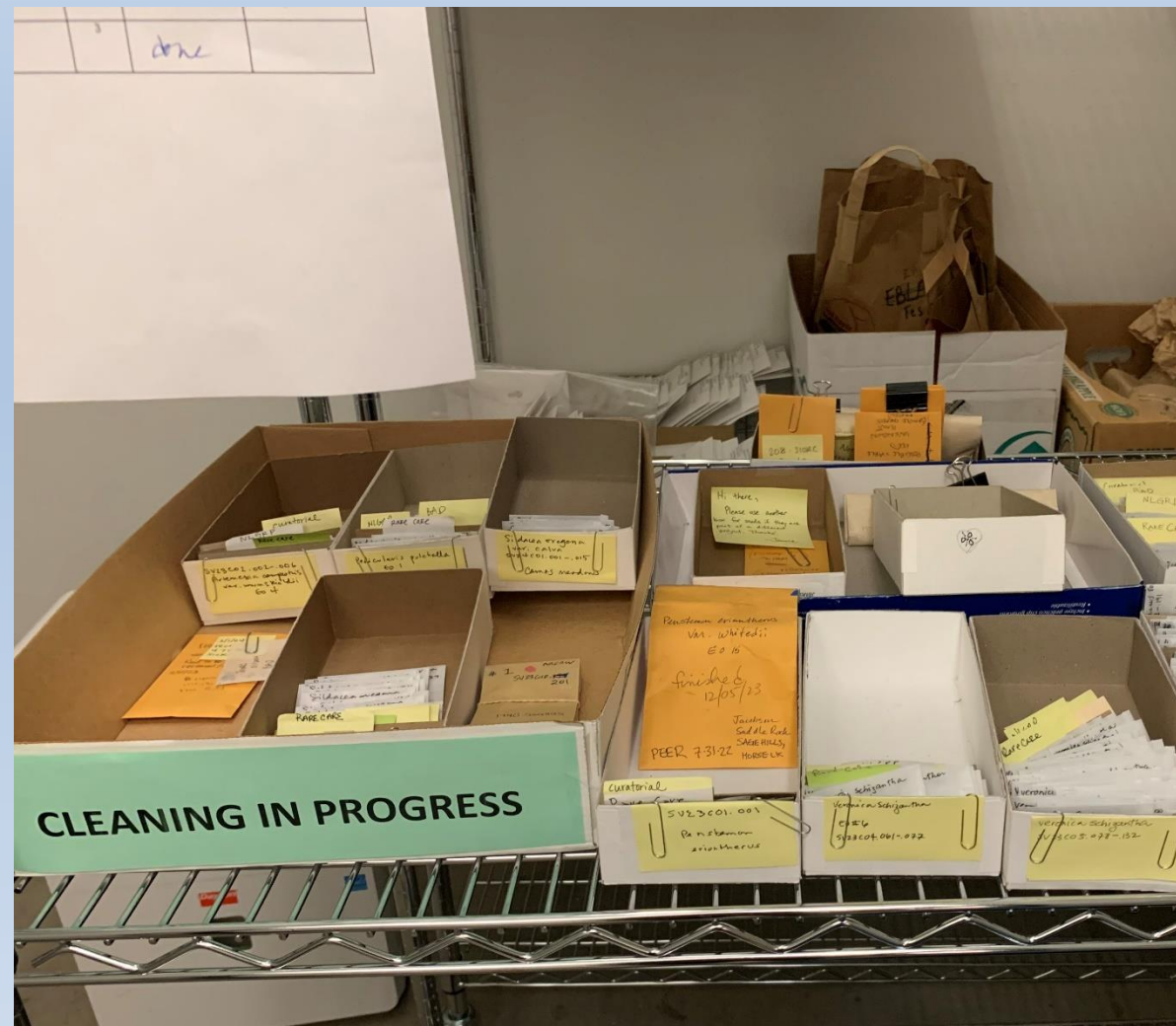
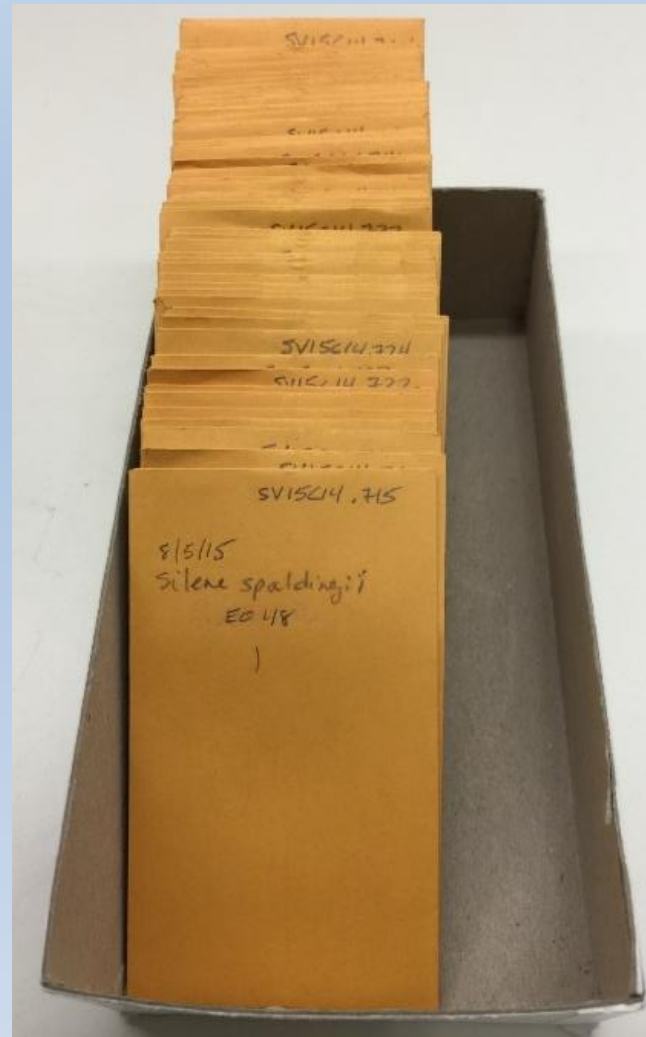
Community Effort

Agency partners, volunteers and staff contribute seed collections



Data Management & Recordkeeping

Accession #	Taxon Name	EO #	Site Name	Managed Area	Ownership	Date Collected	Seed Collector	Number of accessions	Total No. of Seeds Collected
SV19C11.240-293	<i>Synthyris pinnatifida</i> var. <i>lanuginosa</i>	17	Elk Mountain	Olympic National Park	USNPS	8/14/2019	Wendy Gibble, Stacy Kinsell	54	1014
SV19C12.294-357	<i>Oxytropis borealis</i> var. <i>viscida</i>	6	Elk Mountain	Olympic National Park	USNPS	8/14/2019, 8/26/19	Wendy Gibble, Stacy Kinsell	64	1398
SV19C13.376-391	<i>Micranthes tischii</i>	N01	Elk Mountain	Olympic National Park	USNPS	8/14/2019, 8/26/19	Wendy Gibble, Stacy Kinsell	16	769
SV19C14.392-408	<i>Viola flettii</i>	N01	Eagle Point	Olympic National Park	USNPS	8/15/2019	Wendy Gibble, Stacy Kinsell	17	64
SV19C15.409-462	<i>Synthyris pinnatifida</i> var. <i>lanuginosa</i>	21	Eagle Point (Hurricane Ridge)	Olympic National Park	USNPS	8/15/2019	Wendy Gibble, Stacy Kinsell	54	1352
SV19C16.463-465	<i>Micranthes tischii</i>	4	Mount Angeles	Olympic National Park	USNPS	8/27/2019	Maya Kahn-Abrams, Callie Zender	3	42
SV19C17.466-493	<i>Oxytropis campestris</i> var. <i>spicata</i>	9	Trail between Mt. Angeles and Hurricane Ridge	Olympic National Park	USNPS	8/27/2019	Maya Kahn-Abrams, Callie Zender	28	743
SV19C18.494-542	<i>Eriogonum codium</i>	1	Umtanum Ridge	Hanford ERP	USFWS	8/23/2019	Tara Callaway, Heidi Newsome	49	8222
SV19C19.543-592	<i>Penstemon hesperius</i>	1	Lacamas Prairie NAP	Lacamas Prairie NAP	WADNR	8/17/2019	Julie Bresnan	50	5123
SV19C20.593-605	<i>Sullivantia oregana</i>	1	Columbia Falls NAP Archer Falls Archer	Columbia Falls NAP	WADNR	8/17/2019	Julie Bresnan	13	377
SV19C21.606-636	<i>Castilleja cryptantha</i>	10	Shadow Lake	Mt Rainier NP	USNPS	9/25/2019	Callie Zender, Maya Kahn-Abrams	31	11942
SV19C22.637-646	<i>Eriogonum codium</i>	Nursery Plants	Saddle Mtn, Nursery	Hanford ERP	USFWS	6/27/19 to 9/3/19	Jane Abel	10	14
SV19C23.647	<i>Draba lonchocarpa</i>	N/A	Elk Mountain	Olympic National Park	USNPS	8/14/2019	Wendy Gibble	1	9
SV19C24.648-659	<i>Lomatium knokei</i>	1	Cedar Creek Meadows area	Cle Elum RD Okanogan-Wenatchee NF	USFS	8/8/2019	Helen Lau	12	402
SV19C25.660-667	<i>Ranunculus californicus</i>	8	Flint Beach		PVT	5/29/2019	Peter Dunwiddie	8	150

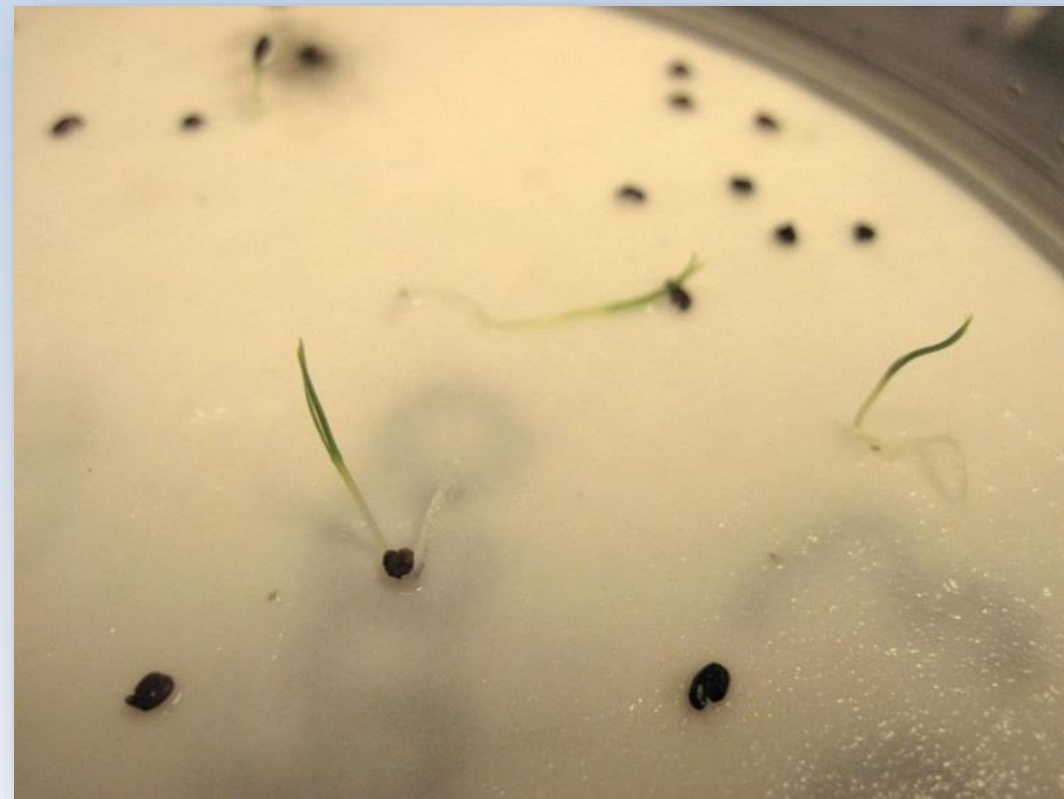


Miller Seed Vault

>1 M seeds conserved representing 149 native plants

Viability and Germination Testing

- What % of the seeds are viable?
- What are the best methods to propagate the species?
- How is viability changing with time?



Distribution Policy

- Seeds only used for species conservation activities, not for sale or for horticultural use
- Activities supported include introductions, research
- Seeds are preserved for agency/land manager of population from which collection was made
- If a third-party requests seeds, we consult with and get permission from land managers prior to distribution



Thank You!

**We are thankful for the support of our partners
and volunteers:**

Agency and non-profit partners

Washington Natural Heritage Program

Our amazing corps of volunteers

And for funding provided by:

Pendleton and Elisabeth C Miller Charitable
Foundation

Bureau of Land Management

US Forest Service

US Fish and Wildlife Service

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