



Bluntflowered Rush (*Juncus pervetus*)

- ▶ Single-site endemic, brackish marsh, Hayannis, Massachusetts, Described by Fernald 1920
- ▶ Last collected in 1927
- ▶ ITU: B
- ▶ Occasionally included within *J. subnodulosus* (European sp)
- ▶ Fernald collected 56 herbarium sheets nearly all with roots.

Dark Extinctions

Since 1994, 4 species have been described (or recognized as distinct) from old herbarium specimens

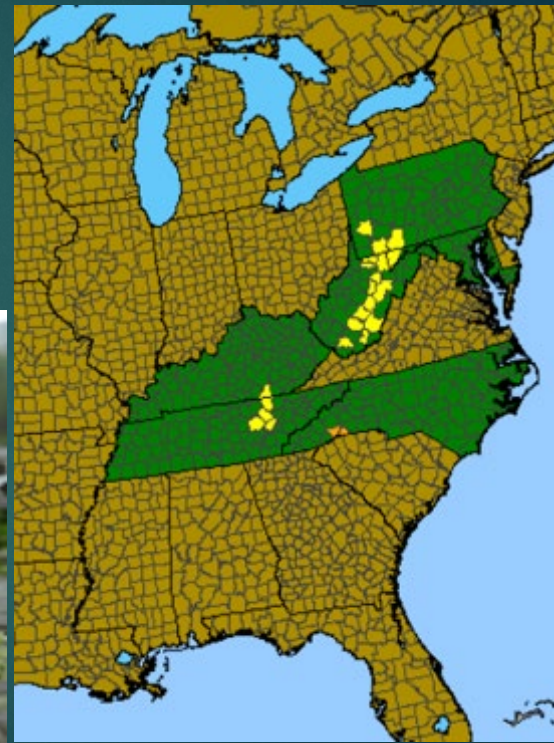
	Last Collected	Described
<i>Corispermum pallidum</i>	1931	1995
<i>Govenia floridana</i>	1964	2000
<i>Marshallia grandiflora</i>	1919	2020*
<i>Potentilla uliginosa</i>	1947	2010



Large Flowered Barbara's-buttons (*Marshallia grandiflora* Beadle & F.E. Boynton)

Derick Poindexter & Alan Weakley (UNC –Chapel Hill)

Bimodal distribution. PA-WV, KY-TN. Disjunct in western NC

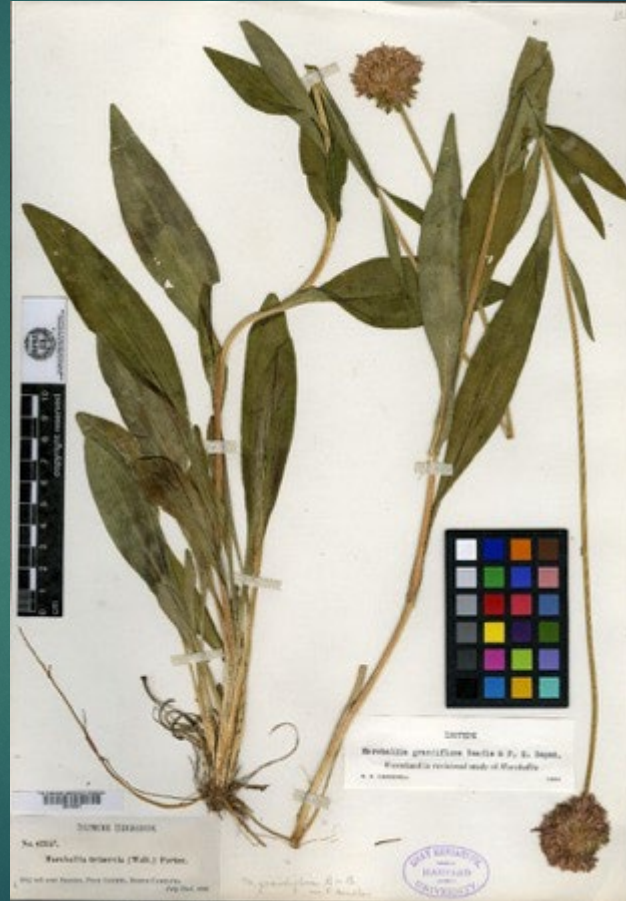


Marshallia grandiflora

PA



NC



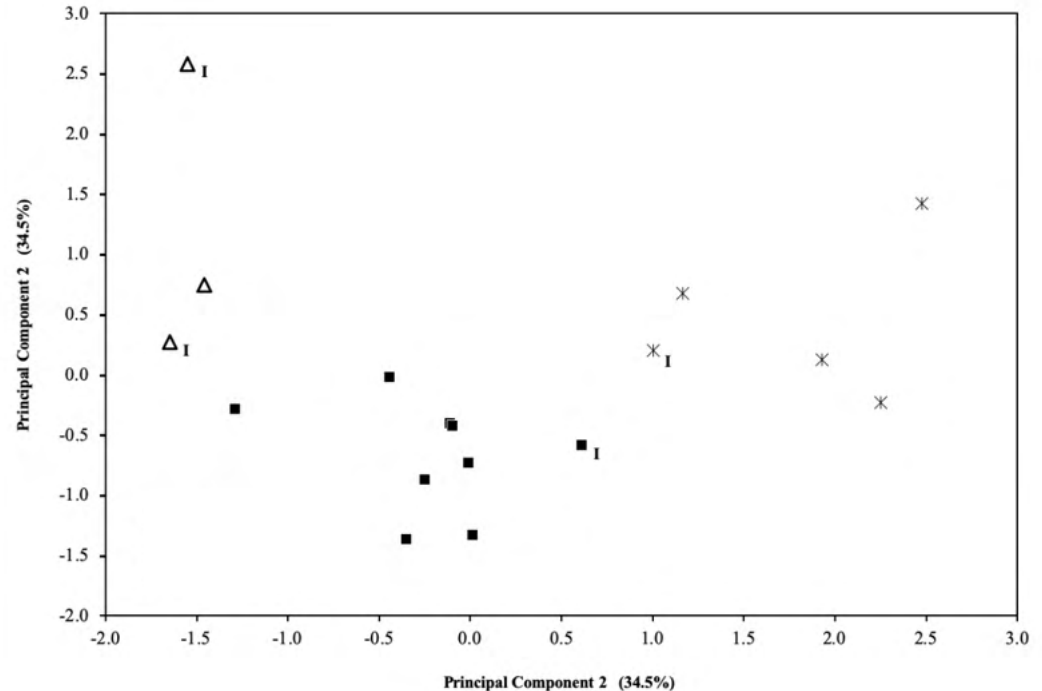
Marshallia cypselae comparison

A = NC Grandiflora
B = Non-NC Grandiflora
C = *M. legrandii*



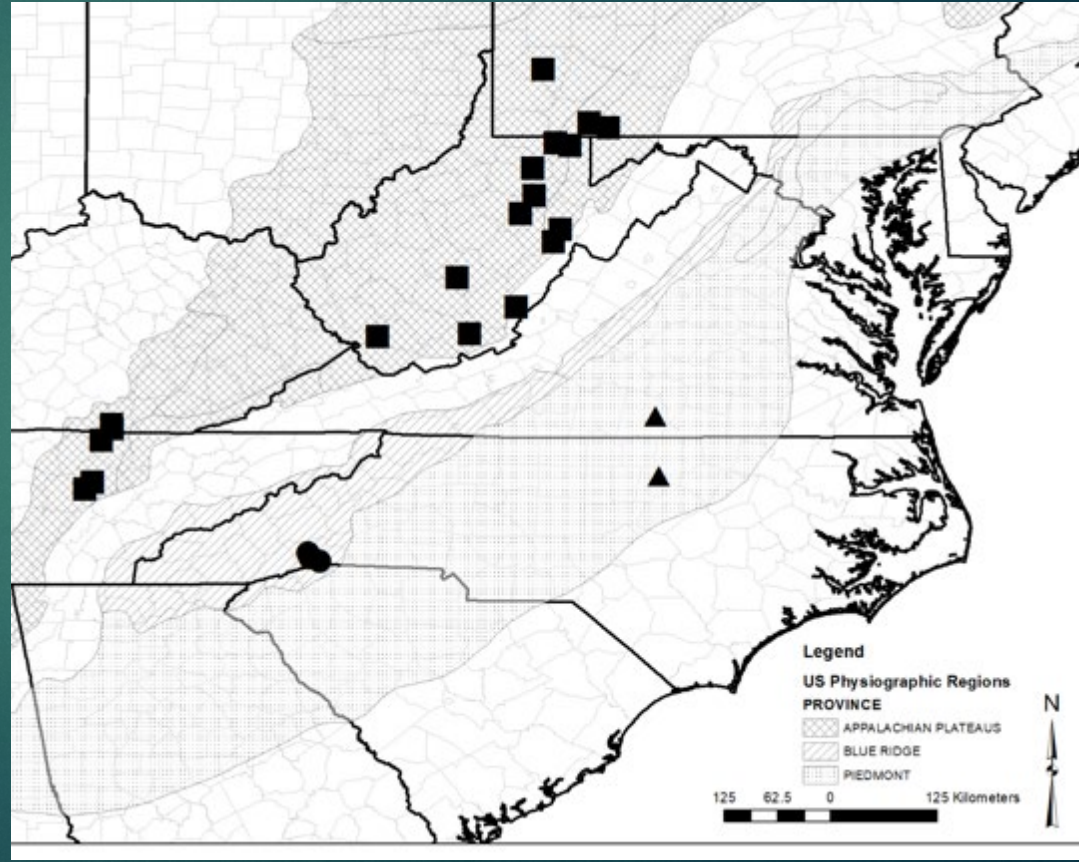
Marshallia grandiflora – statistical comparison

- ▶ NC = 5
- ▶ KY, PA, TN, WV = 9
- ▶ *M. legrandii* = 3 (NC, VA)

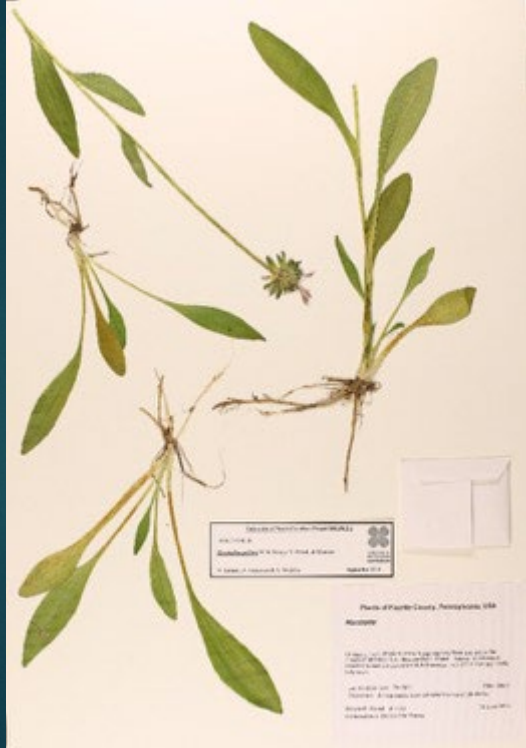


Marshallia geographic ranges

Circle = NC *M. grandiflora*
Square = non-NC *Grandiflora*
Triangles = *M. legrandii*



M. pulchra



M. grandiflora



M. legrandii



Extinct in the Wild (2020)

<i>Arctostaphylos franciscana</i> Eastw.	EW
<i>Crataegus delawarensis</i> Sargent	EW?
<i>Crataegus fecunda</i> Sargent	EW
<i>Crataegus lanuginosa</i> (Engelmann ex Britton & A. Brown) Sargent	EW
<i>Euonymus atropurpureus</i> Jacq. var. <i>cheatumii</i> Lundell	EW?
<i>Franklinia alatamaha</i> Marshall	EW
<i>Prunus maritima</i> Marshall var. <i>gravesii</i> (Small) G.J. Anderson	EW



Stephanomeria malheurensis

- ▶ 6th EW species
- ▶ Endemic to single-site in Oregon
- ▶ Listed as Endangered under E.S.A.
- ▶ Between 2007-2011
 - ▶ 4,500 seedlings planted and watered
 - ▶ 46,000 seeds directly sowed
 - ▶ 150,000 seeds produced by transplants
- ▶ All individuals failed and species has no naturally occurring plants.



Extinction Gardens

- ▶ Collaboration with Mt. Cuba Center, U.S. Botanic Garden, Morton Arboretum, Santa Barbara Botanic Garden, and Portland State University
- ▶ Very much in development, but....



-

Call to ACTION!

- Preventing extinction is the lowest bar we can set for success!
- Not always succeeding in preventing extinction
- Learn from previous extinction events to prevent the next
- Prioritize single-site endemics for *ex situ* and *in situ* conservation




Packera serpenticola JK Marlow

The need to prioritize



BGCI: Plant Search

English (EN) | [En Español \(ES\)](#) | [日本語で \(JA\)](#)

**The only global database of living plant, seed and tissue collections:**

- Search 1,375,498 collection records, representing 557,942 taxa, at 1,117 contributing institutions
- Locate threatened, rare, medicinal and other plant species in living collections
- Connect with living collections to aid your conservation, education and research efforts

Enter search criteria below (all fields optional)

Scientific name:
Genus Species Infraspecific Epithet ☐ Exclude cultivar names

Conservation Status: IUCN Red List **Additional Status:** Crop Wild Relative

IUCN Red List 1997 ☐ Medicinal plant species

☐ CITES listed species

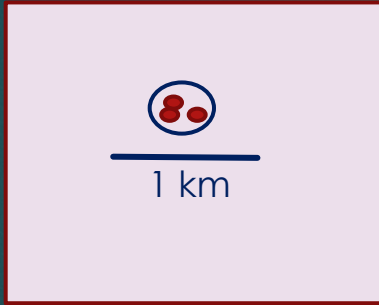
☐ Threatened Global Trees Campaign species

[Which IUCN list should I choose?](#)

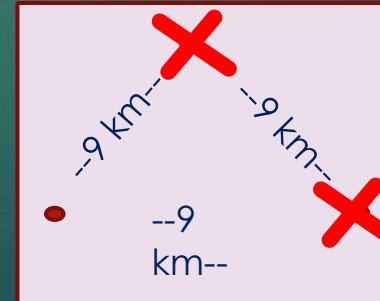
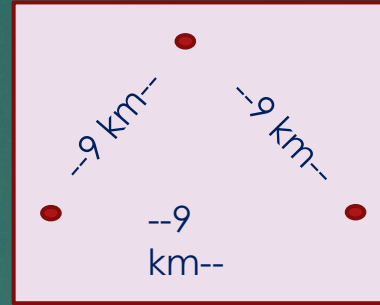
#	Plant Name	Name Status	IUCN Red List	IUCN Red List 1997	CITES Appendix	Invasive Species Fact Sheet	Pest and disease factsheet	CWR	No. of ex situ sites worldwide	Contact Gardens
No plants found.										

One Known Occurrence (O.K.O.)

Single-Site Endemics (SSEs)

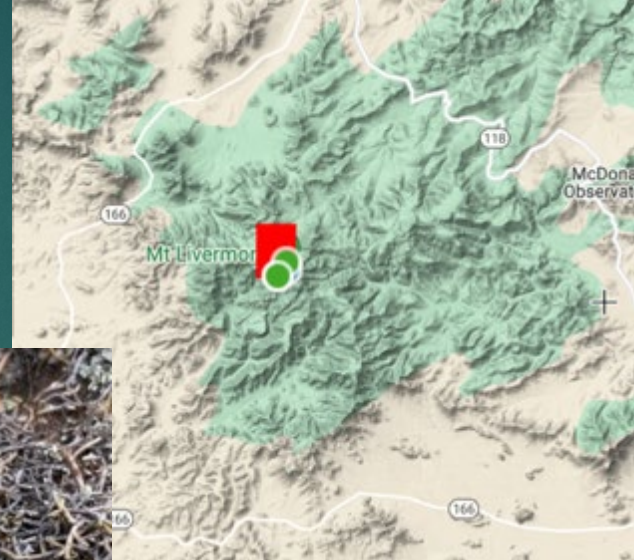


One Known Occurrence



Global Single-Site Endemic (SSE)

Arenaria livermorensis Correll

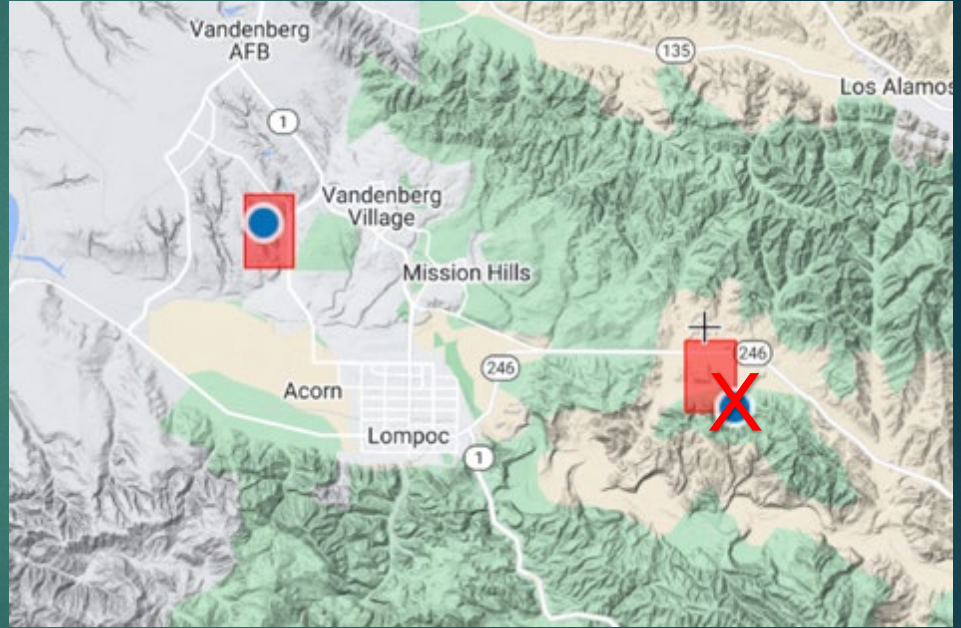


Plants of One Known Occurrence (OKO)

- ▶ *Ancistrocarphus keilii* Morefield



Photo by J. Morefield
www.calfora.org



Alaska
1*

2*

2*

3*

2*

1*

1

1

5*

11*

2*

29*

2*

1*

1

1

2

3

1

12*

2

2

2

3

Range-Size Rarity for
Imperiled Plants

Low: 0

High: 1.4

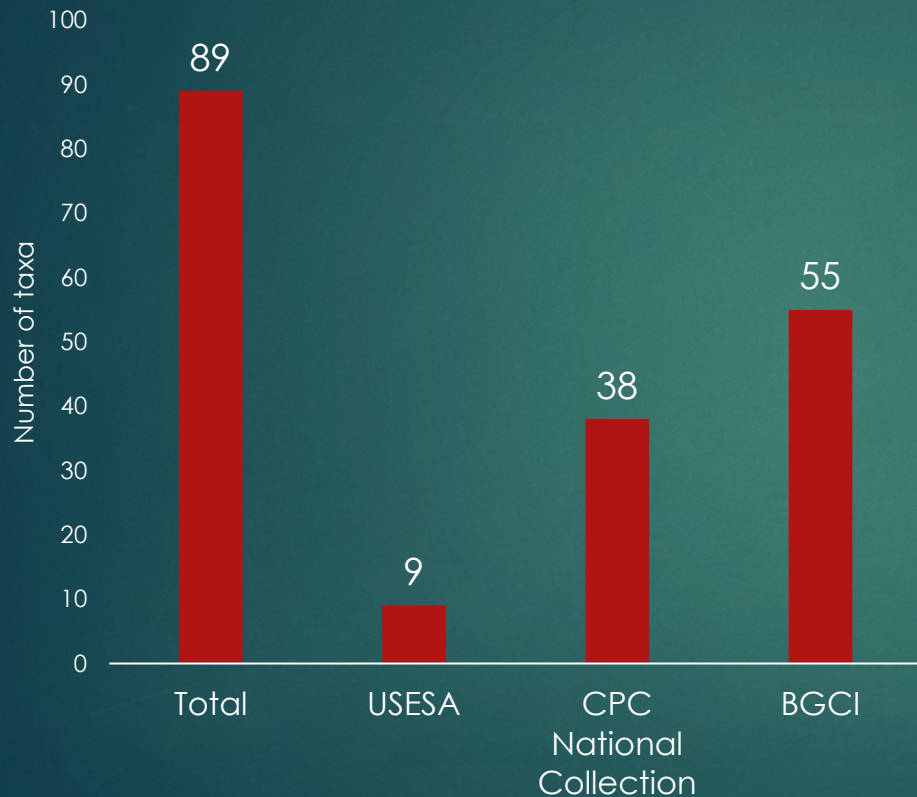
* = Very early

The Map of Biodiversity Importance

draft
Range-Size Rarity for Imperiled Plants

Conservation of plant of One Known Occurrence (OKO)

How are we doing?



Solidago plumosa Small

Smooth Slender Crabgrass

(*Digitaria filiformis* var. *laeviglumis*)

- ▶ Single-site endemic, Rock Rimmon, Manchester, NH. Dry peaty hollows in granite ledge.
- ▶ 30-meter temperate ridge-cliff-talus (Sperduto 2011).
- ▶ Described by Fernald 1920
- ▶ Last collected in 1931 “think humus in shallow depressions of granite ledge”
- ▶ ITU: B
- ▶ Fernald collected 31 herbarium sheets of material, all with roots (38 total collections known)
- ▶ Ranked GH (possibly extinct) in 2020 paper*



Smooth Slender Crabgrass

(*Digitaria filiformis* var. *laeviglumis*)

- ▶ Reported from Mexico and Venezuela



Research article

New records of *Digitaria filiformis* var. *laeviglumis* (Paniceae, Panicoideae, Poaceae) for the Flora del Bajío and Durango, Mexico

Nuevos registros de *Digitaria filiformis* var. *laeviglumis* (Paniceae, Panicoideae, Poaceae) para la Flora del Bajío y Durango, México

J. Gabriel Sánchez-Ken