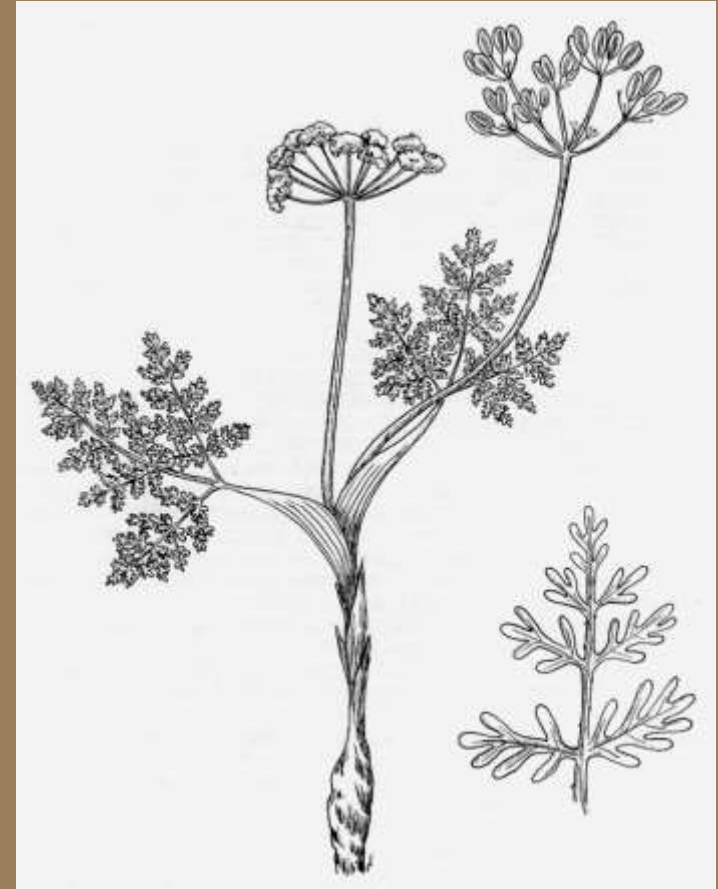




Prioritizing Vascular Plant Species for Conservation: Some Lessons from Wyoming

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Absaroka biscuitroot
(*Lomatium attenuatum*)



Prioritizing Species

Center for Plant Conservation predicts that 20-33% of vascular plant species in US are threatened with local or range-wide extinction



Wyoming kittentails
(*Besseyia wyomingensis*)



Prioritizing Species

Resources for plant conservation are limited: \$\$, personnel, time

Which species should receive conservation attention first?

Weber's scarlet gilia
(*Ipomopsis aggregata* ssp. *weberi*)



Prioritizing Species

NatureServe system

Species ranked globally and sub-nationally (state/province), 1-5

Traditionally, ranks driven by # of occurrences; now include many criteria



Hyattville milkvetch
(*Astragalus jejunos* var.
articulatus)



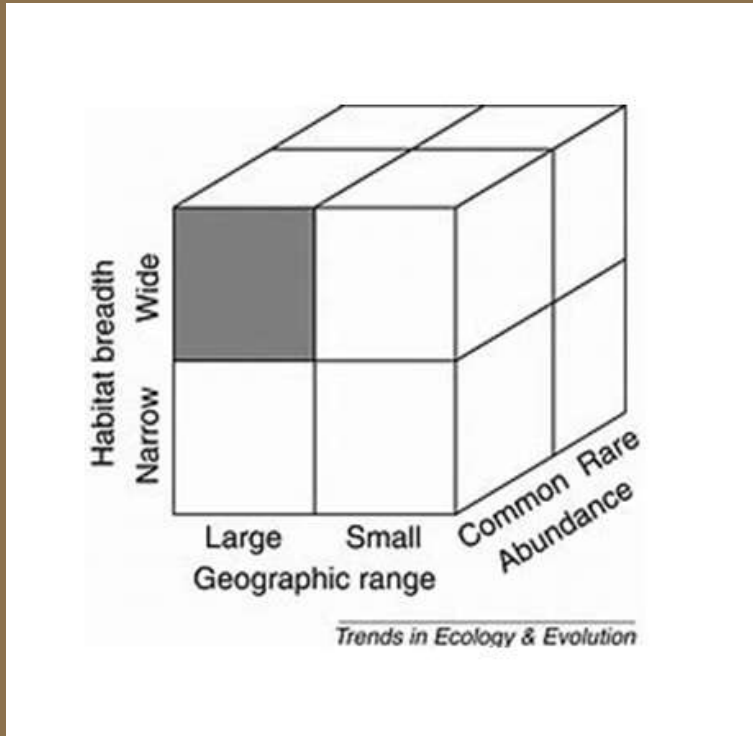
Prioritizing Species

Rabinowitz (1981)
“Seven forms of rarity”

Focus on abundance,
geographic range, &
habitat specificity

Simple binary scoring

Transparent

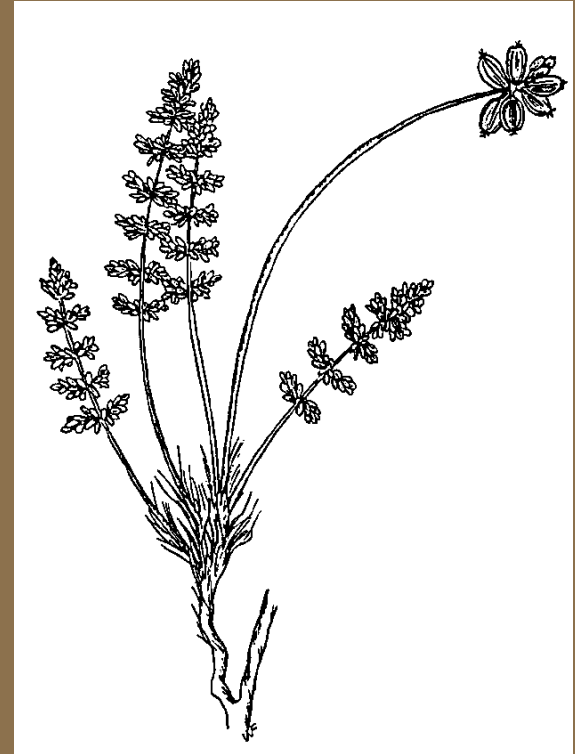


Prioritizing Species

Need for quick 'triage'
to make sure all of the
most vulnerable spp
are assessed

Issues with uncertainty
(IUCN)

Need for transparency



Evert's spring-parsley
(*Cymopterus evertii*)



Prioritizing Species

“Wyoming” system
borrows from others

Multiple factors of rarity
(NatureServe)

Uncertainty (IUCN)

Ease of use &
transparency (Rabinowitz)



Narrowleaf arnica
(*Arnica angustifolia*)



WY System: 7 Ranking Criteria

1. Geographic Range
2. Abundance
3. Habitat Specificity
4. # of Populations
5. Intrinsic Rarity
6. Magnitude & Imminence of Threats
7. Population Trend



Arizona bluebells
(*Mertensia arizonica*)



Scoring

All criteria (except geographic range) rated as high, low, or unknown by expert team

Highs or lows scored 1 (high risk) or 0 (secure) as appropriate

Unknowns = 0 or 1



Scoring

Abundance (# of individuals)

Low	Medium	High
0 100	10,000 50,000	100,000
1 point	0 points	

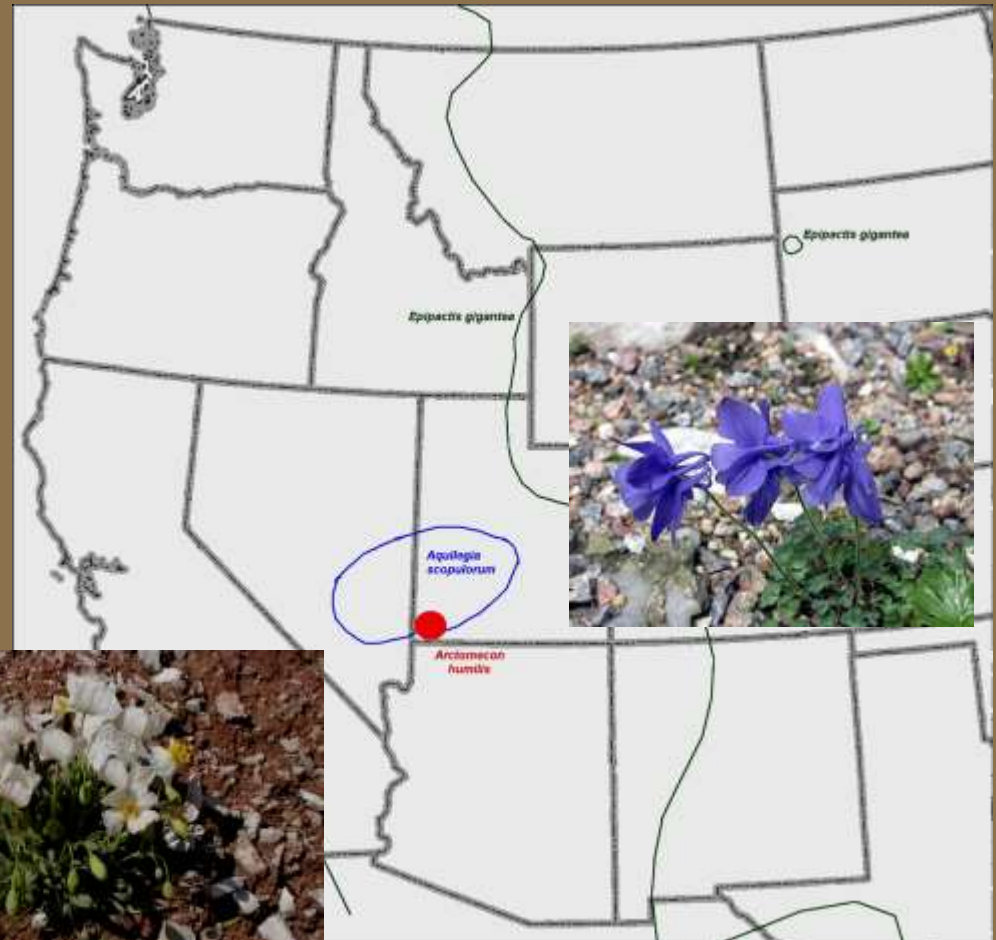


Geographic Range

Local Endemic (2)

Regional Endemic (1)

Rock columbine
(*Aquilegia scopulorum*)



Dwarf bearpaw poppy
(*Arctomecon humilis*)



Geographic Range

Peripheral (1)

Disjunct (1)

Widespread (0)

Giant helleborine
(*Epipactis gigantea*)



WY System: Summary Scores

Two Scores:

Minimum score = sum of numeric values for all 7 criteria (0-8); unknowns = 0

Potential score = sum of all numeric values + all unknowns = 1



Heartleaf nippletwist
(*Streptanthus cordatus*)



WY System: Translating Scores

**Extremely High priority =
7-8 pts**

High Priority = 6 pts

Watch list = 5 pts

Medium priority = 4 pts

Need data = 3+ unknowns



Sidesaddle bladderpod
(*Lesquerella arenosa*
var. *argillosa*)



Desert yellowhead

**Geographic Range: local
endemic (2)**

Populations: low (1)

Abundance: low (1)

**Habitat Specificity: high
(1)**

Intrinsic rarity: high (1)

Threats: high (1)

Trend: stable (0)



Yermo xanthocephalus

**Min Score: 7
Pot Score: 7
Rank: Ex High**



Hoary willow

Geographic Range:
peripheral (1)
Populations: low (1)
Abundance: low (1)
Habitat Specificity: high
(1)
Intrinsic rarity: low (0)
Threats: low (0)
Trend: unk



Salix candida by Joe Rocchio

Min Score: 4
Pot Score: 5
Rank: Medium

Western skunk cabbage

Geographic Range:
peripheral (1)
Populations: unk
Abundance: unk
Habitat Specificity:
high (1)
Intrinsic rarity: low
(0)
Threats: unk
Trend: unk



Lysichiton americanus by Joe Rocchio

Min Score: 2
Pot Score: 6
Rank: Need Data



WY System: Results

**Of 2483 native vascular
plant taxa in WY:**

Ex High priority: 13

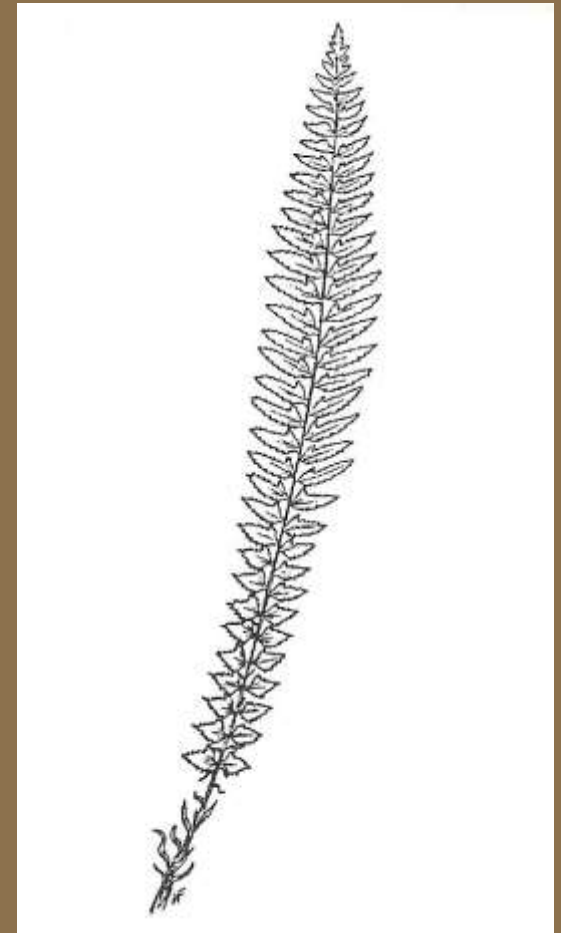
High priority: 33

Watch list: 86

Medium priority: 431

Low priority: 1859

Need Data: 61



Northern hollyfern
(*Polystichum lonchitis*)



WY System: Results

22% of WY flora of some conservation significance (ExHigh to Med)

<2% identified as ExHigh & High priority – conservation attention can be focused more strategically



Twinleaf cinquefoil
(*Potentilla subjuga*)



WY System: Results

38 of 46 ExHigh & High priority species were listed as Threatened, Endangered, or Sensitive

Good congruence with NatureServe ranks



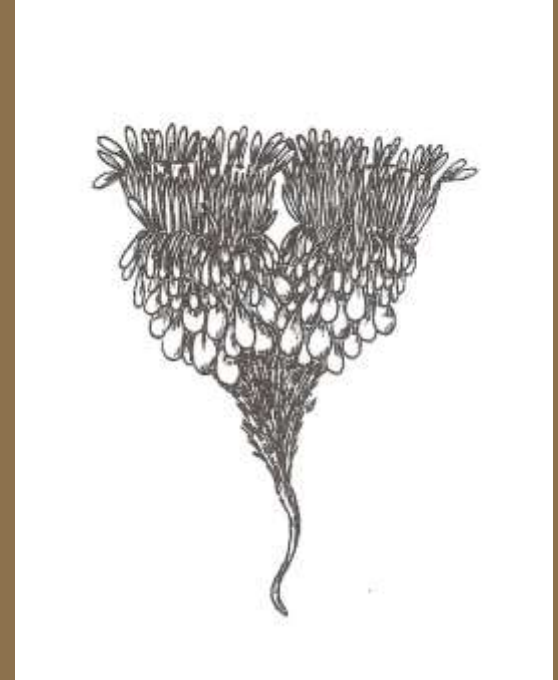
Large yellow lady's-slipper
(*Cypripedium parviflorum*
var. *pubescens*)



WY System: Results

**Habitat specificity
contributed the most to
rarity (44% of all spp.)**

**Optional in NatureServe
ranking and not used by
IUCN**



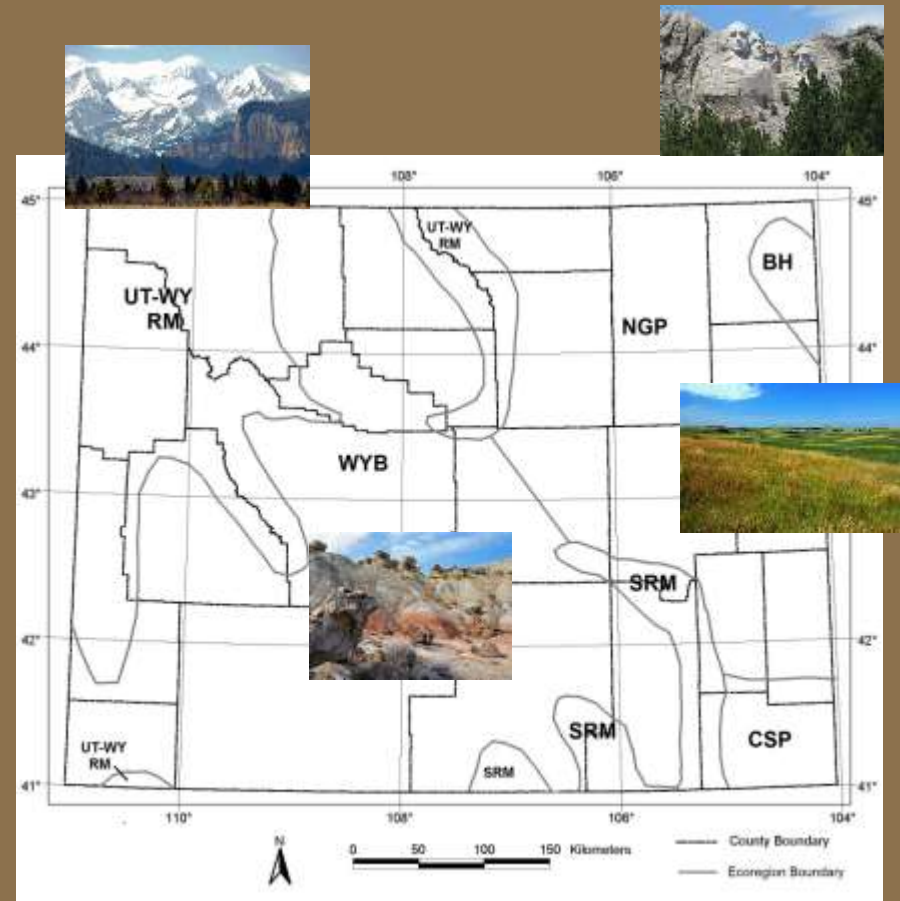
**Cushion Easter-daisy
(*Townsendia condensata*)**



WY System: Applications

Identify geographic areas of high conservation value

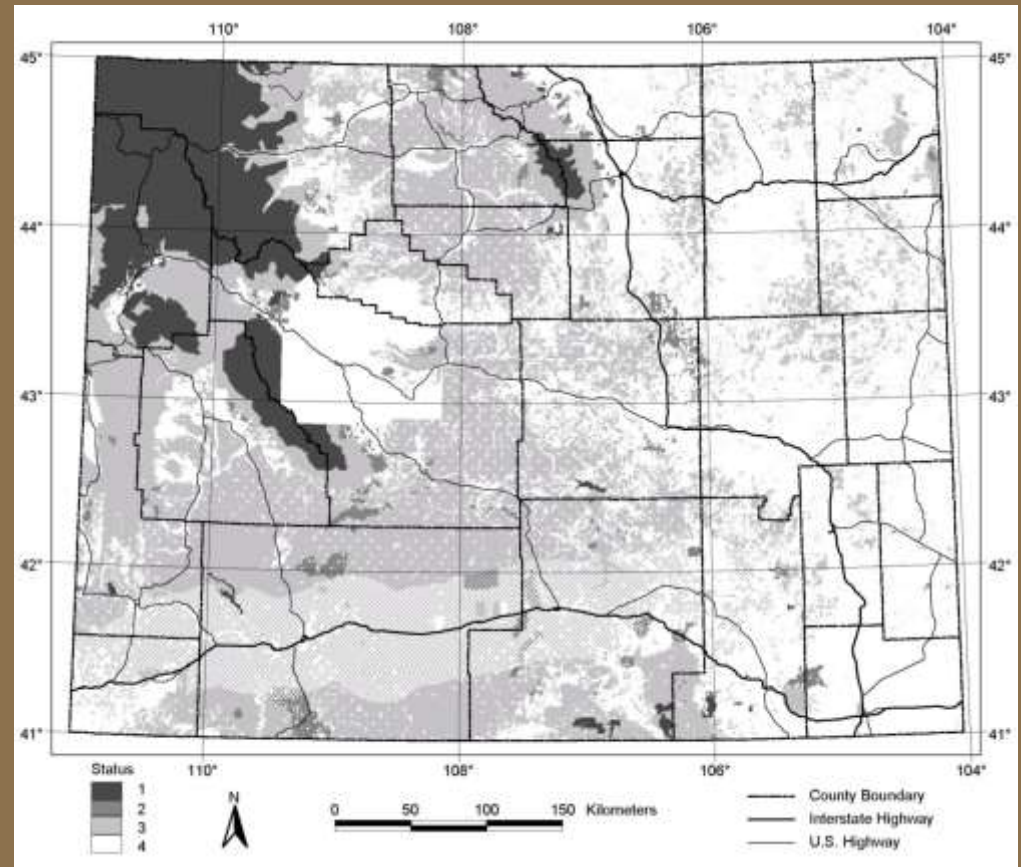
50% of ExHigh & High priority species are from the Wyoming Basins ecoregion and desert habitats



WY System: Applications

Identify species that are not protected

Rare species 2x less likely to be in protected areas than common species



WY System: Applications

Identify new taxa that should be tracked in Washington

Help prioritize among existing tracked spp

Help identify gaps in the Natural Areas network



Triangle-lobed moonwort
(*Botrychium ascendens*)





Have a nice daisy



