

Southwest Alaska Network: Vascular Plant Inventories



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Acknowledgements



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- Botanists – Bruce Bennett, Koren Bosworth, Michael Duffy, Anna Jensen, Michelle Sturdy, Ian Pierce, Phil Caswell, Eve Laeger

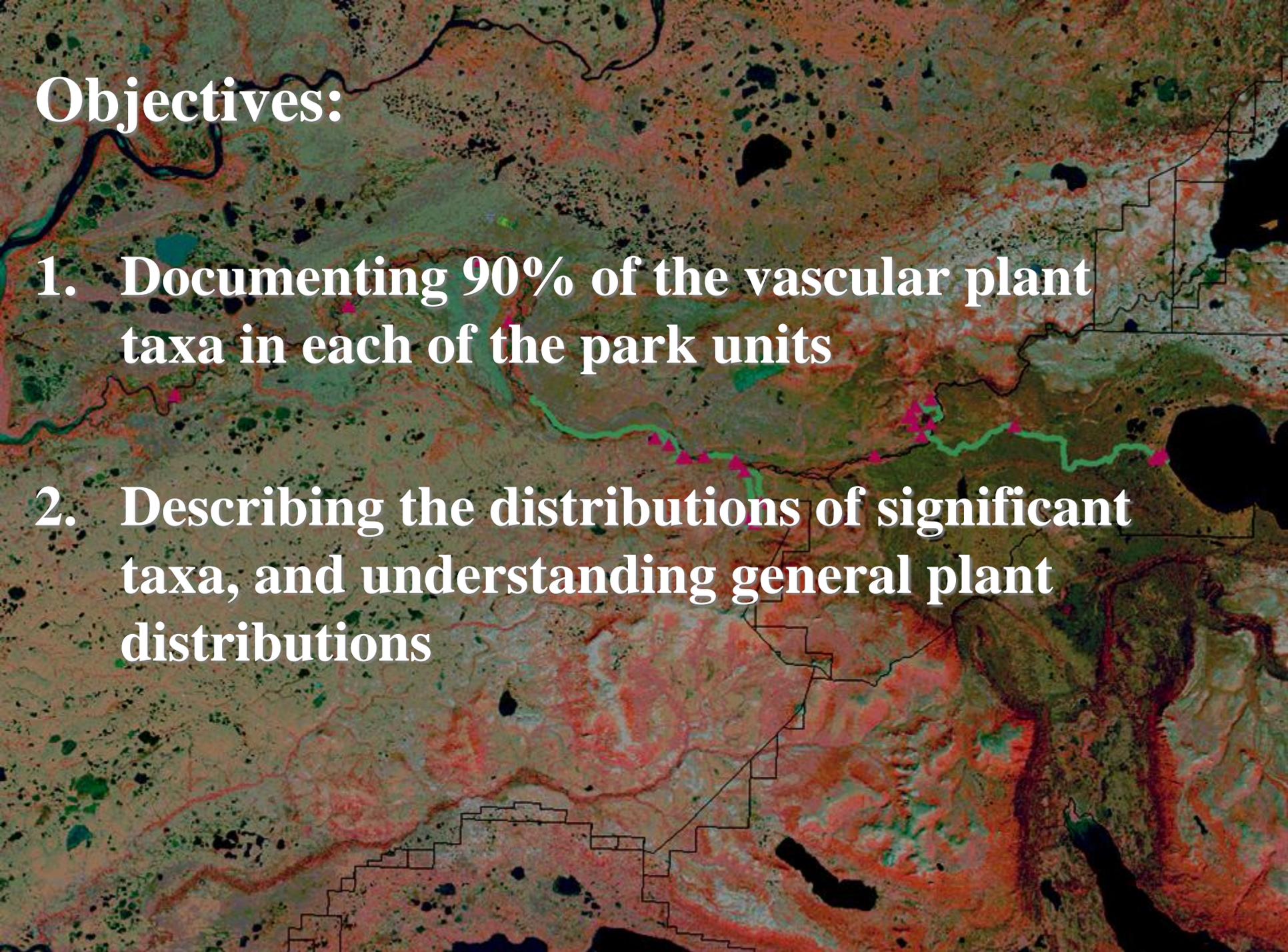
- UA Museum – Carolyn Parker, Al Batten, other taxonomic authorities



Overview

- Objectives
- Methods (briefly)
- Results & Discussion
- Patterns
- Recommendations



An aerial photograph of a landscape, likely a park or natural area. The terrain is a mix of green, brown, and red, suggesting different vegetation types or soil conditions. A prominent river or stream flows through the center of the image. Several black lines delineate park units or administrative boundaries. The text is overlaid on the image in white, bold font.

Objectives:

1. Documenting 90% of the vascular plant taxa in each of the park units
2. Describing the distributions of significant taxa, and understanding general plant distributions

2001 Lake Clark

SWAN Physiography
Southwest National Park Inventory & Monitoring Program

2002 Katmai & Alagnak River

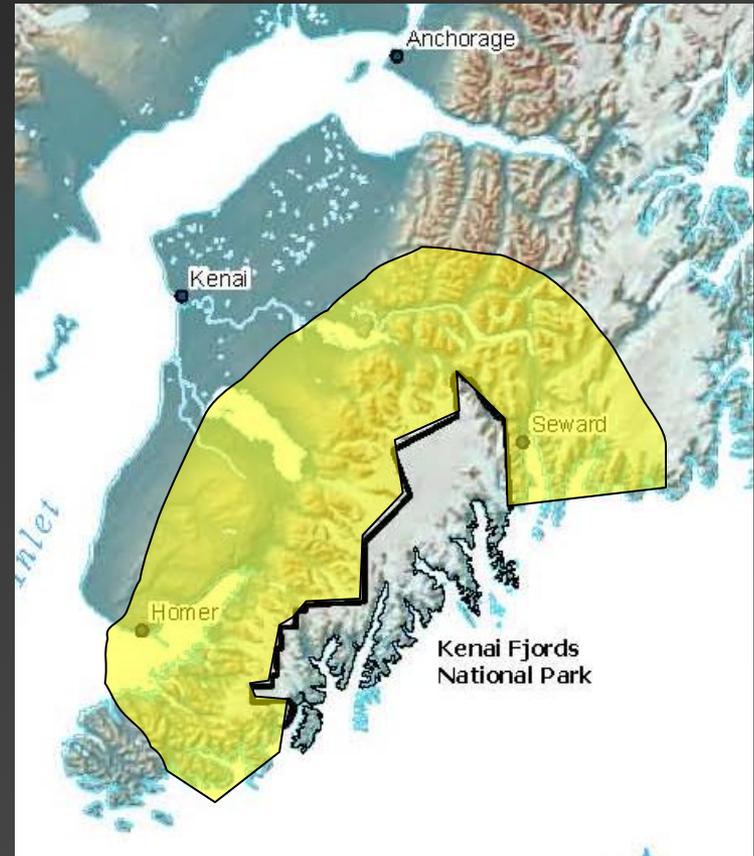
2003 Kenai Fjords

2004 Aniakchak



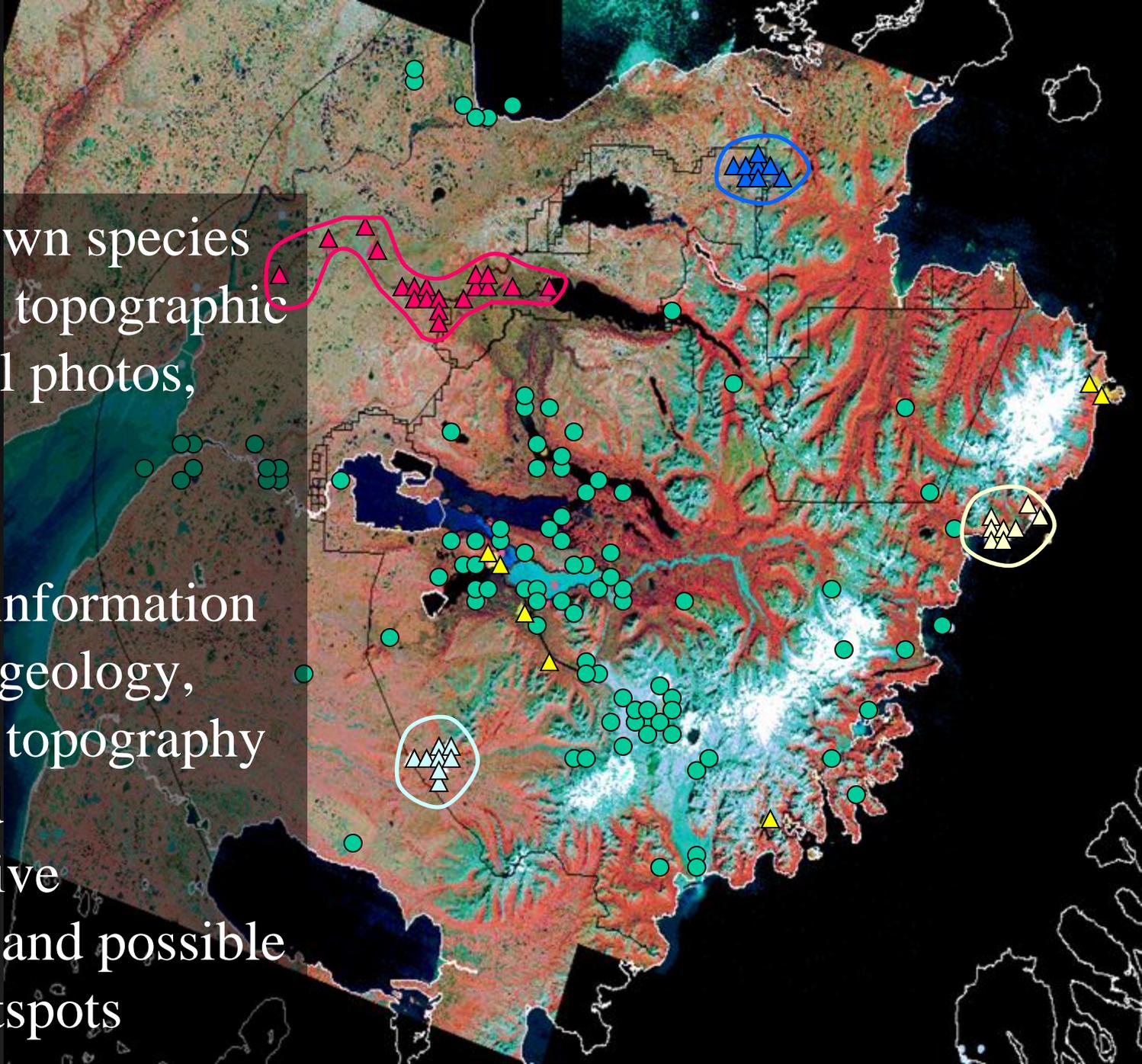
Methods

- How to achieve 90% of expected flora?
- 1st used existing collections to create a database of taxa known to occur
- 2nd made a list of taxa expected to occur in the units
 - based on 50 km buffer, knowledge about ecological requirements, etc.
 - However...
- Units had ca. 40-55% of “expected species” documented



Methods

- Plotted known species into GIS (+ topographic maps, aerial photos, etc.)
- Using this information along with geology, vegetation, topography we selected representative ecoregions and possible floristic hotspots



Results

- 1,279 taxa collected in in the five units
 - (2,186 specimens)
- 545 of these are new species records for the units
- “Known flora” was increased by ca. 30% in all parks
 - Total known = 74 – 84%



Results and Discussion

- It's not just how much, but *what* you collect:

Non-native species

- Collected 14 non-native species in Lake Clark, Katmai, Kenai Fjords, (0 in ANIA & ALAG)
 - Low numbers
 - Not particularly threatening
 - Always associated with human habitation/disturbance



Results and Discussion

Rare species

- 13 Globally rare (G1-G3) or regionally rare (S1-S3) species collected
 - Contributions from all parks
 - Of the AK's 30 rarest plants, 2 are represented in SWAN parks



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Results and Discussion

Species New to Science:

- Alpine rockcress (*Arabis* sp. nov.) from Saddle Mnt. Lake Clark
- Jacob's Ladder (*Polemonium* sp. nov.) from Aniakchak Crater



Results and Discussion

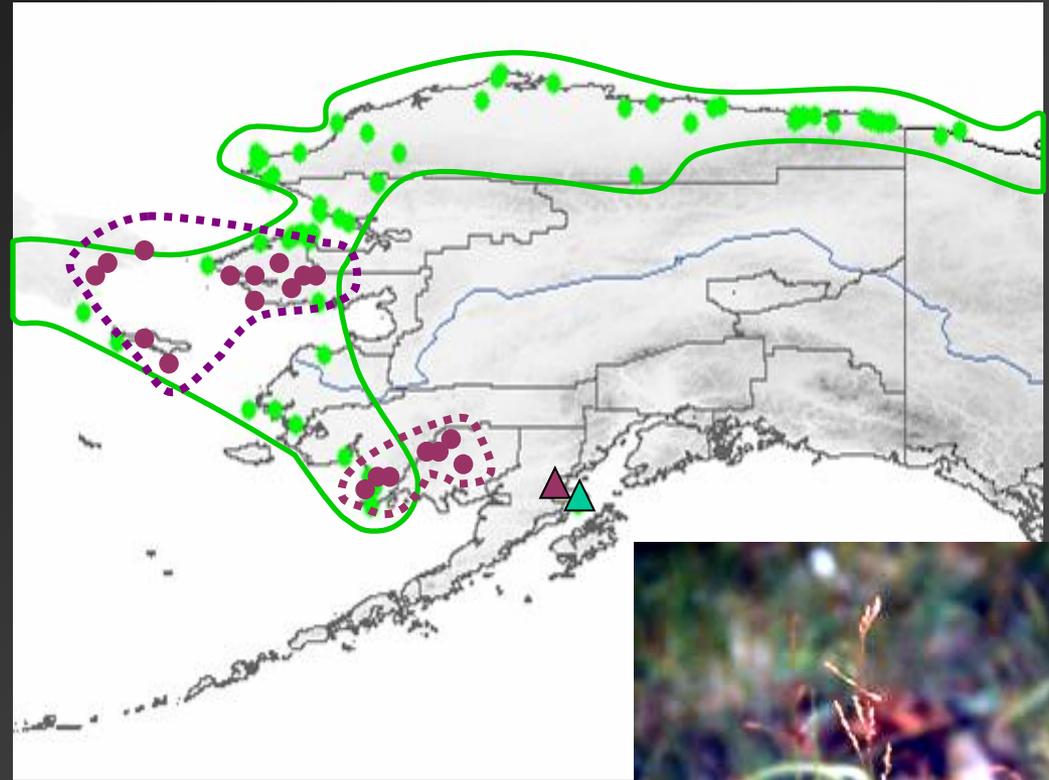
Range extensions-Range filling

- 20 species collected > 200 km from known sites (from all units except ALAG)
 1. Interior-montane species found south of known range
 2. Range filling of Aleutian-Gulf Coastal species
 3. Western Arctic disjuncts

Results and Discussion

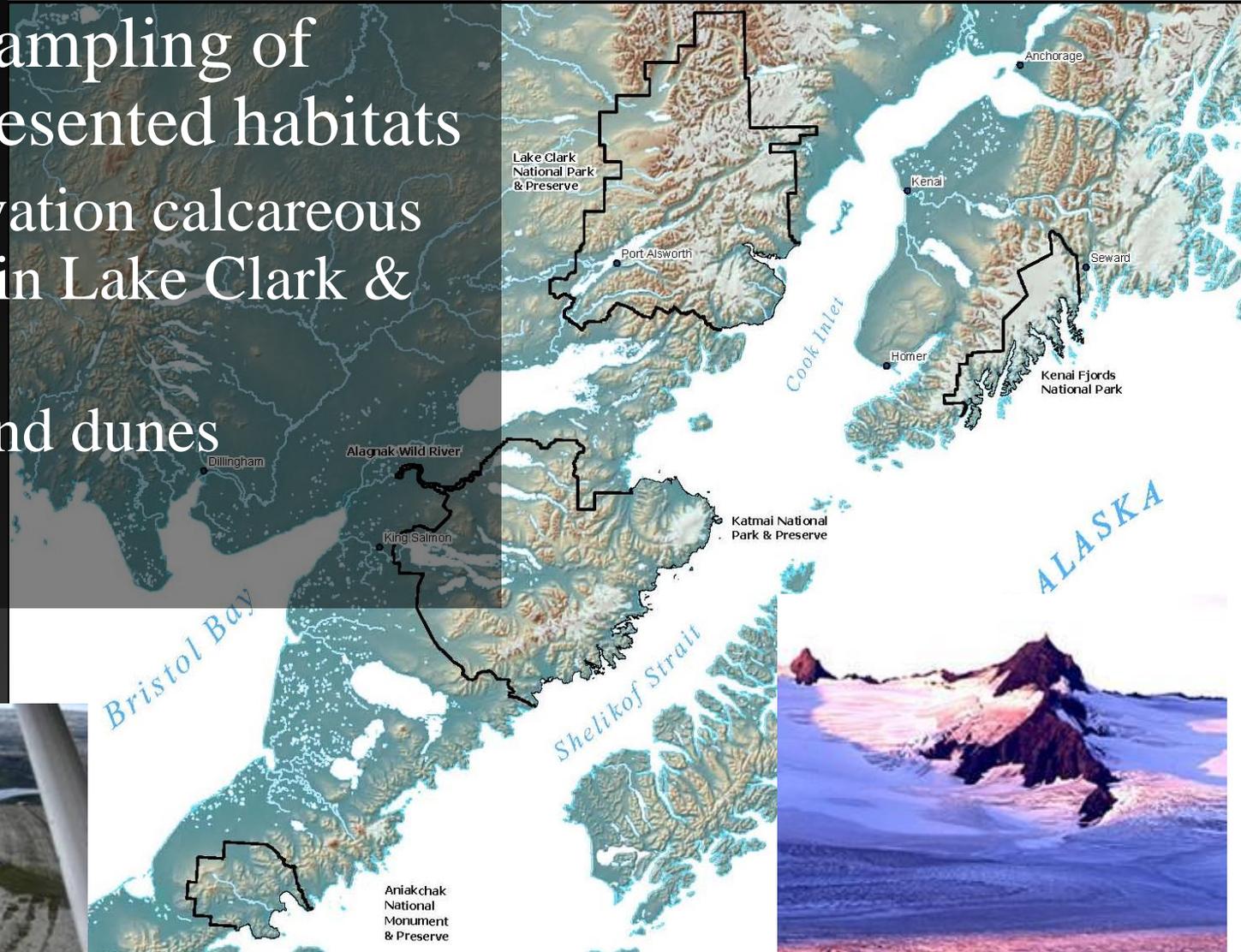
Arctic Disjuncts

- Chukchi Primrose
- Tundra Grass



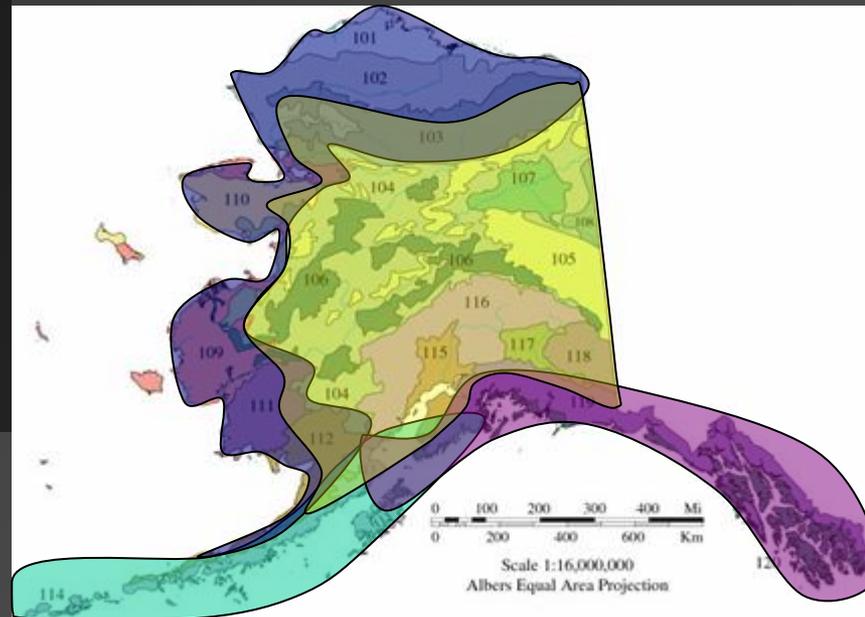
Recommendations

- Targeted sampling of under-represented habitats
 - High elevation calcareous outcrops in Lake Clark & Katmai
 - Inland sand dunes
 - Nunataks



Recommendations

- Address phylogeography of representative groups
 - Population genetic information
 - Revisit Hultén's hypotheses
 - What is responsible for the diversity and intersection of floras?



Recommendations

- Plants as bioindicators of ecological change:
 - Population viability analyses (rare species) coupled with ecological studies
 - Advantages...
 - Address taxonomic questions



