

Distinguishing Between Two Species of Monkshood (*Aconitum* sp.)

by Katie Kokx



Aconitum delphiniifolium



Aconitum maximum

Outline

- Distinguishing genus *Aconitum* from the family Ranunculaceae
- Similarities
- Distribution Differences
- Leaf Differences
- Flower Differences
- Corm Differences
- Fun Facts
- Summary

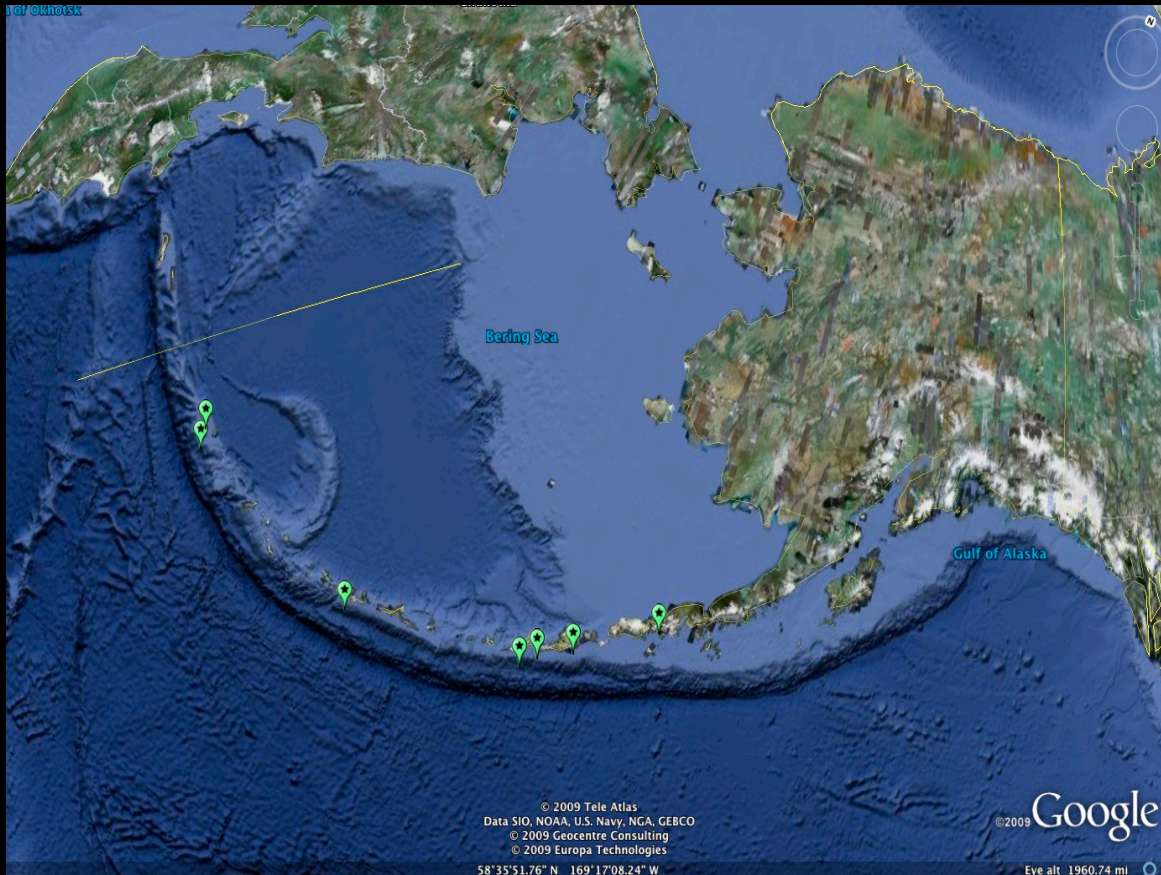
What Distinguishes Aconitum?

- Fruit:
 - dry capsule or a follicle with one suture
- Flowers:
 - Petaloid sepals (5 sepals 2 petals)
 - Have helmet (hooded) formed from one sepal
 - lack a nectar spur
 - Zygomorphic

Similarities of *A. maximum* & *A. delphiniifolium*

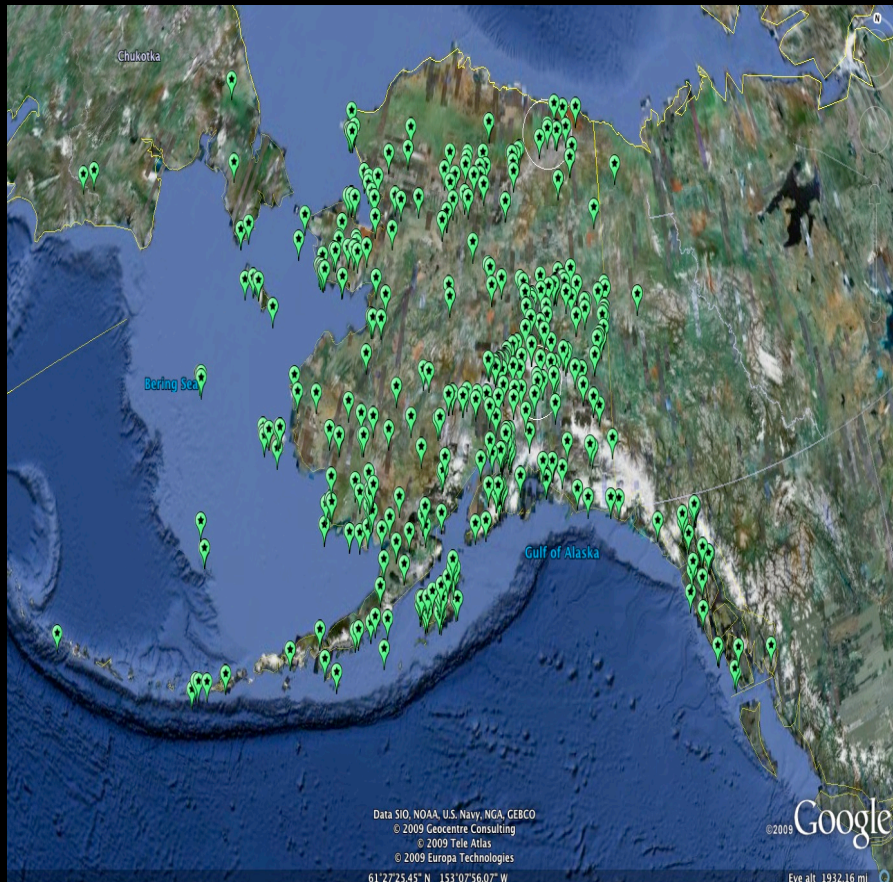
- Entire plant is highly poisonous
- Perennial herbs
- Colorless acrid juice
- Alternate palmately lobed leaves
- Both found in subalpine meadows, woods, or thickets and generally near water
- Tubers have aconitin, an ester alkaloid that:
 - Paralyzes nerves
 - Lowers body temperature
 - Lowers blood pressure

Distribution: *A. maximum*



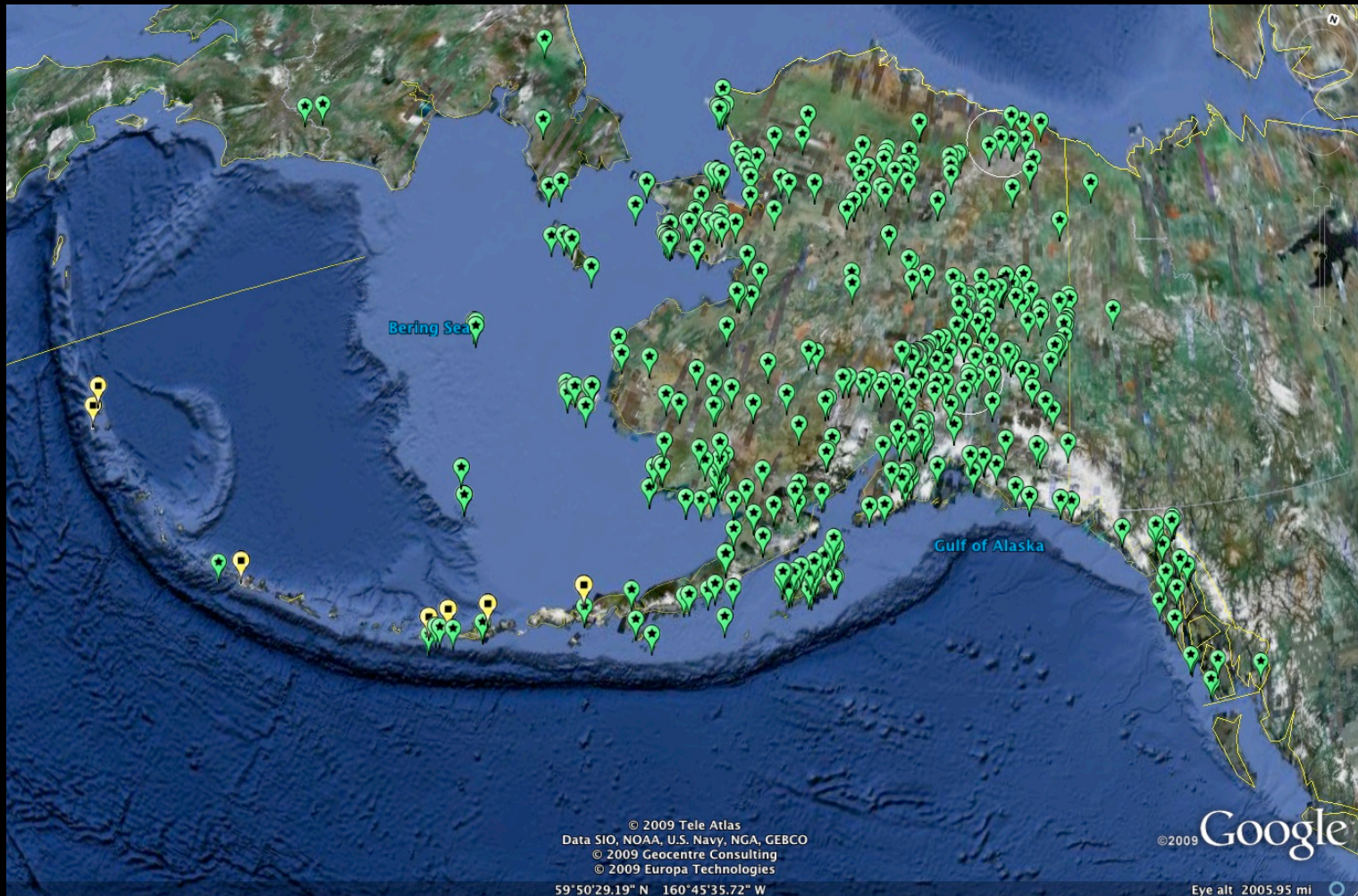
Common at eastern end of Aleutians, but scattered in the middle and western regions

Distribution: *A. delphinifolium*



- Scattered throughout Alaska
- Found in Canada in Yukon Territories, British Columbia, and Western Alberta
- Grows sympatrically with *A. maximum*

Distribution: Overlap



Leaf Differences



3 variances of *Aconitum delphiniifolium*

- *A. delphiniifolium* has less leaves than *A. maximum*
- *A. maximum* has larger, broader leaves
- Upper leaves in *A. maximum* are reduced



Aconitum maximum

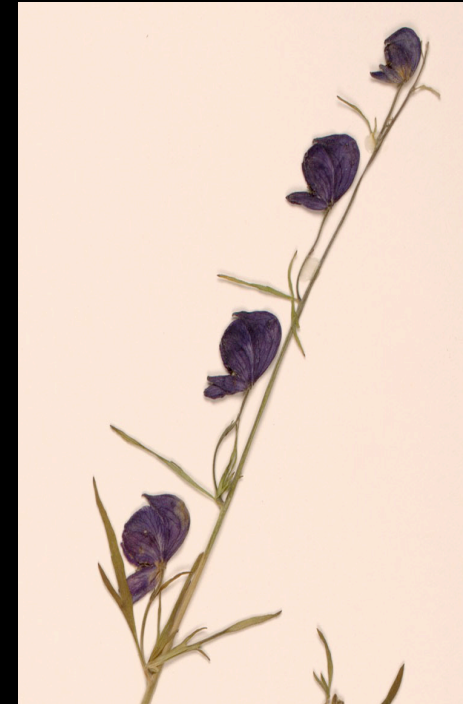
Inflorescence



Aconitum maximum



Aconitum delphiniifolium



1 to 5 flowers in *A. delphiniifolium*, many flowers (great inflorescence) in *A. maximum*

Flower Colors

Aconitum maximum



*Aconitum
delphiniifolium*



Only bluish-purple flowers in *A. maximum*,

A. delphiniifolium can have blue, purple, white, yellowish, or greenish-purple flowers

Corms

Aconitum maximum



Aconitum delphiniifolium



A. maximum tends to have larger, almost bulb-like corms

A. delphiniifolium has smaller, thinner, rhizome-type corms

Fun Facts

- Variance *albiflorum* (white flowers) of *A. delphiniifolium* is very rare, and so far has only been found in the Bering Strait
- The “old timers” of Nunivak Island used to make poison darts and arrows using the juice of *Aconitum delphiniifolium*
- Hulten tried planting the bulbs of especially inflorescent *Aconitum maximum* in Southeast Alaska only to find they grew normally when transplanted

Three Subspecies or Three Species?



Variance: paradoxum



Variance: chamissonianum



Variance: delphiniifolium

“The *Aconitum delphiniifolium* subspecies are so highly variable that further work is needed” (Anderson)

“There is a general lack of genetic base work” (Cody)

Fresh Plants!

Aconitum maximum



Aconitum delphinifolium



<http://www.seaweedsokalaska.com/species.asp?SeaweedID=158>
public.fotki.com/.../a_delphinifolium3.html

Summary

- Leaves are different
- Flowers are different
- Corms are different

Literature Cited

- Cody, W.J. 1996. Flora of the Yukon Territory. NRC Research Press. Ottawa, Ontario. 643 pp.
- Fries, J.A. 1977. The Vascular Flora of Nunivak Island, Alaska. Senior Thesis Project. Environmental Studies Department, Middlebury College, Middlebury, VT.
- Hulten, E. 1937. Flora of the Aleutian Islands. Bokforlags Aktiebolaget Thule. Stockholm, Sweden. 397 pp.
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- Porsild, A.E. 1938. Flora of Little Diomedede Island in Bering Strait. Transactions of the Royal Society of Canada, Series 23, Section 5, Vol. 32. Ottawa, Ontario. 38pp.
- Welsh, S.L. 1974. Anderson's Flora of Alaska and Adjacent Parts of Canada. Brigham Young University Press. Provo, UT. 724pp.

Museum Reference Pictures Per Slide

- Slide 1: H1145996, H1134267
- Slide 8: H1134018, H1134019, H1134020,
H1134272
- Slide 9: H1134016, H1134025, H1134266
- Slide 10: H1134266, H1134025, H1134014,
H1134003
- Slide 11: H1134267, H1134008
- Slide 13: H1134003, H1134031, H1134016