Diversity of coralroot taxa in the Black Hills: *Corallorhiza striata*

Rylan Sprague &
Dr. Ben van Ee

Initial Study

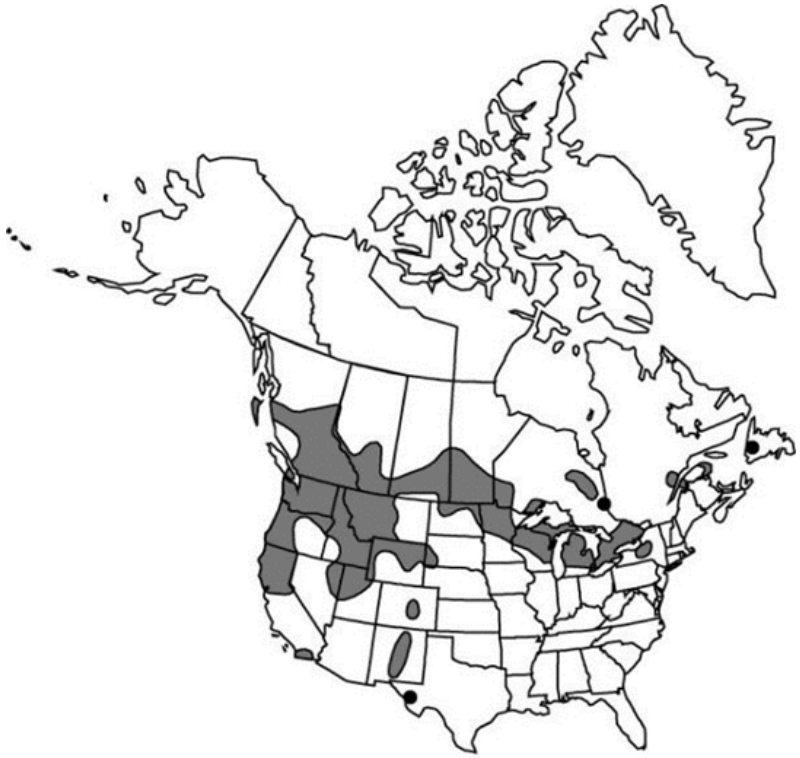
- Determine affinity of BH orchids
- Determine the orchid taxa at all ranks present in the BH
- Collect plant material
- DNA extraction/amplification/sequencing

Corallorhiza striata

var. *striata*

var. *vreelandii*

Corallorhiza striata Distribution



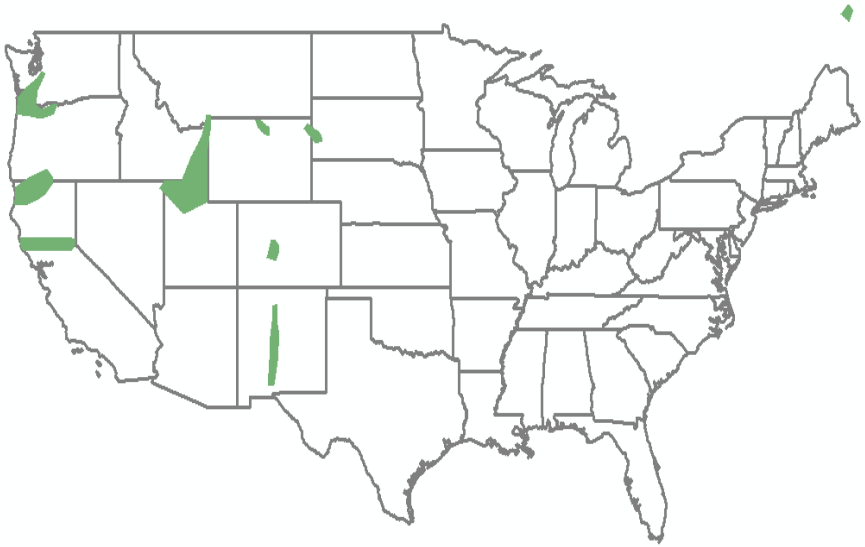
var. *striata*

var. *vreelandii*

www.efloras.org

C. striata Distribution cont.

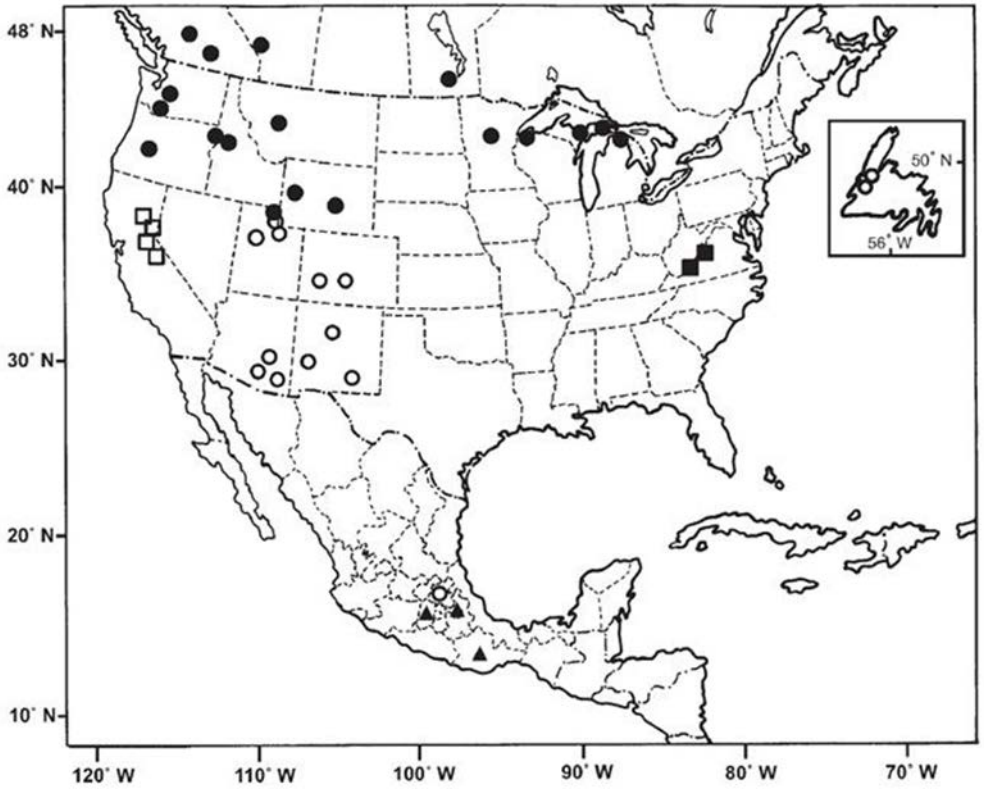
- Areas of overlap between two varieties (based on the Flora of North America treatment)



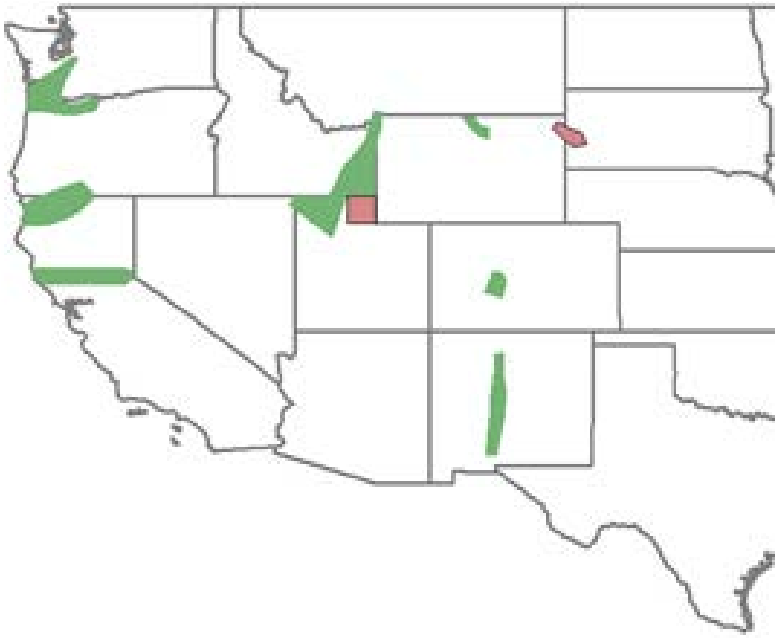
Barrett & Freudenstein (2009)

● = var. *striata*

○ = var. *vreelandii*

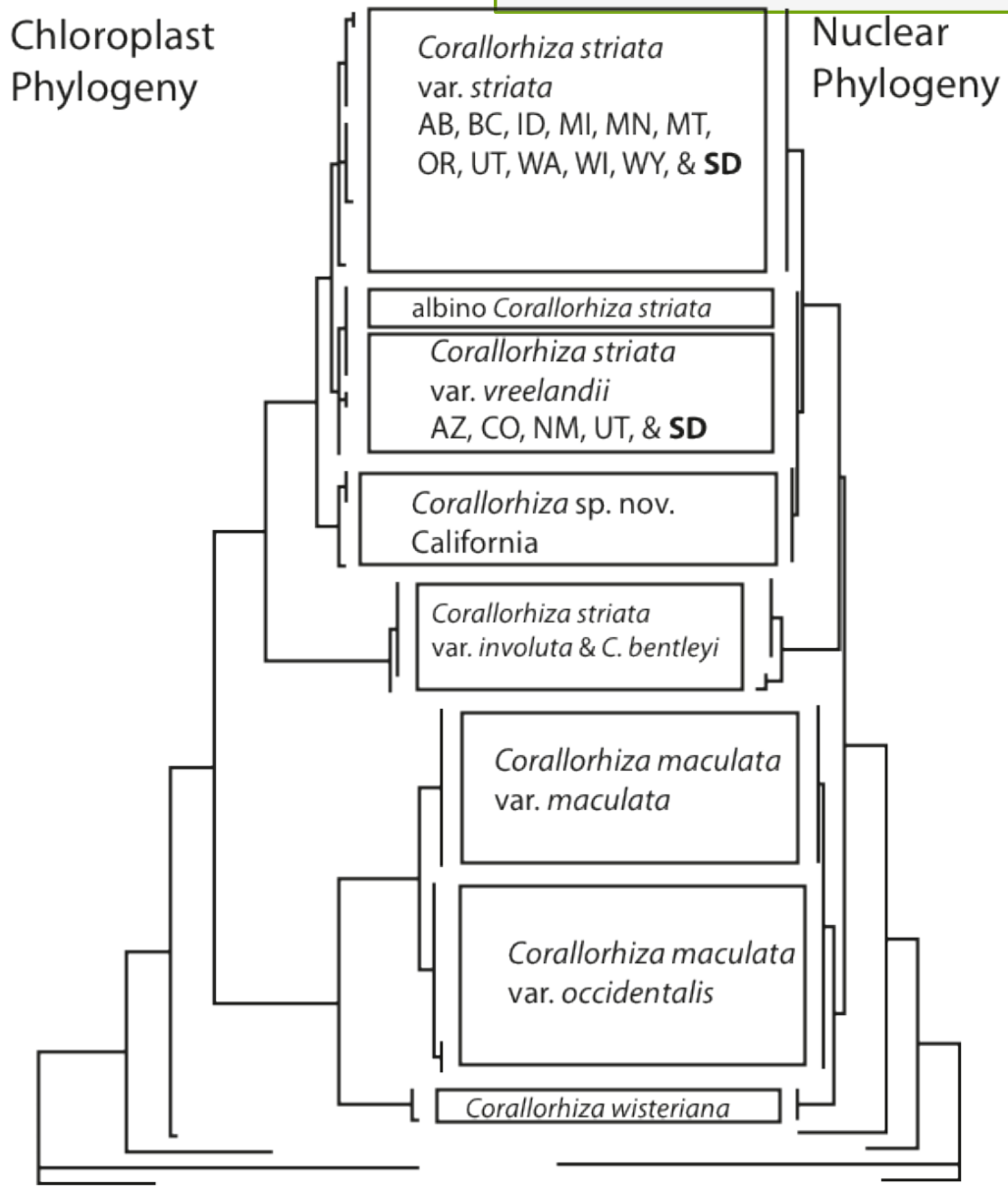


Co-Occurrence of the Two Varieties

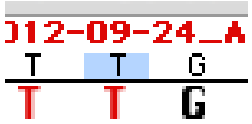


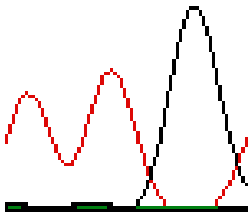
DNA Extraction, Amplification, Sequencing

- nuclear Internal Transcribed Spacer (ITS)
- chloroplast *rbcL*
- chloroplast *rpl32-trnL*

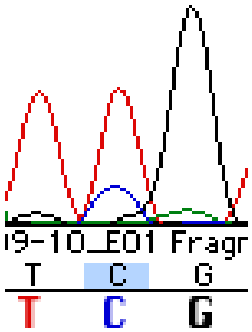

Chloroplast Phylogeny
Nuclear Phylogeny
Corallorhiza striata var. striata AB, BC, ID, MI, MN, MT, OR, UT, WA, WI, WY, & SD
albino Corallorhiza striata
Corallorhiza striata var. vreelandii AZ, CO, NM, UT, & SD
Corallorhiza sp. nov. California
Corallorhiza striata var. involuta & C. bentleyi
Corallorhiza maculata var. maculata
Corallorhiza maculata var. occidentalis
Corallorhiza wisteriana
1 change

Corallorhiza striata var. *striata*
(Schwartz 13)

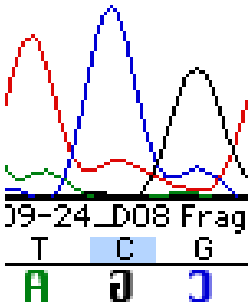




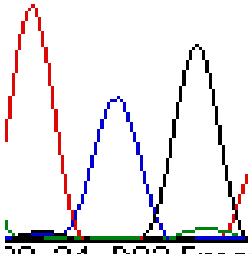
Corallorhiza striata var. *vreelandii* albino
(Schwartz 37)



Corallorhiza striata var. *vreelandii* albino
(Schwartz 11)



Corallorhiza striata var. *vreelandii* non-albino
(Schwartz 25)



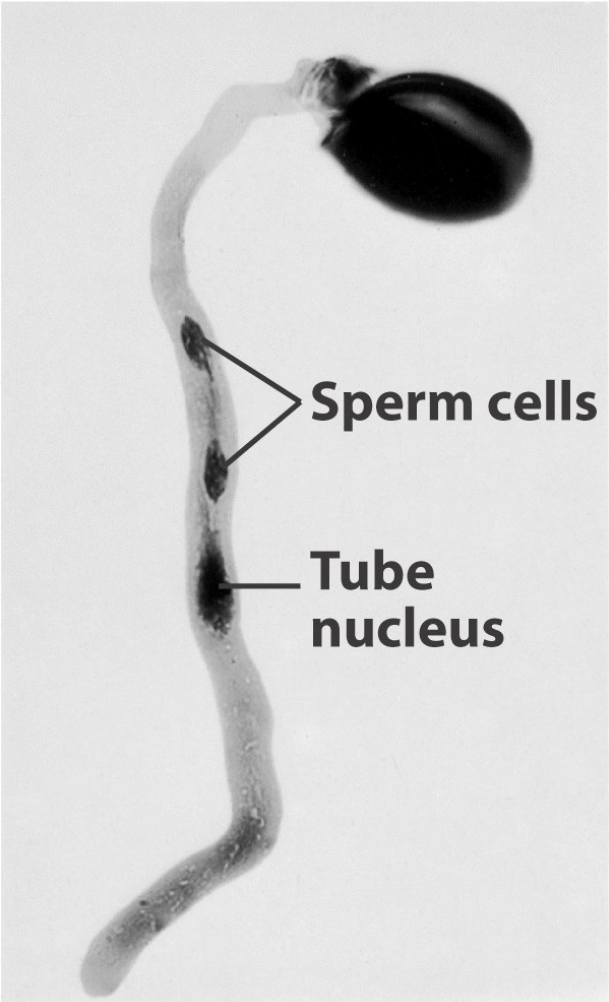


Figure 19-20
Biology of Plants, Seventh Edition
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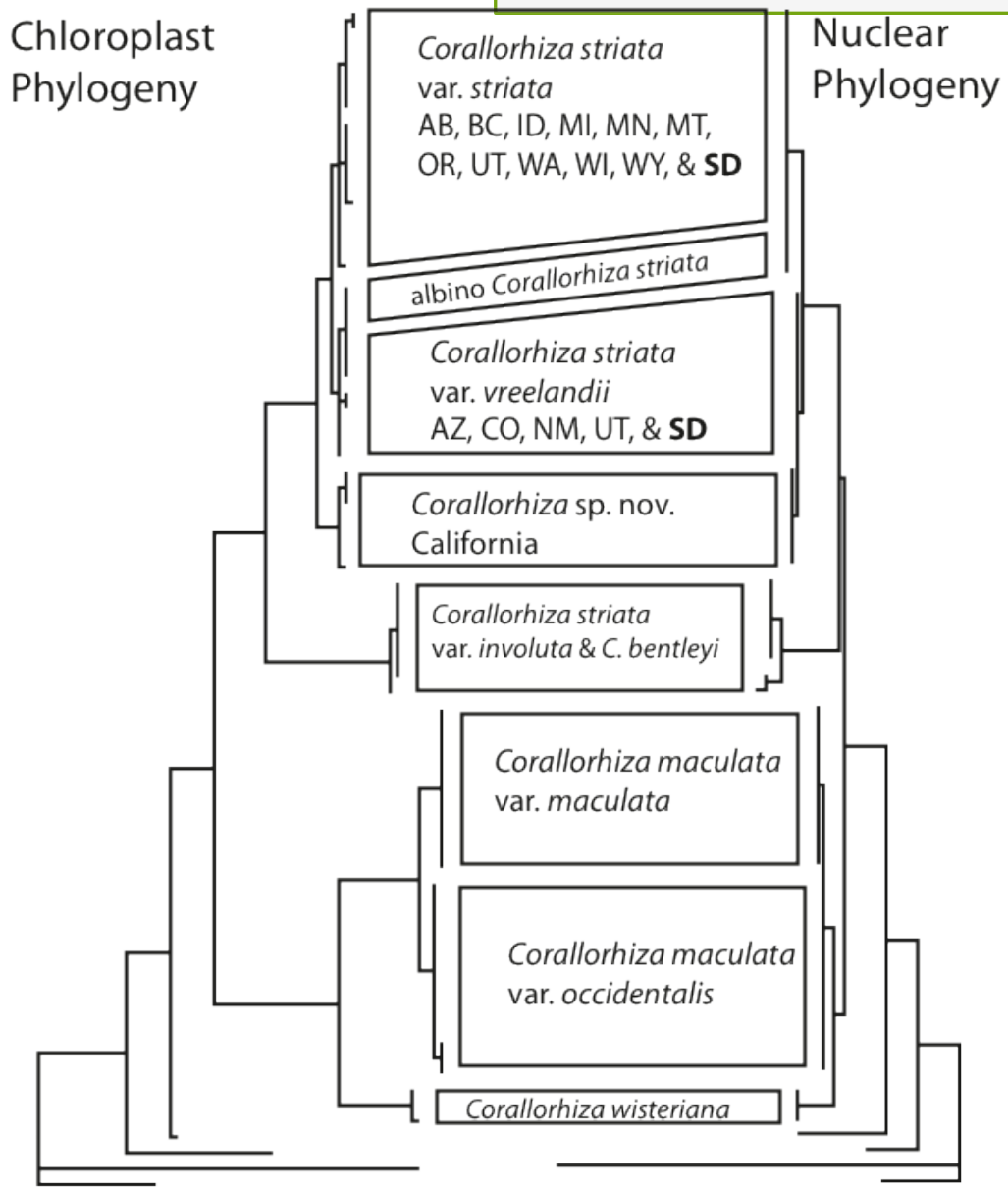
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Corallorhiza wisteriana
1 change

Hybridization

- Discovered within nuclear genome

“Albino” form

- *vreelandii* characteristics

Future Directions

- Continue to collect plant material and locality information
- Sequence more nuclear DNA regions to document hybridization
- More studies in other areas to validate Barrett & Freudenstein's findings
- Continue studying other Orchid species in BH

Acknowledgements

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