

Introduction / Questions

- Alpine species plants are pioneer species.
- Alpine plants are expanding their ranges to higher elevations.
- Fungal seed endophytes help ameliorate abiotic stresses and may help facilitate plant movement into new areas.

Research Question:

- How does endophyte composition change between plant species?
- How do endophyte composition vary across elevational sites?

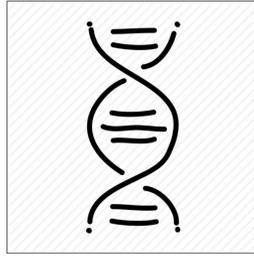
Methods



Seeds were collected from 10 species at three sites at Niwot Ridge LTER Nederland, CO



100 seeds/plant species/site were plated on malt extract agar to isolate endophytes



Isolates were categorized by morphological characteristics and sequenced

Discussion / Future Directions

Implications

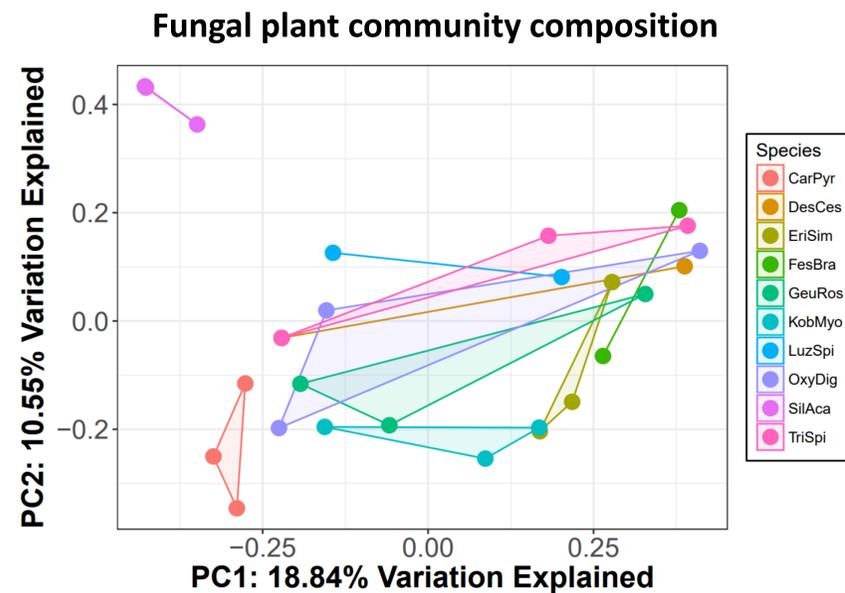
- While we did not find evidence that endophyte communities are influenced by elevation, we did find species specific endophytes.
- Endophytes can still influence plant movement into new environments and behave differently in different environments.

Future Research

- Next, I am testing how species- specific endophytes influence plant performance throughout their life histories.

Results

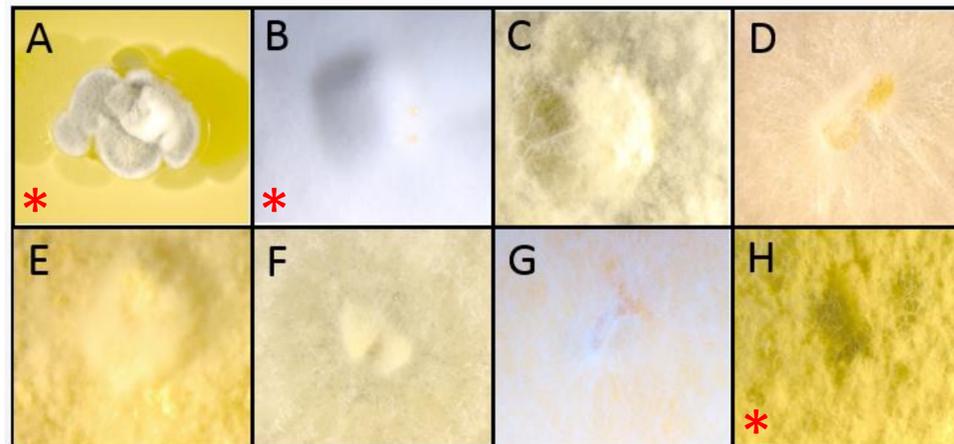
A total of 72 isolates were collected and 8 were sequenced. The majority of plant species did not have distinct fungal endophyte communities based on site.



Plant Species	Species Specific Sequenced endophytes	Isolate Letter
<i>Geum rossii</i> var. <i>turbinatum</i>	<i>Alteraria</i> sp.	A
<i>Geum rossii</i> var. <i>turbinatum</i>	<i>Chaetomium</i> sp.	F
<i>Deschampsia cespitosa</i>	<i>Lewia</i> sp.	C
<i>Festuca brachyphylla</i>	<i>Corpinopsis gonophylla</i>	D
<i>Deschampsia cespitosa</i>	<i>Chaetomium</i>	E
<i>Festuca brachyphylla</i>	<i>Thielavia</i> sp.	G
<i>Deschampsia cespitosa</i>	<i>Trichotomy matsutake</i>	B
<i>Geum rossii</i> var. <i>turbinatum</i>	<i>Ulocladium consotrtaile</i>	H

Eight representative fungal isolates were identified based on morphological characteristics. Three indicator species – endophyte species associated with a single plant species – were identified.

Isolate images



Isolate Letter	Color of Isolate	Shape of Isolate	Texture of Isolate
A	Gray White	Misshaped	Rigid
B	White	Concentric	Smooth
C	Green white	Concentric	Fine- Feathery
D	Pink white	Concentric	Fine - Feathery
E	Yellow	Concentric	Smooth
F	Off- white	Concentric	Smooth
G	Yellow - white	Concentric	Fine Feathery
H	Green	Concentric	Smooth

Figure 3

* indicates indicator species