Can a critically endangered alpine plant community recover from fire in a warming world?

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INTRODUCTION

- Nurse shrubs are drivers of biodiversity - facilitate growth of other species by creating a relatively less stressful microclimate
- **How does fire affect nurse shrub facilitation capacity and community composition?**

METHODS

1. n = 60, paired quadrat point survey – "in" and "out" of nurse shrub canopy for unburnt and burnt areas
2. n = 3, 200 random point survey – 2 communities, unburnt vs burnt
3. Overlapping vegetation cover recorded Analysis – X^2, ANOSIM, ANOVA, NMDS & LMM

RESULTS

Dependent Variable	Burnt Plot Response	P
Graminoid cover	↑	**0.006**
Forb cover	↑	**0.040**
Shrub cover	↓	**0.009**
Species richness	↑	0.083
Nurse shrub height	↑	**<0.001**
Nurse shrub area	↓	**<0.001**

DISCUSSION

- Burnt areas are not 'true' representation of this critically endangered community as fire has altered characteristic ecological processes

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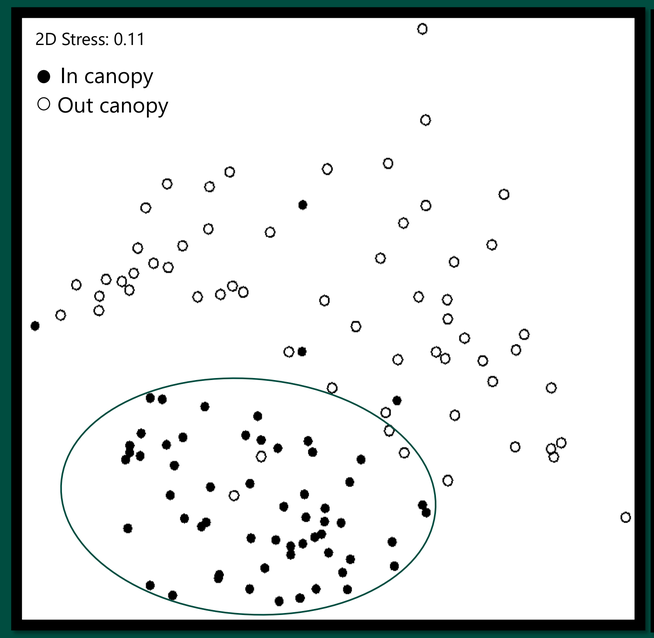
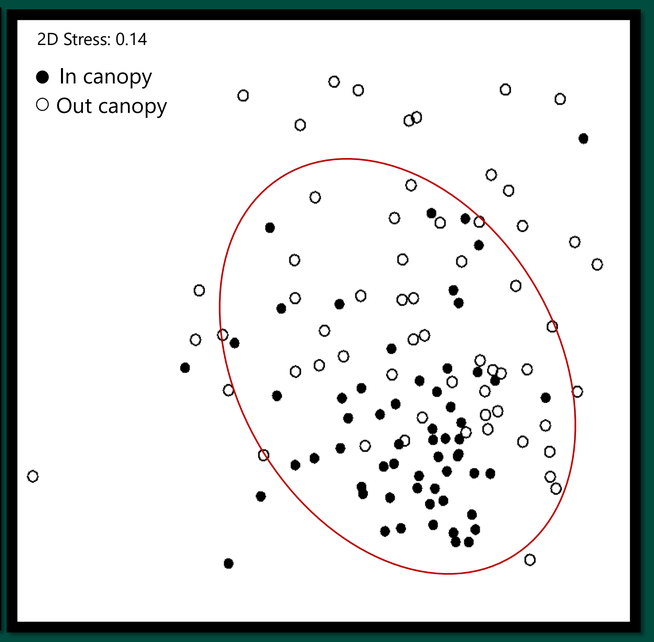
Nurse shrubs returned **slowly** to **burnt areas** after nine years but have **lost** the **capacity** to **facilitate biodiversity**

Unburnt



Burnt



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METHODS

'In' canopy

'Out' canopy

RESULTS

Facilitation – Species Habitat Preference

	Unburnt	Burnt
Prefer shrub canopy	*H. lugubris**** *P. fawcettiae**** *R. acrophilus** *S. pectinatus**	
Prefer open habitat	*C. pulvinatus** *E. lapidosa** *P. junipernum*** *S. singuliflorus****	*C. pulvinatus** *L. albicans** *P. junipernum**** *R. acrophilus*** *T. spicatum****

*** significant at 0.001 level
** significant at 0.01 level
* significant at 0.05 level

Community Comparison