

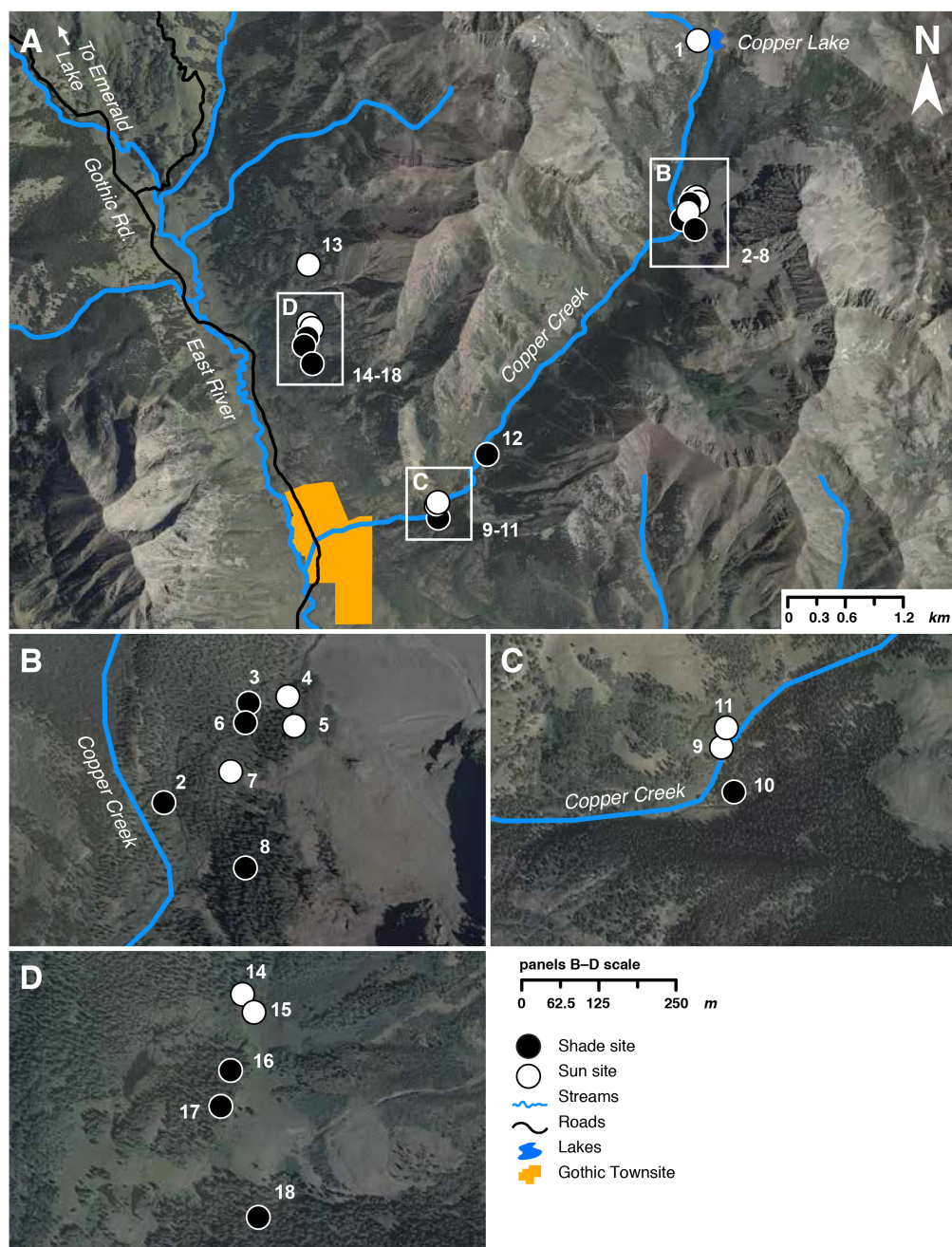
## Ecosphere

Habitat preference of an herbivore shapes the habitat distribution of its host plant

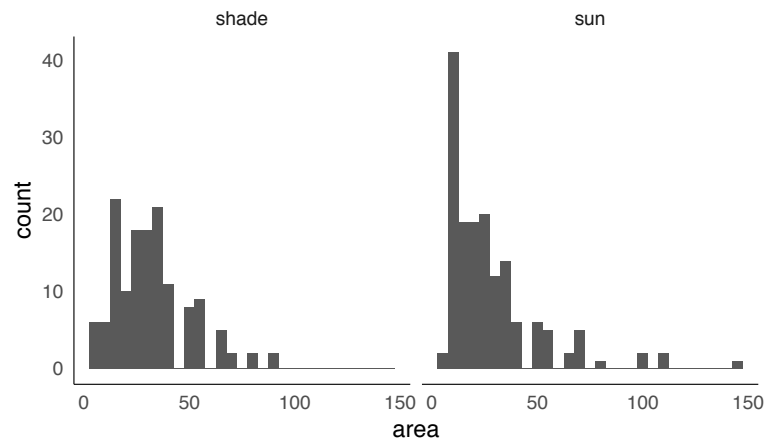
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**Characteristics of source locations for bittercress herbivory survey**

*Supplementary methods.* At each site, we recorded leaf area of all sampled leaves, photosynthetically active radiation (PAR) using a light meter (Spectrum Technologies, Inc.), percent canopy cover using a densiometer, diameter at breast height (*dbh*) of the four largest trees within four meters, and latitude, longitude, and elevation using a GPS unit (Garmin) (Table S1). Environmental variables at each site were compared using one-way ANOVA. Sun habitats had higher average PAR and % open canopy than shade habitats (both  $p < 0.001$ ) and did not systematically differ in elevation ( $p > 0.8$ , Table S2).



**Fig. S1. Map of source sites used in the herbivory surveys in the East River Valley and Copper Creek drainages, near the RMBL in Gothic, CO. A. Base map showing all sites within region (1:48,000). B–D. Maps showing detail of site locations (all same scale, 1:7500).**



**Fig. S2. Distribution of bittercress leaf area (mm<sup>2</sup>) observed across n=298 leaves sampled across 8 shade and 7 sun habitats (Table S1).**

**Table S1.** Attributes of sites ( $n=15$ ) used for herbivory survey.

Site #	Date sampled	Lat.	Long.	Elevation (m)	Soil Moisture	Light Environment	PAR ( $\mu\text{mol}\cdot\text{s}^{-1}\cdot\text{m}^{-2}$ ) <sup>1</sup>	% Canopy Open	Average DBH (cm)
4	11-Jul-11	38.9900829890862	-106.943450029132	3253	Very Wet	Sun	2030	82.94	0
5	11-Jul-11	38.9896982273227	-106.9432894133	3261	Very Wet	Sun	2034	95.42	0
6	11-Jul-11	38.9897805369006	-106.94429611421	3244	Moist Loamy	Shade	130	4.16	83.25
7	11-Jul-11	38.9890385630266	-106.944483622637	3220	Very Wet	Sun	2134	99.84	0
8	11-Jul-11	38.9876108211294	-106.944190554921	3250	Moist Loamy	Shade	28	3.38	81.75
9	12-Jul-11	38.9607056556777	-106.973679741745	3023	Very Wet	Sun	2026	88.14	0
10	12-Jul-11	38.9600423351315	-106.973476684125	3013	Wet Loamy	Shade	35	5.72	72.25
11	12-Jul-11	38.9609507737634	-106.973571138078	3994	Very Wet	Sun	1933	86.84	0
12	12-Jul-11	38.9655594715881	-106.968516958823	3994	Very Wet	Shade	32	3.9	101
13	13-Jul-11	38.9828665210329	-106.989822099201	4058	Very Wet	Sun	1780	96.2	0
14	13-Jul-11	38.9774145794955	-106.98986568487	4082	Very Wet	Sun	1870	88.4	0
15	13-Jul-11	38.9771831850899	-106.989697600334	4057	Very Wet	Sun	1850	99.84	0
16	13-Jul-11	38.976356744414	-106.990078474138	4052	Very Wet	Shade	54	4.68	98
17	13-Jul-11	38.975757817399	-106.990327194402	4046	Moist Loamy	Shade	60	4.16	140.5
18	13-Jul-11	38.974195183581	-106.989498527449	4051	Very Wet	Shade	40	7.28	78.75

<sup>1</sup> Light meter was positioned above the center of each source collection plot, at times without cloud cover between 1:00 pm and 3:00 pm during the week of July 17, 2011.

**Table S2.** Environmental attributes of sun and shade sites for herbivory survey.

<i>Site attributes</i>	Sun sites ( <i>n</i> = 8)		Shade sites ( <i>n</i> = 7)		ANOVA	
	$\mu$	se	$\mu$	se	<i>F</i>	<i>P</i>
PAR ( $\mu\text{mol}\cdot\text{s}^{-1}\cdot\text{m}^{-2}$ )	1959.7	37.0	89.0	29.4	1564	$<10^{-10}$
% Canopy Open	93.1	2.2	5.3	0.6	1527	$<10^{-10}$
DBH ( <i>cm</i> )	0.00	0.00	87.5	12.2	51.77	$<10^{-10}$
Elevation ( <i>m</i> )	3601	146	3568	150	0.025	0.875

<i>Sample attributes</i>	Sun leaves ( <i>n</i> = 157)		Shade leaves ( <i>n</i> = 140)		ANOVA	
	$\mu$	se	$\mu$	se	<i>F</i>	<i>P</i>
Leaf size ( <i>mm</i> )	4.98	0.15	5.47	0.13	5.95	0.015