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The impact of a native hemiparasite on a major invasive shrub is affected by host size at time of infection

Robert M. Cirocco, José M. Facelli, Jennifer R. Watling

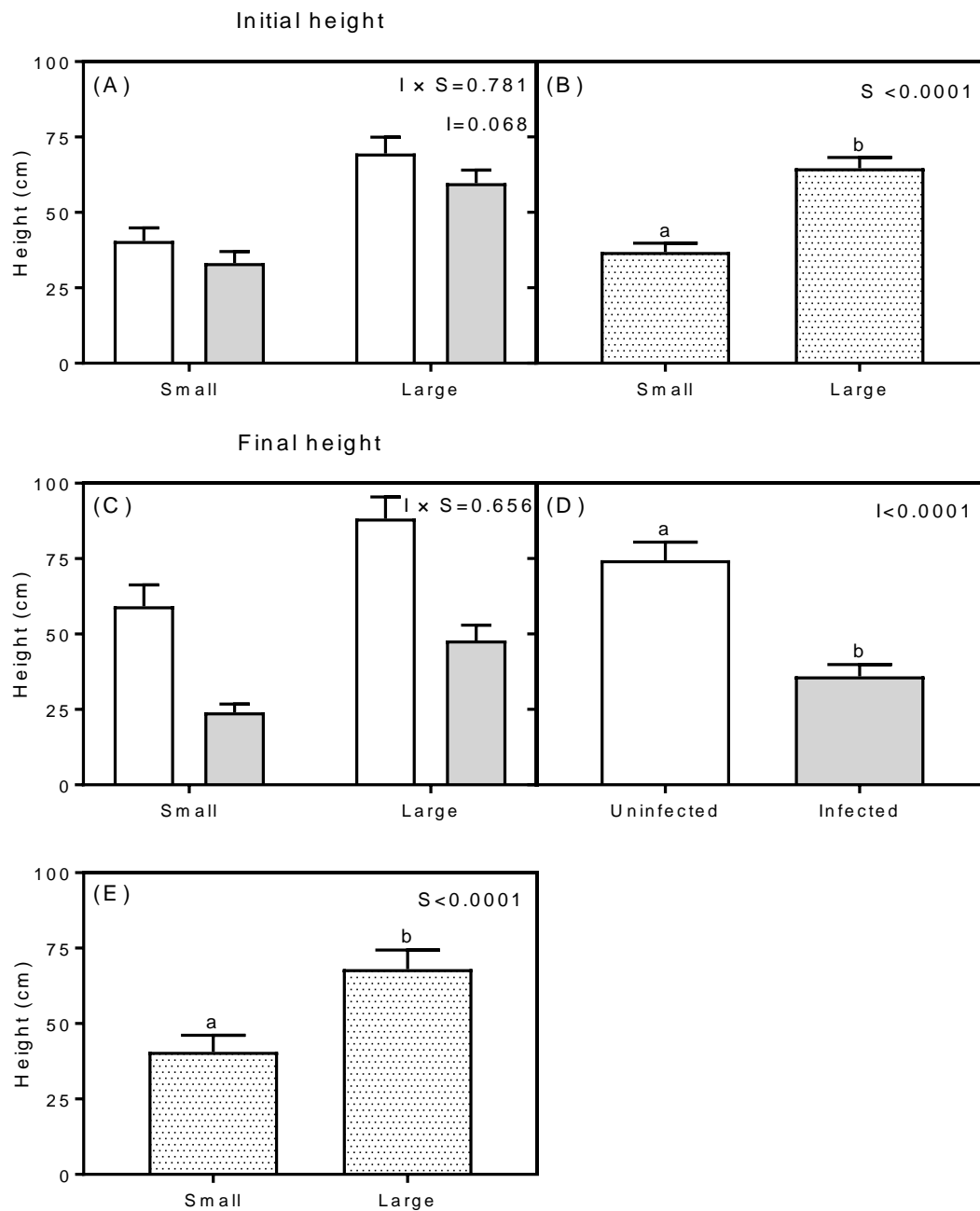


Figure S1. Height of small and large *U. europaeus* either uninfected (white bar) or infected with *C. pubescens* (light grey bar) at the beginning (A) and at end of the experiment (C).

Independent effect of size (B) on height of *U. europaeus* at start of experiment (dotted bars). Independent effect of infection (D) and size (E) on host height at end of experiment. Data are means (± 1 SE), (A, C) $n=9-10$ and (B, D, E) $n=19-20$, different letters signify significant difference and P -values are displayed in panels for infection (I) \times size (S) interaction and independent I and S effects.

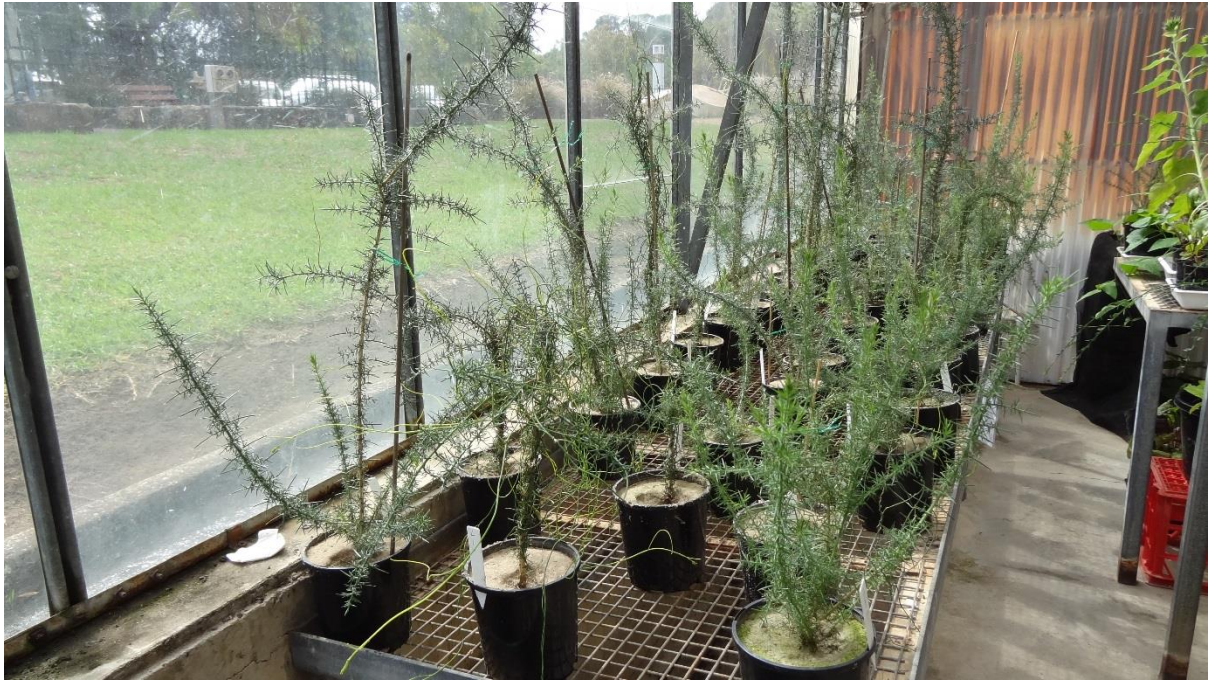


Figure S2. Top: photo of the experiment; Bottom: large uninfected *Ulex europaeus* (white arrow) and *U. europaeus* infected with *Cassityha pubescens* (yellow arrow).



Figure S3. Top: small uninfected *U. europaeus* (white arrow); Bottom: small infected *U. europaeus* (yellow arrows).



Figure S4. A natural ‘infection front’ of *Cassytha pubescens* moving over a large thicket of *Ulex europaeus* at Crafers (high rainfall area) in the Mt Lofty Ranges of South Australia.

Table S1. *F* (italics) and sum of square-values (regular) for independent effects of infection with *C. pubescens* (*I*), size of *U. europaeus* and their interaction (*I* × *S*) on total, shoot and root biomass, shoot/root ratio (*S/R*), nodule biomass (*Nod*) and *Nod g*⁻¹ host root biomass, predawn and midday quantum yields (*F_v/F_m*, Φ_{PSII}), maximum electron transport rates (*ETR_{max}*), shoot midday water potential (Ψ), carbon isotope composition ($\delta^{13}C$), foliar nitrogen (*N*) and iron (*Fe*) concentration of *U. europaeus*. For all parameters *df*=1, 28 (except *Fe*: *df*=1, 12)

	Total	Shoot	Root	S/R	Nod	Nod g⁻¹ root	<i>F_v/F_m</i>	Φ_{PSII}	<i>ETR_{max}</i>	Ψ	$\delta^{13}C$	N	Fe
I	<i>172</i>	<i>231</i>	<i>66.5</i>	<i>6.12</i>	<i>37.3</i>	<i>7.07</i>	<i>15.9</i>	<i>5.50</i>	<i>10.3</i>	<i>0.081</i>	<i>14.6</i>	<i>0.009</i>	<i>18.2</i>
	101	81.1	21.1	3.51	0.522	1.64	0.031	0.017	0.721	0.006	6.08	0.0009	1.69
S	<i>22.2</i>	<i>23.4</i>	<i>15.6</i>	<i>1.78</i>	<i>7.53</i>	<i>2.81</i>	<i>1.96</i>	<i>4.59</i>	<i>2.67</i>	<i>4.48</i>	<i>12.0</i>	<i>1.52</i>	<i>5.38</i>
	13.1	8.23	4.94	1.02	0.105	0.651	0.004	0.014	0.187	0.336	5.00	0.150	0.499
I × S	<i>4.09</i>	<i>3.67</i>	<i>3.60</i>	<i>0.350</i>	<i>5.31</i>	<i>0.196</i>	<i>0.046</i>	<i>0.751</i>	<i>0.685</i>	<i>1.47</i>	<i>1.85</i>	<i>0.110</i>	<i>22.4</i>
	2.41	1.29	1.14	0.201	0.074	0.045	0.00008	0.002	0.048	0.111	0.772	0.011	2.07
Error	16.5	9.83	8.86	16.1	0.392	6.49	0.054	0.087	1.96	2.10	11.7	2.76	1.11

Table S2. *F* (italics) and sum of square-values (regular) for effect of *U. europaeus* size (*S*) on parasite total biomass and total biomass g host^{-1} total biomass, predawn and midday quantum yields (F_v/F_m , Φ_{PSII}), maximum electron transport rates (ETR_{max}), midday stem water potential (Ψ), stem carbon isotope composition ($\delta^{13}C$), nitrogen (*N*), phosphorous (*P*) and potassium (*K*) concentration. $df=1, 14$ for all parameters (except Ψ , *P* and *K*: $df=1, 6$)

	Biomass	Biomass	F_v/F_m	Φ_{PSII}	ETR_{max}	Ψ	$\delta^{13}C$	<i>N</i>	<i>P</i>	<i>K</i>
		g host⁻¹								
<i>S</i>	<i>61.6</i>	<i>0.242</i>	<i>0.815</i>	<i>1.20</i>	<i>0.553</i>	<i>0.031</i>	<i>1.14</i>	<i>14.8</i>	<i>14.0</i>	<i>62.3</i>
	3.05	0.088	0.001	0.003	285	0.003	0.400	0.860	0.028	0.769
Error	0.693	5.10	0.020	0.029	7228	0.468	4.91	0.814	0.012	0.074