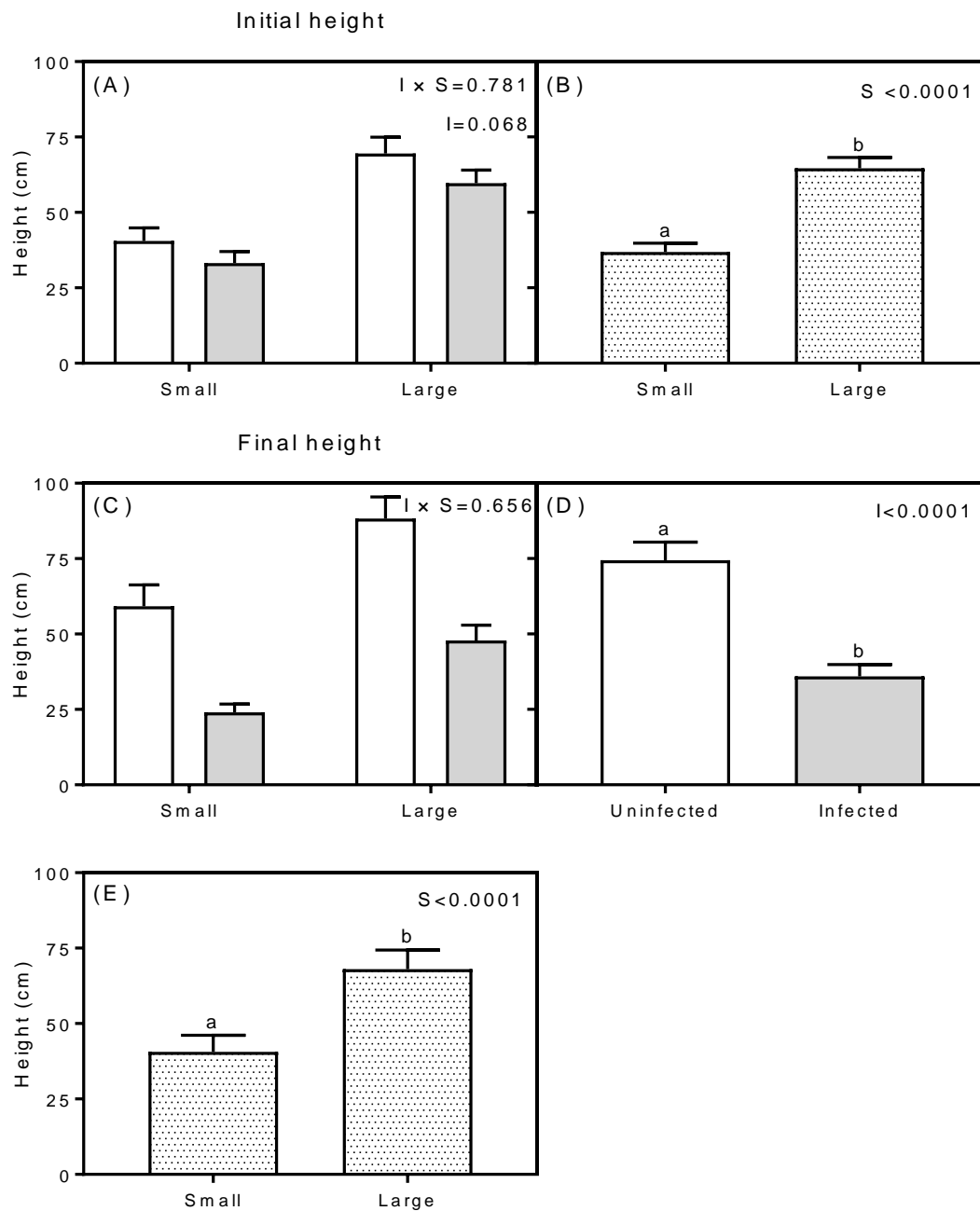


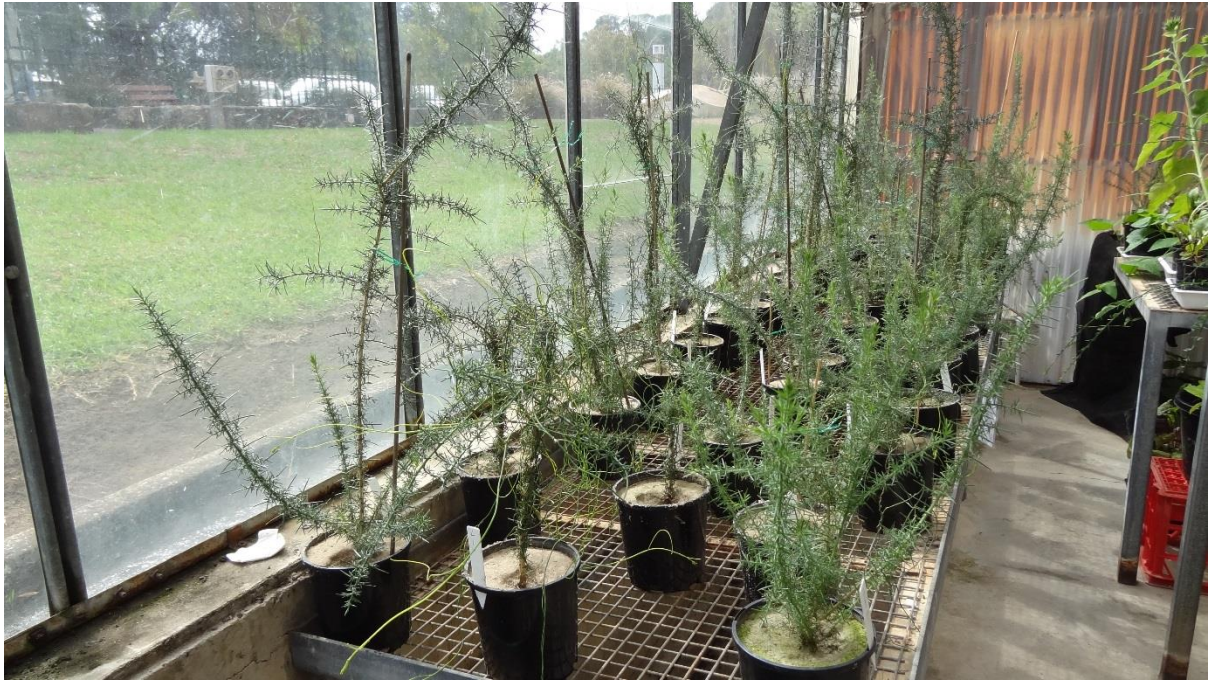
The impact of a native hemiparasite on a major invasive shrub is affected by host size at time of infection

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**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 ( $\pm 1$  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<sup>-1</sup>* host root biomass, predawn and midday quantum yields (*F<sub>v</sub>/F<sub>m</sub>*,  $\Phi_{PSII}$ ), maximum electron transport rates (*ETR<sub>max</sub>*), shoot midday water potential ( $\Psi$ ), 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)

	<b>Total</b>	<b>Shoot</b>	<b>Root</b>	<b>S/R</b>	<b>Nod</b>	<b>Nod g<sup>-1</sup> root</b>	<b><i>F<sub>v</sub>/F<sub>m</sub></i></b>	<b><math>\Phi_{PSII}</math></b>	<b><i>ETR<sub>max</sub></i></b>	<b><math>\Psi</math></b>	<b><math>\delta^{13}C</math></b>	<b>N</b>	<b>Fe</b>
<b>I</b>	<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
<b>S</b>	<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
<b>I × S</b>	<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
<b>Error</b>	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  $\text{g host}^{-1}$  total biomass, predawn and midday quantum yields ( $F_v/F_m$ ,  $\Phi_{PSII}$ ), maximum electron transport rates ( $ETR_{max}$ ), midday stem water potential ( $\Psi$ ), stem carbon isotope composition ( $\delta^{13}C$ ), nitrogen (*N*), phosphorous (*P*) and potassium (*K*) concentration.  $df=1, 14$  for all parameters (except  $\Psi$ , *P* and *K*:  $df=1, 6$ )

	<b>Biomass</b>	<b>Biomass</b>	$F_v/F_m$	$\Phi_{PSII}$	$ETR_{max}$	$\Psi$	$\delta^{13}C$	<i>N</i>	<i>P</i>	<i>K</i>
		<b>g host<sup>-1</sup></b>								
<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