

**Appendix S4:** Moran's I test of spatial autocorrelation for the response variables.

<b>Grain size</b>	<b>Species</b>	<b>P-value</b>
3 × 3 m (9 m <sup>2</sup> )	Native	<0.001*
1 × 1 m (1 m <sup>2</sup> )	Native	<0.001*
3 × 3 m (9 m <sup>2</sup> )	Alien	<0.001*
1 × 1 m (1 m <sup>2</sup> )	Alien	<0.001*
$\Delta_{9-1}$	Native	0.007*
$\Delta_{9-1}$	Alien	0.138