

## Supplementary information of

### The ground-dwelling ant intraspecific functional traits and stable isotope distributed across elevational gradient

Xianjin He<sup>1,2,3</sup>, Shengjie Liu<sup>1,\*</sup>, Akihiro Nakamura<sup>4</sup>, M. D. Farnon Ellwood<sup>5</sup>, Shanyi Zhou<sup>6,7</sup>,  
Shuang Xing<sup>1</sup>, Yue Li<sup>2</sup>, Dazhi Wen<sup>2,\*</sup>

<sup>1</sup>School of Ecology, Shenzhen Campus of Sun Yat-sen University, Guangdong 518107, China;

<sup>2</sup>Key Laboratory of Vegetation Restoration and Management of Degraded Ecosystems, South  
China Botanical Garden, Chinese Academy of Sciences, Guangzhou, 510650, China;

<sup>3</sup>Laboratoire des Sciences du Climat et de l'Environnement, IPSL-LSCE, CEA/CNRS/UVSQ,  
Gif sur Yvette, 91191, France;

<sup>4</sup>CAS Key Laboratory of Tropical Forest Ecology, Xishuangbanna Tropical Botanical  
Garden, Chinese Academy of Sciences, Mengla, 666303, China;

<sup>5</sup>School of Environmental and Natural Sciences, Bangor University, Bangor, Gwynedd, LL57  
2DG, United Kingdom;

<sup>6</sup>Guangxi Key Laboratory of Rare and Endangered Animal Ecology, Guangxi Normal  
University, Guilin, 541006, China;

<sup>7</sup>Key Laboratory of Ecology of Rare and Endangered Species and Environmental Protection,  
Guangxi Normal University, Ministry of Education, Guilin, 541006, China.

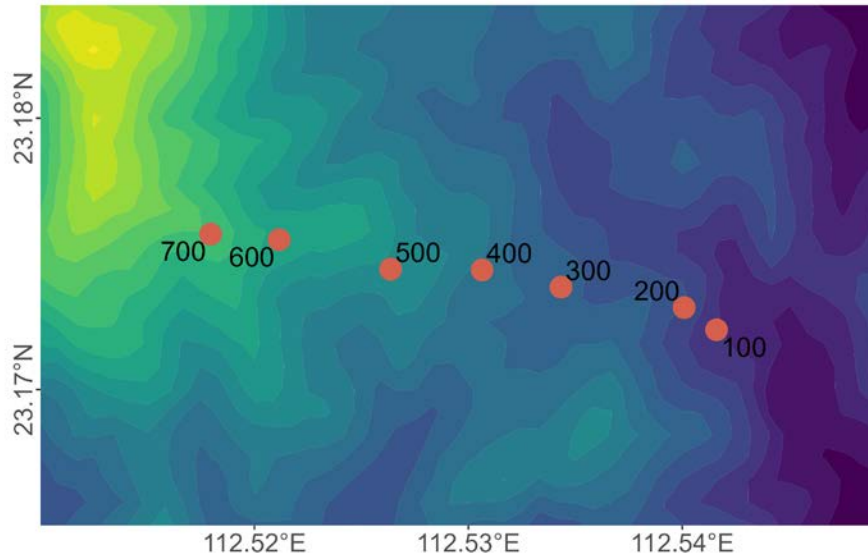
\*Correspondence to: [liushj63@mail.sysu.edu.cn](mailto:liushj63@mail.sysu.edu.cn); [dzwen@scbg.ac.cn](mailto:dzwen@scbg.ac.cn).

**Table S1. Plant information for the 7 forest plots along an elevational transect in the Dinghu Mt.**

Altitude (m)	Community height (m)	Vegetation type	Dominant species
100	23	Ravine rainforest	<i>Ficus nervosa</i> ; <i>Caryota</i> <i>Ochlandra</i> ; <i>Cryptocarya chinensis</i> .
200	20	Evergreen broadleaved forest	<i>C. chinensis</i> ; <i>Schima superba</i> ; <i>Cryptocarya concinna</i> ; <i>Lindera chunii</i> .
300	20	Coniferous & broadleaved mixed forest	<i>Schima superba</i> ; <i>C. chinensis</i> ; <i>P. massoniana</i> ; <i>Craibiodendron kwangtungense</i> ; <i>Castanopsis fissa</i> .
400	15		
500	15		
600	6		
700	4	Mountainous evergreen broadleaved forest	<i>Engelhardtia chrysolepis</i> , <i>Bridelia monoica</i> , <i>Machilus velutina</i> ; <i>Rhododendron sinai</i> .

**Figure S1. Distribution of sampling sites along the subtropical elevational transect.**

Numbers near the dots indicate the elevation values. The base map is a coloured DEM map derived from SRTM 90 m data.



**Figure S2. Elevational patterns of climate and soil variables.** (A) soil mean annual temperature; (B) soil mean annual soil moisture; (C) soil pH; (D) soil organic carbon concentration; (E) soil total nitrogen concentration; (F) soil total phosphorus concentration; (G) soil C:N ratios; (H) soil C:P ratios; (I) soil N:P ratios. Solid and dashed lines indicate significant ( $p < 0.05$ ) and insignificant ( $p > 0.05$ ) linear regression relationships, respectively.

