



### Field data collection

Morphology and organic matter content of leaves<sup>5,6,7,12,13,19,21,26,27</sup>

Photosynthetic performance of leaves<sup>7,26</sup>

Foliage dynamics<sup>6,7,12,21,26,27</sup>

Branching characteristics<sup>6,7,12,13,21,26,27</sup>

Culm tracking survey<sup>1,2,...,28</sup>

Canopy openness and topography<sup>1,2,...,28</sup>

Soil nutrients<sup>6,7,11,12,13,18,19,20,21,26,27</sup>

**Figure S1.** Canopy species distribution and field data collection sites across the study plot.