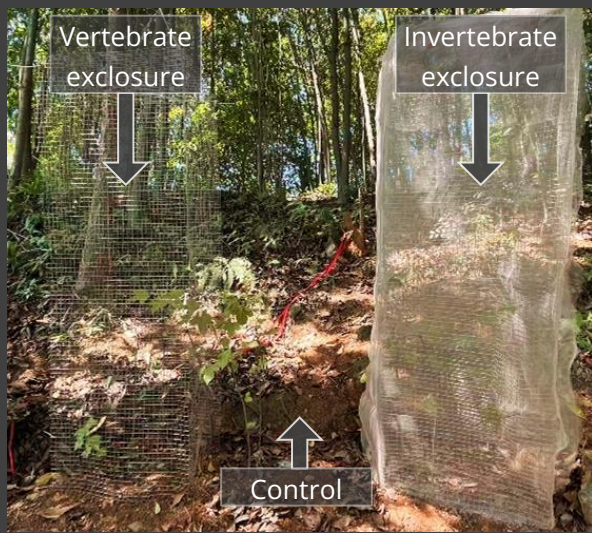




Caging the forest: Observing trophic diversity

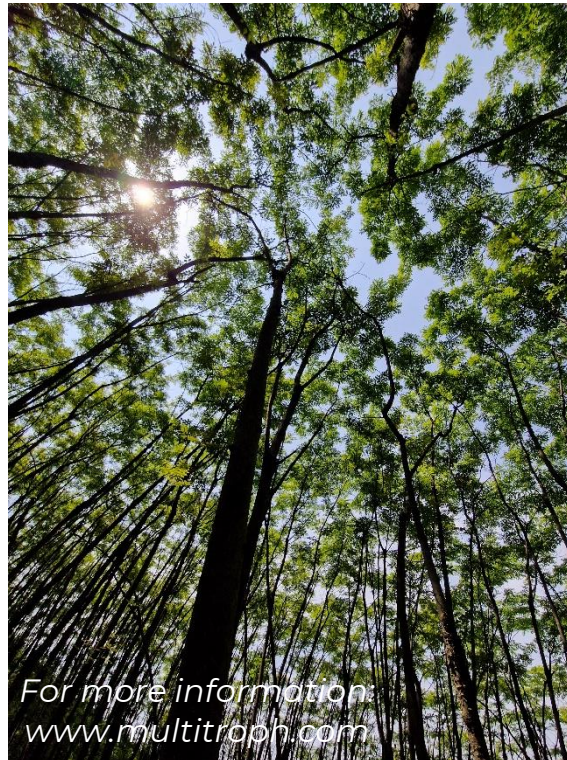
Our experiment assesses herbivory and pathogen damage on planted saplings of five native tree species across Site A that are either caged with wider mesh size to exclude vertebrates or finer mesh to exclude invertebrates. Some replicates are left uncaged as control. Surveys on survival, growth and foliage damage are compared across sapling distances to nearby mother trees and the diversity gradient. Our goal is to shed light onto the relation of tree proximity and predator abundance.

Further, seed cards targeting five species are placed along this diversity gradient to quantify seed predation. We keep them in the field for about 36 hours. The damaged or displaced seeds are being counted.



BEF China

Spanning 50 ha with over 300,000 planted trees, BEF-China is the world's largest biodiversity-ecosystem functioning (BEF) experiment. It is located near Xingangshan, Dexing, Jiangxi Province in southeast China. MultiTroph is a collaborative project uniting researchers from China and Germany to explore how, why and when species loss impacts ecosystem functioning across trophic levels.



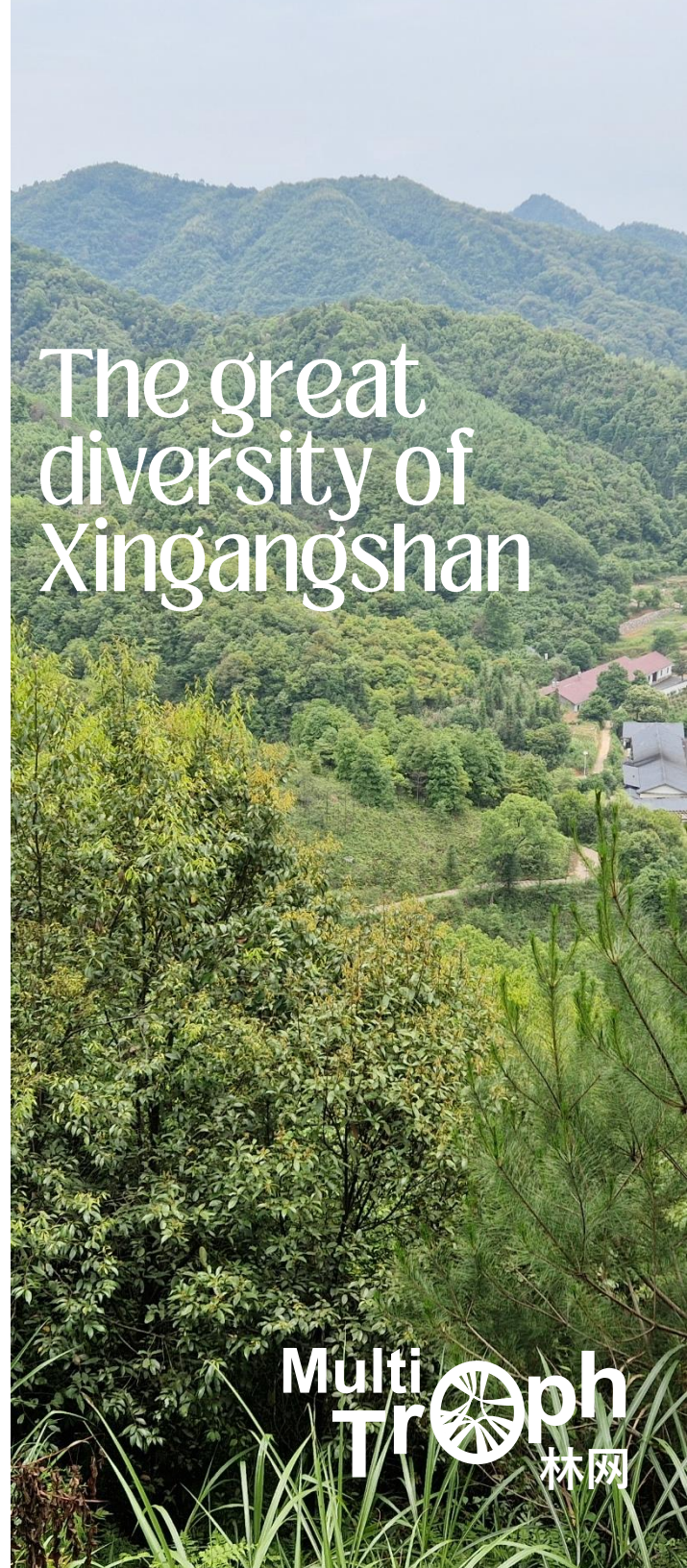
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The great diversity of Xingangshan

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Flora ⇌ Fauna

The proximity to a parent tree increases the abundance of seed and seedling predators, primarily insects such as beetles, ants, and larvae of sawflies and Lepidoptera. Often, they are host-specific. Mammals like browsing ungulates or rodents strongly affect foliage and seed dispersal, tending to be less host-specific. According to the Janzen–Connell hypothesis, such predation can promote diversity in forests.

Fagaceae

The beech family

Trees of this family dominate many forests in sub-tropical China and are often essential species in late-successional stands, frequently forming the canopy. A shared trait of the Fagaceae is the cupula that surrounds the acorn:

Cyclobalanopsis glauca (the ring-cupped oak) bears concentric rings on its cupula, *Lithocarpus glaber's* acorns show a waxy bloom, and *Quercus acutissima* grows conspicuous, spiny cupulae. *C. glauca* is also included in our enclosure experiment.



Photo: KENPEI / Wikimedia Commons, CC BY-SA 3.0

Cyclobalanopsis glauca



Photo: emanon (cropped), CC BY-NC 4.0

Lithocarpus glaber



Quercus acutissima



Photo: JODY HSIEH (cropped), CC BY-NC 4.0

Lauraceae

The laurel family

Over 500 species (incl. subspecies) are native to China, including shrub genera such as *Lindera* and *Neolitsea* as well as dominant trees like *Cinnamomum*. Their fleshy fruits are an important food source for frugivorous, seed-spreading birds.



Photo: Timur Kalininsky (cropped), CC BY 4.0

Neolitsea sericea



Photo: 林棋欽 (cropped), CC BY-NC 4.0

Cinnamomum camphora

Schima superba

S. superba is an evergreen broadleaved species of the tea family – Theaceae. It can dominate canopies and tolerates a wide range of site conditions. Therefore, it is very common in SE China. Due to low oil content paired with a high amount of stored water in its leaves, *S. superba* can be used as a fireproof forest belt. It is included in our enclosure experiment.



Photo: Jacy Chen (cropped), CC BY 4.0