

Supplementary Appendix S1.

**Supplementary Materials and Methods**

Method	Technical details
Study area	Forest ecosystems of Jammu, India (natural forests, agroforestry patches, riparian zones); surveys conducted during 2023–2024.
Experimental design	Before–after restoration approach. Restoration interventions: habitat preservation, enrichment planting with native flora, installation of artificial nesting sites.
Pitfall traps	Plastic containers (10 cm diameter, 6 cm depth), partially filled with 70 % ethanol and 2–3 drops of detergent; buried flush with soil surface; deployed for 48 hr.
Berlese–Tullgren funnels	Standard funnels fitted with 40 W incandescent bulbs; litter samples (~ 500 g) placed in mesh sieve; insects driven by heat into collection vials containing 70 % ethanol.
Quadrat sampling	Ten quadrats (1 m <sup>2</sup> each) per habitat type (forest, agroforestry, riparian). Direct collection of collembola, termites and wood-decomposing beetles from soil, litter and decaying logs.
Pollinator monitoring	Ten randomly selected trees per crop species (pear, peach, plum, cherry, pecan, almond and walnut). Observations carried out between 08:00–16:00 hr during peak flowering. Visitation rate was expressed as insect visitsflower <sup>-1</sup> min <sup>-1</sup> , with each tree observed for 15 min sessions.
Specimen handling	Insects were preserved in 70 % ethanol. Voucher specimens are curated at SKUAST-Jammu.
Ecosystem service metrics	(i) Decomposition – relative abundance of Collembola, Isoptera and Coleoptera. (ii) Pollination – mean visitation rate across crop species before vs. after restoration.
Shannon diversity index	The Shannon diversity index values for insect communities showed pronounced seasonal patterns and overall biodiversity enhancement following restoration. In the pre-restoration period (2023), diversity indices ranged from 2.00 to 3.10, whereas in the post-restoration period (2024) values consistently elevated, ranging from 2.80 to 4.20. Peak diversity was observed during spring and early summer, with maximum values reaching 4.20 in May 2024 compared to 3.10 in May 2023. These results confirm that restoration interventions substantially increased community diversity and promoted stable, year-round habitat conditions.