

PROTOCOL: Site and sample selection

(i) Equipment

- Tree climbing equipment
- Pole and hand pruners
- Shotguns, when necessary
- DBH tape
- GPS
- Binoculars
- Botanical press

(ii) Site and specimen criteria

- The site must be classified as humid or moist tropical or sub-tropical forest.
- Mean annual precipitation should exceed 1500 mm.
- Only fully sunlit canopy species (trees, palms, lianas, hemi-epiphytes) are acceptable.
- Sunlit species must receive direct beam solar radiation for a minimum of three hours per day.
- Individuals are pre-selected based on general health and condition, to maximize representativeness for the species.

(iii) Tree selection and collection of specimen vouchers

- Individuals meeting the above criteria are marked and given a project code.
- When possible, diameter at breast height (DBH), height and GPS coordinates are collected for the individual.
- Specimen vouchers are collected using tree climbing, pole pruning or shooting methods.
- Climbing requires specialized equipment and techniques:
 - For rope climbing, a custom-designed crossbow is used to fire an arrow, with a 0.90 mm nylon line attached, through a large branch in the upper canopy. A halyard is tied to the nylon line, which is used to deploy a climbing rope into the tree crown.
 - For trees with stems less than about 50-60 cm, tree climbing claws (Pata de Loro) are used to ascend into the canopy. Once in position in the canopy, the climber extends a telescoping pole pruner to collect branches for species identification and/or vouchering.
- Branch samples are oven-dried using portable gas-powered driers. Specimens are identified using a dichotomous key, and are mounted for shipment and further analysis in various herbaria.