

Methods to access the canopy

Literature, Russian Literature



Single Rope Techniques (SRT) is a portable and relatively inexpensive method of canopy study which allowed canopy access even to graduate students with their modest budgets. However, the limitation of SRT is such that it was not useful for emergent trees whose enormous canopies usually extended far away from the main trunk itself.

To access foliage on the extremities, another invention known as the canopy boom (a horizontal bar with a bosun's chair at one end that swung into the leafy canopy away from the main trunk) was created by Peter Ashton and colleagues. Later on, with the development of more modern technology, the construction crane was first set up by Alan Smith of Smithsonian Tropical Research Institute (STRI) to study forest canopies in Panama. Although relatively expensive, this device allowed access to any region of canopy beneath the crane arm without regard to the tree trunk.

Methods are further expanded to using hot-air balloon and raft operation, called Radeau des Cimes (translation: raft on the rooftop of the world) which was designed by French botanist Francis Hall. The inflatable raft forms a base camp for researchers in the treetops and the hot air balloon, operates in conjunction with the raft, transport researchers to new locations in the canopy to study biodiversity and the canopy-atmosphere interface. A new technique called the sled, or skimmer was later pioneered by a French expedition. This technique enables scientists to trawl the uppermost canopy for biodiversity surveys. With the sled, rapid collection of canopy leaves, flowers, vines, or epiphytes, as well as their pollinators or herbivores, can be conducted offering spatial without the limitations of temporal variability (Mitchell et al. 2002; Lowman 2004a).

The canopy walkway is another important invention that has " provided unprecedented access to bromeliads to survey biodiversity and other ecological phenomena" (Burgess et al. 2002, 2003; Lowman et al. 2006). With this walkway, the public can also have the opportunity to personally experience the canopy. Finally, a combination of the different methods can be used by scientists to achieve higher efficiency and effectiveness in their research studies. One such example is the project IBISCA where the canopy crane, single rope techniques, and canopy raft are used together to access the canopy.