

## TENT CONSTRUCTION BY VAMPYRESSA IN COSTA RICA

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The use of cut leaves for diurnal roosting sites by bats was first noted by Barbour (1932). He observed that fronds of the palms *Pritchardia pacifica* and *Livistona chinensis* were cut and folded by *Uroderma bilobatum* to form roosts. Chapman (1932:555), who discovered *Artibeus cinereus watsoni* roosting under the cut veins of a bifurcated palm, *Geonoma cuneata* (= *G. decurrens*), on Barro Colorado Island, termed these modified leaves "tents." Ingles (1953) reported *A. cinereus watsoni* creating tents in the palm, *Geonoma oxycarpa* (= *G. binervia*), on Barro Colorado Island, and Goodwin and Greenhall (1961:262) found *Uroderma bilobatum* roosting under cut leaves of the carat palm, *Sabal glaucescens*, and *Artibeus cinereus* roosting "under cut leaves of palm trees" on Trinidad and Tobago. *Ectophylla alba*, the Honduran white bat, was reported by Timm and Mortimer (1976) to alter the leaves of five species of *Heliconia* (Musaceae) in Costa Rica; the bats selected specific leaves for both size and angle to the ground. *Artibeus jamaicensis* was found by Foster and Timm (1976) to cut the leaflets on a pinnately leafed palm, *Scheelea rostrata*, in a tropical dry forest in Costa Rica. A review of tent construction by bats was provided by Kunz (1982).

Thus, to date, four species of phyllostomids (*Artibeus cinereus*, *A. jamaicensis*, *Ectophylla alba*, and *Uroderma bilobatum*) have been reported to modify leaves of plants to produce tents for daytime roosts. Herein, I report tent-making by a fifth species, *Vampyressa pusilla*, which, like the other species, is a tropical member of the phyllostomid subfamily Stenoderminae. This represents the first record of a member

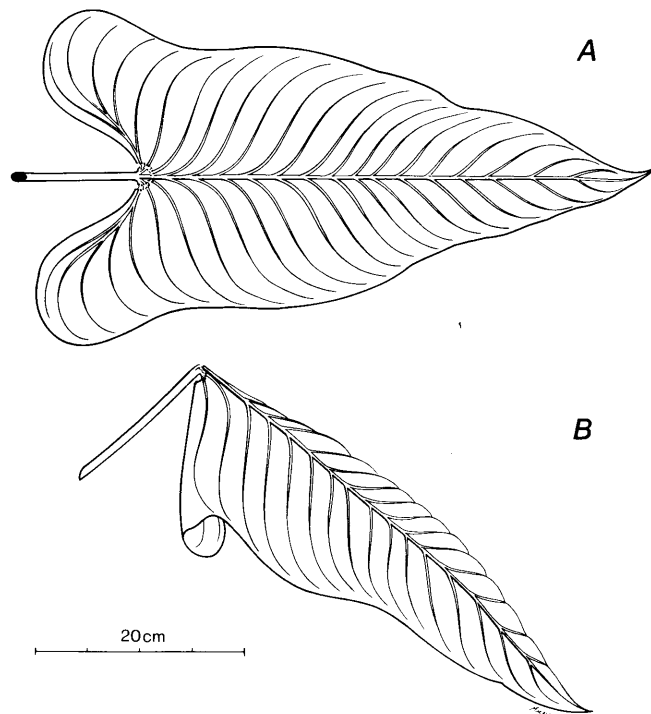


FIG. 1.—A) Dorsal view of the *Philodendron* leaf showing cut veins near the base. B) Tent of *Vampyressa pusilla* in *Philodendron*.

of the genus *Vampyressa* modifying a leaf to produce a diurnal roosting structure, and the first record of such use of an aroid leaf.

A single adult male *Vampyressa pusilla thyone* Thomas, 1909 (FMNH 124098) was observed roosting under a cut *Philodendron* leaf at Finca La Selva, 1 km SW Puerto Viejo de Sarapiquí, Heredia Province, in the Caribbean lowlands of northeastern Costa Rica (10°27'N, 84°00'W; elev. 50 m) on 1 July 1982. The *Philodendron* (Araceae) in which the bat was roosting is an undescribed species referred to as *Philodendron* sp. "A" in the "Flora of La Selva" project and is represented by a voucher specimen (Duke Univ. Herbarium 272056). La Selva lies within the Tropical Wet Forest Life Zone (Holdridge, 1967) and is largely virgin rain forest. Vegetation and habitat types of La Selva have been described by Slud (1960), Holdridge et al. (1971), and Sawyer and Lindsey (1971).

The veins of the *Philodendron* leaf were severed near the base (Fig. 1A). This caused the entire margin of the leaf to collapse downward forming a pyramid-shaped tent (Fig. 1B). The single *Vampyressa* was hanging from the center of the pyramid approximately 3 m above ground. This cut leaf was the only leaf altered on the plant. No other modified *Philodendron* leaves were observed at La Selva in 1982; however, I did observe two such tents, without bats, on philodendrons at this locality in 1974.

*Vampyressa pusilla* is found from Veracruz, México, south through Colombia into Peru, although it usually is not abundant. Little is known about its natural history. Hall and Jackson (1953:645) reported a single *V. pusilla* "... disturbed when the zoologists a few seconds before had pushed aside bushes that partly obstructed the trail." I have found no other reports of possible roosting sites of *V. pusilla*. The paucity of observations of roost sites may reflect the cryptic nature of philodendron tents, which are easily overlooked in tropical rainforests.

Foster and Timm (1976) and Timm and Mortimer (1976) postulated that tents constructed by phyllostomid bats for diurnal roost sites provide shelter from both rain and sun, concealment, and early warning of the approach of a predator. The tent made by *V. pusilla* in *Philodendron* fits well within this pattern. Although to date few data are available on tent construction by bats, the phenomenon is probably widespread. The lack of observations probably reflects the cryptic nature of the tents, and thus their value as camouflage to roosting bats.

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