

Table 3. *Leptogenys* sp. 1. Size, maximum distance from bivouac, and velocity of advance of swarm raids (the data for swarm and fan area are given in combination, because a reliable distinction between these formations is not possible in each case)

Night	Raid	Time (h)	Depth (m)	Width (m)	Area (m ²)	Distance bivouac/forefront (m)	Velocity of advance (cm·min ⁻¹)
4	1	0200	?	?	?	49.0	12.3
7	1	2200	13.5	6.0	53	13.5	9.0
	2	0100	7.3	3.2	16	7.3	?
	3	0300	11.0	3.1	25	11.0	?
8	1	0000	13.5	5.7	42	13.5	5.1
	2	0600	9.0	6.6	30	24.0	11.7
9	1	2320	15.5	9.8	58		8.2
	1	0250	9.0	10.5	54	34.0	8.8
10	1	2200	15.5	5.0	46		13.0
	1	2330	8.7	8.0	>29		4.4
	1	0100	8.7	8.0	>45	30.4	8.2
	1	0230	4.6	6.0	>16		5.3
14	1	2315	9.9	5.2	28	10.9	5.2
	2	0300	7.8	6.8	28		11.7
	2	0550	6.0	7.1	28	32.5	8.8
17	1	2310	10.1	6.2	35		4.8
18	1	0150	9.0	8.0	40	33.0	14.3
	2	0000	12.5	7.3	48	20.5	11.4
			$n=16$ $\bar{x}=9.5$	$n=17$ $\bar{x}=6.8$	$n=14$ $\bar{x}=37.5$	$n=12$ $\bar{x}=22.25$	$n=16$ $\bar{x}=8.8$

Predatory behavior

When a worker got in contact with prey, it was able to recruit hundreds of nestmates within a few minutes, and a mass attack followed. Victims were bitten and stung. Soon the prey's movements weakened; the prey was pinned down, torn apart by oppositely pulling groups of workers, and subsequently slowly divided into small pieces that were carried back to the bivouac. Legs and wings of even small prey were cut off. Usually the prey was cut into pieces that could be carried by one forager; larger prey pieces were rarely carried cooperatively.

Discussion

The ecotype "army ant" is characterized by typical behavioral patterns:

1. Army ants form large colonies consisting of many thousands of workers but usually only a single queen.
2. Army ants change their nest sites frequently. Their temporary nests (bivouacs) are modified only slightly. Sometimes the species do not perform any nest building activities at all.
3. Army ants are mass-raiding predators. The exodus begins before prey is localized by scout ants.

All foraging activities, i.e., search, attack, and retrieval, are conducted collectively. A new trail system is developed in each raid. The raiding groups are connected to the bivouac by at least one continuous column. The raids are coordinated by communication, based on mass recruitment (Chadab and Rettenmeyer 1975; Topoff et al. 1980).

Besides the Ecitoninae and Dorylinae, which possess all of these characteristics, there are other ants that possess only some of them. Frequent nest relocations seem to be more common in ants than hitherto reported (Smallwood and Culver 1979; Smallwood 1982; Tsuji 1987), particularly in ant species with unspecific nesting demands, like *Monomorium pharaonis* (Wilson 1971), and in species living in unstable habitats such as the leaf litter stratum. Because of the high air humidity at the ground layer of tropical rainforests, nesting in this environment is possible even in unsheltered sites, as frequently observed in bivouac-nesting species. In this habitat, even obligatorily migrating ants can be found that are not migrating hunters like the army ants but true "nomads", e.g., *Dolichoderus cuspidatus* (Maschwitz and Hänel 1985).

Leptanilla was considered to be an army ant because its apterous queens are highly physogastric from time to time. Because of the small colony size in this genus, the term army ant should not be applied to *Leptanilla*. Masuko (1987) gives a