

Table 2. *Leptogenys* sp. 1. Number and duration of raids. Average rate of returning prey-laden workers (observation period: 11 nights)

Night	Number of raids	Raiding time	Duration (min)	Exodus (min)	Main raiding phase (min)	Retreat (min)	Rate of returning laden ants	
4	>1	a) 1920–0310	480	130	260	090	39.0%	
5	>2	a) 1940–2220	170	090	—	080	—	
		b) 2045–2220	105	085	020	—	31.5%	
8	2	a) 1935–0400	475	105	200*	170	54.4%	
		b) 0245–0710	265	075	100	090	37.1%	
9	1	1930–0620	660	200	330	130	62.2%	
10	>1	a) 1930–0300	460	090	250	120	44.1%	
12	1	1940–0320	?	220*	130	110*	57.4%	
13	>1	a) 1945–0050	315	115	170	030	48.1%	
14	2	a) 1945–0110	335	115	090	130	32.8%	
		b) 0030–0720	415	070	255	090	49.2%	
17	2	a) 1940–0500	570	110	310	150	71.1%	
		b) 0500–0710	150	030	010	100	04.0%	
18	2	a) 1930–2120	130	040	010	070	02.0%	
		b) 2100–0720	630	080	400	150	62.1%	
19	3	a) 1930–0020	300	110	100	090	66.0%	
		b) 0000–0220	150	070	080	—	36.3%	
		c) 0230–0850	390	030	230	130	56.2%	
<i>n</i> = 7			<i>n</i> = 17		<i>n</i> = 17		<i>n</i> = 16	
\bar{x} = 2			\bar{x} = 320		\bar{x} = 90		\bar{x} = 170	
					\bar{x} = 100		\bar{x} = 48.1%	

* Delay or total interruption of raiding activities by heavy rainfalls

the principal trail. Increasing numbers of workers left the bivouac; at the height of the exodus, sometimes more than 1000 workers per min, i.e., up to 13 rows abreast, travelled at the base of the trunk trail. A few workers walked in the opposite direction towards the bivouac dragging their gasters over the ground, presumably laying pheromone trails. We regarded an exodus as completed when in two successive measurements less than 50 workers per min were recorded leaving the bivouac.

Main raiding phase. The foray reached its height during the main raiding phase, which varied in length from a few minutes to several hours (10–400 min, \bar{x} = 170 min, *n* = 17). During the main raiding phase, there was low level traffic on the trunk trail in both directions, whereas many thousands of foragers were involved in the big swarm raid. Up to 88% of the returning ants were carrying prey to the bivouac. More details are given in Table 2 and Fig. 9.

Retreat. The period of balanced traffic to and from the bivouac was followed by the retreat, which continued for 30–150 min (\bar{x} = 105 min, *n* = 16). When the homebound traffic started to prevail (> 50 workers per min), the percentage of burdened workers rapidly decreased to less than 10%. We

observed the beginning of the retreat as a nearly synchronous turn of the ants at the forefront of the swarm. The wave of return moved along the fan of columns behind the swarm and finally reached the bivouac. Outgoing ants turned after frequent collisions with nestmates that were returning to the nest; nevertheless, there were still some workers leaving the nest entrance until the end of the foray. Frequently, a new exodus or an emigration already began while the last workers from the previous raid were still returning to the bivouac.

Swarm raid. In the “amoeba-like” structure that was formed by the workers spreading out from the bivouac after sunset, one of the “pseudopodia” became very attractive. The ants accumulated at this point and, as the mass advanced, the swarm became an organized unit. The workers at the forefront explored the area by slowly moving about and palpating the substrate, investigating leaf litter, subterranean cavities, and rotten logs. They also ascended the vegetation up to 5 m. As the swarm moved forward, a fan-shaped network of columns developed behind it. The trail system converged in the back forming a main trunk trail that permanently connected the swarm to the temporary nest (Fig. 9). Narrow columns developed at the flanks of the swarm and in the direction of its advance.