TABLE 4. *Species replacement by ants at sugar-water baits on Santa Cruz Island. Data are from eight experiments (table 3) combined. Species abbreviations correspond to table 1.*

Losers (species being replaced)	Winners (replacing species): Cp	P	Sg	Tg	Pv	Ca	Wa	Tm	Mf	Pl	Total losses	% Losses
Cp	X	3	—	—	—	1	—	—	—	—	4	67
P	1	X	1	1	9	1	2	—	—	—	15	42
Sg	—	3	X	1	—	2	3	1	2	4	16	67
Tg	—	—	—	X	—	—	—	—	—	1	1	17
Pv	—	9	1	—	X	1	10	—	—	—	21	66
Ca	1	4	—	1	1	X	7	—	—	—	14	74
Wa	—	2	1	—	1	—	X	1	—	3	8	25
Tm	—	—	5	—	—	—	2	X	5	6	18	82
Mf	—	—	—	—	—	—	1	1	X	1	3	21
Pl	—	—	—	2	—	—	—	1	4	X	7	32
Total wins	2	21	8	5	11	5	24	4	11	15		
% Wins	33	58	33	83	34	26	75	18	79	68		

species that did not appear, three were rare and one (*Camponotus macilentus* F. Smith) was nocturnal/crepuscular. Although *Conomyrmya* sp. and *Hypoponera* sp. were relatively common, for unknown reasons they never appeared at baits. Because the majority of common species appeared at the baits, the following results apply to a large percentage of ant interactions on Santa Cruz.

Because the dishes were checked in sequential series, we used species replacement in subsequent checks as an index of interspecific competitive ability. Table 4 presents the data on species replacement from all eight experiments combined. Species replacements did not occur randomly. There was extremely significant heterogeneity among the eight most common species in their rates of replacing and being replaced ($X^2_{7df} = 35.5$, $P < 0.005$).

Table 5 shows the number of consecutive observations that a species was present at bait stations. We hypothesized that species which were able to utilize dishes for a long time would also be the species which had good "win-loss" records. This assumption turned out to be true. There was a positive correlation between the percentage of wins and the percentage of observations at which a species was present three or more times in succession ($r_{s,8} = 0.685$, $P < 0.05$). There are at least two plausible explanations for this correlation. It might be due to random mixing of non-interacting species which have intrinsically different temporal resource utilization patterns, or alternatively, it could be due to interspecific competition: species which remained longer at baits did so because they were superior competitors.

TABLE 5. *Percentage occurrence of observation sequences of different lengths at sugar-water baits. Data from eight experiments (table 3) combined.*

Species	Percent of all observation sequences lasting: 1 check	2 checks	3 checks	N (sequences)
Wa	13	7	80	101
Tg	10	20	70	10
Mf	38	13	50	8
P	34	18	47	38
Pv	39	14	46	56
Pl	44	11	44	18
Tm	44	19	37	27
Cp	67	17	17	6
Ca	85	15	0	20
Sg	57	29	14	21

Another hypothesis was that species which had good win/loss records would also be successful at excluding all other species from their baits. However, the correlation between percent wins and percent exclusive occurrence on dishes (table 6) was not significant. Six of the eight species for which there were sufficient data to calculate a win/loss record did fall into the predicted relationship. Two species, however, differed greatly from expectation. *Tapinoma melanocephalum* (Fabricius) "won" only 18 percent of its replacement events, yet in 61.5 percent of its occurrences it was the only species at that station. Perhaps the high percentage of sole occupancy of a bait reflects rapid utilization of unoccupied baits rather than interspecific exclusion. *Monomorium floricola* had a high winning percentage (79%), but in only 30 percent of its occurrences was it the only