

Table 10.2 Observed Number of Ant Species Evaluated at Different Sample Sizes for Each of the 17 Sampling Methods^a

Methods	Observed Species Richness after:					Estimated Species Richness ^b		
	10 Samples	20 Samples	30 Samples	40 Samples	All (54) Samples	ICE	Jack-knife	M-M
Small soil samples	14.0 (20.9)	22.4 (33.5)	25.3 (37.9)	29.6 (44.3)	42 (62.8)	88.5	64.6	66.9
Large soil samples	11.9 (39.1)	16.4 (53.9)	20.0 (65.8)	22.7 (74.5)	26 (85.5)	49.0	37.8	30.4
Berlese funnel samples	21.8 (39.4)	31.2 (56.4)	37.8 (68.4)	42.4 (76.7)	48 (86.8)	65.7	64.7	55.3
Winkler extraction samples	29.3 (42.2)	41.1 (59.1)	49.1 (70.6)	55.0 (79.1)	63 (90.6)	108.1	90.5	69.5
Pitfall traps (24-hour)	12.2 (35.9)	17.4 (51.1)	20.8 (61.1)	23.9 (70.2)	27 (79.4)	40.0	37.8	34.0
Pitfall traps (7-day)	17.3 (36.5)	24.5 (51.7)	30.0 (63.2)	34.4 (72.4)	40 (84.3)	72.8	59.6	47.5
Sardine bait (4-hour)	7.3 (34.6)	10.5 (49.4)	13.2 (62.2)	15.8 (74.6)	19 (89.8)	68.5	30.8	21.2
Sardine bait (24-hour)	9.1 (37.3)	13.0 (53.4)	15.8 (64.7)	17.8 (73.2)	20 (82.1)	29.8	27.9	24.4
Cassava flour bait (24-hour)	6.1 (36.4)	8.9 (52.8)	10.8 (64.1)	12.2 (72.7)	14 (83.2)	23.8	19.9	16.8
Cassava flour bait (4-hour)	6.2 (27.5)	9.3 (41.8)	11.8 (52.8)	13.9 (62.2)	16 (71.6)	24.6	22.9	22.4
Meat bait (24-hour)	6.5 (35.0)	9.7 (52.4)	11.8 (64.2)	13.4 (72.6)	15 (81.3)	18.3	19.9	18.4
Sugar bait (4-hour)	8.7 (41.0)	12.0 (56.7)	14.3 (68.0)	16.0 (75.9)	18 (85.4)	27.0	24.9	21.1
Sugar bait (24-hour)	5.2 (39.3)	7.3 (54.9)	8.9 (66.9)	10.0 (75.5)	11 (83.0)	12.7	13.9	13.3
Orange peel bait (4-hour)	7.1 (31.0)	10.8 (47.1)	13.8 (60.4)	16.1 (70.0)	19 (82.9)	34.9	28.8	22.9
Orange peel bait (24-hour)	8.1 (31.8)	12.0 (47.2)	14.8 (58.1)	17.2 (67.5)	20 (78.5)	38.2	30.8	25.5
Dead wood inspection	17.6 (27.9)	27.6 (43.6)	34.1 (54.0)	39.2 (62.0)	45 (71.3)	71.0	65.6	63.1
Dried cocoa pod inspection	7.1 (32.7)	11.2 (51.2)	13.6 (62.4)	15.2 (69.8)	17 (77.9)	22.8	22.9	21.8
All methods	75.0 (55.0)	95.8 (70.3)	110.1 (80.7)	121.5 (89.1)	134 (98.3)	188.9	176.2	136.4

^aNumber of species represents the mean of 100 randomizations of sample pooling order.

^bICE, incidence-based coverage estimator; jackknife, first-order jackknife estimator; M-M, Michaelis-Menten asymptote (the percentage of the M-M asymptote is given in parentheses in the first five columns).

also shows the ICE and jackknife asymptote values, as well as the predicted proportions (as percentages) of the M-M asymptotic value that would be obtained if 10, 20, 30, 40, and all 54 samples were taken.

Depending on the sampling method, the percentage of the M-M asymptote value that was obtained varied from 20.9 to 42.2, 33.5 to 59.1, 44.3 to 70.6, 37.9 to 79.1, and 62.8 to 90.6 when 10, 20, 30, 40, and 54 samples were collected, respectively. In all cases, Winkler extraction obtained the highest percentage of the asymptote value and small soil samples the lowest.

There is reasonable agreement between the percentages of the asymptotes obtained for the various sampling methods, which were on average 34.6, 50.4, 61.8, 69.8, and 81.0 for 10, 20, 30, 40, and 54 samples, respectively.

For all methods combined, 70% of the asymptote value was collected by 20 samples, whereas for each individual method, a much lower percentage (33.5–59.1%) was collected by 20 samples, with some methods obviously performing much better than others. Thus, in the context of the total survey, increasing the number of samples from each individual