particularly informative study, Fisher surveyed ground-dwelling ant diversity at elevation zones separated by 400 m at four rainforest localities: the Reserve Naturelle Integrale d'Andohahela, the Reserve Naturelle Integrale d'Andringitra, the Reserve Speciale d'Anjanaharibe-Sud, and the Western Masoala Peninsula in eastern Madagascar.

At each site, 50 pitfall traps were used and 50 leaf litter (Winkler) samples were taken, in parallel lines 10 m apart along a 250-m transect. Pitfall traps were placed and leaf litter samples gathered every 5 m along the transect. Pitfall traps consisted of test tubes (18 mm internal diameter by 150 mm long), partly filled to a depth of about 50 mm with soapy water and a 5% ethylene glycol solution, inserted into polyvinyl chloride (PVC) sleeves, and buried with the rim flush with the soil surface. Traps were left in place for 4 days. Ants were extracted from samples of leaf litter using Winkler extractors over a 48-hour period (Chapter 9; Fisher 1998).

The observed and predicted number of species sampled by the Winkler, pitfall, and combined methods for 10-, 20-, 30-, 40-, and

Table 15.1 Observed Number of Ant Species Evaluated at Different Sample Sizes for Winkler Sacks, Pitfall Traps, and Both Methods for Each 800-m Zone Site in Madagascar[a]

	Observed Species Richness after:					Estimated Species Richness[b]		
Methods	10 Samples	20 Samples	30 Samples	40 Samples	All (50) Samples	ICE	Jack-knife	M-M
800 m Andohahela								
Winkler	39.6 (59.3)	49.5 (74.1)	55.3 (82.8)	59.5 (89.1)	63 (94.3)	80.0	79.7	66.8
Pitfall	14.8 (43.6)	20.5 (60.3)	24.3 (71.5)	27.4 (80.6)	30 (88.3)	48.4	43.7	34.0
Both methods	44.5 (59.6)	55.5 (74.4)	62.1 (83.2)	66.9 (89.7)	71 (95.2)	90.3	90.6	74.6
785 m Andringitra								
Winkler	52.2 (66.8)	63.3 (81.0)	68.8 (88.1)	72.8 (93.1)	76 (97.2)	87.5	90.7	78.2
Pitfall	10.2 (45.6)	14 (62.4)	16.4 (72.9)	17.6 (78.6)	19 (84.7)	23.4	24.9	22.4
Both methods	53.8 (68.6)	64.1 (81.8)	69.8 (89.0)	74.0 (94.4)	77 (98.2)	88.2	91.7	78.4
825 m Andringitra								
Winkler	43.4 (67.6)	51.7 (80.6)	56.4 (88.0)	60.5 (94.4)	64 (99.8)	78.8	79.7	64.1
Pitfall	8.7 (39.0)	12.2 (54.9)	14.9 (67.0)	17.0 (76.7)	19 (85.6)	32.1	27.8	22.2
Both methods	44.9 (66.5)	53.3 (79.1)	59.4 (88.1)	63.5 (94.1)	67 (99.3)	82.6	83.7	67.4
825 m Masoala								
Winkler	62.2 (57.1)	79.8 (73.3)	91.1 (83.7)	99.3 (91.3)	106 (97.4)	139.84	136.38	108.81
Pitfall	8.9 (38.2)	12.7 (54.5)	15.8 (67.7)	18.27 (78.6)	20 (86.0)	33.05	27.84	23.25
Both methods	62.5 (55.4)	81.2 (71.9)	93.4 (82.7)	102.4 (90.6)	109 (96.5)	141.7	139.4	113.0
875 m Anjanaharibe-Sud								
Winkler	54.4 (58.4)	69.1 (74.1)	78.9 (84.7)	86.7 (93.1)	92 (98.8)	117.17	114.5	93.2
Pitfall	8.5 (37.8)	11.7 (52.1)	14.6 (65.0)	17.4 (77.2)	20 (88.8)	89.2	32.7	22.51
Both methods	56.2 (57.6)	71.9 (73.7)	82.7 (84.7)	91.1 (93.3)	97 (99.3)	126.7	122.5	97.6

[a]Number of species represents the mean of 100 randomizations of sample pooling order.

[b]ICE, 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).