



A REVIEW OF SOME FOREST INSECT SURVEY
RECORDS ASSOCIATED WITH POPULATION TRENDS
OF THE SADDLE-BACKED LOOPER,
ECTROPIS CREPUSCULARIA (SCHIFF.)

by

D. S. Ruth and G. T. Silver

FOREST RESEARCH LABORATORY
VICTORIA, BRITISH COLUMBIA
INFORMATION REPORT B C-X-7

DEPARTMENT OF FORESTRY
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D. S. Ruth and G. T. Silver^{1/}

A previous study by Silver analyzed survey records of defoliators associated with infestations in coastal British Columbia (1). The species were the spruce budworm, Choristoneura fumiferana (Clem.), black-headed budworm, Acleris variana (Fern.), green-striped forest looper, Melanolophia imitata Wlk., and the western hemlock looper, Lambdina fuscicollis (Hulst.). The purpose of the analysis was to compare population trends with occurrence of infestations on a broad basis in an effort to establish critical or "alert" levels of insect abundance which would forecast impending outbreaks in advance of visible defoliation. Populations at the 'alert' level of abundance are those which could develop into an infestation within one or two years; this level was determined for all species.

A severe outbreak of the saddle-backed looper, Ectropis crepuscularia (Schiff.) occurred in 1960 and 1961 at Kitimat (2). Heavy tree mortality occurred on over 10,000 acres of forest land; the majority of the mortality was attributed to severe defoliation in 1960. E. crepuscularia had not been regarded as a potentially serious forest pest although an infestation in the Blue River area of the North Thompson in interior British Columbia caused noticeable defoliation in 1951-1953 (3). No tree mortality was reported at Blue River.

The population buildup at Kitimat was believed to have been rapid for there was no apparent warning that such an outbreak was imminent. A compilation of survey records of coastal British Columbia similar in scope to that carried out for the other species was considered advisable to determine if the data would provide information on population trends useful in predicting future outbreaks or to detect flaws in sampling procedures.

The methods used for compiling these data were similar to those developed and used in the previous report by Silver (1). However, records were analyzed up to and including 1963 compared with up to 1959 for the previous report. Population trends were compared using two factors; the percentage of total collections made during the larval period which contained Ectropis larvae (occurrence), and the average number of larvae per collection (incidence). The data on population trends are tabulated by Ranger Districts for future reference and comparison. Maps are also included showing the Ranger Districts and Drainage Divisions.

The moths of E. crepuscularia emerge in early or mid-May, mate,

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and lay eggs in bark crevices and under the moss of tree boles. The young larvae feed on the understory and ground cover plants, later moving up into the crowns of the larger trees. In August the larvae drop to the ground and pupate in the duff beneath the trees where they overwinter.

RESULTS

Larvae of the saddle-backed looper have always been found in endemic numbers in the coastal regions of B.C. (Table 1). The average number of larvae in collections on Vancouver Island increased in 1951 and 1952, but the population decreased and has since remained at a relatively low level. Populations increased on the mainland portion of the Vancouver Forest District from 1956 to 1958, but the increases in incidence were small and the population declined steadily for the following three years.

A similar situation occurred in the Prince Rupert Forest District where saddle-backed looper larvae were present in small numbers in all years. Populations increased in 1959 and reached their highest recorded level in coastal forests in the West Prince Rupert District in 1960 when the outbreak occurred at Kitimat and 10,500 acres of timber were heavily defoliated by fall (2). About 1,800 acres were sprayed in 1960, and the whole infested area was sprayed in 1961, but the severe defoliation in 1960 resulted in heavy tree mortality. The population dropped sharply in 1962.

Occurrence of saddle-backed looper larvae in beating collections in the West Prince Rupert Region is shown by drainage divisions in Table 7. The outbreak, although small in extent, occurred on the boundary of two Districts. The largest portion was in DD102, West Prince Rupert District, and the southern portion of the outbreak in DD083, South Prince Rupert District. The Kitimat area was relatively inaccessible until recent years so that survey records for the years prior to the outbreak are incomplete, but some general trends are apparent.

A relatively high proportion of collections in DD102 contained saddle-backed looper in 1955, but no larvae were recorded in 1956 although the number of collections doubled. No collections were made in DD102 in 1957, but Ectropis larvae were present in 1958, and by 1959 were common in collections throughout the entire West Prince Rupert District. It is interesting to note that the average number of larvae per collection was higher in most drainages than in DD102 where the infestation actually occurred. The occurrence and incidence of larvae increased greatly in DD102 in 1960, the year of the outbreak, probably due in part to intensified sampling in the Kitimat area after the moth flight in May alerted the field staff. It should be noted that in every infestation specific sampling required to appraise the condition results in an increased number of samples. Populations remained relatively high in other drainages of the District with the exception of DD103 and DD104 where no larvae were found. The population increased in DD083, but not to the same extent as in DD102.

The population level increased in 1961 in Drainages 102, 083, and 105. The increases in 102 and 083 were the result of an expansion of the outbreak, but the increase in 105 is unexplained. The main infestation

area was sprayed in 1961; larvae were present in the area in 1962 but in much reduced numbers. Populations decreased to low levels in the Prince Rupert District in 1963; no larvae were collected in many drainages.

DISCUSSION

Records from 1949 to 1963 show that population levels of Ectropis crepuscularia fluctuate from year to year in coastal British Columbia. One interesting observation is that the percentage of collections containing larvae have not, during the relatively short period for which data are available, ever increased to what could be termed high proportions. Up to the year preceding the outbreak at Kitimat the proportion of total collections containing Ectropis in the West Prince Rupert District exceeded 10 per cent in only one year, 1955, and no larvae were collected the following year. In 1959, the year preceding the outbreak at Kitimat, only 17.5 per cent of the collections contained Ectropis, and during the height of the outbreak the incidence did not exceed 25 per cent for the District although larvae were found in 84 per cent of the collections made in DD102 in 1961, the peak of the outbreak.

Population trends for Ectropis in the period preceding the outbreak were not as clearly defined as for other insect species. Insect surveys in the Prince Rupert Forest District were restricted for the first decade by inaccessibility of large areas of forested regions. This resulted in only small numbers of collections being made in some drainages. This is particularly true of the infestation area at Kitimat which was inaccessible until shortly before the outbreak occurred. The infestation itself was also remarkably confined in that populations were extremely high within the center of the outbreak which covered about 15,000 acres, but declined to a relatively low level outside this area. There is little doubt that if the outbreak at Kitimat had remained undetected the threat of an Ectropis outbreak in 1960, based on the survey records available, would have been considered a remote possibility.

The problems of inaccessibility and lack of continuity of records are being overcome with time as access roads open up more forested lands, as the field ranger staff becomes more experienced, and as a system of stratified random sampling is providing a better distribution of insect collections. Improvements in survey methods should ensure continued improvement in the detection aspects of survey.

The problem of predicting future Ectropis outbreaks is difficult. The year preceding the Kitimat outbreak only 17.5 per cent of the collections in the West Prince Rupert District contained Ectropis larvae, and in 1960 this rose to only 24.3 per cent; the increase in average number of larvae per collection to 35.3 was a reflection of the samples made in the outbreak area itself and not a district wide increase. By comparison the percentage of collections containing Ectropis larvae increased to 26.1 per cent in North Vancouver in 1958 when looper populations such as Melanolophia imitata (Wlk.) were generally high, but no outbreak developed. It is therefore not safe to use 25 per cent as a figure for predicting outbreaks, but this should be considered as a warning. Until further data

are available the threat of an Ectropis outbreak in coastal British Columbia can be considered greatest under the following conditions:

1. When looper populations are generally at a high level.
2. When 25 per cent or more of collections in a District contain Ectropis larvae.
3. When over 50 per cent of collections in a Drainage Division contain Ectropis larvae.

ACKNOWLEDGEMENTS

The data presented in this report are from the Forest Insect Survey files. All Survey personnel in the coastal region thus contributed in collecting the information; the authors compiled and analyzed the data.

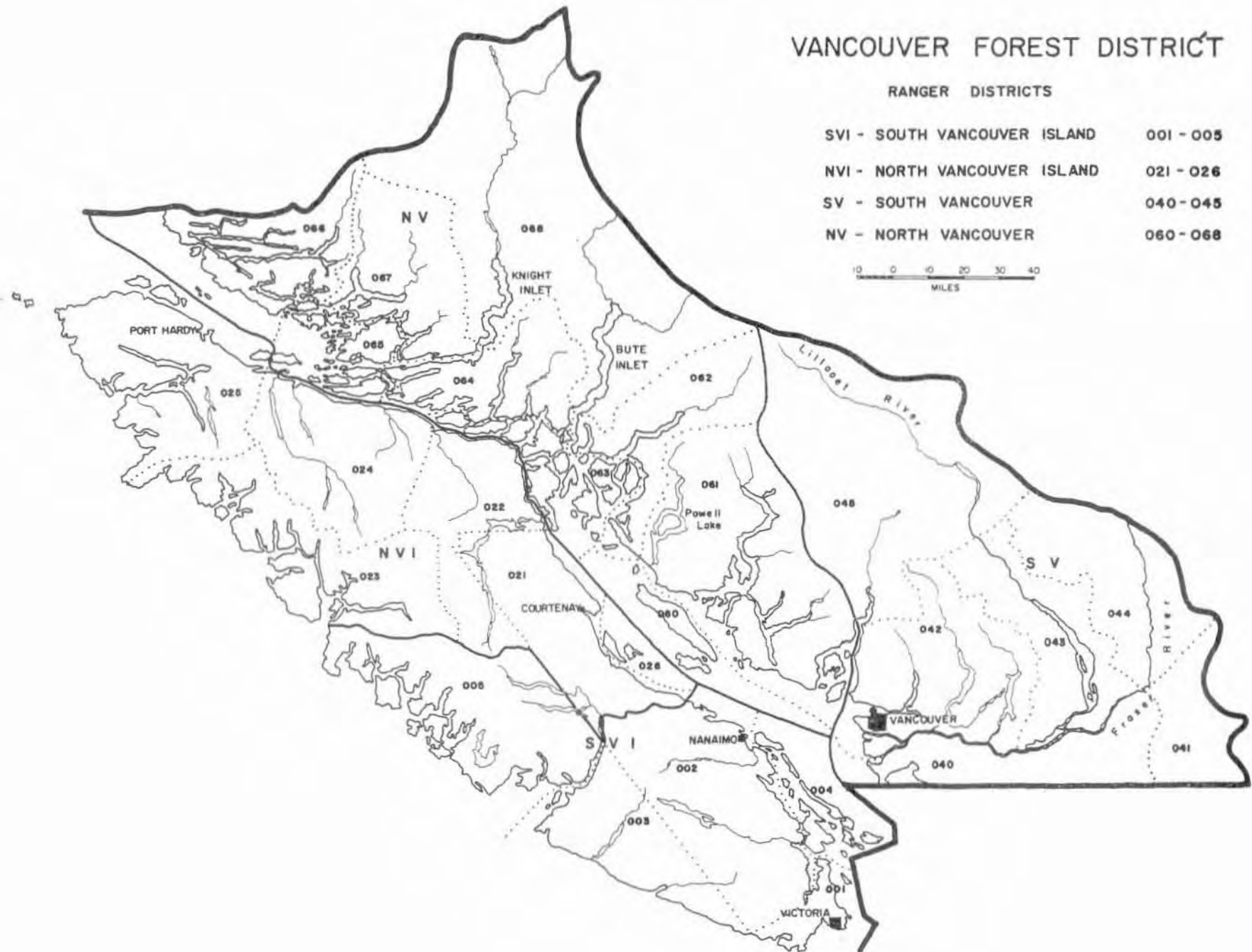
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2. Silver, G.T. 1961. Notes on the chemical control of Ectropis crepuscularia Schiff. at Kitimat, B.C. Proc. Ent. Soc. B.C. 58: 13-16.
3. Silver, G.T. and D.A. Ross. 1954. In Ann. Rept. For. Insect and Disease Survey, Province of B.C. p. 122.

VANCOUVER FOREST DISTRICT

RANGER DISTRICTS

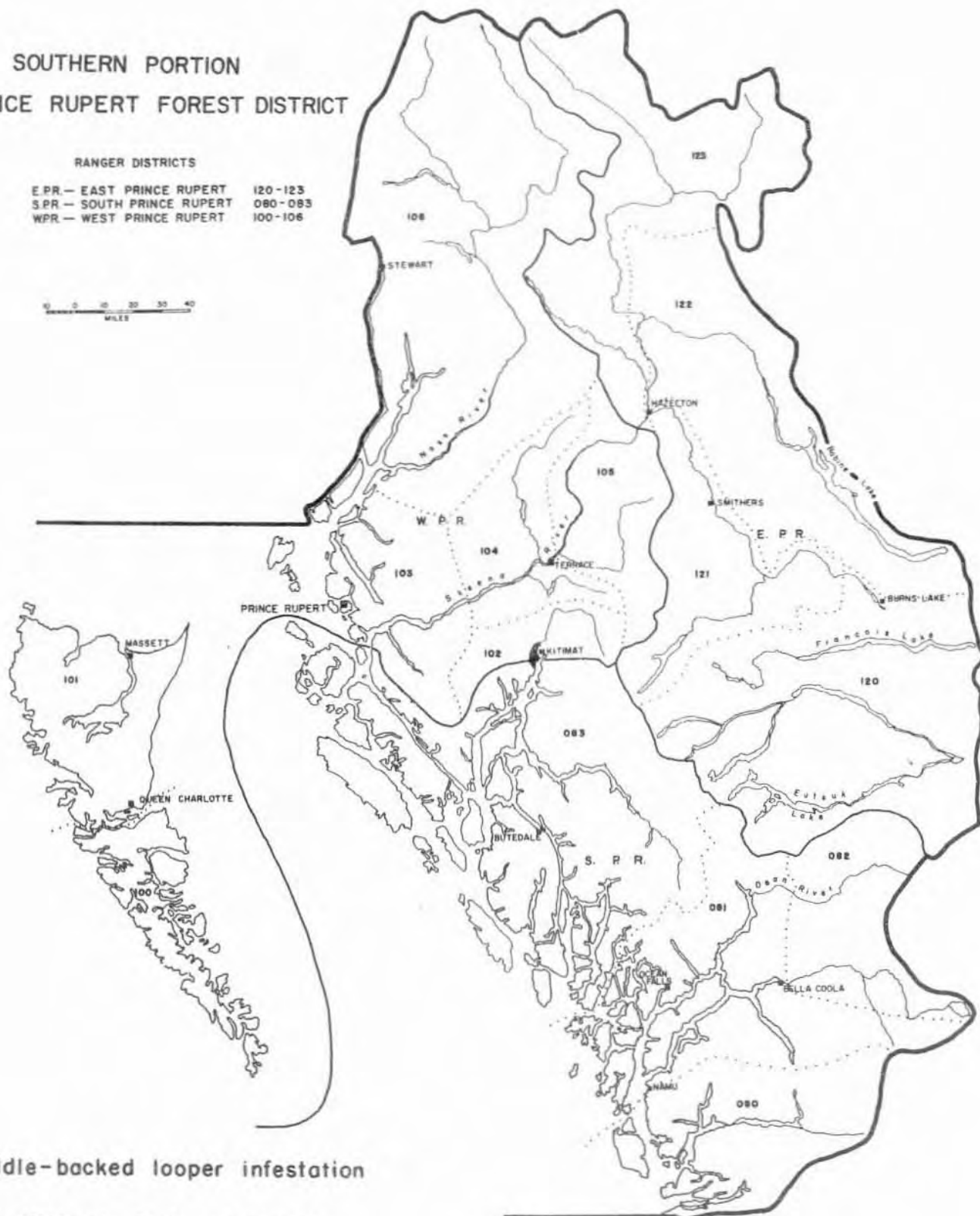
SVI - SOUTH VANCOUVER ISLAND	001 - 005
NVI - NORTH VANCOUVER ISLAND	021 - 026
SV - SOUTH VANCOUVER	040 - 045
NV - NORTH VANCOUVER	060 - 068



SOUTHERN PORTION
PRINCE RUPERT FOREST DISTRICT

RANGER DISTRICTS

E.P.R.—EAST PRINCE RUPERT	120-123
S.P.R.—SOUTH PRINCE RUPERT	080-083
W.P.R.—WEST PRINCE RUPERT	100-106



Saddle-backed looper infestation

at Kitimat, B. C. 1960-61

TABLE 1

Summary of *Ectropis crepuscularia* collections by Ranger Districts.

All hosts included.

Year		S.V.I.	N.V.I.	S.V.	N.V.	S.P.R.	W.P.R.	E.P.R.
1949	Total no. collections	258	529	250	307	100	130	39
	% coll. containing species	0.7	1.5	5.6	3.6	1.0	1.5	0
	Ave. no. specimens/sample	1.0	1.3	1.7	2.1	1.0	2.3	-
1950	Total no. collections	152	262	379	48	63	355	72
	% coll. containing species	2.6	0	16.3	2.1	12.7	3.7	0
	Ave. no. specimens/sample	1.6	-	1.9	1.0	2.3	2.2	-
1951	Total no. collections	419	580	278	289	29	20	85
	% coll. containing species	17.7	7.8	10.0	2.1	3.4	5.0	0
	Ave. no. specimens/sample	2.9	2.1	2.2	1.4	1.0	1.0	-
1952	Total no. collections	216	209	284	35	3	97	17
	% coll. containing species	25.9	5.3	2.1	0	0	2.1	0
	Ave. no. specimens/sample	5.2	2.5	1.0	-	-	1.0	-
1953	Total no. collections	223	212	108	166	9	241	89
	% coll. containing species	3.1	1.9	3.7	6.6	11.1	9.5	1.1
	Ave. no. specimens/sample	2.4	1.6	1.6	1.2	1.0	1.4	1.0
1954	Total no. collections	68	164	122	48	136	211	43
	% coll. containing species	0	0	4.1	6.3	6.6	8.1	4.7
	Ave. no. specimens/sample	-	-	1.5	1.8	1.6	2.0	1.0
1955	Total no. collections	74	131	165	85	24	118	98
	% coll. containing species	1.4	0.8	5.5	12.9	12.5	11.9	3.1
	Ave. no. specimens/sample	1.0	1.0	1.0	2.0	1.0	1.4	1.8
1956	Total no. collections	191	186	160	148	96	41	46
	% coll. containing species	3.1	1.6	10.0	16.9	16.7	0	4.3
	Ave. no. specimens/sample	1.0	1.0	2.7	1.2	1.6	-	2.3
1957	Total no. collections	162	230	145	48	0	74	29
	% coll. containing species	8.0	7.8	24.1	18.8	-	2.7	3.4
	Ave. no. specimens/sample	1.2	1.6	3.7	2.1	-	2.3	1.0
1958	Total no. collections	149	270	123	88	69	74	32
	% coll. containing species	9.4	11.9	25.2	26.1	2.9	5.4	3.1
	Ave. no. specimens/sample	2.3	1.8	3.1	2.5	2.3	5.1	1.0
1959	Total no. collections	210	363	264	159	63	137	80
	% coll. containing species	1.5	9.9	7.2	10.1	9.5	17.5	17.5
	Ave. no. specimens/sample	3.6	6.5	1.7	2.3	15.8	4.5	2.6

TABLE 1 (Continued)

Year		S.V.I.	N.V.I.	S.V.	N.V.	S.P.R.	W.P.R.	E.P.R.
1960	Total no. collections	111	137	83	36	143	185	28
	% coll. containing species	16.2	1.5	3.6	8.3	8.4	24.3	7.1
	Ave. no. specimens/sample	1.4	1.0	1.0	1.0	11.9	35.3	1.0
1961	Total no. collections	143	126	117	139	34	109	43
	% coll. containing species	0.7	3.2	2.6	1.4	41.2	24.8	11.6
	Ave. no. specimens/sample	1.0	1.0	1.0	1.0	57.1	59.2	2.5
1962	Total no. collections	71	107	97	166	114	74	22
	% coll. containing species	0	0.9	5.2	1.2	16.7	10.8	0
	Ave. no. specimens/sample	-	1.0	1.5	1.0	24.2	2.5	-
1963	Total no. collections	284	248	240	348	130	119	13
	% coll. containing species	0	0	7.1	4.3	0	5.9	0
	Ave. no. specimens/sample	-	-	1.1	1.0	-	2.1	-

TABLE 2

Summary of Ectropis crepuscularia collections by drainage divisions.

South Vancouver Island Ranger District. All hosts included.

Year	Drainage Divisions					Total
	001	002	003	004	005	
1949	Total no. collections	39	64	54	101	258
	% coll. containing species	0	1.6	0	1.0	0.7
	Ave. no. specimens/sample	-	1.0	-	1.0	1.0
1950	Total no. collections	21	50	62	19	152
	% coll. containing species	0	0	6.5	0	2.6
	Ave. no. specimens/sample	-	-	1.6	0	1.6
1951	Total no. collections	105	119	73	122	419
	% coll. containing species	0	1.7	15.1	50.0	17.7
	Ave. no. specimens/sample	-	1.0	2.0	3.1	2.9
1952	Total no. collections	35	88	61	32	216
	% coll. containing species	0	10.2	57.4	37.5	25.9
	Ave. no. specimens/sample	-	3.4	5.9	4.3	5.2
1953	Total no. collections	39	108	40	36	223
	% coll. containing species	0	0	12.5	5.6	3.1
	Ave. no. specimens/sample	-	-	3.0	1.0	2.4
1954	Total no. collections	8	31	27	2	68
	% coll. containing species	0	0	0	0	0
	Ave. no. specimens/sample	-	-	-	-	-
1955	Total no. collections	8	35	26	1	74
	% coll. containing species	0	0	3.8	0	1.4
	Ave. no. specimens/sample	-	-	1.0	-	1.0
1956	Total no. collections	8	63	53	29	191
	% coll. containing species	0	3.2	7.5	0	3.1
	Ave. no. specimens/sample	-	1.0	1.0	-	1.0
1957	Total no. collections	20	53	24	16	162
	% coll. containing species	0	3.8	25.0	0	10.2
	Ave. no. specimens/sample	-	1.0	1.4	-	1.2
1958	Total no. collections	25	42	22	8	149
	% coll. containing species	0	2.4	36.4	0	9.4
	Ave. no. specimens/sample	-	1.0	3.0	-	2.3
1959	Total no. collections	50	65	44	9	210
	% coll. containing species	0	4.6	34.1	0	33.3
	Ave. no. specimens/sample	-	1.8	3.9	-	3.6
1960	Total no. collections	9	29	27	0	111
	% coll. containing species	0	0	11.1	-	32.6
	Ave. no. specimens/sample	-	-	1.0	-	1.4

TABLE 2 (Continued)

Year		Drainage Divisions					Total
		001	002	003	004	005	
1961	Total no. collections	9	52	31	0	51	143
	% coll. containing species	0	0	0	-	2.0	0.7
	Ave. no. specimens/sample	-	-	-	-	1.0	1.0
1962	Total no. collections	8	26	9	0	28	71
	% coll. containing species	0	0	0	-	0	0
	Ave. no. specimens/sample	-	-	-	-	-	-
1963	Total no. collections	14	120	58	22	70	284
	% coll. containing species	0	0	0	0	0	0
	Ave. no. specimens/sample	-	-	-	-	-	-

TABLE 3

Summary of Ectropis crepuscularia collections by drainage divisions.

North Vancouver Island Ranger District. All hosts included.

Year	Drainage Divisions						Total
	021	022	023	024	025	026	
1949	Total no. collections	347	73	6	103		529
	% coll. containing species	0.3	2.7	50.0	1.9		1.5
	Ave. no. specimens/sample	1.0	2.3	1.0	1.0		1.3
1950	Total no. collections	189	0	70	3		262
	% coll. containing species	0	-	0	0		0
	Ave. no. specimens/sample	-	-	-	-		-
1951	Total no. collections	345	96	8	131		580
	% coll. containing species	1.7	15.6	0	18.3		7.8
	Ave. no. specimens/sample	1.4	2.7	-	1.9		2.1
1952	Total no. collections	165	0	0	44		209
	% coll. containing species	1.8	-	-	18.1		5.3
	Ave. no. specimens/sample	1.8	-	-	2.8		2.5
1953	Total no. collections	136	63	2	11		212
	% coll. containing species	0.7	4.8	0	0		1.9
	Ave. no. specimens/sample	1.0	1.5	-	-		1.6
1954	Total no. collections	50	37	57	2	13	164
	% coll. containing species	0	0	0	0	0	0
	Ave. no. specimens/sample	-	-	-	-	-	-
1955	Total no. collections	55	38	6	11	21	131
	% coll. containing species	0	2.6	0	0	0	0.8
	Ave. no. specimens/sample	-	1.0	-	-	-	1.0
1956	Total no. collections	58	61	2	11	48	186
	% coll. containing species	3.4	1.6	0	0	0	1.6
	Ave. no. specimens/sample	1.0	1.0	-	-	-	1.0
1957	Total no. collections	57	92	7	31	39	230
	% coll. containing species	0	7.6	14.3	9.7	17.9	7.8
	Ave. no. specimens/sample	-	1.4	1.0	1.0	2.1	1.6
1958	Total no. collections	80	52	41	12	81	270
	% coll. containing species	3.8	7.7	31.7	0	14.8	11.9
	Ave. no. specimens/sample	1.0	1.6	2.2	-	1.6	1.8
1959	Total no. collections	123	74	64	55	43	363
	% coll. containing species	1.6	1.4	23.4	1.8	39.5	9.9
	Ave. no. specimens/sample	2.3	1.0	4.5	1.0	9.5	6.5

TABLE 3 (Continued)

Year		Drainage Divisions						Total
		021	022	023	024	025	026	
1960	Total no. collections	59	64	1	7	1	5	137
	% coll. containing species	3.4	0	0	0	0	0	1.5
	Ave. no. specimens/sample	1.0	-	-	-	-	-	1.0
1961	Total no. collections	31	14	46	6	29	0	126
	% coll. containing species	0	7.1	4.3	0	3.4	-	3.2
	Ave. no. specimens/sample	-	1.0	1.0	-	1.0	-	1.0
1962	Total no. collections	19	14	2	10	62	0	107
	% coll. containing species	0	0	0	0	1.6	-	0.9
	Ave. no. specimens/sample	-	-	-	-	1.0	-	1.0
1963	Total no. collections	38	47	69	39	55	0	248
	% coll. containing species	0	0	0	0	0	-	0
	Ave. no. specimens/sample	-	-	-	-	-	-	-

TABLE 4

Summary of Ectropis crepuscularia collections by drainage divisions.

South Vancouver Ranger District. All hosts included.

Year	Drainage Divisions						Total
	040	041	042	043	044	045	
1949	Total no. collections	51	171	4	7	17	250
	% coll. containing species	2.0	7.6	0	0	0	5.6
	Ave. no. specimens/sample	10	1.8	-	-	-	1.7
1950	Total no. collections	109	234	6	26	4	379
	% coll. containing species	12.8	19.7	16.7	3.8	0	16.3
	Ave. no. specimens/sample	1.7	2.0	1.0	1.0	-	1.9
1951	Total no. collections	72	169	15	17	5	278
	% coll. containing species	5.6	14.2	0	0	0	10.0
	Ave. no. specimens/sample	1.6	2.3	-	-	-	2.2
1952	Total no. collections	54	211	18	1	0	284
	% coll. containing species	5.6	0.9	5.6	0	-	2.1
	Ave. no. specimens/sample	1.0	1.0	1.0	-	-	1.0
1953	Total no. collections	24	66	2	16	-	108
	% coll. containing species	4.2	4.5	0	0	-	3.7
	Ave. no. specimens/sample	1.0	1.8	-	-	-	1.6
1954	Total no. collections	47	2	40	5	21	122
	% coll. containing species	6.4	0	2.5	0	0	14.3
	Ave. no. specimens/sample	1.8	-	1.0	-	-	1.0
1955	Total no. collections	38	38	51	7	25	165
	% coll. containing species	2.6	2.6	7.8	0	12.0	5.5
	Ave. no. specimens/sample	1.0	1.0	1.0	-	1.0	1.0
1956	Total no. collections	22	17	43	13	14	160
	% coll. containing species	13.6	5.9	25.6	0	7.1	10.0
	Ave. no. specimens/sample	1.0	1.0	3.4	-	1.0	2.7
1957	Total no. collections	18	10	78	12	11	145
	% coll. containing species	22.2	0	38.5	0	0	24.1
	Ave. no. specimens/sample	2.3	-	4.0	-	-	3.7
1958	Total no. collections	9	7	83	5	5	123
	% coll. containing species	0	0	34.9	20.0	0	25.2
	Ave. no. specimens/sample	-	-	3.3	1.0	-	3.1
1959	Total no. collections	44	6	124	18	39	264
	% coll. containing species	0	0	12.1	5.6	7.7	7.2
	Ave. no. specimens/sample	-	-	1.8	1.0	1.0	1.7

TABLE 4 (Continued)

Year		Drainage Divisions						Total
		040	041	042	043	044	045	
1960	Total no. collections	10	0	25	4	14	30	83
	% coll. containing species	10.0	-	4.0	0	0	3.3	3.6
	Ave. no. specimens/sample	1.0	-	1.0	-	-	1.0	1.0
1961	Total no. collections	7	29	58	0	7	16	117
	% coll. containing species	0	0	3.4	-	14.3	0	2.6
	Ave. no. specimens/sample	-	-	1.0	-	1.0	-	1.0
1962	Total no. collections	7	17	28	25	9	11	97
	% coll. containing species	14.3	0	3.6	8.0	11.1	0	5.2
	Ave. no. specimens/sample	1.0	-	1.0	1.0	3.5	-	1.5
1963	Total no. collections	42	25	70	40	38	25	240
	% coll. containing species	95	0	11.4	5.0	5.3	4.0	7.1
	Ave. no. specimens/sample	1.0	-	1.3	1.0	1.0	1.0	1.1

TABLE 5

Summary of Ectropis crepuscularia collections by drainage divisions.

North Vancouver Ranger District. All hosts included.

Year	Drainage Divisions									Total
	060	061	062	063	064	065	066	067	068	
1949	Total no. collections	209		12			50		36	307
	% coll. containing species	4.3		0			0		5.6	3.6
	Ave. no. specimens/sample	1.3		-			-		5.8	2.1
1950	Total no. collections	40		2			6		0	48
	% coll. containing species	2.5		0			0		-	2.1
	Ave. no. specimens/sample	1.0		-			-		-	1.0
1951	Total no. collections	163		113			13		0	289
	% coll. containing species	0.6		4.4			0		-	2.1
	Ave. no. specimens/sample	1.0		1.5			-		-	1.4
1952	Total no. collections	12		9			13		1	35
	% coll. containing species	0		0			0		0	0
	Ave. no. specimens/sample	-		-			-		-	-
1953	Total no. collections	58		77			15		16	166
	% coll. containing species	10.0		3.9			13.3		0	6.6
	Ave. no. specimens/sample	1.4		1.0			1.0		-	1.2
1954	Total no. collections	3	29	0	4	2	10	0	0	48
	% coll. containing species	0	103	-	0	0	0	-	-	6.3
	Ave. no. specimens/sample	-	1.8	-	-	-	-	-	-	1.8
1955	Total no. collections	0	19	0	19	25	3	8	11	85
	% coll. containing species	-	31.6	-	5.3	4.0	33.3	0	18.2	12.9
	Ave. no. specimens/sample	-	2.3	-	1.0	1.0	1.0	-	2.3	2.0

TABLE 5 (Continued)

Year		Drainage Divisions									Total
		060	061	062	063	064	065	066	067	068	
1956	Total no. collections	0	10	0	48	36	13	5	24	12	148
	% coll. containing species	-	0	-	25.0	13.9	7.7	0	12.5	33.3	16.9
	Ave. no. specimens/sample	-	-	-	1.2	1.0	1.0	-	1.0	1.6	1.2
1957	Total no. collections	0	17	0	12	4	14	0	0	1	48
	% coll. containing species	-	17.6	-	8.3	50.0	21.4	-	-	0	18.8
	Ave. no. specimens/sample	-	1.8	-	1.0	1.0	3.5	-	-	-	2.1
1958	Total no. collections	0	38	3	33	14	0	0	0	0	88
	% coll. containing species	-	18.4	0	21.2	64.3	-	-	-	-	26.1
	Ave. no. specimens/sample	-	3.0	-	1.7	2.7	-	-	-	-	2.5
1959	Total no. collections	5	69	17	20	22	11	11	2	2	159
	% coll. containing species	0	5.8	0	5.0	13.6	27.3	27.3	100.0	0	10.1
	Ave. no. specimens/sample	-	2.3	-	1.0	3.5	1.8	1.8	2.3	-	2.3
1960	Total no. collections	2	27	7	0	0	0	0	0	0	36
	% coll. containing species	50.0	7.4	0	-	-	-	-	-	-	8.3
	Ave. no. specimens/sample	1.0	1.0	-	-	-	-	-	-	-	1.0
1961	Total no. collections	0	48	23	17	6	29	1	12	3	139
	% coll. containing species	-	4.2	0	0	0	0	0	0	0	1.4
	Ave. no. specimens/sample	-	1.0	-	-	-	-	-	-	-	1.0
1962	Total no. collections	19	63	32	25	14	0	0	0	13	166
	% coll. containing species	0	1.6	0	4.0	0	-	-	-	0	1.2
	Ave. no. specimens/sample	-	1.0	-	1.0	-	-	-	-	-	1.0
1963	Total no. collections	13	123	35	34	42	30	16	29	26	348
	% coll. containing species	0	5.7	8.6	2.9	0	3.3	0	6.9	3.8	4.3
	Ave. no. specimens/sample	-	1.0	1.0	1.0	-	1.0	-	1.0	1.0	1.0

TABLE 6

Summary of Ectropis crepuscularia collections by drainage divisions.

South Prince Rupert Ranger District. All hosts included.

Year		Drainage Divisions				Total
		080	081	082	083	
1949	Total no. collections	15	7	78	0	100
	% coll. containing species	0	0	1.3	-	1.0
	Ave. no. specimens/sample	-	-	1.0	-	1.0
1950	Total no. collections	0	38	7	18	63
	% coll. containing species	-	10.5	14.3	16.7	12.7
	Ave. no. specimens/sample	-	2.9	3.5	2.7	2.3
1951	Total no. collections	21	4	4	0	29
	% coll. containing species	4.8	0	0	-	3.4
	Ave. no. specimens/sample	1.0	-	-	-	1.0
1952	Total no. collections	0	0	3	0	3
	% coll. containing species	-	-	0	-	0
	Ave. no. specimens/sample	-	-	-	-	-
1953	Total no. collections	1	1	1	6	9
	% coll. containing species	0	0	0	16.7	11.1
	Ave. no. specimens/sample	-	-	-	1.0	1.0
1954	Total no. collections	0	57	16	63	136
	% coll. containing species		1.8		12.7	6.6
	Ave. no. specimens/sample		1.0		1.6	1.6
1955	Total no. collections	0	18	6	0	24
	% coll. containing species	-	16.7	0	-	12.5
	Ave. no. specimens/sample	-	1.0	-	-	1.0
1956	Total no. collections	12	47	7	30	96
	% coll. containing species	8.3	12.8	0	30.0	16.7
	Ave. no. specimens/sample	1.0	1.8	-	1.6	1.6
1957	No collections made in district during 1957.					
1958	Total no. collections	5	30	34	0	69
	% coll. containing species	20.0	0	2.9	-	2.9
	Ave. no. specimens/sample	3.5	-	1.0	-	2.3
1959	Total no. collections	7	26	14	16	63
	% coll. containing species	57.1	3.8	0	6.3	9.5
	Ave. no. specimens/sample	22.5	1.0	-	3.5	15.8
1960	Total no. collections	5	44	10	84	143
	% coll. containing species	0	0	0	14.3	8.4
	Ave. no. specimens/sample	-	-	-	11.9	11.9

TABLE 6 (Continued)

Year		Drainage Divisions				Total
		080	081	082	083	
1961	Total no. collections	1	1	0	32	34
	% coll. containing species	0	0	-	43.8	41.2
	Ave. no. specimens/sample	-	-	-	57.1	57.1
1962	Total no. collections	28	30	0	56	114
	% coll. containing species	0	3.3	-	32.1	16.7
	Ave. no. specimens/sample	-	1.0	-	25.5	24.2
1963	Total no. collections	23	36	22	49	130
	% coll. containing species	0	0	0	0	0
	Ave. no. specimens/sample	-	-	-	-	-

TABLE 7

Summary of Ectropis crepuscularia collections by drainage divisions.

West Prince Rupert Ranger District. All hosts included.

Year		Drainage Divisions						Total	
		100	101	102	103	104	105		106
1949	Total no. collections		38		31	35	21	5	130
	% coll. containing species		2.6		0	0	4.8	0	1.5
	Ave. no. specimens/sample		3.5		-	-	1.0	-	2.3
1950	Total no. collections		127		79	71	26	52	355
	% coll. containing species		7.1		1.3	0	0	5.8	3.7
	Ave. no. specimens/sample		2.7		1.0	-	-	1.0	2.2
1951	Total no. collections		0		16	3	1	0	20
	% coll. containing species		-		6.3	0	0	-	5.0
	Ave. no. specimens/sample		-		1.0	-	-	-	1.0
1952	Total no. collections		67		7	5	17	1	97
	% coll. containing species		1.5		0	0	5.9	0	2.1
	Ave. no. specimens/sample		1.0		-	-	1.0	-	1.0
1953	Total no. collections		61		30	66	41	43	241
	% coll. containing species		16.4		0	12.1	7.3	4.7	9.5
	Ave. no. specimens/sample		1.0		-	1.3	1.5	2.3	1.4
1954	Total no. collections	28	18	9	55	61	10	30	211
	% coll. containing species	0	5.6	0	7.3	0	0	40.0	8.1
	Ave. no. specimens/sample	-	1.0	-	1.0	-	-	2.5	2.0
1955	Total no. collections	3	16	19	28	16	36	0	118
	% coll. containing species	0	0	36.8	3.6	12.5	11.1	-	11.9
	Ave. no. specimens/sample	-	-	1.7	1.0	1.0	1.0	-	1.4
1956	Total no. collections	0	0	38	0	0	2	1	41
	% coll. containing species	-	-	0	-	-	0	0	0
	Ave. no. specimens/sample	-	-	-	-	-	-	-	-
1957	Total no. collections	0	0	0	1	45	8	20	74
	% coll. containing species	-	-	-	0	0	12.5	5.0	2.7
	Ave. no. specimens/sample	-	-	-	-	-	3.5	1.0	2.3
1958	Total no. collections	0	0	6	8	41	12	7	74
	% coll. containing species	-	-	16.7	0	2.4	8.3	14.3	5.4
	Ave. no. specimens/sample	-	-	15	-	1.0	1.0	3.5	5.1
1959	Total no. collections	24	40	6	8	10	7	42	137
	% coll. containing species	25.0	12.5	33.3	12.5	10.0	14.3	19.0	17.5
	Ave. no. specimens/sample	7.5	4.8	2.3	3.5	3.5	1.0	2.6	4.5

TABLE 7 (Continued)

Year	Drainage Divisions							Total
	100	101	102	103	104	105	106	
1960	Total no. collections	47	46	32	16	10	31	185
	% coll. containing species	29.8	10.9	62.5	0	0	33.3	24.3
	Ave. no. specimens/sample	6.0	2.0	73.9	-	-	1.0	35.3
1961	Total no. collections	23	29	19	2	19	11	109
	% coll. containing species	17.4	0	84.2	0	0	63.6	24.8
	Ave. no. specimens/sample	3.5	-	97.1	-	-	4.4	59.2
1962	Total no. collections	37	21	3	0	0	5	74
	% coll. containing species	2.7	23.8	66.7	-	-	0	10.8
	Ave. no. specimens/sample	1.0	2.9	2.3	-	-	-	2.5
1963	Total no. collections	45	30	10	6	4	3	119
	% coll. containing species	4.4	6.7	20.0	0	0	0	5.9
	Ave. no. specimens/sample	2.3	3.5	1.0	-	-	-	2.1

TABLE 8

Summary of Ectropis crepuscularia collections by drainage divisions.

East Prince Rupert Ranger District. All hosts included.

Year		Drainage Divisions				Total
		120	121	122	123	
1949	Total no. collections	18	14	5	2	39
	% coll. containing species	0	0	0	0	0
	Ave. no. specimens/sample	-	-	-	-	-
1950	Total no. collections	9	3	60	0	72
	% coll. containing species	0	0	0	-	0
	Ave. no. specimens/sample	-	-	-	-	-
1951	Total no. collections	30	4	51	0	85
	% coll. containing species	0	0	0	-	0
	Ave. no. specimens/sample	-	-	-	-	-
1952	Total no. collections	0	1	16	0	17
	% coll. containing species	-	0	0	-	0
	Ave. no. specimens/sample	-	-	-	-	-
1953	Total no. collections	9	7	73	0	89
	% coll. containing species	0	0	1.4	-	1.1
	Ave. no. specimens/sample	-	-	1.0	-	1.0
1954	Total no. collections	0	4	37	2	43
	% coll. containing species	-	25.0	2.7	0	4.7
	Ave. no. specimens/sample	-	1.0	1.0	-	1.0
1955	Total no. collections	17	13	63	5	98
	% coll. containing species	0	0	1.6	40.0	3.1
	Ave. no. specimens/sample	-	-	1.0	2.3	1.8
1956	Total no. collections	15	6	18	7	46
	% coll. containing species	0	0	0	28.6	4.3
	Ave. no. specimens/sample	-	-	-	2.3	2.3
1957	Total no. collections	2	9	18	0	2.9
	% coll. containing species	0	0	5.6	-	3.4
	Ave. no. specimens/sample	-	-	1.0	-	1.0
1958	Total no. collections	0	8	20	4	32
	% coll. containing species	-	0	5.0	0	3.1
	Ave. no. specimens/sample	-	-	1.0	-	1.0
1959	Total no. collections	14	20	40	6	80
	% coll. containing species	0	5.0	20.0	83.3	17.5
	Ave. no. specimens/sample	-	3.5	2.9	2.0	2.6

TABLE 8 (Continued)

Year		Drainage Divisions				Total
		120	121	122	123	
1960	Total no. collections	6	7	13	2	28
	% coll. containing species	0	0	0	100.0	7.1
	Ave. no. specimens/sample	-	-	-	1.0	1.0
1961	Total no. collections	2	20	17	4	43
	% coll. containing species	0	5.0	17.6	25.0	11.6
	Ave. no. specimens/sample	-	3.5	2.7	1.0	2.5
1962	Total no. collections	5	6	11	0	22
	% coll. containing species	0	0	0	-	0
	Ave. no. specimens/sample	-	-	-	-	-
1963	Total no. collections	3	0	10	0	13
	% coll. containing species	0	-	0	-	0
	Ave. no. specimens/sample	-	-	-	-	-

TABLE 9

Summary of Ectropis crepuscularia Ranger District collections by host trees.

South Vancouver Island Ranger District. All drainage divisions included.

Year		Hosts							Total
		H	C	F	S	B	BA	W	
1949	Total no. collections	102	42	57	28	17	0	12	258
	% coll. containing species	1.0	2.4	0	0	0	-	0	0.7
	Ave. no. specimens/sample	1.0	1.0	-	-	-	-	-	1.0
1950	Total no. collections	83	14	31	3	14	0	7	152
	% coll. containing species	4.8	0	0	0	0	-	0	2.6
	Ave. no. specimens/sample	1.6	-	-	-	-	-	-	1.6
1951	Total no. collections	131	73	144	24	39	0	8	419
	% coll. containing species	32.1	20.1	0.7	4.2	38.5	-	0	17.7
	Ave. no. specimens/sample	3.2	2.8	1.0	1.0	2.3	-	-	2.9
1952	Total no. collections	73	33	63	11	16	0	20	216
	% coll. containing species	52.1	18.2	3.2	18.2	31.3	-	15.0	25.9
	Ave. no. specimens/sample	6.0	4.2	2.3	2.3	2.5	-	5.7	5.2
1953	Total no. collections	87	25	72	12	20	0	7	223
	% coll. containing species	6.9	4.0	0	0	0	-	0	3.1
	Ave. no. specimens/sample	2.3	1.0	-	-	-	-	-	2.4
1954	Total no. collections	27	1	29	4	7	0	0	68
	% coll. containing species	0	0	0	0	0	-	-	0
	Ave. no. specimens/sample	-	-	-	-	-	-	-	-
1955	Total no. collections	31	2	28	5	2	1	5	74
	% coll. containing species	3.2	0	0	0	0	0	0	1.4
	Ave. no. specimens/sample	1.0	-	-	-	-	-	-	1.0
1956	Total no. collections	72	17	64	17	13	1	7	191
	% coll. containing species	5.6	0	3.1	0	0	0	0	3.1
	Ave. no. specimens/sample	1.0	-	1.0	-	-	-	-	1.0
1957	Total no. collections	70	10	66	6	4	1	5	162
	% coll. containing species	14.3	30.0	0	0	0	0	0	8.0
	Ave. no. specimens/sample	1.3	1.0	-	-	-	-	-	1.2
1958	Total no. collections	70	10	43	6	4	0	16	149
	% coll. containing species	17.1	0	4.7	0	0	-	0	9.4
	Ave. no. specimens/sample	2.3	-	2.3	-	-	-	-	2.3
1959	Total no. collections	88	12	52	9	10	0	39	210
	% coll. containing species	27.3	16.7	1.9	22.2	20.0	-	2.6	1.5
	Ave. no. specimens/sample	4.1	1.0	1.0	2.3	3.5	-	1.0	3.6

TABLE 9 (Continued)

Year		Hosts							Total
		H	C	F	S	B	BA	W	
1960	Total no. collections	63	14	18	5	5	0	6	111
	% coll. containing species	17.5	21.4	11.1	20.0	20.0	-	0	16.2
	Ave. no. specimens/sample	1.0	2.7	2.3	1.0	1.0	-	-	1.4
1961	Total no. collections	75	17	33	7	8	0	3	143
	% coll. containing species	0	0	0	14.3	0	-	0	0.7
	Ave. no. specimens/sample	-	-	-	1.0	-	-	-	1.0
1962	Total no. collections	39	4	14	3	8	0	3	71
	% coll. containing species	0	0	0	0	0	-	0	0
	Ave. no. specimens/sample	-	-	-	-	-	-	-	-
1963	Total no. collections	128	29	90	4	23	1	9	284
	% coll. containing species	0	0	0	0	0	0	0	0
	Ave. no. specimens/sample	-	-	-	-	-	-	-	-

TABLE 10

Summary of Ectropis crepuscularia Ranger District collections by host trees.

North Vancouver Island Ranger District. All drainage divisions included.

Year		Hosts							Total
		H	C	F	S	B	BA	W	
1949	Total no. collections	262	67	89	44	62	0	5	529
	% coll. containing species	1.5	1.5	1.1	2.2	0	-	20.0	1.5
	Ave. no. specimens/sample	1.6	1.0	1.0	1.0	-	-	1.0	1.3
1950	Total no. collections	127	29	56	11	37	0	2	262
	% coll. containing species	0	0	0	0	0	-	0	0
	Ave. no. specimens/sample	-	-	-	-	-	-	-	-
1951	Total no. collections	304	40	146	35	51	1	3	580
	% coll. containing species	12.5	7.5	0	2.9	5.9	0	0	7.8
	Ave. no. specimens/sample	2.1	1.8	-	1.0	2.7	-	-	2.1
1952	Total no. collections	102	16	57	6	26	0	2	209
	% coll. containing species	8.8	12.5	0	0	0	-	0	5.3
	Ave. no. specimens/sample	2.9	1.0	-	-	-	-	-	2.5
1953	Total no. collections	90	23	75	10	10	1	3	212
	% coll. containing species	3.3	0	0	0	10.0	0	0	1.9
	Ave. no. specimens/sample	1.8	-	-	-	1.0	-	-	1.6
1954	Total no. collections	93	5	47	6	11	2	0	164
	% coll. containing species	0	0	0	0	0	0	-	0
	Ave. no. specimens/sample	-	-	-	-	-	-	-	-
1955	Total no. collections	78	2	27	4	15	2	3	131
	% coll. containing species	1.3	0	0	0	0	0	0	0.8
	Ave. no. specimens/sample	1.0	-	-	-	-	-	-	1.0
1956	Total no. collections	121	10	31	5	9	8	2	186
	% coll. containing species	1.7	0	0	20.0	0	0	0	1.6
	Ave. no. specimens/sample	1.0	-	-	1.0	-	-	-	1.0
1957	Total no. collections	164	7	39	6	11	1	2	230
	% coll. containing species	8.5	28.6	2.6	16.7	0	0	0	7.8
	Ave. no. specimens/sample	1.5	2.3	1.0	1.0	-	-	-	1.6
1958	Total no. collections	177	13	41	16	19	1	3	270
	% coll. containing species	12.4	15.4	4.9	6.3	21.1	0	33.3	11.9
	Ave. no. specimens/sample	1.8	1.0	1.0	3.5	1.6	-	3.5	1.8
1959	Total no. collections	207	25	76	20	30	1	4	363
	% coll. containing species	15.0	4.0	0	10.0	6.7	0	0	9.9
	Ave. no. specimens/sample	7.2	3.5	-	2.3	2.3	-	-	6.5

TABLE 10 (Continued)

Year		Hosts							Total
		H	C	F	S	B	BA	W	
1960	Total no. collections	64	10	35	14	12	0	2	137
	% coll. containing species	3.1	0	0	0	0	-	0	1.5
	Ave. no. specimens/sample	1.0	-	-	-	-	-	-	1.0
1961	Total no. collections	77	8	16	13	10	0	2	126
	% coll. containing species	5.2	0	0	0	0	-	0	3.2
	Ave. no. specimens/sample	1.0	-	-	-	-	-	-	1.0
1962	Total no. collections	60	5	15	12	13	0	2	107
	% coll. containing species	1.7	0	0	0	0	-	0	0.9
	Ave. no. specimens/sample	1.0	-	-	-	-	-	-	1.0
1963	Total no. collections	126	16	50	32	21	0	3	248
	% coll. containing species	0	0	0	0	0	0	0	0
	Ave. no. specimens/sample	-	-	-	-	-	-	-	-

TABLE 11

Summary of *Ectropis crepuscularia* Ranger District collections by host trees.
 South Vancouver Ranger District. All drainage divisions included.

Year		Hosts							Total
		H	C	F	S	B	BA	W	
1949	Total no. collections	145	50	41	5	6	0	3	250
	% coll. containing species	5.5	8.0	0	0	16.6	-	33.3	5.6
	Ave. no. specimens/sample	1.6	2.2	-	-	1.0	-	1.0	1.7
1950	Total no. collections	181	62	83	13	31	3	6	379
	% coll. containing species	19.3	25.8	9.6	0	6.4	33.3	0	16.3
	Ave. no. specimens/sample	2.1	2.1	1.0	-	2.5	1.0	-	1.9
1951	Total no. collections	130	57	67	12	7	0	5	278
	% coll. containing species	13.1	17.5	0	0	14.3	-	0	10.0
	Ave. no. specimens/sample	1.9	2.5	-	-	3.5	-	-	2.2
1952	Total no. collections	146	61	52	6	16	0	3	284
	% coll. containing species	2.7	3.3	0	0	0	-	0	2.1
	Ave. no. specimens/sample	1.0	1.0	-	-	-	-	-	1.0
1953	Total no. collections	68	6	17	0	17	0	0	108
	% coll. containing species	2.9	0	0	-	11.8	-	-	3.7
	Ave. no. specimens/sample	1.0	-	-	-	2.3	-	-	1.6
1954	Total no. collections	49	10	54	1	4	1	3	122
	% coll. containing species	6.1	0	3.7	0	0	0	0	4.1
	Ave. no. specimens/sample	1.8	-	1.0	-	-	-	-	1.5
1955	Total no. collections	74	11	59	3	8	5	5	165
	% coll. containing species	4.1	9.1	8.5	0	0	0	0	5.5
	Ave. no. specimens/sample	1.0	1.0	1.0	-	-	-	-	1.0
1956	Total no. collections	61	15	69	4	2	4	5	160
	% coll. containing species	14.8	6.7	5.8	25.0	50.0	0	0	10.0
	Ave. no. specimens/sample	3.4	3.5	1.0	1.0	3.5	-	-	2.7
1957	Total no. collections	78	4	54	3	2	3	1	145
	% coll. containing species	35.9	50.0	9.3	0	0	0	0	24.1
	Ave. no. specimens/sample	3.7	3.5	3.9	-	-	-	-	3.7
1958	Total no. collections	69	2	41	1	0	4	6	123
	% coll. containing species	34.8	0	17.1	0	-	0	0	25.2
	Ave. no. specimens/sample	2.8	-	4.1	-	-	-	-	3.1
1959	Total no. collections	108	26	101	5	16	0	8	264
	% coll. containing species	14.8	3.8	2.0	0	0	-	0	7.2
	Ave. no. specimens/sample	1.6	3.5	1.0	-	-	-	-	1.7

TABLE 11 (Continued)

Year		Hosts							Total
		H	C	F	S	B	BA	W	
1960	Total no. collections	32	7	34	2	3	0	5	83
	% coll. containing species	9.4	0	0	0	0	-	0	3.6
	Ave. no. specimens/sample	1.0	-	-	-	-	-	-	1.0
1961	Total no. collections	57	17	22	3	12	3	3	117
	% coll. containing species	1.8	5.9	0	0	8.3	0	0	2.6
	Ave. no. specimens/sample	1.0	1.0	-	-	1.0	-	-	1.0
1962	Total no. collections	31	24	27	0	8	1	6	47
	% coll. containing species	3.2	12.5	3.7	-	0	0	0	5.2
	Ave. no. specimens/sample	1.0	1.0	3.5	-	-	-	-	1.5
1963	Total no. collections	93	48	76	4	9	2	8	240
	% coll. containing species	8.6	10.4	3.9	0	0	0	12.5	7.1
	Ave. no. specimens/sample	1.0	1.5	1.0	-	-	-	1.0	1.1

TABLE 12

Summary of *Ectropis crepuscularia* Ranger District collections by host trees.

North Vancouver Ranger District. All drainage divisions included.

Year		Hosts							Total
		H	C	F	S	B	BA	W	
1949	Total no. collections	159	49	45	30	23	0	1	307
	% coll. containing species	5.7	2.0	2.2	0	0	-	0	3.6
	Ave. no. specimens/sample	1.6	8.0	1.0	-	-	-	-	2.1
1950	Total no. collections	17	12	16	1	1	0	1	48
	% coll. containing species	0	8.3	0	0	0	-	0	2.1
	Ave. no. specimens/sample	-	1.0	-	-	-	-	-	1.0
1951	Total no. collections	130	58	76	8	17	0	0	289
	% coll. containing species	4.6	0	0	0	0	-	-	2.1
	Ave. no. specimens/sample	1.4	-	-	-	-	-	-	1.4
1952	Total no. collections	17	5	9	0	1	0	3	35
	% coll. containing species	0	0	0	-	0	-	0	0
	Ave. no. specimens/sample	-	-	-	-	-	-	-	-
1953	Total no. collections	85	14	35	18	11	0	3	166
	% coll. containing species	9.4	7.1	0	0	18.2	-	0	6.6
	Ave. no. specimens/sample	1.0	1.0	-	-	2.3	-	-	1.2
1954	Total no. collections	27	4	10	5	1	0	1	48
	% coll. containing species	11.1	0	0	0	0	-	0	6.3
	Ave. no. specimens/sample	1.8	-	-	-	-	-	-	1.8
1955	Total no. collections	48	13	19	2	1	1	1	85
	% coll. containing species	18.8	15.4	0	0	0	0	0	12.9
	Ave. no. specimens/sample	1.6	3.5	-	-	-	-	-	2.0
1956	Total no. collections	80	13	26	23	5	0	1	148
	% coll. containing species	23.8	23.1	3.8	8.7	0	-	0	16.9
	Ave. no. specimens/sample	1.3	1.0	1.0	1.0	-	-	-	1.2
1957	Total no. collections	31	2	9	5	1	0	0	48
	% coll. containing species	22.6	0	11.1	0	100.0	-	-	18.8
	Ave. no. specimens/sample	2.4	-	1.0	-	1.0	-	-	2.1
1958	Total no. collections	54	5	27	0	1	0	1	88
	% coll. containing species	37.0	40.0	3.7	-	0	-	0	26.1
	Ave. no. specimens/sample	2.6	2.3	1.0	-	-	-	-	2.5
1959	Total no. collections	84	6	47	13	1	0	8	159
	% coll. containing species	17.9	0	2.1	0	0	-	0	10.1
	Ave. no. specimens/sample	2.2	-	3.5	-	-	-	-	2.3

TABLE 12 (Continued)

Year		Hosts							Total
		H	C	F	S	B	BA	W	
1960	Total no. collections	10	0	10	1	1	0	14	36
	% coll. containing species	30.0	-	0	0	0	-	0	8.3
	Ave. no. specimens/sample	1.0	-	-	-	-	-	-	1.0
1961	Total no. collections	67	16	20	27	7	0	2	139
	% coll. containing species	1.5	0	0	3.7	0	-	0	1.4
	Ave. no. specimens/sample	1.0	-	-	1.0	-	-	-	1.0
1962	Total no. collections	85	34	24	15	7	0	1	166
	% coll. containing species	1.2	2.9	0	0	0	-	0	1.2
	Ave. no. specimens/sample	1.0	1.0	-	-	-	-	-	1.0
1963	Total no. collections	177	50	56	48	17	0	0	348
	% coll. containing species	6.2	4.0	3.6	0	0	-	-	4.3
	Ave. no. specimens/sample	1.0	1.0	1.0	-	-	-	-	1.0

TABLE 13

Summary of Ectropis crepuscularia Ranger District collections by host trees.

South Prince Rupert Ranger District. All drainage divisions included.

Year		Hosts							Total
		H	C	F	S	B	BA	W	
1949	Total no. collections	93	3	0	2	2	0	0	100
	% coll. containing species	1.1	0	-	0	0	-	-	1.0
	Ave. no. specimens/sample	1.0	-	-	-	-	-	-	1.0
1950	Total no. collections	22	14	2	18	6	0	1	63
	% coll. containing species	13.6	7.1	0	16.7	0	-	100.0	12.7
	Ave. no. specimens/sample	1.0	3.5	-	2.7	-	-	3.5	2.3
1951	Total no. collections	12	3	3	9	2	0	0	29
	% coll. containing species	8.3	0	0	0	0	-	-	3.4
	Ave. no. specimens/sample	1.0	-	-	-	-	-	-	1.0
1952	Total no. collections	1	0	1	1	0	0	0	3
	% coll. containing species	0	-	0	0	-	-	-	0
	Ave. no. specimens/sample	-	-	-	-	-	-	-	-
1953	Total no. collections	4	1	1	1	2	0	0	9
	% coll. containing species	25.0	0	0	0	0	-	-	11.1
	Ave. no. specimens/sample	1.0	-	-	-	-	-	-	1.0
1954	Total no. collections	72	15	5	37	7	0	0	136
	% coll. containing species	11.1	6.7	0	0	0	-	-	6.6
	Ave. no. specimens/sample	1.3	3.5	-	-	-	-	-	1.6
1955	Total no. collections	16	4	2	1	1	0	0	24
	% coll. containing species	12.5	25.0	0	0	0	-	-	12.5
	Ave. no. specimens/sample	1.0	1.0	-	-	-	-	-	1.0
1956	Total no. collections	63	2	5	22	3	0	1	96
	% coll. containing species	22.2	50.0	0	4.5	0	-	0	16.7
	Ave. no. specimens/sample	1.5	3.5	-	1.0	-	-	-	1.6
1957	No collections made in district during 1957.								
1958	Total no. collections	33	10	13	5	4	1	3	69
	% coll. containing species	3.0	0	7.7	0	0	0	0	2.9
	Ave. no. specimens/sample	3.5	-	1.0	-	-	-	-	2.3
1959	Total no. collections	42	8	7	5	1	0	0	63
	% coll. containing species	7.1	3.8	0	0	0	-	-	9.5
	Ave. no. specimens/sample	20.0	11.5	-	-	-	-	-	15.8

TABLE 13 (Continued)

Year		Hosts							Total
		H	C	F	S	B	BA	W	
1960	Total no. collections	69	10	5	55	0	0	4	143
	% coll. containing species	11.6	10.0	0	5.5	-	-	0	8.4
	Ave. no. specimens/sample	11.2	1.0	-	17.3	-	-	-	11.9
1961	Total no. collections	16	2	0	14	1	0	1	34
	% coll. containing species	43.8	0	-	42.9	0	-	100.0	41.2
	Ave. no. specimens/sample	75.9	-	-	44.5	-	-	1.0	57.1
1962	Total no. collections	71	8	2	28	3	0	2	114
	% coll. containing species	15.5	37.5	0	3.6	66.6	-	100.0	16.7
	Ave. no. specimens/sample	15.3	55.3	-	30.0	15.0	-	40.0	24.2
1963	Total no. collections	63	14	7	39	5	0	2	130
	% coll. containing species	0	0	0	0	0	-	0	0
	Ave. no. specimens/sample	-	-	-	-	-	-	-	-

TABLE 14

Summary of *Ectropis crepuscularia* Ranger District collections by host trees.

West Prince Rupert Ranger District. All drainage divisions included.

Year		Hosts						Total
		H	C	S	B	BA	W	
1949	Total no. collections	51	10	44	19	0	6	130
	% coll. containing species	2.0	10.0	0	0	-	0	1.5
	Ave. no. specimens/sample	3.5	1.0	-	-	-	-	2.3
1950	Total no. collections	126	64	119	22	3	21	355
	% coll. containing species	4.8	10.9	0	0	0	0	3.7
	Ave. no. specimens/sample	1.8	2.4	-	-	-	-	2.2
1951	Total no. collections	8	1	8	2	0	1	20
	% coll. containing species	12.5	0	0	0	-	0	5.0
	Ave. no. specimens/sample	1.0	-	-	-	-	-	1.0
1952	Total no. collections	61	6	27	3	0	0	97
	% coll. containing species	3.3	0	0	0	-	-	2.1
	Ave. no. specimens/sample	1.0	-	-	-	-	-	1.0
1953	Total no. collections	111	41	70	11	3	5	241
	% coll. containing species	14.4	12.2	1.4	9.1	0	0	9.5
	Ave. no. specimens/sample	1.3	2.0	1.0	1.0	-	-	1.4
1954	Total no. collections	103	30	51	21	4	2	211
	% coll. containing species	11.7	6.7	3.9	4.8	0	0	8.1
	Ave. no. specimens/sample	2.3	2.3	1.0	1.0	-	-	2.0
1955	Total no. collections	68	19	8	14	9	0	118
	% coll. containing species	10.3	26.3	12.5	7.1	0	-	11.9
	Ave. no. specimens/sample	1.4	1.5	1.0	1.0	-	-	1.4
1956	Total no. collections	25	5	4	3	4	0	41
	% coll. containing species	0	0	0	0	0	-	0
	Ave. no. specimens/sample	-	-	-	-	-	-	-
1957	Total no. collections	52	7	9	3	2	1	74
	% coll. containing species	3.8	0	0	0	0	0	2.7
	Ave. no. specimens/sample	2.3	-	-	-	-	-	2.3
1958	Total no. collections	56	2	9	3	2	2	74
	% coll. containing species	7.1	0	0	0	0	0	5.4
	Ave. no. specimens/sample	5.1	-	-	-	-	-	5.1
1959	Total no. collections	86	6	32	5	5	3	137
	% coll. containing species	24.4	33.3	3.1	0	0	0	17.5
	Ave. no. specimens/sample	4.8	2.3	3.5	-	-	-	4.5

TABLE 14 (Continued)

Year		Hosts						Total
		H	C	S	B	BA	W	
1960	Total no. collections	113	1	49	15	1	6	185
	% coll. containing species	30.0	0	2.0	60.0	0	16.5	24.3
	Ave. no. specimens/sample	41.2	-	1.0	19.0	-	15.0	35.3
1961	Total no. collections	46	1	38	11	0	13	109
	% coll. containing species	39.1	0	5.3	63.6	-	0	24.8
	Ave. no. specimens/sample	22.6	-	76.7	148.4	-	-	59.2
1962	Total no. collections	33	2	33	1	2	3	74
	% coll. containing species	15.2	0	6.1	100.0	0	0	10.8
	Ave. no. specimens/sample	2.9	-	1.0	3.5	-	-	2.5
1963	Total no. collections	56	4	44	2	8	5	119
	% coll. containing species	8.9	25.0	2.1	0	0	0	5.9
	Ave. no. specimens/sample	2.5	1.0	1.0	-	-	-	2.1

TABLE 15

Summary of *Ectropis crepuscularia* Ranger District collections by host trees.

East Prince Rupert Ranger District. All drainage divisions included.

Year		Hosts							Total
		H	C	F	S	B	BA	W	
1949	Total no. collections	2	0	2	15	7	2	11	39
	% coll. containing species	0	-	0	0	0	0	0	0
	Ave. no. specimens/sample	-	-	-	-	-	-	-	-
1950	Total no. collections	1	0	1	8	11	47	4	72
	% coll. containing species	0	-	0	0	0	0	0	0
	Ave. no. specimens/sample	-	-	-	-	-	-	-	-
1951	Total no. collections	1	0	4	2	8	68	2	85
	% coll. containing species	0	-	0	0	0	0	0	0
	Ave. no. specimens/sample	-	-	-	-	-	-	-	-
1952	Total no. collections	0	0	1	1	15	0	0	17
	% coll. containing species	-	-	0	0	0	-	-	0
	Ave. no. specimens/sample	-	-	-	-	-	-	-	-
1953	Total no. collections	1	1	4	17	3	51	12	89
	% coll. containing species	0	0	0	0	0	2.0	0	1.1
	Ave. no. specimens/sample	-	-	-	-	-	1.0	-	1.0
1954	Total no. collections	3	1	3	6	1	27	2	43
	% coll. containing species	33.3	0	0	0	0	0	50.0	4.7
	Ave. no. specimens/sample	1.0	-	-	-	-	-	1.0	1.0
1955	Total no. collections	15	3	7	2	0	67	4	98
	% coll. containing species	20.0	0	0	0	-	0	0	3.1
	Ave. no. specimens/sample	1.8	-	-	-	-	-	-	1.8
1956	Total no. collections	9	2	2	3	0	27	3	46
	% coll. containing species	22.2	0	0	0	-	0	0	4.3
	Ave. no. specimens/sample	2.3	-	-	-	-	-	-	2.3
1957	Total no. collections	10	0	2	0	0	16	1	29
	% coll. containing species	10.0	-	0	-	-	0	0	3.4
	Ave. no. specimens/sample	1.0	-	-	-	-	-	-	1.0
1958	Total no. collections	11	2	0	3	2	14	0	32
	% coll. containing species	9.1	0	-	0	0	0	-	3.1
	Ave. no. specimens/sample	1.0	-	-	-	-	-	-	1.0
1959	Total no. collections	18	2	0	6	3	47	4	80
	% coll. containing species	50.0	100.0	-	0	0	6.4	0	17.5
	Ave. no. specimens/sample	2.4	3.5	-	-	-	2.7	-	2.6

TABLE 15 (Continued)

Year		Hosts						Total	
		H	C	F	S	B	BA		W
1960	Total no. collections	3	0	1	9	1	13	1	28
	% coll. containing species	33.3	-	0	0	0	7.7	0	7.1
	Ave. no. specimens/sample	1.0	-	-	-	-	1.0	-	1.0
1961	Total no. collections	7	1	2	4	0	17	12	43
	% coll. containing species	28.6	0	0	0	-	5.9	16.7	11.6
	Ave. no. specimens/sample	2.3	-	-	-	-	1.0	3.5	2.5
1962	Total no. collections	3	0	0	0	0	18	1	22
	% coll. containing species	0	-	-	-	-	0	0	0
	Ave. no. specimens/sample	-	-	-	-	-	-	-	-
1963	Total no. collections	0	0	0	0	0	11	2	13
	% coll. containing species	-	-	-	-	-	-	0	0
	Ave. no. specimens/sample	-	-	-	-	-	-	-	-