



A Preliminary Report on the  
Effects of Dimecron<sup>R</sup> on Birds  
and Small Mammals

by

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## INTRODUCTION

Experimental applications of Phosphamidon at several dosage rates were carried out in Quebec and New Brunswick against early instar larvae of the spruce budworm, *Choristoneura fumiferana*, Clemens. Efficacy trials designed to reduce emerging budworm adults on experimental plots in the Acadia Forest Experiment Station were also carried out in 1976 (Table 1).

Table I

Spray regime of Dimecron<sup>R</sup> efficacy trials against the spruce budworm, *C. fumiferana* Clemens in Quebec and New Brunswick

1976		
Location and Plot Number	Date of treatment	Dosage rate of insecticide
<u>La Tuque, Quebec, larvalcide</u>		
211-3 and 211-4	April 28th	0.140 kg/ha
211-1 and 211-2	May 3rd	0.280 kg/ha
211-3 (2nd application)	May 15th	0.140 kg/ha
<u>Chipman New Brunswick</u>		
larvalcide		
plots 1,2,3 and 4	May 13th	0.210 kg/ha
plots 5,6,7 and 8	May 13th	0.280 kg/ha
plots 1,2	May 30th	0.210 kg/ha
plots 5,6	May 30th	0.140 kg/ha
<u>Acadia Forest Experiment Station</u>		
adulticide		
plots 1,2,3 and 4	July 4th	0.070 kg/ha
plots 1,2,3 and 4	July 6th	0.070 kg/ha
plots 1,2,3 and 4	July 9th	0.070 kg/ha

The Ecological Effect team of the Chemical Control Research Institute monitored the impact of these various trials upon the avian component.

## METHODS

Birds: Small forest songbird populations were measured on plots in treated and untreated check areas using techniques similar to those previously described by Kendeigh (1944) and Buckner and Turnock (1965). Daily populations were censused before and after the application of the insecticide by slowly walking predetermined parallel lines covering the entire 4 hectar plot. All singing and sighted birds were recorded on plot maps. Special attention was paid to monitoring small songbirds occupying ecological niches directly exposed to the aerial application. Plot searches were carried out to recover birds which may have been affected by the treatments.

The daily population census data collected before and after treatment are presented in tabular form and the pre-and post-spray territories for ruby-crowned kinglets, *Regulus calendula* (Linnaeus) are illustrated for the larvalcide treatments.

Larvalcide plots in both Quebec and New Brunswick were resurveyed approximately one month later to determine if areas where avian mortality had occurred would be repopulated from outside the treatment areas.

Small mammals: Populations were assessed on 3 ecologically similar plots in the Dimecron experimental area in New Brunswick. Plot I was located in an untreated area; plot 2 in that area having received a double application of 0.280 kg/ha (4 oz/acre) and 0.140 kg/ha (2 oz/acre) on May 30th; plot 3 having received an application of Dimecron on 0.210 kg/ha (3 oz/acre) on May 13

followed by a double application of fenitrothion (0.210 kg/ha) on May 25th and May 30th.

## RESULTS

### Birds, LaTuque, Quebec, larvalcide trials

1st application: Few migrating bird species had arrived in the experimental area at the time of the first applications on April 29th and May 3rd.

American robins, *Turdus migratorius* Linnaeus; hermit thrushes, *Hylocichla guttata* (Pallus); ruby-crowned kinglets, *R. calendula*; dark-eyed juncos, *Junco hyemalis* (Linnaeus) and white-throated sparrows, *Zonotrichia albicollis* (Gmelin) were most commonly recorded. Kinglet males had established breeding territories and were actively defending them with song. The daily population census data in tables II, III and IV indicate that the treatment applied to plots 211-3 and 211-4 on April 28th at the emitted insecticide dosage rate of 0.140 kg/ha (2 oz.) did not affect the bird component. Kinglet territories monitored during this treatment were not disrupted and no mortality occurred (Figs. 2 and 3).

On May 3rd plots 211-1 and 211-2 received applications of 0.280 kg/ha (4 oz.), Tables V, VI and VII. Kinglet activity declined slightly on plot 211-1 (Table VI) but all the territories were accounted for (Fig. 4) but populations were reduced very seriously on plot 211-2 (Table VII). No post-spray territories could be defined and only an occasional bird was observed in the plot during the post-spray census period (Fig. 5).

On May 15th, plot 211-3 received a second application of Dimecron at the emitted dosage rate of 0.140 kg/ha (2 oz.). Migration had considerably increased the numbers of birds on the census plots. Populations on plot 211-3 declined slightly after treatment while those on the untreated check plot increased (Tables VIII and IX respectively). Kinglet activity decreased significantly (Table VIII) but all the defined territories remained occupied throughout the post census period (Fig. 7).

On June 16th and 17th the untreated check plot (Table X) and plots 211-2, 211-3 and 211-4 (Tables XI, XII, XIII) were resurveyed to determine kinglet number after the Dimecron spray trials. Population trends of kinglets on the treatment plots parallel those determined on the untreated check plot indicating no permanent damage had occurred to the avian ecosystem to make it unsuitable for habitation after the experimental insecticide trials.

Table II  
 Forest bird population census  
 Dimecron untreated check plot (for 211-3 and 211-4)  
 La Tuque, Quebec  
 April 24-May 3, 1976

Family	Species	Pre-spray days						Post-spray days					
		-4	-3	-2	-1	-0	Daily ave	+1	+2	+3	+4	+5	Daily ave
Corvidae	Blue Jay	0	0	2	0	0	0.4	0	0	0	0	0	0.0
Paridae	Black-capped Chickadee	5	1	0	7	2	3.0	1	1	0	1	2	1.1
Troglodytidae	Winter Wren	0	0	0	2	0	0.4	0	0	2	0	2	0.8
Turdidae	American Robin	0	2	3	2	4	2.2	1	5	4	3	3	3.2
	Hermit Thrush	0	0	2	1	2	1.0	0	2	2	4	0	1.6
Sylviidae	Golden-crowned Kinglet	0	5	2	0	0	1.4	0	0	0	4	2	1.2
	Ruby-crowned Kinglet	7	10	8	11	13	9.8	5	4	8	12	10	7.6
Icteridae	Brown-headed Cowbird	0	0	4	2	2	1.6	0	1	2	4	0	1.4
Fringillidae	Purple Finch	0	0	0	0	0	0.0	2	0	0	0	0	0.4
	Junco	0	8	13	16	12	9.8	3	6	3	16	12	8.0
	White-throated Sparrow	0	0	0	0	0	0.0	0	6	8	6	12	6.4
	Song Sparrow	0	0	4	0	0	0.8	0	0	0	2	2	0.8
Totals:		12	26	37	41	35	30.2	12	25	31	52	45	33.0

Table III  
Forest bird population census  
Dimecron treatment plot 211-3, (first application)  
La Tuque, Quebec  
April 24-May 3, 1976

Family	Species	Pre-spray days						Post-spray days					
		-4	-3	-2	-1	-0	Daily	+1	+2	+3	+4	+5	Daily
		24	25	26	27	28	ave						ave
Alcedinidae	Belted Kingfisher	0	0	1	2	2	1.0	0	1	1	0	2	0.8
Picidae	Common flicker	0	0	0	0	0	0.0	0	0	2	0	2	0.8
	Yellow-bellied Sapsucker	2	0	0	0	0	0.4	2	2	0	0	1	1.0
	Hairy Woodpecker	0	0	2	0	0	0.4	0	0	2	2	0	0.8
Paridae	Black-capped Chickadee	0	1	0	0	0	0.2	0	0	0	0	1	0.2
	Boreal Chickadee	0	0	0	0	1	0.2	0	0	0	0	0	0.0
Certhiidae	Brown Creeper	0	0	0	0	0	0.0	0	0	0	1	0	0.2
Troglodytidae	Winter Wren	2	0	0	0	2	0.8	4	4	2	0	2	2.4
Turdidae	American Robin	0	1	1	1	3	1.4	2	0	12	2	4	4.0
Sylviidae	Golden-crowned Kinglet	0	0	3	0	0	0.6	5	1	5	6	6	4.6
	Ruby-crowned Kinglet	12	6	6	8	8	8.0	6	8	9	8	10	8.2
Parulidae	Myrtle Warbler	0	0	0	0	0	0.0	0	0	0	0	2	0.4
Icteridae	Red-winged Blackbird	0	0	0	0	0	0.0	1	0	0	2	0	0.6
	Rusty Blackbird	0	0	0	0	3	0.6	2	0	0	0	1	0.6
	Common Grackle	0	0	0	0	0	0.0	0	0	1	1	0	0.4
	Brown-headed Cowbird	0	0	0	0	1	0.2	2	2	0	0	2	1.2

Table III Cont'd

Family	Species	Pre-spray days						Post-spray days					
		-4 24	-3 25	-2 26	-1 27	-0 28	Daily ave	+1	+2	+3	+4	+5	Daily ave
Fringillidae	Purple Finch	0	0	0	0	2	0.4	0	0	2	0	6	1.6
	American Goldfinch	0	0	0	0	0	0.0	0	2	0	0	0	0.4
	Junco	0	0	0	6	4	2.0	2	7	5	3	0	3.4
	White-throated Sparrow	0	0	0	0	0	0.0	0	0	3	2	7	2.4
Totals:		16	8	13	17	26	16.0	26	27	44	27	46	34.0



Table IV  
 Forest bird population census  
 Dimecron treatment plot 211-4  
 La Tuque, Quebec  
 April 24-May 3, 1976

Family	Species	Pre-spray days						Post-spray days					
		-4 24	-3 25	-2 26	-1 27	-0 28	Daily ave	+1	+2	+3	+4	+5	Daily ave
Alcedinidae	Belted Kingfisher	0	0	0	0	0	0.0	1	0	0	0	0	0.2
Picidae	Common Flicker	0	0	0	0	0	0.0	0	0	0	0	2	0.4
	Yellow-bellied Woodpecker	0	0	0	0	1	0.2	0	1	2	0	1	0.8
	Hairy Woodpecker	0	2	0	2	0	0.8	1	1	0	0	1	0.6
Paridae	Black-capped Chickadee	0	0	0	0	0	0.0	0	1	3	0	0	0.8
Troglodytidae	Winter Wren	2	0	0	0	0	0.4	0	2	0	0	2	0.8
Turdidae	American Robin	0	2	12	1	4	3.8	0	1	5	11	4	4.2
	Hermit Thrush	0	0	0	1	2	0.6	0	0	0	0	2	0.4
Sylviidae	Golden-crowned Kinglet	0	0	0	0	0	0.0	0	0	0	2	1	0.6
	Ruby-crowned Kinglet	2	4	1	0	2	1.8	3	6	6	6	8	5.8
Parulidae	Myrtle Warbler	0	0	0	0	0	0.0	2	0	0	4	4	2.0
Icteridae	Red-winged Blackbird	0	0	0	0	2	0.4	0	0	0	2	1	0.6
	Rusty Blackbird	0	0	0	2	4	1.2	0	3	0	0	0	0.6
	Common Grackle	0	2	0	0	0	0.4	0	0	2	0	0	0.4
	Brown-headed Cowbird	0	0	2	0	0	0.4	0	2	2	0	2	1.2

Table IV      Cont'd

Family	Species	Pre-spray days						Post-spray days					
		-4	-3	-2	-1	-0	Daily	+1	+2	+3	+4	+5	Daily
		24	25	26	27	28	ave						ave
Fringillidae	Purple Finch	0	0	0	0	0	0.0	0	0	0	0	4	0.8
	Junco	0	6	2	2	0	2.0	0	0	0	2	1	0.6
	White-throated Sparrow	0	10	0	0	2	2.4	0	0	5	6	16	5.4
	Song Sparrow	2	2	0	0	0	0.8	0	2	0	0	1	0.6
Totals:		6	28	17	8	17	15.2	7	19	25	33	50	26.8

Table V  
 Forest bird population census  
 Dimecron untreated check-plot (for 211-1 and 211-2)  
 La Tuque, Quebec  
 April 28 - May 8, 1976

Family	Species	Pre-spray days						Post-spray days					
		-5 28	-4 29	-3 30	-2 1	-1 2	Daily ave	+1	+2	+3	+4	+5	Daily ave
Picidae	Common Flicker	0	0	0	0	0	0.0	0	0	0	2	2	0.8
Corvidae	Blue Jay	0	0	0	0	0	0.0	0	0	0	1	3	0.8
Paridae	Black-capped Chickadee	2	1	1	0	1	1.0	2	4	1	7	0	2.8
	Boreal Chickadee	0	0	0	0	0	0.0	0	1	0	0	0	0.2
Troglodytidae	Winter Wren	0	0	0	2	0	0.4	0	0	0	2	0	0.4
Turdidae	American Robin	4	1	5	4	3	3.4	2	0	2	6	1	2.2
	Hermit Thrush	2	0	2	2	4	2.0	2	2	3	2	0	1.8
Sylviidae	Golden-crowned Kinglet	0	0	0	0	4	0.8	0	0	0	0	0	0.0
	Ruby-crowned Kinglet	13	5	4	8	12	8.4	8	8	6	20	3	9.0
Icteridae	Brown-headed Cowbird	2	0	1	2	4	1.8	0	2	0	0	0	0.4
	Purple Finch	0	2	0	0	0	0.4	0	2	0	0	0	0.4
Fringillidae	Junco	12	3	6	3	16	8.0	5	6	6	10	6	6.6
	White-throated Sparrow	0	0	6	8	6	4.0	18	18	19	22	7	16.8
	Song Sparrow	0	0	0	0	2	0.4	0	3	0	0	0	0.6
Totals:		35	12	25	29	52	30.6	37	46	37	72	22	42.8

Table VI  
Forest bird population census  
Dimecron treatment plot 211-1  
La Tuque, Quebec  
April 28 - May 8, 1976

Family	Species	Pre-spray days						Post-spray days					
		-5	-4	-3	-2	-1	Daily ave	+1	+2	+3	+4	+5	Daily ave
Picidae	Common Flicker	2	0	0	0	0	0.4	4	0	0	0	0	0.8
Paridae	Black-capped Chickadee	3	0	0	0	0	0.6	0	0	1	0	0	0.2
	Boreal Chickadee	0	0	1	0	0	0.2	0	0	2	0	0	0.4
Certhiidae	Brown Creeper	0	0	0	1	0	0.2	0	0	0	0	0	0.0
Turdidae	American Robin	10	0	0	0	0	2.0	1	0	5	4	11	4.0
	Hermit Thrush	1	0	3	2	2	1.4	2	1	4	2	1	2.0
Sylviidae	Golden-crowned Kinglet	2	2	4	6	4	3.6	0	4	4	3	0	2.2
	Ruby-crowned Kinglet	4	6	10	8	8	7.2	5	4	8	4	0	4.2
Parulidae	Myrtle Warbler	0	0	0	2	2	0.8	2	0	0	0	0	0.4
Icteridae	Red-winged Blackbird	1	0	0	0	0	0.2	0	0	2	0	0	0.4
	Brown-headed Cowbird	0	0	2	0	0	0.4	2	2	0	3	0	1.4
Fringillidae	Purple Finch	0	0	2	0	1	0.6	0	2	2	2	0	1.2
	Junco	2	3	6	6	0	3.4	1	4	4	9	10	5.6
	White-throated Sparrow	0	0	3	2	5	2.0	17	7	8	15	4	10.2
Totals:		25	11	31	27	22	23.2	34	24	40	42	26	33.2

Table VII  
Forest bird population census  
Dimecron treatment plot 211-2  
La Tuque, Quebec  
April 28 - May 8, 1976

Family	Species	Pre-spray days						Post-spray days					
		-5	-4	-3	-2	-1	Daily	+1	+2	+3	+4	+5	Daily
		28	29	30	1	2	ave 3rd	4	5	6	7	8	ave
Alcedinidae	Belted Kingfisher	1	1	1	1	1	1.0	0	0	0	0	0	0.0
Picidae	Common flicker	2	0	0	0	0	0.4	0	2	0	0	0	0.4
	Downy Woodpecker	0	0	2	2	0	0.8	0	0	1	0	0	0.2
Paridae	Black-capped Chickadee	0	0	2	1	0	0.6	0	0	0	1	0	0.2
Turdidae	American Robin	5	0	2	1	1	1.8	1	2	3	3	1	2.0
	Hermit Thrush	2	0	0	0	0	0.4	1	0	0	0	0	1.0
Sylviidae	Golden-crowned Kinglet	0	4	0	0	0	0.8	0	0	0	0	0	0.0
	Ruby-crowned Kinglet	6	4	8	8	8	6.8	1	1	2	0	0	0.8
Parulidae	Black-throated Blue Warbler	0	0	0	4	0	0.8	1	0	0	0	0	0.2
Icteridae	Red-winged Blackbird	8	2	6	4	8	5.6	6	9	8	11	2	7.2
	Rusty Blackbird	0	1	0	0	0	0.2	0	1	0	5	0	1.2
	Common Grackle	0	0	1	0	0	0.2	0	0	0	0	0	0.0
	Brown-headed Cowbird	1	0	0	0	0	0.2	2	0	0	1	0	0.6
Fringillidae	Purple Finch	2	0	0	0	0	0.4	0	0	2	2	0	0.8
	Vesper Sparrow	0	0	0	0	0	0.0	0	0	1	0	0	0.2
	Junco	4	0	3	5	8	4.0	2	1	10	0	5	3.6

Table VII      Cont'd

Family	Species	Pre-spray days					Post-spray days					Daily ave
		-5	-4	-3	-2	-1	+1	+2	+3	+4	+5	
		28	29	30	1	2	4	5	6	7	8	
	White-throated Sparrow	3	1	1	1	1	10	6	10	12	5	8.6
	Swamp Sparrow	0	2	2	2	2	2	0	2	2	0	1.2
	Song Sparrow	4	3	2	2	0	0	0	0	0	0	0.0
Totals:		38	18	30	31	29	26	22	39	37	13	27.4

Table VIII  
 Forest bird population census  
 Dimecron untreated check plot (2nd application)  
 La Tuque, Quebec  
 May 11-20, 1976

Family	Species	Pre-spray days					Post-spray days					Daily ave
		-5	-2	-1	-0	Daily ave	+1	+2	+3	+4	+5	
Scolopacidae	American Woodcock	0	0	0	0	0.0	0	0	0	0	1	0.2
Picidae	Common Flicker	0	2	0	0	0.5	4	0	4	2	1	2.2
Tyrannidae	Least Flycatcher	0	0	0	0	0.0	0	4	2	0	0	1.2
Corvidae	Blue Jay	1	4	0	0	1.3	3	4	5	2	0	2.8
Paridae	Black-capped Chickadee	1	0	0	2	0.8	4	4	0	1	5	2.8
	Boreal Chickadee	0	0	0	0	0.0	1	0	0	0	0	0.2
Sittidae	Red-breasted Nuthatch	0	0	0	2	0.5	0	0	2	0	0	0.4
Troglodytidae	Winter Wren	2	2	0	0	1.0	2	2	0	0	0	0.8
Turdidae	American Robin	1	4	14	7	6.5	13	8	2	6	4	6.6
	Hermit Thrush	4	5	8	5	5.5	3	4	1	0	4	2.4
	Swainson's Thrush	0	0	0	0	0.0	0	0	0	0	2	0.4
	Veery	0	1	0	1	0.5	1	1	2	3	2	1.8
Sylviidae	Golden-crowned Kinglet	0	6	2	2	2.0	0	0	0	0	2	0.4
	Ruby-crowned Kinglet	17	19	15	14	16.3	5	1	11	10	6	6.6
Vireonidae	Solitary Vireo	0	0	0	2	0.5	0	2	2	2	0	1.2

Table VIII Cont'd

Family	Species	Pre-spray days					Post-spray days					
		-5	-2	-1	-0	Daily ave	+1	+2	+3	+4	+5	Daily ave
Paulidae	Black and white Warbler	0	0	1	2	0.8	4	4	4	8	2	5.4
	Tennessee Warbler	0	0	0	0	0.0	0	7	4	4	4	3.8
	Nashville Warbler	0	3	8	6	4.3	18	14	14	16	13	15.0
	Magnolia Warbler	0	0	0	0	0.0	4	6	7	6	4	5.4
	Cape May Warbler	0	0	0	0	0.0	0	0	0	2	0	0.4
	Myrtle Warbler	0	0	0	0	0.0	0	2	2	2	2	1.6
	Black-throated Green Warbler	0	0	0	0	0.0	2	4	4	2	2	2.8
	Chestnut-sided Warbler	0	0	0	0	0.0	5	8	6	4	4	5.4
	Bay-breasted Warbler	0	0	0	0	0.0	2	2	2	0	0	1.2
	Ovenbird	0	2	4	6	2.5	12	14	12	12	14	12.8
	Yellowthroat	0	0	0	0	0.0	0	0	1	0	0	0.2
	American Redstart	0	0	0	0	0.0	0	6	2	2	0	2.0
Icteridae	Red-winged Blackbird	0	0	0	0	0.0	2	0	2	2	0	1.2
	Common Grackle	0	0	0	0	0.0	1	0	0	0	0	0.2
	Brown-headed Cowbird	0	2	4	2	2.0	2	4	0	4	1	1.8



Table VIII Cont'd

Family	Species	Pre-spray days					Post-spray days					Daily ave
		-5	-2	-1	-0	Daily ave	+1	+2	+3	+4	+5	
Fringillidae	Rose-breasted Grosbeak	0	0	0	0	0.0	0	2	2	5	7	3.2
	Evening Grosbeak	0	0	0	0	0.0	0	2	0	0	0	0.4
	Purple Finch	4	8	8	6	6.5	3	4	6	8	3	4.8
	Junco	9	5	2	4	5.0	0	1	0	1	0	0.4
	Chipping Sparrow	0	0	0	0	0.0	0	0	1	0	0	0.2
	White-throated Sparrow	28	19	28	12	21.8	19	20	19	19	16	18.6
	Song Sparrow	6	0	0	2	2.0	4	3	0	0	0	1.4
	White-crowned Sparrow	0	0	0	0	0.0	5	0	6	4	2	3.4
Totals:		73	82	94	75	81.0	119	133	125	117	98	118.4

Table IX -  
Forest bird population census  
Dimecron treatment plot 211-3 (2nd application)  
La Tuque, Quebec  
May 9-20, 1976

Family	Species	Pre-spray days						Post-spray days					
		-6	-5	-2	-1	-0	Daily ave	+1	+2	+3	+4	+5	Daily ave
Alcedinidae	Belted Kingfisher	1	1	1	1	1	1.0	0	1	1	1	2	1.2
Picidae	Common Flicker	0	4	2	1	0	1.4	0	0	0	2	2	0.8
	Yellow-bellied Sapsucker	0	1	4	0	2	1.4	0	0	0	1	0	0.2
	Hairy Woodpecker	1	0	1	1	1	0.8	1	1	1	1	1	1.0
Tyrannidae	Least Flycatcher	0	0	0	0	0	0.0	0	1	0	0	0	0.2
Corvidae	Gray Jay	0	0	1	0	0	0.2	0	0	0	1	0	0.2
Paridae	Black-capped Chickadee	0	0	0	0	0	0.0	0	0	1	1	0	0.4
	Boreal Chickadee	1	0	1	6	2	2.0	0	2	1	2	2	1.4
Sittidae	Red-breasted Nuthatch	0	0	0	0	0	0.0	2	2	2	2	0	1.6
Certhiidae	Brown Creeper	1	1	0	1	1	0.8	3	1	0	1	2	1.4
Troglodytidae	Winter Wren	0	2	2	4	4	2.4	2	2	4	6	4	3.6
Turdidae	American Robin	5	7	5	6	13	7.2	9	5	6	10	8	7.6
	Hermit Thrush	2	1	0	0	0	0.6	0	0	0	0	0	0.0
	Swainson's Thrush	0	0	0	0	0	0.0	0	0	0	6	0	1.2
Sylviidae	Golden-crowned Kinglet	8	7	4	8	8	7.0	6	4	6	4	6	5.2
	Ruby-crowned Kinglet	10	12	7	13	13	11.0	7	3	4	0	6	4.0
Vireonidae	Solitary Vireo	0	0	0	0	0	0.0	0	2	0	0	0	0.4

Table IX

Cont'd

Family	Species	Pre-spray days						Post-spray days					
		-6	-5	-2	-1	-0	Daily ave	+1	+2	+3	+4	+5	Daily ave
Parulidae	Black and white Warbler	0	0	0	0	0	0.0	0	0	0	2	0	0.4
	Nashville Warbler	0	0	0	0	4	0.8	2	2	0	0	0	0.8
	Magnolia Warbler	0	0	0	0	0	0.0	0	0	0	2	0	0.4
	Myrtle Warbler	0	0	0	2	0	0.4	6	6	2	2	0	3.2
	Black-throated Green Warbler	0	0	0	0	0	0.0	0	0	0	0	2	0.4
	Ovenbird	0	0	0	0	0	0.0	0	2	0	0	0	0.4
	Northern Waterthrush	0	0	0	0	0	0.0	0	2	0	0	2	0.8
Icteridae	Red-winged Blackbird	0	0	0	0	0	0.0	0	2	2	0	2	1.2
	Rusty Blackbird	0	2	0	0	0	0.4	0	0	1	0	0	0.2
	Common Grackle	0	0	0	1	0	0.2	0	0	1	1	0	0.4
	Brown-headed Cowbird	0	2	2	4	0	1.6	2	3	4	2	4	3.0
Fringillidae	Rose-breasted Grosbeak	0	0	0	0	0	0.0	0	1	0	0	0	0.2
	Evening Grosbeak	0	0	0	0	0	0.0	0	3	0	0	3	1.2
	Purple Finch	6	6	10	8	4	6.8	6	8	6	6	2	5.6
	Junco	3	7	4	6	5	4.0	5	4	3	2	4	3.6
	White-throated Sparrow	13	20	18	24	21	19.2	22	14	16	14	11	15.4
Totals:		51	73	62	86	79	70.2	83	71	61	69	63	67.4

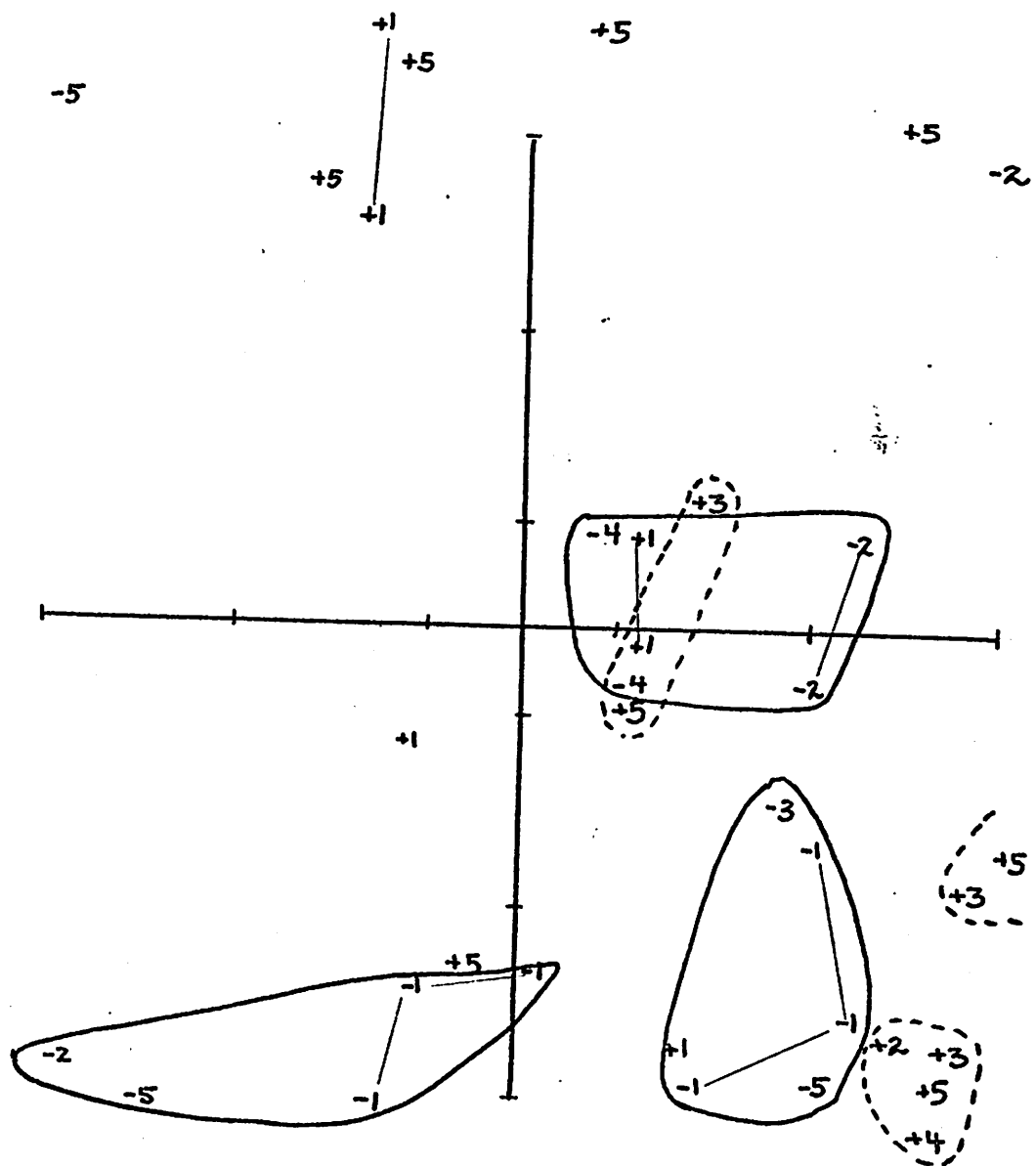


Fig. 1 Pre and post spray territories of the ruby-crowned kinglet, untreated check plot, LaTuque, Quebec

— Pre-spray territory  
 - - - - Post-spray territory  
 ┌──────────┐ Scale = 2 chains (40 meters)

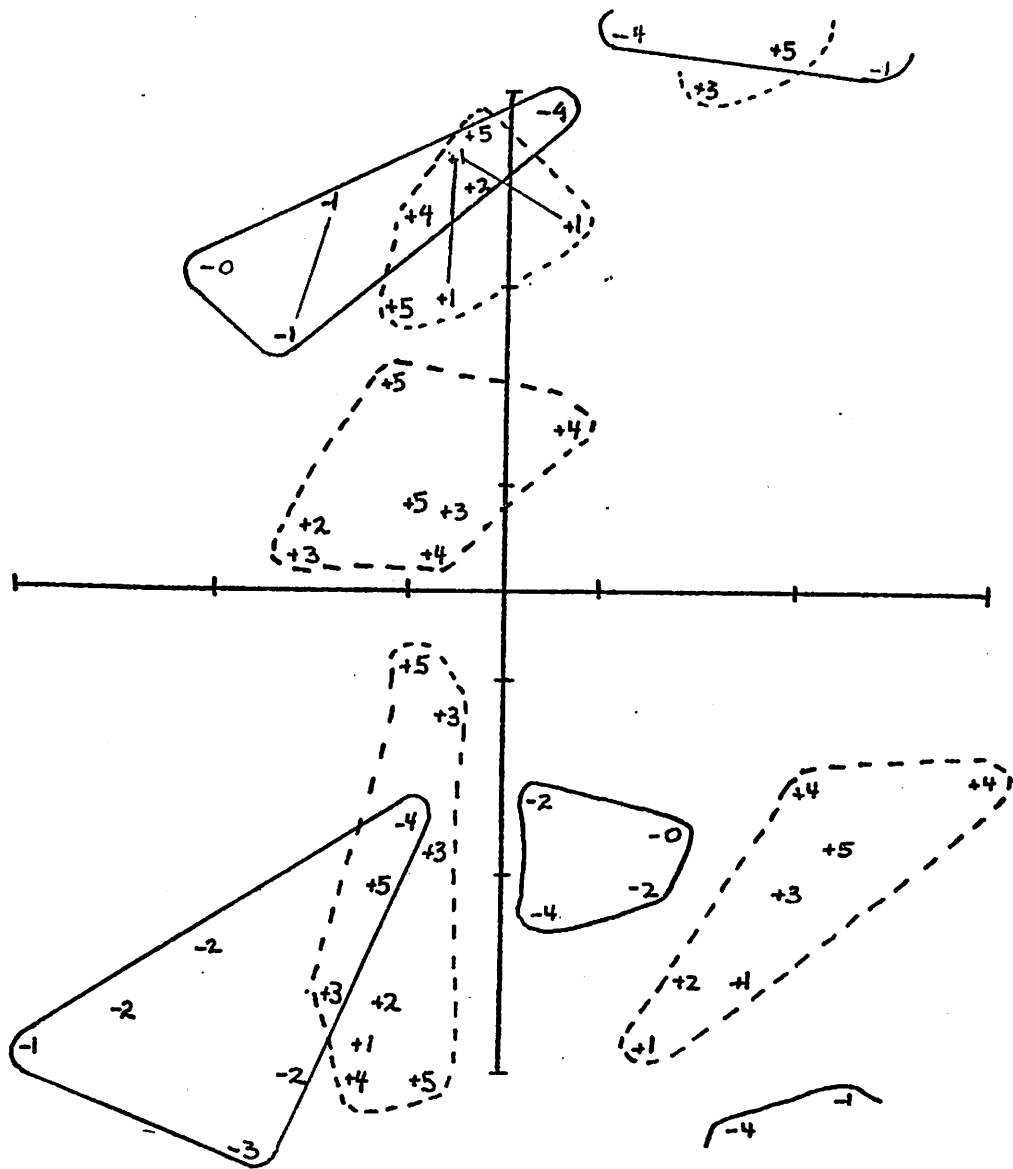


Fig. 2 Pre and post spray territories of the ruby-crowned kinglet,  
*R. Calendula* (Linnaeus) on plot 211-3, LaTuque, Quebec, 1976.

—— Pre-spray territory boundary  
 - - - - Post-spray territory  
 ──── Scale = 2 chains (40 meters)

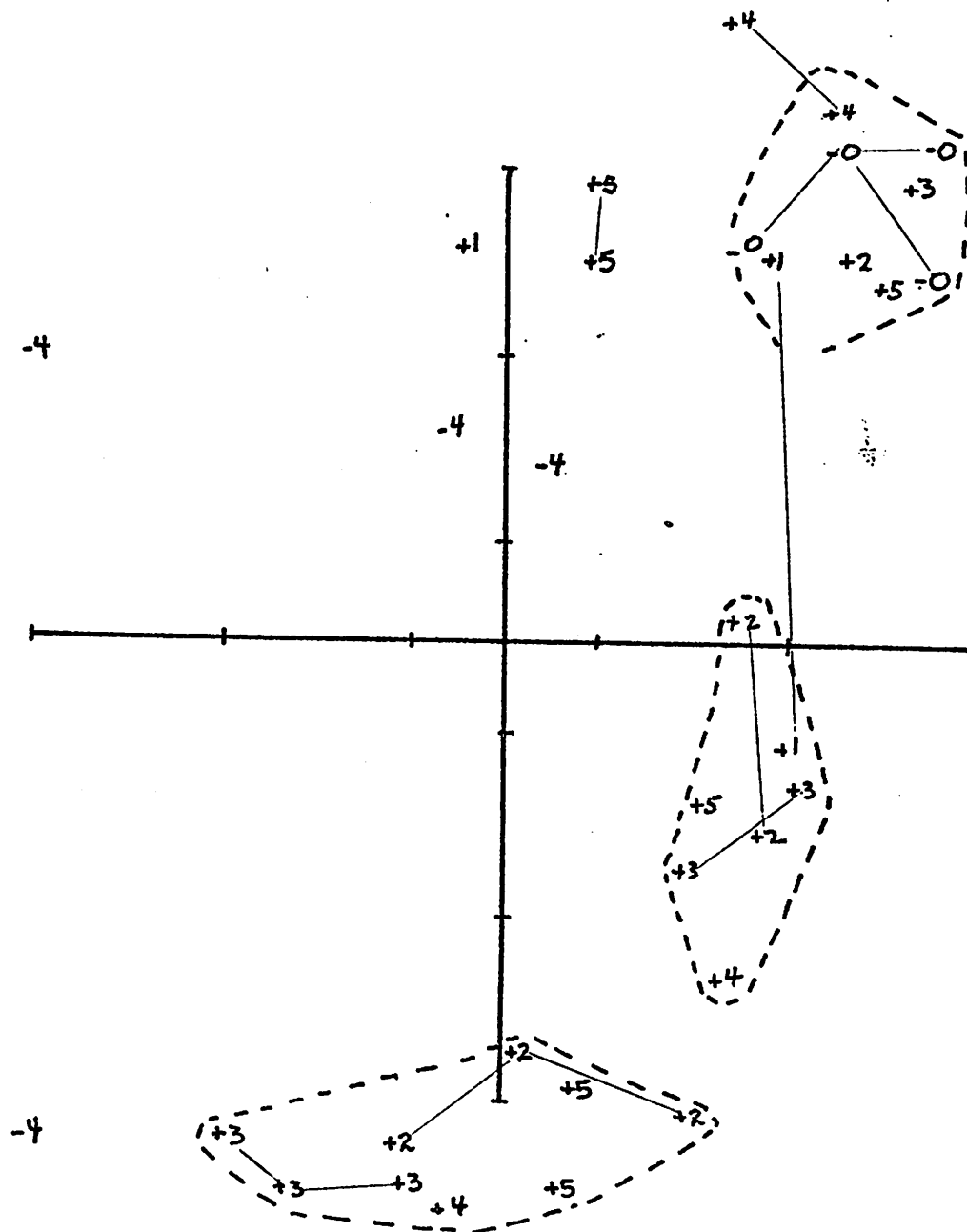


Fig. 3 Pre and post spray territories of the ruby-crowned kinglet, *R. calendula* (Linnaeus) on plot 211-4, LaTuque, Quebec, 1976.

— Pre-spray territory  
 - - - Post-spray territory  
 ————— Scale = 2 chains (40 meters)

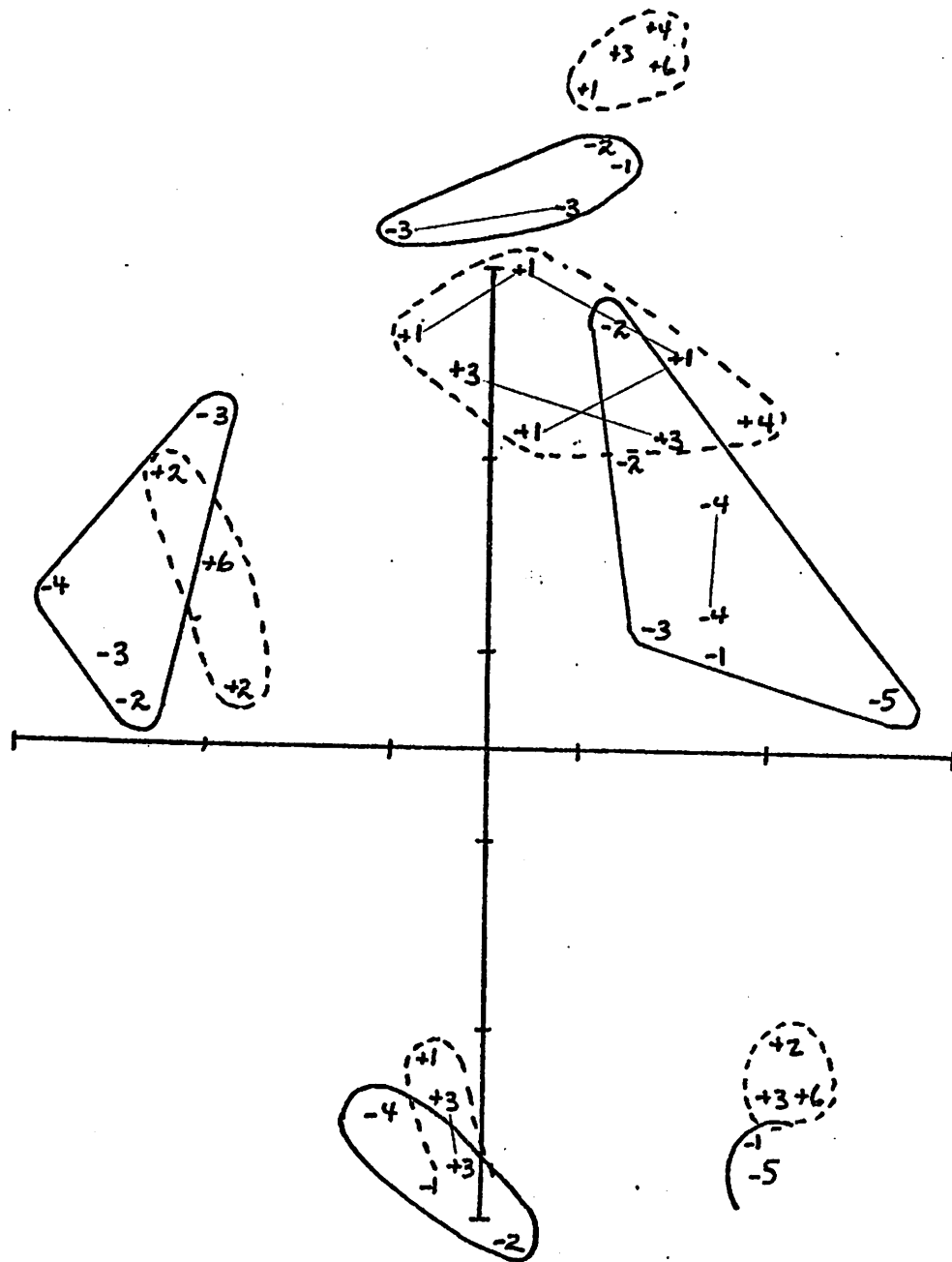


Fig. 4 Pre and post spray territories of the ruby-crowned kinglet, *R. calendula* (Linnaeus) on plot 211-1, LaTuque, Quebec, 1976

— Pre-spray territory  
 - - - - - Post-spray territory  
 ————— Scale = 2 chains (40 meters)

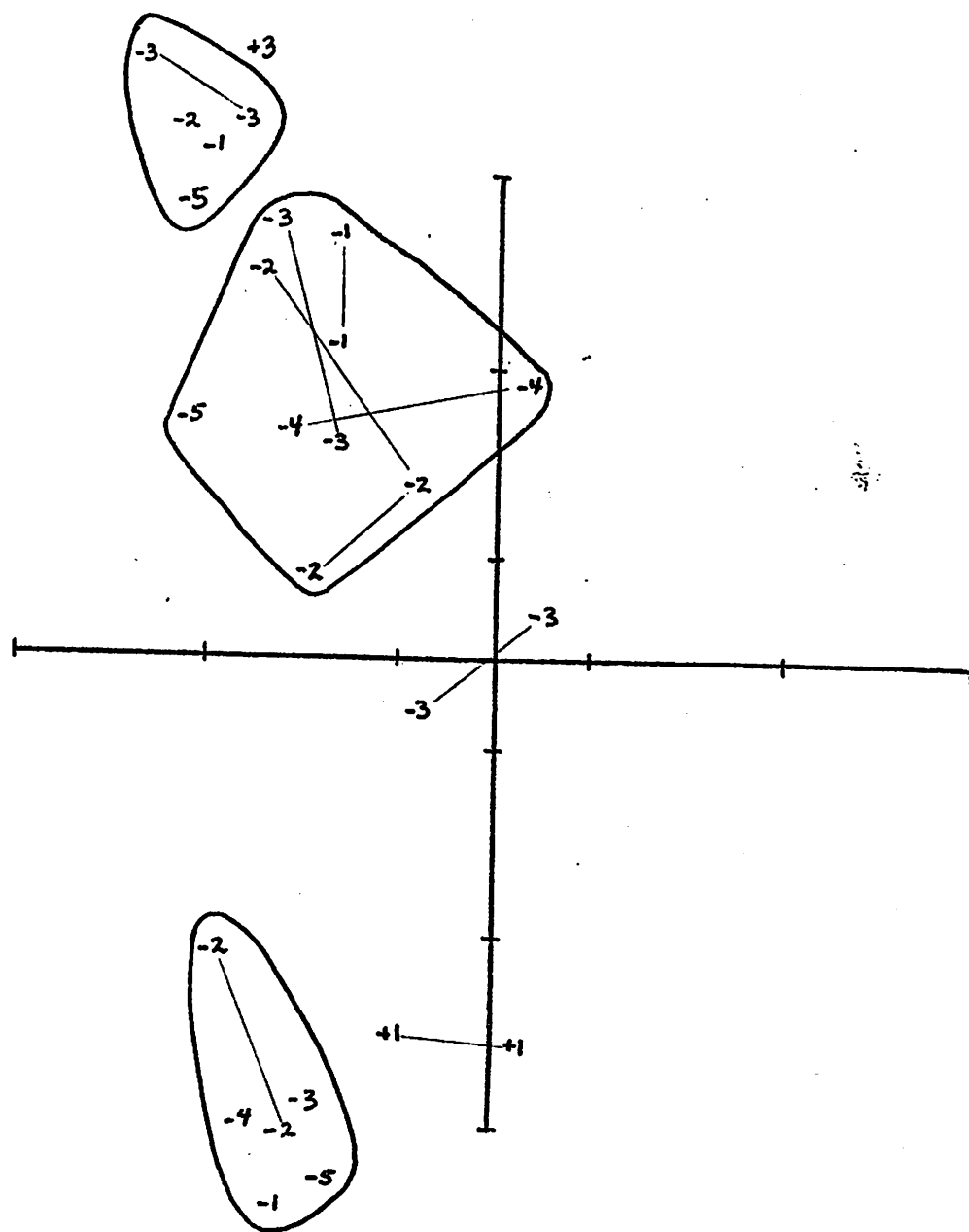


Fig. 5 Pre and post spray territory of the ruby-crowned kinglet, *R. calendula* (Linnaeus) on plot 211-2, LaTuque, Quebec, 1976



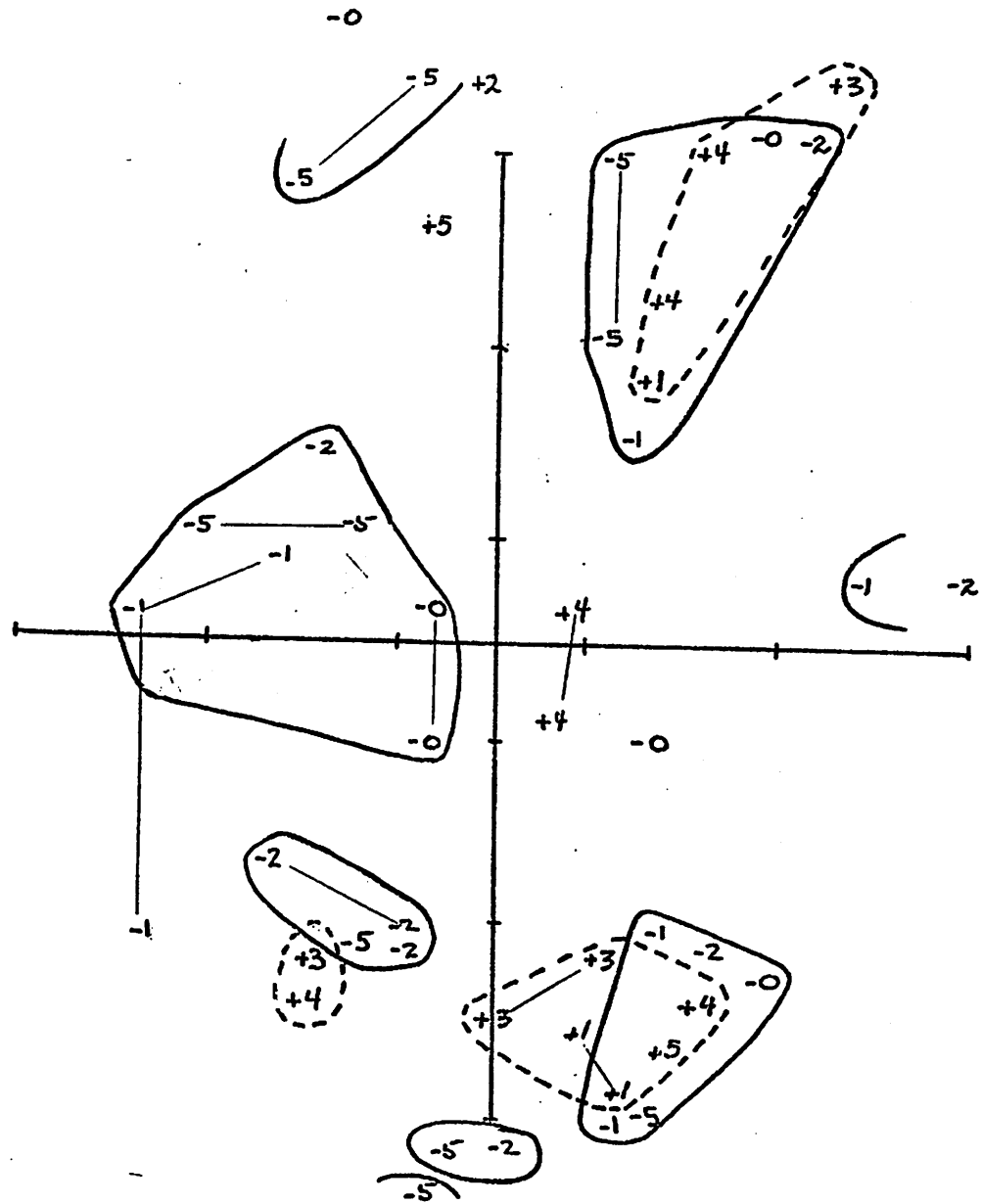


Fig. 6 Pre and post spray territories of the ruby-crowned kinglet, *R. calendula* (Linnæus) on untreated check plot 2nd application, LaTuque, Quebec, 1976

— Pre-spray territory  
 - - - Post-spray territory  
 ————— Scale = 2 chains (40 meters)

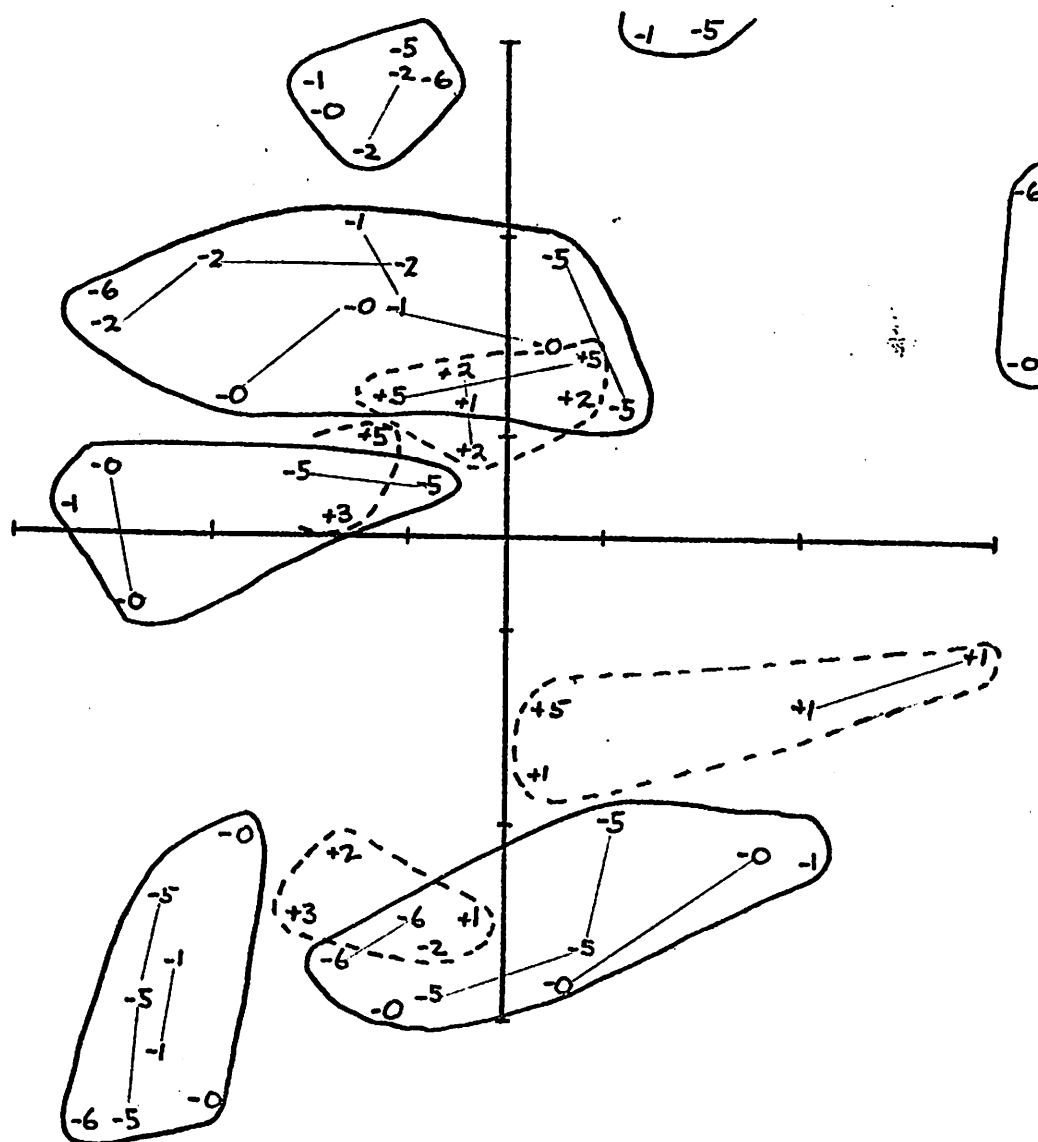


Fig 7. Pre and post spray territories of the ruby-crowned kinglet, plot 211-3 (2nd treatment), LaTuque, Quebec, 1976

- Pre-spray territory boundary
- Post-spray territory boundary
- Scale=2 chains (40 meters)

Table X  
Forest bird population census  
Dimecron untreated check plot  
La Tuque, Quebec  
June 16 and 17, 1976

Family	Species	June 16	June 17	Family	Species	June 16	June 17
Picidae	Yellow-shafted Flicker	1	1	Parulidae cont'd	Blackburnian Warbler	4	2
Tyrannidae	Least Flycatcher	4	0		Chestnut-sided Warbler	2	4
Corvidae	Common Crow	1	0		Ovenbird	4	0
Turdidae	American Robin	2	0		Mourning Warbler	6	6
	Hermit Thrush	0	2		Yellowthroat	2	0
	Swainson's Thrush	2	2		Canada Warbler	0	2
	Veery	6	2		American Redstart	4	4
Sylviidae	Ruby-crowned Kinglet	2	0	Icteridae	Brown-headed Cowbird	0	2
Vireonidae	Solitary Vireo	2	0	Fringillidae	Rose-breasted Grosbeak	2	2
	Red-eyed Vireo	0	4		Dark-eyed Junco	2	0
Parulidae	Black-and-white Warbler	2	0		White-throated Sparrow	3	2
	Nashville Warbler	0	6				
	Magnolia Warbler	2	0	Totals:		53	41

Table XI  
Forest bird population census  
Dimecron treatment block 211-2  
La Tuque, Quebec  
June 16 and 17, 1976

Family	Species	June 16	June 17	Family	Species	June 16	June 17
Alcedinidae	Belted Kingfisher	0	1	Parulidae	Parula Warbler	2	0
Picidae	Yellow-shafted Flicker	0	1	cont'd			
Tyrannidae	Great-crested Flycatcher	2	0		Magnolia Warbler	6	2
	Traill's Flycatcher	2	0		Blackburnian Warbler	0	4
	Least Flycatcher	6	6		Chestnut-sided Warbler	2	4
Corvidae	Gray Jay	2	0		Ovenbird	8	2
	Blue Jay	1	0		Mourning Warbler	6	2
Sittidae	Red-breasted Nuthatch	2	2		Yellowthroat	6	6
Turdidae	American Robin	1	0		American Redstart	2	2
	Swainson's Thrush	0	6	Icteridae	Redwinged Blackbird	15	13
Sylviidae	Golden-crowned Kinglet	2	0		Brown-headed Cowbird	5	2
	Ruby-crowned Kinglet	2	2	Fringillidae	Evening Grosbeak	2	6
Vireonidae	Solitary Vireo	0	4		American Goldfinch	0	4
	Red-eyed Vireo	2	0		Dark-eyed Junco	0	2
Parulidae	Black-and-white Warbler	0	2		White-throated Sparrow	4	7
	Nashville Warbler	4	8		Swamp Sparrow	2	2
				Totals		86	91

Table XII  
Forest bird population census  
Dimecron treatment plot 211-3  
Latuque, Quebec  
June 16-17, 1976

Family	Species	June 16	June 17	Family	Species	June 16	June 17
Trochilidae	Ruby-throated , Hummingbird	1	0	Vireonidae	Solitary Vireo	2	6
Picidae	Common Flicker	0	1		Red-eyed Vireo	2	0
	Hairy Woodpecker	3	2	Parulidae	Tennessee Warbler	10	8
Tyrannidae	Great Crested Flycatcher	0	2		Nashville Warbler	10	10
	Least Flycatcher	8	6		Magnolia Warbler	8	8
Corvidae	Blue Jay	1	0		Blackburnian Warbler	4	4
Paridae	Black-capped Chickadee	2	0		Bay-breasted Warbler	14	10
	Boreal Chickadee	1	1	Icteridae	American Redstart	2	6
Sittidae	Red-breasted Nuthatch	0	2		Redwinged Blackbird	3	0
Troglodytidae	Winter Wren	0	2		Brown-headed Cowbird	4	0
Turdidae	American Robin	9	5		Common Grackle	1	0
	Hermit Thrush	2	4	Fringillidae	Evening Grosbeak	5	1
	Swainson's Thrush	6	1		Purple Finch	7	5
	Gray-cheeked Thrush	2	0		American Goldfinch	2	0
Sylviidae	Golden-crowned Kinglet	2	4		Vesper Sparrow	2	2
	Ruby-crowned Kinglet	0	4		Dark-eyed Junco	2	3
Bombycillidae	Cedar Waxwing	2	8		Chipping Sparrow	0	2
					White-throated Sparrow	16	8
					Swamp Sparrow	0	2
				TOTALS		133	117

Table XIII  
Forest bird population census  
Dimecron treatment block 211-4  
La Tuque, Quebec  
June 16 and 17, 1976

Family	Species	June 16	June 17	Family	Species	June 16	June 17
Trochilidae	Ruby-throated Hummingbird	3	0	Parulidae cont'd	Chestnut-sided Warbler	4	2
Picidae	Yellow-bellied Sapsucker	0	1		Bay-breasted Warbler	8	4
	Hairy Woodpecker	0	1		Northern Waterthrush	2	0
Tyrannidae	Least Flycatcher	4	4		Mourning Warbler	6	4
Corvidae	Blue Jay	0	1		Yellowthroat	4	2
Mimidae	Catbird	0	2		Canada Warbler	0	2
Turdidae	Hermit Thrush	0	10		American Redstart	10	6
	Swainson's Thrush	6	0	Icteridae	Eastern Meadowlark	1	0
	Veery	4	3		Red-winged Blackbird	7	2
Sylviidae	Golden-crowned Kinglet	2	0		Brown-headed Cowbird	2	4
	Ruby-crowned Kinglet	2	4	Fringillidae	Rose-breasted Grosbeak	2	2
Vireonidae	Solitary Vireo	2	4		Evening Grosbeak	0	3
	Red-eyed Vireo	2	2		Vesper Sparrow	0	2
Parulidae	Yellow Warbler	0	2		Dark-eyed Junco	1	0
	Magnolia Warbler	4	6		White-crowned Sparrow	1	0
	Black-throated Blue Warbler	0	1		White-throated Sparrow	5	2
				Totals		82	76

Chipman, New Brunswick, larvalcide trials

1st application: Plots 1,2,3, and 4 received an application of Dimecron at the emitted dosage of 0.210 kg/ha (3 oz.). Bird populations on plot 1 were not affected by the treatment (Table XV) and ruby-crowned kinglet territories remained occupied throughout the post-spray census period (Fig. 9). The birds on treatment plot 2 (Table XVI) were slightly depressed. Population of kinglets, dark-eyed juncos and white-throated sparrows all declined. Examination of the territories of ruby-crowned kinglets indicate an impact in the top half of the plot (that half furthest from the road). Territories identified in the lower half of the plot remained occupied throughout the census period suggesting an uneven deposit over the plot (Fig. 10). Overall bird populations on treatment plot 3 were reduced by approximately 50% (Table XVII.) Ruby-crowned kinglets were completely eliminated by this application (Fig. 11). Treatment plot 4 (Table XVIII) suffered population reductions similar to plot 3 with kinglet numbers being recorded on the morning after the application the previous evening (12 hours) only (Fig. 12).

Plots 5, 6, 7 and 8 received an application of Dimecron<sup>R</sup> at the emitted dosage rate of 0.280 kg/ha (4 oz.) also on the evening of May 13th. On plot 5 impact was recorded the following morning (Table XIX) and kinglet populations were reduced to zero (Fig. 13). Populations on plot 6 remained fairly stable throughout the post-spray census (Table XX) as compared to an increasing population (due to migration) recorded for the untreated check plot (Table XIV).

While overall populations were not seriously affected on plot 6, ruby-crowned kinglet numbers were reduced to the point where pre-spray territories remained unoccupied throughout the post-spray census (Fig. 14). Populations on plot 7 were not affected (Table XXI) and the 2 ruby-crowned kinglet territories defined remained occupied throughout the census period (Fig. 15).

Bird populations on treatment plot 8 (Table XXII) were not seriously affected but did not increase at the same rate as the untreated check plot. Ruby-crowned kinglet populations were reduced but indications are that mortality may have been light as birds were observed wandering through the plot 2 and 3 days after treatment though only 1 territory appears to have remained occupied throughout the census period (Fig. 16).

2nd application: On May 30th, treatment plots 1 and 2 received an application of 0.210 kg/ha (3 oz.) of Dimecron and plots 5 and 6 received 0.140 kg/ha (2 oz.). Many species of the warbler group (Family Parulidae) had by this time migrated into the experimental area. A 2 day pre-spray census only could be carried out for this set of trials. On plot 1 (Table XXIV) populations of Tennessee warblers, *Vermivora peregrina* (Wilson) declined and ruby-crowned kinglets, while not as active as during the previous treatment (May 13th) could still be identified in their territories (Fig. 18). and do not appear to have been affected by this application. On treatment plot 2, (Table XXV), kinglets had been eliminated on the top half of the plot by the first application and no fill-in had taken place by the time of the 2nd application. The 2nd application did not affect the territories identified on that portion of the



plot nearest to the road (Fig. 19). Plots 5 and 6 received a second application of Dimecron at the rate of 0.140 kg/ha (2 oz.) on May 30th. Bird populations were not affected on either plot (Tables XXVI and XXVII). Ruby-crowned kinglet territories remained intact on plot 5 (Fig. 20) but on plot 6 populations never recovered from the previous application of 0.280 kg/ha on May 13th (Fig. 21).

Table XIV  
 Forest bird population census  
 Dimecron untreated check plot  
 Chipman, New Brunswick  
 May 1976

Family	Species	Pre-spray days						Post-spray days					
		-4	-3	-2	-1	-0	Daily ave	+1	+2	+3	+4	+5	Daily ave
Tetraonidae	Ruffed Grouse	1	0	1	1	2	1.0	1	1	2	0	0	0.8
Scolopacidae	American Woodcock	0	1	0	0	0	0.2	0	0	0	0	0	0.0
	Common Snipe	0	0	0	1	0	0.2	0	0	0	0	0	0.0
Columbidae	Mourning Dove	0	0	1	0	0	0.2	0	0	0	0	0	0.0
Picidae	Common Flicker	0	1	4	0	0	1.0	1	4	1	1	3	2.0
	Yellow-bellied Sapsucker	3	8	5	5	6	5.4	9	4	3	5	2	4.6
	Downy Woodpecker	0	1	0	0	1	0.4	1	0	1	1	1	0.8
Tyrannidae	Least Flycatcher	0	0	0	0	0	0.0	1	1	1	2	1	1.2
Corvidae	Gray Jay	0	1	0	0	0	0.2	0	0	0	0	0	0.0
	Blue Jay	0	0	2	1	1	0.8	2	2	0	1	0	1.0
Paridae	Black-capped Chickadee	0	0	3	2	0	1.0	1	0	0	2	0	0.6
	Boreal Chickadee	0	0	0	0	0	0.0	0	0	1	0	0	0.2
Turdidae	American Robin	1	5	4	7	7	4.8	3	4	4	3	3	3.4
	Wood Thrush	0	0	0	0	0	0.0	2	2	1	0	0	1.0
	Hermit Thrush	2	1	0	0	1	0.8	0	0	1	2	2	1.0
	Swainson's Thrush	0	0	0	0	0	0.0	0	0	0	1	0	0.2
	Veery	0	0	0	0	0	0.0	0	6	2	7	1	3.2

Table XIV      Cont'd

Family	Species	Pre-spray days						Post-spray days					
		-4	-3	-2	-1	-0	Daily ave	+1	+2	+3	+4	+5	Daily ave
Sylviidae	Golden-crowned Kinglet	0	1	1	1	1	0.8	3	1	1	1	1	1.4
	Ruby-crowned Kinglet	5	8	8	7	3	6.2	6	5	6	7	6	6.0
Vireonidae	Solitary Vireo	0	0	2	2	1	1.0	0	1	1	1	3	1.2
Parulidae	Black and white Warbler	0	0	1	0	0	0.2	0	0	1	1	0	0.4
	Tennessee Warbler	0	0	0	0	0	0.0	0	10	2	3	1	3.2
	Nashville Warbler	0	0	0	3	2	1.0	4	4	3	1	6	3.6
	Parula Warbler	0	0	0	0	0	0.0	1	4	0	0	0	1.0
	Magnolia Warbler	0	0	0	0	0	0.0	0	0	2	0	1	0.6
	Cape May Warbler	0	0	0	0	0	0.0	0	3	3	0	1	1.4
	Black-throated Blue Warbler	0	0	0	0	0	0.0	0	0	1	0	0	0.2
	Myrtle Warbler	1	3	5	6	1	3.2	4	5	2	2	3	3.2
	Black-throated Green Warbler	0	0	1	0	0	0.2	0	0	1	0	0	0.2
	Chestnut-sided Warbler	0	0	0	0	0	0.0	0	0	0	5	3	1.6
	Bay-breasted Warbler	0	0	0	0	0	0.0	0	0	0	1	0	0.2
	Ovenbird	0	0	1	5	3	1.8	4	6	7	7	6	6.0
	Northern Waterthrush	0	0	0	0	0	0.0	1	1	1	1	1	1.0
	Yellowthroat	0	0	0	0	0	0.0	0	1	2	3	1	1.4

Table XIV      Cont'd

Family	Species	Pre-spray days					Daily ave	Post-spray days					Daily ave
		-4	-3	-2	-1	-0		+1	+2	+3	+4	+5	
Icteridae	Wilson's Warbler	0	0	0	0	0	0.0	0	0	0	0	2	0.4
	Canada Warbler	0	0	0	0	0	0.0	0	0	1	0	0	0.2
	American Redstart	0	0	0	0	0	0.0	1	0	0	3	1	1.0
	Red-winged Blackbird	0	1	1	1	5	1.6	2	1	4	1	0	1.6
	Common Grackle	0	0	0	0	0	0.0	0	0	4	0	0	0.8
	Brown-headed Cowbird	0	2	2	0	0	0.8	0	1	1	1	2	1.0
Fringillidae	Rose-breasted Grosbeak	0	0	0	0	0	0.0	1	0	2	1	1	1.0
	Evening Grosbeak	0	0	0	0	2	0.4	8	0	0	0	1	
	Purple Finch	3	3	1	3	3	2.6	3	8	3	3	1	3.6
	Pine Grosbeak	0	0	0	0	0	0.0	1	0	0	0	0	0.2
	Pine Siskin	0	0	1	0	0	0.2	0	0	0	1	0	0.2
	Junco	0	2	2	2	0	1.2	2	1	2	1	2	1.6
	Chipping Sparrow	0	0	1	0	0	0.2	0	0	0	0	0	0.0
	White-throated Sparrow	8	14	7	9	8	9.2	10	8	11	4	10	8.6
	Swamp Sparrow	1	1	1	1	1	1.0	1	0	1	0	2	0.8
	Song Sparrow	2	5	4	3	3	3.4	4	3	5	2	5	3.8
Totals:		27	40	59	43	33	40.4	56	87	67	75	73	71.6

Table XV  
Forest bird population census  
Dimecron treatment plot I  
Chipman, New Brunswick  
May 1976

Family	Species	Pre-spray days						Post-spray days					
		-6	-5	-4	-3	-2	Daily ave	+1	+2	+3	+4	+5	Daily ave
Tetraonidae	Ruffed Grouse	0	0	1	0	1	0.4	1	0	1	0	0	0.4
Alcedinidae	Belted Kingfisher	0	0	0	1	0	0.2	0	0	0	0	0	0.0
Picidae	Common Flicker	0	0	0	4	0	0.8	2	1	1	0	2	1.2
	Pileated Woodpecker	0	0	2	0	0	0.4	0	1	0	0	0	0.2
	Yellow-bellied Sapsucker	2	1	0	0	1	0.8	4	0	4	0	1	1.8
	Black-backed Three toed Woodpecker	0	0	0	1	0	0.2	0	0	0	0	0	0.0
Paridae	Black-capped Chickadee	0	0	0	0	0	0.0	2	2	4	0	0	1.6
	Boreal Chickadee	0	0	0	0	0	0.0	0	0	2	1	0	0.6
Sittidae	White-breasted Nuthatch	0	0	0	0	0	0.0	1	0	0	0	0	0.2
Troglodytidae	Winter Wren	1	0	0	0	0	0.2	1	0	1	0	0	0.4
Turdidae	American Robin	0	0	0	0	0	0.0	0	0	1	0	0	0.2
	Hermit Thrush	1	0	3	1	0	1.0	0	0	0	0	1	0.2
Sylviidae	Golden-crowned Kinglet	0	0	0	0	0	0.0	0	1	0	0	0	0.2
	Ruby-crowned Kinglet	3	5	5	5	2	4.0	3	1	7	5	4	4.0
Vireonidae	Solitary Vireo	0	0	0	0	1	0.2	0	0	0	0	0	0.0

Table XV Cont'd

Family	Species	Pre-spray days						Post-spray days					
		-6	-5	-4	-3	-2	Daily ave	+1	+2	+3	+4	+5	Daily ave
Parulidae	Black and white Warbler	0	0	0	3	0	0.6	5	0	0	0	0	1.0
	Parula Warbler	0	0	0	0	0	0.0	0	0	0	0	1	0.2
	Magnolia Warbler	0	0	0	0	0	0.0	0	0	2	2	2	1.2
	Cape May Warbler	0	0	0	0	0	0.0	1	0	0	0	0	0.2
	Myrtle Warbler	0	0	0	0	1	0.2	0	1	3	1	3	1.6
	Black-throated Green Warbler	0	0	0	0	0	0.0	0	0	4	1	0	1.0
	Ovenbird	0	0	0	0	2	0.4	0	1	4	4	2	2.2
Icteridae	Common Grackle	0	0	0	1	0	0.2	0	0	0	0	0	0.0
Fringillidae	Evening Grosbeak	0	0	0	1	0	0.2	1	0	0	0	0	0.2
	Purple Finch	0	0	0	0	1	0.2	4	0	0	1	0	1.0
	Junco	0	0	0	0	1	0.2	0	0	0	0	0	0.0
	White-throated Sparrow	1	3	4	7	7	4.4	7	6	3	4	5	5.0
Totals:		8	9	15	24	17	14.6	32	14	37	19	21	24.6

Table XVI  
Forest bird population census  
Dimecron treatment plot 2  
Chipman, New Brunswick  
May 1976

Family	Species	Pre-spray days						Post-spray days					
		-6	-5	-4	-3	-2	Daily ave	+1	+2	+3	+4	+5	Daily ave
Tetraonidae	Ruffed Grouse	0	0	0	1	1	0.4	0	0	2	0	0	0.4
Picidae	Common Flicker	0	0	0	0	2	0.4	2	1	2	1	0	1.2
	Yellow-bellied Sapsucker	2	2	3	5	2	2.8	0	2	0	2	0	0.8
Tyrannidae	Eastern Phoebe	0	0	0	0	0	0.0	1	0	0	0	0	0.2
Corvidae	Gray Jay	0	0	0	0	0	0.0	1	0	0	1	0	0.4
	Blue Jay	0	0	0	0	0	0.0	1	0	0	0	0	0.2
Paridae	Boreal Chickadee	0	1	0	0	1	0.4	1	0	0	0	0	0.2
Certhidae	Brown Creeper	0	0	0	0	1	0.2	0	0	0	0	0	0.0
Troglodytidae	Winter Wren	0	0	0	0	1	0.2	3	0	1	1	0	1.0
Turdidae	American Robin	2	0	0	0	0	0.4	1	0	0	1	0	0.4
	Hermit Thrush	0	0	0	1	1	0.4	1	0	1	1	1	0.8
Sylviidae	Golden-crowned kinglet	2	1	2	1	1	1.4	2	0	0	0	0	0.4
	Ruby-crowned kinglet	5	1	7	8	8	5.8	5	1	3	3	1	2.6
Vireonidae	Solitary Vireo	0	0	0	0	1	0.2	0	0	0	0	0	0.0
Parulidae	Black and white warbler	0	0	0	0	0	0.0	1	0	0	0	0	0.4

Table XVI Cont'd

Family	Species	Pre-spray days						Post-spray days					
		-6	-5	-4	-3	-2	Daily ave	+1	+2	+3	+4	+5	Daily ave
	Parula Warbler	0	0	0	0	0	0.0	0	0	0	2	0	0.4
	Magnolia Warbler	0	0	0	0	0	0.0	0	0	1	0	0	0.2
	Blackburnian Warbler	0	0	0	0	0	0.0	0	0	0	1	0	0.2
	Myrtle Warbler	0	0	0	0	2	0.4	1	0	0	0	0	0.2
	Black-throated Green Warbler	0	0	0	0	1	0.2	1	0	1	4	0	1.2
	Chestnut-sided Warbler	0	0	0	0	0	0.0	0	0	1	0	0	0.2
	Ovenbird	0	0	0	0	0	0.0	1	2	4	5	2	2.8
Icteridae	Common Grackle	0	0	1	0	0	0.2	0	0	0	0	0	0.0
Fringillidae	Purple Finch	3	0	1	0	1	1.0	0	0	0	2	0	0.4
	Junco	1	0	0	1	0	0.4	2	0	0	0	0	0.4
	White-throated Sparrow	2	6	10	4	4	5.2	1	1	2	2	1	1.4
Totals:		17	11	24	21	27	20.0	25	7	18	26	5	16.2



Table XVII  
Forest bird population census  
Dimecron treatment plot 3  
Chipman, New Brunswick  
May 1976

Family	Species	Pre-spray days						Post-spray days					
		-6	-5	-4	-3	-2	Daily ave	+1	+2	+3	+4	+6	Daily ave
Picidae	Common Flicker	0	0	0	1	1	0.4	0	1	0	1	0	0.4
	Yellow-bellied Sapsucker	0	3	2	0	0	1.0	0	0	0	2	1	0.6
	Hairy Woodpecker	0	0	0	1	0	0.2	0	0	0	0	1	0.2
Corvidae	Gray Jay	0	0	0	0	0	0.0	1	0	0	0	1	0.4
Paridae	Boreal Chickadee	0	0	0	0	1	0.2	0	0	0	0	0	0.0
Turdidae	American Robin	1	1	0	0	0	0.4	0	0	0	0	1	0.2
	Hermit Thrush	4	0	2	2	1	1.8	0	0	0	1	0	0.2
	Veery	0	0	1	0	0	0.2	0	0	0	0	0	0.0
Sylviidae	Golden-crowned Kinglet	2	4	11	1	0	3.6	1	0	0	2	0	0.6
	Ruby-crowned Kinglet	8	6	7	6	8	7.0	1	0	0	0	1	0.4
Vireonidae	Solitary Vireo	0	0	0	0	0	0.0	2	0	0	0	0	0.4
Parulidae	Black and white Warbler	0	0	0	0	0	0.0	1	0	0	0	0	0.2
	Tennessee Warbler	0	0	0	0	0	0.0	4	0	0	2	0	1.2
	Nashville Warbler	0	0	0	0	0	0.0	0	0	0	1	0	0.2
	Magnolia Warbler	0	0	0	0	0	0.0	0	0	1	0	3	0.8

Table XVII Cont'd

Family	Species	Pre-spray days						Post-spray days					
		-6	-5	-4	-3	-2	Daily ave	+1	+2	+3	+4	+6	Daily ave
	Myrtle Warbler	2	0	1	0	0	0.6	0	0	1	1	0	0.4
	Yellowthroat	0	0	0	0	0	0.0	0	0	0	4	3	1.4
	Ovenbird	0	0	0	0	0	0.0	0	0	2	3	4	1.8
Icteridae	Bobolink	0	0	0	0	0	0.0	0	0	0	1	0	0.2
Fringillidae	Purple Finch	2	0	0	0	2	0.8	2	0	0	2	0	0.8
	Junco	1	0	1	5	3	2.0	3	0	0	0	0	0.6
	White-throated Sparrow	4	2	8	5	7	5.2	2	1	3	2	1	1.8
Totals:		24	16	33	21	23	23.4	17	2	7	22	16	12.8

Table XVIII

Forest bird population census  
Dimecron treatment plot 4  
Chipman, New Brunswick  
May 1976

Family .	Species	Pre-spray days						Post-spray days					
		-4	-3	-2	-1	-0	Daily ave	+1	+2	+3	+4	+6	Daily ave
Tetraonidae	Ruffed Grouse	1	1	0	1	1	0.8	2	0	2	2	1	1.4
Picidae	Common Flicker	4	1	2	1	1	1.8	0	0	0	0	0	0.0
	Yellow-bellied Sapsucker	0	2	4	4	2	2.4	0	0	0	1	0	0.2
Corvidae	Gray Jay	0	0	0	0	0	0.0	1	0	0	0	0	0.2
Paridae	Black-capped Chickadee	0	0	0	1	0	0.2	0	0	0	0	0	0.0
Sittidae	Red-breasted Nuthatch	0	1	0	0	0	0.2	0	0	0	0	0	0.0
Certhiidae	Brown Creeper	2	3	0	0	0	0.0	1	0	0	0	0	0.2
Troglodytidae	Winter Wren	1	1	2	3	0	1.4	1	0	1	1	0	0.6
Turdidae	American Robin	0	0	0	2	1	0.6	3	0	2	3	0	1.6
	Hermit Thrush	0	0	0	0	0	0.0	2	0	0	0	1	0.6
Sylviidae	Golden-crowned Kinglet	1	0	0	0	0	0.2	0	0	0	0	0	0.0
	Ruby-crowned Kinglet	9	8	6	8	5	7.2	8	0	0	0	0	1.8
Vireonidae	Solitary Vireo	3	2	0	3	2	2.0	1	0	0	0	0	0.2
Parulidae	Black and white Warbler	0	0	3	0	0	0.6	0	0	0	0	0	0.0
	Nashville Warbler	0	0	1	0	0	0.2	0	0	0	0	0	0.0

Table XVIII Cont'd

Family	Species	Pre-spray days					Daily ave	Post-spray days					Daily ave
		-4	-3	-2	-1	-0		+1	+2	+3	+4	+6	
	Parula Warbler	0	0	0	0	0	0.0	0	0	0	1	1	0.4
	Magnolia Warbler	0	0	0	0	0	0.0	0	0	0	1	2	0.6
	Myrtle Warbler	2	0	2	2	3	1.8	0	2	1	2	2	1.4
	Black-throated Green Warbler	0	0	0	0	0	0.0	0	0	0	1	3	0.8
	Blackburnian Warbler	0	0	0	0	0	0.0	0	0	0	0	1	0.2
	Ovenbird	0	0	0	0	0	0.0	2	0	2	5	4	2.6
Icteridae	Brown-headed Cowbird	0	0	3	0	0	0.6	0	0	0	0	1	0.2
Fringillidae	Evening Grosbeak	0	0	3	0	0	0.6	0	0	0	0	0	0.0
	Purple Finch	0	15	6	5	0	5.2	1	0	1	5	4	2.2
	Junco	8	0	1	7	1	3.4	0	2	0	0	0	0.4
	White-throated Sparrow	5	6	6	8	6	6.2	9	3	0	3	3	3.6
Totals:		36	40	39	45	22	36.4	31	7	9	25	23	19.0

Table XIX  
Forest bird population census  
Dimecron treatment plot 5  
Chipman, New Brunswick  
May 1976

Family	Species	Pre-spray days						Post-spray days					
		-4	-3	-2	-1	-0	Daily ave	+1	+2	+3	+4	+5	Daily ave
Alcedinidae	Belted Kingfisher	0	0	0	1	0	0.2	0	0	0	0	0	0.0
Picidae	Common Flicker	0	0	0	0	0	0.0	1	1	0	0	1	0.6
	Pileated Woodpecker	0	0	0	0	0	0.0	0	0	1	0	1	0.4
	Yellow-bellied Sapsucker	1	1	4	6	2	2.8	1	1	0	1	0	0.6
	Hairy Woodpecker	0	0	0	1	0	0.2	0	0	0	0	0	0.0
Corvidae	Gray Jay	0	1	0	0	0	0.2	0	0	0	2	2	0.8
	Blue Jay	1	0	0	0	6	1.4	0	0	0	1	1	0.4
Paridae	Black-capped Chickadee	0	0	0	0	1	0.2	0	1	0	0	0	0.2
Certhiidae	Brown Creeper	0	0	0	0	4	0.8	0	0	0	0	0	0.0
Troglodytidae	Winter Wren	0	0	0	0	0	0.0	1	3	2	3	1	2.0
Turdidae	American Robin	0	1	0	0	1	0.4	0	1	0	0	1	0.2
	Hermit Thrush	0	0	0	2	2	0.8	0	0	0	0	4	0.8
Sylviidae	Golden-crowned Kinglet	0	0	0	3	3	1.2	1	0	2	0	0	0.6
	Ruby-crowned Kinglet	8	6	7	9	11	8.2	0	0	0	0	3	0.6
Vireonidae	Solitary Vireo	0	0	0	0	0	0.0	0	0	0	0	2	0.4

Table XIX Cont'd

Family	Species	Pre-spray days						Post-spray days					
		-4	-3	-2	-1	-0	Daily ave	+1	+2	+3	+4	+5	Daily ave
Parulidae	Tennessee Warbler	0	0	0	0	0	0.0	0	0	0	1	0	0.2
	Nashville Warbler	0	0	0	0	0	0.0	2	0	0	0	2	0.8
	Magnolia Warbler	0	0	0	0	0	0.0	0	1	0	0	0	0.2
	Cape May Warbler	0	0	0	0	0	0.0	0	0	0	0	2	0.4
	Myrtle Warbler	0	1	2	4	4	2.2	1	1	2	1	2	1.4
	Black-throated Green Warbler	0	0	0	0	0	0.0	0	0	0	0	1	0.2
	Blackburnian Warbler	0	0	0	0	0	0.0	0	0	0	0	1	0.2
	Northern Waterthrush	0	0	0	0	0	0.0	0	0	2	1	2	1.0
	Ovenbird	0	0	0	3	3	1.2	3	3	2	4	3	3.0
Icteridae	Red-winged Blackbird	0	0	0	0	7	1.4	0	0	0	0	0	0.0
	Common Grackle	0	0	0	0	4	0.8	0	0	0	0	0	0.0
	Brown-headed Cowbird	2	1	0	0	2	1.0	0	2	0	0	0	0.4
Fringillidae	Rose-breasted Grosbeak	0	0	0	0	0	0.0	0	2	0	0	0	0.4
	Purple Finch	0	1	0	1	9	2.2	1	1	1	4	1	1.6
	Junco	0	0	0	0	0	0.0	0	0	0	0	2	0.4
	White-throated Sparrow	4	7	7	9	6	6.2	7	4	2	5	0	3.6
	Song Sparrow	0	0	0	0	0	0.0	0	1	0	0	1	0.4
Totals:		16	19	20	39	65	31.8	18	22	14	23	33	22.0

Table XX  
Forest bird population census  
Dimecron treatment plot 6  
Chipman, New Brunswick  
May 1976

Family	Species	Pre-spray days						Post-spray days					
		-4	-3	-2	-1	-0	Daily ave	+1	+2	+3	+4	+5	Daily ave
Tetraonidae	Ruffed Grouse	0	1	1	1	1	0.8	1	1	0	1	1	0.8
Picidae	Common Flicker	0	0	1	0	0	0.2	0	0	1	0	0	0.2
	Pileated Woodpecker	0	0	1	0	1	0.4	0	0	0	0	1	0.2
	Yellow-bellied Sapsucker	5	2	5	3	3	3.6	0	3	1	2	1	1.4
	Downy Woodpecker	0	0	1	0	0	0.2	0	0	0	0	0	0.0
Corvidae	Gray Jay	0	0	0	0	0	0.0	0	0	2	0	2	0.8
Paridae	Black-capped Chickadee	1	1	0	0	0	0.4	1	0	0	0	1	0.4
	Boreal Chickadee	1	0	0	0	0	0.4	0	0	0	0	0	0.0
Sittidae	Red-breasted Nuthatch	0	0	1	0	0	0.2	1	0	0	0	0	0.2
Certhiidae	Brown Creeper	0	0	0	0	0	0.0	0	0	0	1	0	0.2
Troglodytidae	Winter Wren	1	2	2	2	1	1.6	2	0	1	1	1	1.0
Turdidae	American Robin	1	0	0	0	3	0.8	1	0	1	0	0	0.4
	Hermit Thrush	2	2	2	1	1	1.6	0	2	3	0	1	1.2
Sylviidae	Golden-crowned Kinglet	2	2	0	0	2	1.2	2	0	0	0	0	0.4
	Ruby-crowned Kinglet	4	3	4	5	4	4.0	3	0	0	0	1	0.8
Vireonidae	Solitary Vireo	0	0	0	0	2	0.4	3	1	1	1	5	2.2

Table XX Cont'd

Family	Species	Pre-spray days					Daily ave	Post-spray days					Daily ave
		-4	-3	-2	-1	-0		+1	+2	+3	+4	+6	
Parulidae	Black and white Warbler	0	0	0	0	0	0.0	0	0	0	0	1	0.2
	Tennessee Warbler	0	0	0	0	0	0.0	0	0	0	0	1	0.2
	Nashville Warbler	0	0	0	0	0	0.0	0	0	0	0	3	0.6
	Parula Warbler	0	0	0	0	0	0.0	1	0	3	1	1	1.2
	Magnolia Warbler	0	0	0	0	1	0.2	1	1	0	1	2	1.0
	Cape May Warbler	0	0	0	0	0	0.0	0	0	0	0	1	0.2
	Black-throated Blue Warbler	0	0	0	0	0	0.0	0	0	0	0	1	0.2
	Myrtle Warbler	2	1	6	2	1	2.4	3	0	0	3	0	1.2
	Black-throated Green Warbler	0	0	0	0	2	0.4	1	4	2	4	1	2.4
	Blackburnian Warbler	0	0	0	0	0	0.0	1	1	0	2	1	1.0
	Ovenbird	0	0	0	0	1	0.2	3	3	2	3	6	3.2
	Canada Warbler	0	0	0	0	0	0.0	0	0	0	1	0	0.2
Fringillidae	Evenign Grosbeak	0	1	0	0	0	0.2	4	0	0	0	0	0.8
	Purple Finch	4	6	4	0	4	3.6	3	4	3	3	4	3.4
	Pine Grosbeak	0	0	0	0	0	0.0	1	0	0	0	0	0.2
	Pine Siskin	0	0	0	0	0	0.0	1	0	1	0	0	0.4



Table XX      Cont'd

Family	Species	Pre-spray days					Daily ave	Post-spray days					Daily ave
		-4	-3	-2	-1	-0		+1	+2	+3	+4	+6	
	Junco	0	0	0	0	0	0.0	1	0	2	1	0	0.8
	White-throated Sparrow	5	6	8	8	6	5.6	6	10	4	6	7	5.6
Totals:		28	27	36	22	34	29.4	40	30	27	31	43	34.2

Table XXI  
Forest bird population census  
Dimecron treatment plot 7  
Chipman New Brunswick  
May 9 - 18, 1976

Family	Species	Pre-spray days						Post-spray days					
		-4	-3	-2	-1	-0	Daily ave	+1	+2	+3	+4	+5	Daily ave
Tetraonidae	Ruffed Grouse	0	1	0	0	1	0.4	0	0	0	0	0	0.0
Trochilidae	Ruby-throated Hummingbird	0	0	0	0	0	0.0	1	0	0	0	0	0.2
Alcedinidae	Belted Kingfisher	0	1	0	0	0	0.2	0	0	0	0	0	0.0
Picidae	Common Flicker	0	0	0	0	1	0.2	0	0	0	0	1	0.2
	Pileated Woodpecker	1	0	0	0	0	0.2	0	0	0	1	0	0.2
	Yellow-bellied Sapsucker	2	5	2	6	3	3.6	8	3	5	3	1	4.0
	Hairy Woodpecker	0	1	0	0	0	0.2	0	1	0	0	1	0.4
	Downy Woodpecker	1	1	0	1	0	0.6	0	0	0	0	0	0.0
Corvidae	Blue Jay	0	1	0	0	0	0.2	0	0	1	0	0	0.2
	Raven	0	0	0	1	1	0.4	0	0	0	0	0	0.0
Paridae	Black-capped Chickadee	0	3	0	1	1	1.0	0	0	1	0	0	0.2
Certhiidae	Brown Creeper	1	0	0	0	0	0.0	0	0	0	0	0	0.0
Troglodytidae	Winter Wren	1	0	0	2	1	0.8	1	1	1	2	2	1.4
Turdidae	American Robin	0	0	0	0	0	0.0	0	1	1	0	0	0.4
	Hermit Thrush	0	2	1	2	0	1.0	2	2	0	0	2	1.2
Sylviidae	Ruby-crowned Kinglet	4	5	2	6	4	4.2	4	1	3	3	3	2.8
Bombycillidae	Cedar Waxwing	0	0	0	0	0	0.0	1	0	0	0	0	0.2
Vireonidae	Solitary Vireo	0	0	1	1	1	0.6	4	3	0	1	0	2.6

Table XXI cont'd

Family	Species	Pre-spray days					Daily ave	Post-spray days					Daily ave
		-4	-3	-2	-1	-0		+1	+2	+3	+4	+5	
Parulidae	Black & White Warbler	-											
	Tennessee Warbler	0	0	0	1	0	0.2	0	0	0	0	1	0.2
	Nashville Warbler	0	0	0	0	0	0.0	0	0	0	0	1	0.2
	Parula Warbler	0	0	0	0	0	0.0	0	0	0	3	0	0.6
	Magnolia Warbler	0	0	0	0	0	0.0	0	0	1	3	2	1.2
	Black-throated Blue Warbler	0	0	0	0	0	0.0	1	0	0	1	2	1.0
	Myrtle Warbler	0	0	0	3	0	0.6	1	0	2	3	4	2.0
	Black-throated Green Warbler	3	2	4	1	3	2.6	1	1	0	0	0	0.4
	Blackburnian Warbler	0	1	0	2	2	1.0	2	3	0	3	2	2.0
	Ovenbird	0	0	0	0	0	0.0	0	1	0	3	1	1.0
	American Redstart	0	0	0	1	1	0.4	1	2	4	4	5	3.2
	Brown-headed Cowbird	0	0	0	0	0	0.0	0	0	0	3	2	1.0
	Rose-breasted Grosbeak	0	6	0	0	0	1.2	1	0	0	0	0	0.2
	Evening Grosbeak	0	0	0	0	0	0.0	0	0	1	1	5	1.4
Fringillidae	Purple Finch	0	6	0	0	0	1.2	3	10	16	3	0	6.4
	Dark-eyed Junco	5	5	5	3	2	4.0	3	5	11	3	2	4.8
	White-throated Sparrow	0	0	0	1	0	0.2	0	0	1	2	0	0.6
	Totals	5	6	10	6	6	6.6	8	8	11	4	8	7.8
Totals		23	46	25	38	27	31.8	42	42	62	46	45	47.4

Table XXII  
Forest bird population census  
Dimecron treatment plot 8  
Chipman, New Brunswick  
May 1976

Family	Species	Pre-spray days						Post-spray days					
		-4	-3	-2	-1	-0	Daily ave	+1	+2	+3	+4	+5	Daily ave
Tetraonidae	Ruffed Grouse	0	0	1	0	0	0.2	0	0	1	0	0	0.2
Picidae	Common Flicker	0	0	0	1	1	0.4	0	1	0	0	0	0.2
	Pileated Wood- pecker	0	0	0	0	0	0.0	0	0	2	0	0	0.4
	Yellow-bellied sapsucker	2	3	3	2	3	2.6	1	2	3	3	2	2.2
	Hairy Woodpecker	0	1	0	0	0	0.2	1	0	0	0	0	0.2
	Downy Woodpecker	0	0	0	0	0	0.0	0	0	0	0	1	0.2
Corvidae	Gray Jay	0	0	0	0	0	0.0	0	0	2	0	0	0.4
	Blue Jay	0	0	0	0	0	0.0	0	0	1	0	0	0.2
Paridae	Black-capped chickadee	1	0	1	2	0	0.8	0	0	0	0	2	0.4
Troglodytidae	Winter Wren	0	0	2	0	0	0.4	0	0	1	0	0	0.2
Turdidae	American Robin	0	0	0	0	2	0.4	1	0	0	0	0	0.2
	Hermit Thrush	0	0	0	0	3	0.6	0	0	0	0	0	0.0
Sylviidae	Ruby-crowned Kinglet	4	5	5	2	8	4.8	2	2	2	1	2	1.8
Vireonidae	Solitary Vireo	1	1	0	0	0	0.4	0	0	0	1	1	0.4
Parulidae	Black and white Warbler	0	0	0	0	0	0.0	0	0	0	2	0	0.4

Table XXII

Cont'd

Family	Species	Pre-spray days					Post-spray days					Daily ave
		-4	-3	-2	-1	0	+1	+2	+3	+4	+5	
	Nashville Warbler	0	0	0	0	0	0	0	0	1	0	0.2
	Parula Warbler	0	0	0	0	0	0	1	2	2	2	1.4
	Magnolia Warbler	0	0	0	0	0	0	1	0	3	1	1.0
	Black-throated Blue Warbler	0	0	0	0	0	0	0	2	1	1	0.8
	Myrtle Warbler	2	3	2	2	0	2	2	2	0	0	1.2
	Black-throated Green Warbler	0	1	1	2	9	4	1	2	3	4	2.8
	Blackburnian Warbler	0	0	0	0	0	0	0	1	1	2	0.8
	Ovenbird	0	0	0	1	3	4	2	3	4	3	3.2
	American Redstart	0	0	0	0	0	0	0	0	1	0	0.2
Fringillidae	Rose-breasted Grosbeak	0	0	0	0	0	0	0	0	1	1	0.4
	Evening Grosbeak	0	0	0	0	3	0	0	0	4	0	0.8
	Purple Finch	0	1	2	4	14	1	5	6	1	4	3.4
	Junco	0	0	0	0	0	0	1	0	0	0	0.2
	White-throated Sparrow	2	3	6	3	11	5	3	4	7	6	5.0
Totals:		12	18	23	19	57	21	21	34	36	32	28.8

Table XXIII  
Forest bird population census  
Dimecron untreated check plot (2nd application)  
Chipman, New Brunswick  
May 28 - June 3, 1976

Family	Species	Pre-spray days, 2nd application			Post-spray days, 2nd application					
		-2	-1	Daily ave	+0	+1	+2	+3	+4	Daily ave
Tetraonidae	Ruffed Grouse	1	0	0.5	0	1	1	1	0	0.6
Scolopacidae	American Woodcock	0	0	0.0	0	1	0	0	0	0.2
	Common Snipe	1	0	0.5	0	0	0	0	0	0.0
Trochilidae	Ruby-throated Hummingbird	0	1	0.5	2	0	1	1	0	0.8
Picidae	Common Flicker	0	0	0.0	1	0	2	0	0	0.6
	Yellow-bellied Sapsucker	4	4	4.0	0	2	2	1	1	1.2
	Hairy Woodpecker	1	0	0.5	0	1	0	0	0	0.2
	Downey Woodpecker	1	1	1.0	0	0	0	0	0	0.0
Tyrannidae	Least Flycatcher	3	0	1.5	2	2	0	2	2	1.6
Cornidae	Gray Jay	1	0	0.5	0	0	0	0	0	0.0
	Common Raven	1	0	0.5	0	0	0	2	0	0.4
Paridae	Black-capped Chickadee	0	1	0.5	0	0	0	1	3	0.8
Sittidae	Red-breasted Nuthatch	1	0	0.5	0	0	0	1	0	0.2
Mimidae	Catbird	0	0	0.0	0	0	0	1	0	0.2
Turdidae	American Robin	5	4	4.5	2	4	2	5	5	3.6
	Hermit Thrush	2	3	2.5	4	2	3	1	1	2.2

Table XXIII cont'd

Family	Species	Pre-spray days, 2nd application			Post-spray days, 2nd application					
		-2	-1	Daily ave	+0	+1	+2	+3	+4	Daily ave
Sylviidae	Swainson's Thrush	2	3	2.5	1	1	2	1	2	1.4
	Veery	4	8	6.0	5	4	4	4	4	4.2
	Golden-crowned Kinglet	1	2	1.5	1	1	0	1	2	1.0
	Ruby-crowned Kinglet	4	3	3.5	4	5	4	3	3	3.8
Vireonidae	Solitary Vireo	1	1	1.0	2	1	1	1	2	1.4
	Red-eyed Vireo	0	0	0.0	1	0	0	0	0	0.2
	Philadelphia Vireo	0	0	0.0	1	0	0	0	0	0.2
	Warbling Vireo	0	0	0.0	3	0	0	0	0	0.6
Parulidae	Black and white Warbler	1	0	0.5	0	0	0	0	0	0.0
	Tennessee Warbler	2	0	1.0	2	1	2	2	0	1.4
	Nashville Warbler	0	0	0.0	1	1	0	0	0	0.4
	Parula Warbler	0	0	0.0	0	0	0	1	0	0.2
	Magnolia Warbler	1	2	1.5	3	2	3	2	4	2.8
	Cape May Warbler	1	1	1.0	1	2	0	0	0	0.6
	Myrtle Warbler	2	2	2.0	3	1	0	1	1	1.2
	Black-throated green Warbler	0	1	0.5	0	1	0	0	0	0.2
	Blackburnian Warbler	0	1	0.5	0	0	0	0	0	0.0

Table XXIII cont'd

Family	Species	Pre-spray days, 2nd application			Post-spray days, 2nd application					
		-2	-1	Daily ave	+0	+1	+2	+3	+4	Daily ave
	Chestnut-sided Warbler	2	2	2.0	3	3	2	2	2	2.4
	Bay-breasted Warbler	1	2	1.5	1	1	0	2	0	0.8
	Blackpoll Warbler	1	0	0.5	0	0	0	0	0	0.0
	Palm Warbler	0	0	0.0	0	0	0	1	1	0.4
	Ovenbird	6	6	6.0	5	5	5	5	4	4.8
	Northern Waterthrush	0	1	0.5	1	1	1	2	2	1.4
	Yellowthroat	2	4	3.0	2	4	2	2	4	2.8
	Wilson's Warbler	3	2	2.5	1	2	1	1	1	1.2
	Canada Warbler	2	1	1.5	0	1	2	2	2	1.4
	American Redstart	2	1	1.5	2	2	1	3	3	2.2
Icteridae	Red-winged Blackbird	1	4	2.5	1	3	0	1	1	1.2
	Common Crackle	4	4	4.0	0	0	0	0	4	0.8
	Brown-headed Cowbird	1	1	1.0	0	0	0	1	0	0.2
Thraupidae	Scarlet Tanager	0	1	0.5	1	0	0	0	0	0.2
Fringillidae	Rose-breasted Grosbeak	4	3	3.5	2	3	0	2	2	1.8
	Evening Grosbeak	0	0	0.0	0	0	0	1	0	0.2
	Purple Finch	2	1	1.5	0	1	1	1	0	0.6
	Pine Siskin	0	1	0.5	0	0	0	0	0	0.0
	Junco	2	2	2.0	2	1	2	0	0	1.0
	Chipping Sparrow	1	0	0.5	1	0	0	0	0	0.2
	White-throated Sparrow	5	6	5.5	0	2	4	6	3	4.8
	Lincoln's Sparrow	0	1	0.5	1	0	0	0	1	0.4
	Swamp Sparrow	1	2	1.5	1	1	1	0	0	0.6
	Song Sparrow	5	3	4.0	3	2	4	2	3	2.8
Total		88	86	85.5	75	65	53	66	63	64.4



Table XXIV  
Forest bird population census  
Dimecron treatment Plot I, (2nd application)  
Chipman, New Brunswick  
May 28 - June 3, 1976

Family	Species	Pre-spray days, 2nd application			Post-spray days, 2nd application					
		-2	-1	Daily ave	+0	+1	+2	+3	+4	Daily ave
Picidae	Common Flicker	0	1	0.5	0	0	0	0	0	0.0
	Yellow-bellied Sapsucker	1	1	1.0	0	2	1	0	1	0.8
Tyrannidae	Olive-sided Flycatcher	0	0	0.0	0	0	0	0	1	0.2
Paridae	Blackcapped Chickadee	0	0	0.0	0	0	0	0	1	0.2
	Boreal Chickadee	0	1	0.5	1	0	0	0	0	0.2
Sittidae	Red-breasted Nuthatch	0	0	0.0	0	3	0	0	1	0.8
Certhiidae	Brown Creeper	1	0	0.5	0	0	0	0	0	0.0
Troglodytidae	Winter Wren	0	0	0.0	0	0	0	0	1	0.2
Turdidae	American Robin	1	0	0.5	0	0	0	1	0	0.2
	Hermit Thrush	1	2	1.5	1	0	1	1	0	0.6
	Swainson's Thrush	0	1	0.5	2	2	0	1	0	1.0
Sylviidae	Golden-crowned Kinglet	0	0	0.0	0	0	0	3	0	0.6
	Ruby-crowned Kinglet	3	1	2.0	3	4	1	4	3	3.0
Vireonidae	Solitary Vireo	1	0	0.5	0	0	0	0	0	0.0
Parulidae	Black and White Warbler	1	0	0.5	0	0	0	2	0	0.4
	Tennessee Warbler	3	3	3.0	3	0	0	0	0	0.6
	Nashville Warbler	1	0	0.5	0	0	0	1	1	0.4
	Parula Warbler	2	1	1.5	1	1	0	0	1	0.6
	Magnolia Warbler	2	2	2.0	7	3	2	4	3	3.8

Table XXIV cont'd

Family	Species	Pre-spray days, 2nd application			Post-spray days, 2nd application					
		-2	-1	Daily ave	+0	+1	+2	+3	+4	Daily ave
	Cape May Warbler	1	0	0.5	0	0	2	2	2	1.2
	Black-throated									
	Blue Warbler	0	1	0.5	0	0	0	0	0	0.0
	Myrtle Warbler	1	1	1.0	1	1	0	0	0	0.4
	Black-throated									
	Green Warbler	1	0	0.5	0	0	1	3	2	1.2
	Blackburnian Warbler	0	0	0.0	1	1	0	1	0	0.6
	Bay-breasted Warbler	1	0	0.5	2	2	0	1	0	1.0
	Ovenbird	4	5	4.5	4	4	2	4	3	3.4
	Yellowthroat	0	3	1.5	0	1	1	0	0	0.4
	Canada Warbler	0	0	0.0	1	1	0	0	0	0.4
	American Redstart	1	1	1.0	0	1	0	0	0	0.2
Fringillidae	Purple Finch	2	0	1.0	2	1	0	2	3	1.6
	Pine Siskin	0	1	0.5	0	0	0	0	0	0.0
	American Goldfinch	3	0	1.5	0	0	0	0	0	0.0
	Junco	0	1	0.5	0	0	0	1	2	0.6
	White-throated Sparrow	2	1	1.5	1	3	0	6	2	2.4
Totals		33	26		30	30	13	38	29	

Table XXV  
Forest bird population census  
Dimecron treatment plot 2 (2nd application)  
Chipman, New Brunswick  
May 28 - June 3, 1976

Family	Species	Pre-spray days, 2nd application			Post-spray days, 2nd application					
		-2	-1	Daily ave	+0	+1	+2	+3	+4	Daily ave
Trochilidae	Ruby-throated Hummingbird	2	0	1.0	0	1	0	1	0	0.4
Picidae	Common Flicker	0	1	0.5	0	0	0	0	0	0.0
	Yellow-bellied Sapsucker	1	0	0.5	0	0	0	1	1	0.4
Tyrannidae	Olive-sided Flycatcher	1	0	0.5	0	0	0	0	0	0.0
Corvidae	Blue Jay	0	0	0.0	0	1	0	0	0	0.2
Paridae	Black-capped Chickadee	1	0	0.5	0	0	0	0	0	0.0
	Boreal Chickadee	0	0	0.0	2	0	0	0	0	0.4
Sittidae	White-breasted Nuthatch	0	0	0.0	0	0	0	1	0	0.2
	Red-breasted Nuthatch	0	0	0.0	0	0	0	2	1	0.6
Certhidae	Brown Creeper	1	0	0.5	0	0	0	0	0	0.0
Troglodytidae	Winter Wren	0	1	0.5	1	0	0	0	2	0.6
Turdidae	American Robin	0	0	0.0	0	0	0	0	2	0.4
	Hermit Thrush	1	1	2.0	0	1	0	0	0	0.2
	Swainson's Thrush	0	0	0.0	0	0	1	0	0	0.2
Sylviidae	Golden-crowned Kinglet	0	1	0.5	1	0	0	1	0	0.4
	Ruby-crowned Kinglet	2	3	2.5	3	2	3	1	0	1.8

Table XXV

Cont'd

Family	Species	Pre-spray days, 2nd application			Post-spray days, 2nd application					
		-2	-1	Daily ave	+0	+1	+2	+3	+4	Daily ave
Vireonidae	Solitary Vireo	1	2	1.5	1	1	0	2	2	1.2
Parulidae	Black and White Warbler	0	0	0.0	0	1	2	0	0	0.6
	Tennessee Warbler	1	2	1.5	1	5	2	0	3	2.2
	Nashville Warbler	1	1	1.0	2	0	2	1	1	1.2
	Parula Warbler	1	1	1.0	1	0	0	1	1	0.6
	Magnolia Warbler	4	3	3.5	4	6	2	3	2	3.4
	Cape May Warbler	0	0	0.0	0	0	3	2	1	1.2
	Black-throated Blue Warbler	0	0	0.0	0	0	0	0	0	0.0
	Myrtle Warbler	0	0	0.0	0	0	0	1	0	0.2
	Black-throated Green Warbler	3	3	3.0	3	2	2	3	3	2.6
	Blackburnian Warbler	2	1	1.5	1	2	0	1	1	1.0
	Chestnut-sided Warbler	0	0	0.0	0	0	0	0	2	0.4
	Bay-breasted Warbler	2	2	2.0	3	2	0	0	0	1.0
	Ovenbird	5	3	4.0	4	4	1	4	2	3.0
	Yellowthroat	1	2	1.5	1	1	0	0	0	0.4
	American Redstart	1	0	.5	2	0	0	0	0	0.4

Table XXV

Cont'd

Family	Species	Pre-spray days, 2nd application			Post-spray days, 2nd application					
		-2	-1	Daily ave	+0	+1	+2	+3	+4	Daily ave
Fringillidae	Rose-breasted	0	0	0.0	0	1	0	0	0	0.2
	Grosbeak	0	0	0.0	0	1	0	0	0	0.2
	Purple Finch	0	1	0.5	0	2	0	0	0	0.4
	Junco	0	1	0.5	0	2	1	0	1	0.6
	White-throated Sparrow	4	5	4.5	1	3	3	3	4	2.8
Unidentified Species		0	0	0.0	0	0	0	0	3	0.6
Total:		35	34	34.5	31	37	22	28	33	30.2

Table XXVI  
Forest bird population census  
Dimecron treatment plot 5 (2nd application)  
Chipman, New Brunswick  
May 28 - June 3, 1976

Family	Species	Pre-spray days, 2nd application			Post-spray days, 2nd application					
		-2	-1	Daily ave	+0	+1	+2	+3	+4	Daily ave
Scolopacidae	Common Snipe	0	0	0.0	0	0	0	1	0	0.2
Picidae	Piliated Woodpecker	1	0	0.5	0	0	0	1	0	0.2
	Yellow-bellied Sapsucker	4	1	2.5	0	1	0	1	1	0.6
Tyrannidae	Yellow-bellied Flycatcher	0	2	1.0	2	1	1	2	2	1.6
Corvidae	Gray Jay	1	0	0.5	0	1	0	2	0	0.6
	Blue Jay	0	1	0.5	1	0	0	0	0	0.2
Paridae	Boreal Chickadee	0	0	0.0	1	0	0	1	0	0.4
Sittidae	Red-breasted Nuthatch	0	0	0.0	1	1	0	0	0	0.4
Troglodytidae	Winter Wren	0	0	0.0	0	2	1	0	1	0.8
Turdidae	American Robin	0	0	0.0	0	2	1	1	0	0.8
	Hermit Thrush	0	0	0.0	2	1	0	2	2	1.4
	Swainson's Thrush	0	1	0.5	1	4	1	2	2	2.0
	Veery	0	0	0.0	0	0	0	2	0	0.4
Sylviidae	Ruby-crowned Kinglet	4	2	3.0	4	3	3	3	3	3.2
Vireonidae	Solitary Vireo	0	0	0.0	2	0	0	0	0	0.4

Table XXVI

Cont'd

Family	Species	Pre-spray days, 2nd application			Post-spray days, 2nd application					
		-2	-1	Daily ave	+0	+1	+2	+3	+4	Daily ave
Parulidae	Tennessee Warbler	1	5	3.0	4	3	2	3	2	2.8
	Nashville Warbler	0	0	0.0	0	1	0	0	0	0.2
	Parula Warbler	1	0	0.5	1	0	0	0	0	0.2
	Magnolia Warbler	1	4	2.5	4	4	3	3	3	3.4
	Cape-May Warbler	0	1	0.5	1	1	1	1	1	1.0
	Myrtle Warbler	0	0	0.0	0	1	1	0	0	0.4
	Black-throated Green Warbler	1	1	1.0	0	0	0	0	0	0.0
	Blackburnian Warbler	0	0	0.0	0	1	1	1	0	0.6
	Bay-breasted Warbler	0	2	1.0	1	2	0	1	1	1.0
	Ovenbird	4	3	3.5	3	3	3	2	2	2.6
	Northern Waterthrush	2	2	2.0	2	2	0	2	2	1.6
	Canada Warbler	1	0	0.5	0	0	0	1	0	0.2
	American Redstart	0	1	0.5	0	0	0	0	0	0.0
Fringillidae	Rose-breasted Grosbeak	0	0	0.0	1	1	0	0	1	0.6
	Evening Grosbeak	1	0	0.5	0	0	0	0	0	0.0

Table XXVI

Cont'd

Family	Species	Pre-spray days, 2nd application			Post-spray days, 2nd application					
		-2	-1	Daily ave	+0	+1	+2	+3	+4	Daily ave
	Purple Finch	2	0	1.0	0	2	0	0	1	0.6
	Pine Siskin	1	0	0.5	1	0	0	0	0	0.2
	American Goldfinch	0	0	0.0	0	0	0	1	0	0.2
	Junco	1	0	0.5	0	1	0	1	1	0.6
	Chipping Sparrow	0	0	0.0	0	1	0	0	0	0.2
	White-throated Sparrow	4	2	3.0	9	3	2	2	4	4.0
Totals:		30	28	29.0	41	42	20	36	29	33.6



Table XXVII  
Forest bird population census  
Dimecron treatment plot 6, (2nd application)  
Chipman, New Brunswick  
May 28, - June 3, 1976

Family	Species	Pre-spray days, 2nd application			Post-spray days, 2nd application					
		-2	-1	Daily ave	+0	+1	+2	+3	+4	Daily ave
Tetraonidae	Ruffed Grouse	1	1	1.0	1	1	0	0	0	0.4
Trochilidae	Ruby-throated Hummingbird	1	0	0.5	2	0	0	1	2	1.0
Picidae	Piliated Woodpecker Yellow-bellied sapsucker	1	0	0.5	0	1	0	1	1	0.6
		2	1	1.5	1	1	0	2	3	1.4
Tyrannidae	Least Flycatcher	0	0	0.0	2	1	0	1	0	0.8
Corvidae	Gray Jay	0	0	0.0	0	2	0	1	0	0.6
	Blue Jay	0	0	0.0	0	0	0	1	0	0.2
Paridae	Black-capped Chickadee	0	1	0.5	0	0	0	0	0	0.0
Sittidae	Red-breasted Nuthatch	0	0	0.0	0	1	0	0	0	0.2
Certhidae	Brown creeper	0	0	0.0	0	1	0	0	0	0.2
Troglodytidae	Winter wren	0	0	0.0	1	1	0	1	1	0.8
Turdidae	Hermit thrush	0	1	0.5	0	0	2	2	3	1.4
	Swainson's thrush	1	0	0.5	1	1	1	0	1	0.8
	Veery	1	0	0.5	0	0	0	0	0	0.0
Sylviidae	Ruby-crowned Kinglet	0	1	0.5	0	1	0	1	1	0.6
Vireonidae	Solitary vireo	2	1	1.5	3	0	0	3	2	1.6

Table XXVII cont'd

Family	Species	Pre-spray days, 2nd application			Post-spray days, 2nd application					
		-2	-1	Daily ave	+0	+1	+2	+3	+4	Daily ave
Parulidae	Tennessee Warbler	2	1	1.5	1	0	1	1	2	1.0
	Parula Warbler	1	1	1.0	1	0	0	1	1	0.6
	Magnolia Warbler	3	5	4.0	5	4	2	5	1	3.4
	Cape-May Warbler	0	0	0.0	1	0	0	0	0	0.2
	Black-throated Blue	0	1	0.5	2	0	0	1	0	0.6
	Myrtle Warbler	0	0	0.0	2	0	0	0	0	0.4
	Black-throated									
	Green Warbler	1	0	0.5	3	4	0	3	3	2.6
	Blackburnian Warbler	1	1	1.0	1	1	0	2	1	1.0
	Bay-breasted Warbler	2	0	1.0	2	2	0	2	1	1.4
	Ovenbird	1	3	2.0	4	4	3	3	4	3.6
	Yellowthroat	0	0	0.0	0	1	0	0	0	0.2
	Canada Warbler	2	2	2.0	2	2	1	1	1	1.4
Thraupidae	Scarlet tanager	1	0	0.5	0	0	0	1	0	0.2
Fringillidae	Rose-breasted Grosbeak	1	1	1.0	2	5	0	4	4	3.0
	Purple Finch	2	1	1.5	2	1	1	1	2	1.4
	Junco	1	0	0.5	0	0	0	0	0	0.0
	White-throated Sparrow	2	5	3.5	4	2	2	9	6	4.6
Totals		29	27	28.0	43	37	13	48	40	36.2

Table XXVII cont'd

Family	Species	Pre-spray days, 2nd application			Post-spray days, 2nd application					
		-2	-1	Daily ave	+0	+1	+2	+3	+4	Daily ave
Parulidae	Tennessee Warbler	2	1	1.5	1	0	1	1	2	1.0
	Parula Warbler	1	1	1.0	1	0	0	1	1	0.6
	Magnolia Warbler	3	5	4.0	5	4	2	5	1	3.4
	Cape-May Warbler	0	0	0.0	1	0	0	0	0	0.2
	Black-throated Blue	0	1	0.5	2	0	0	1	0	0.6
	Myrtle Warbler	0	0	0.0	2	0	0	0	0	0.4
	Black-throated Green Warbler	1	0	0.5	3	4	0	3	3	2.6
	Blackburnian Warbler	1	1	1.0	1	1	0	2	1	1.0
	Bay-breasted Warbler	2	0	1.0	2	2	0	2	1	1.4
	Ovenbird	1	3	2.0	4	4	3	3	4	3.6
	Yellowthroat	0	0	0.0	0	1	0	0	0	0.2
	Canada Warbler	2	2	2.0	2	2	1	1	1	1.4
Thraupidae	Scarlet tanager	1	0	0.5	0	0	0	1	0	0.2
Fringillidae	Rose-breasted Grosbeak	1	1	1.0	2	5	0	4	4	3.0
	Purple Finch	2	1	1.5	2	1	1	1	2	1.4
	Junco	1	0	0.5	0	0	0	0	0	0.0
	White-throated Sparrow	2	5	3.5	4	2	2	9	6	4.6
Totals		29	27	28.0	43	37	13	48	40	36.2

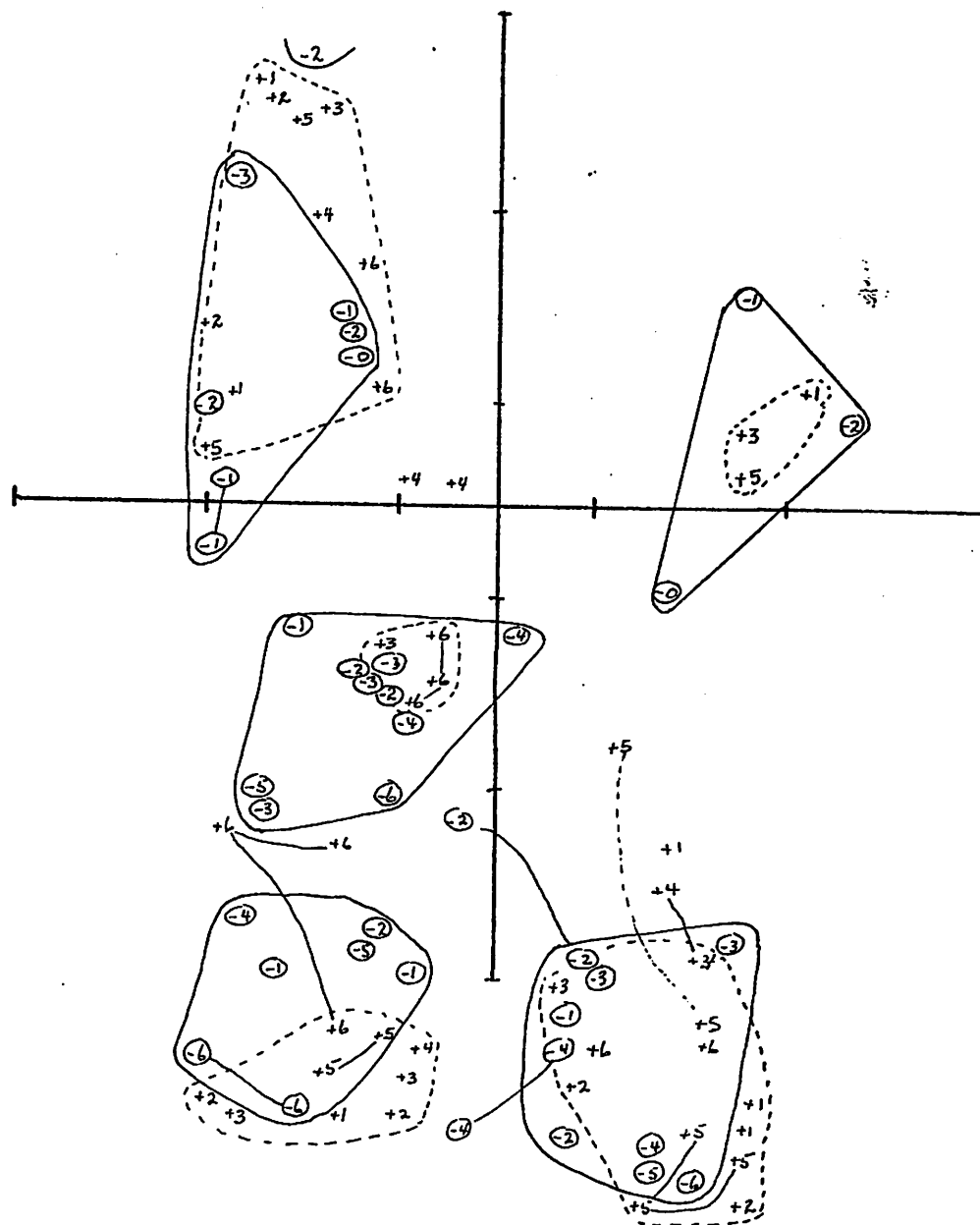


Fig. 8 Pre and post spray territories of the ruby-crowned kinglet, *R. calendula* (Linnaeus) on the untreated check plot Chipman, New Brunswick

— Pre-spray territory  
 - - - Post-spray territory  
 ——— Scale = 2 chains (40 meters)



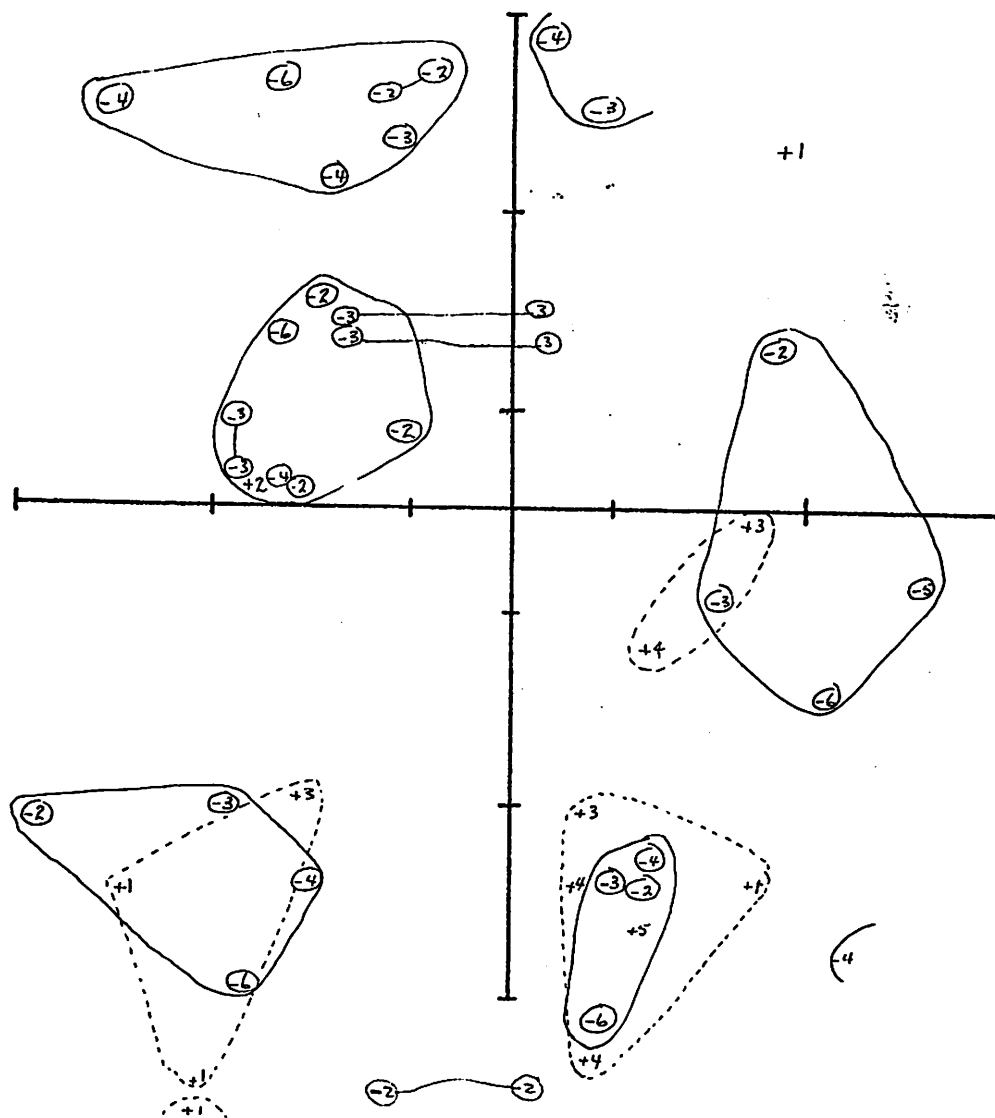


Fig. 10 Pre and post spray territories of the ruby-crowned kinglet, *R. calendula* (Linnaeus) on treatment plot 2. Chipman, New Brunswick

— Pre-spray territory  
 - - - Post-spray territory  
 ————— Scale = 2 chains (40 meters)

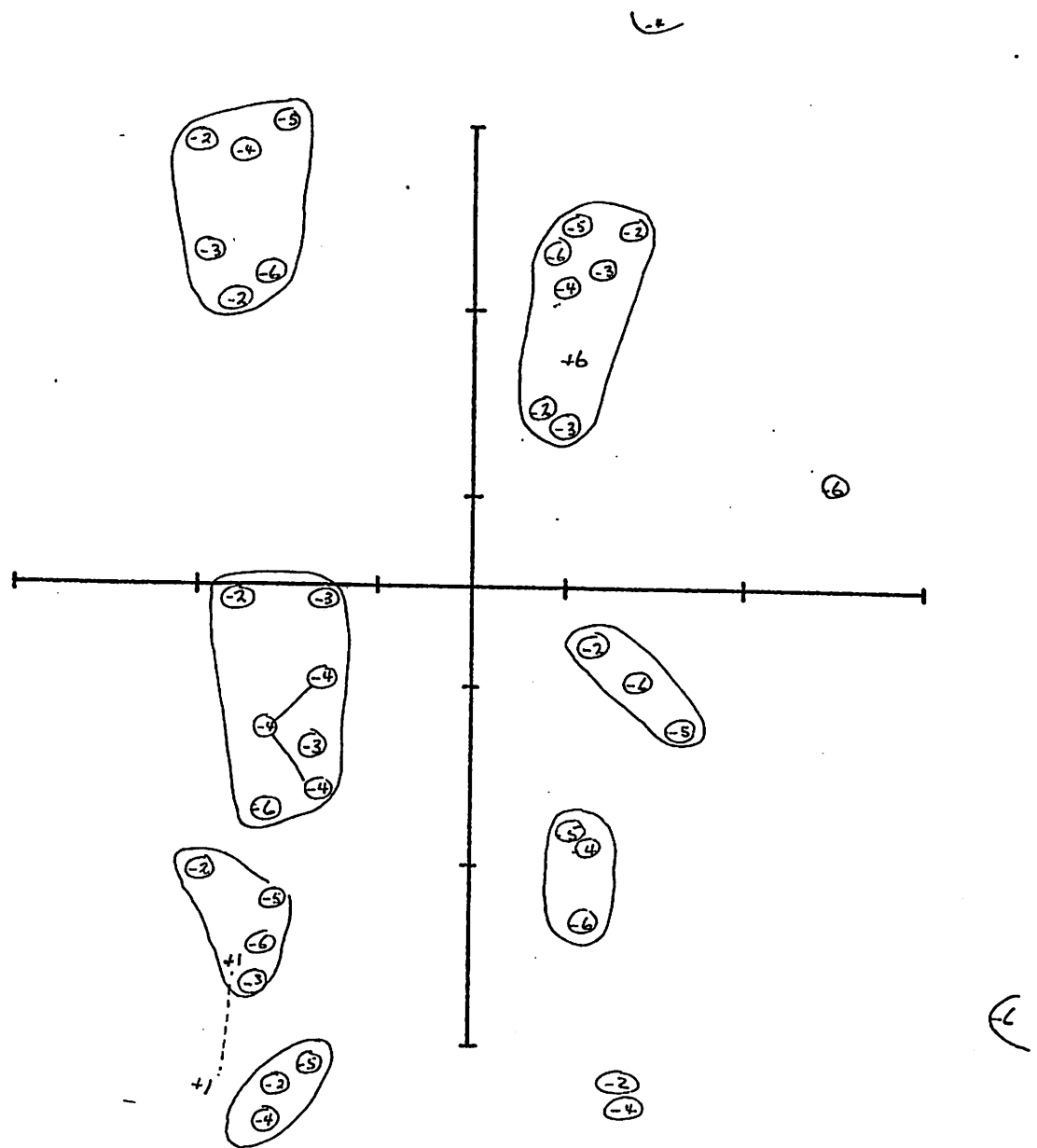


Fig. 11 Pre and post spray territories of the ruby-crowned kinglet, *R. Calendula* (Linnaeus) on treatment plot 3. Chipman, New Brunswick.

————— Pre-spray territory  
 - - - - - Post-spray territory  
 ————— Scale = 2 chains (40 meters)

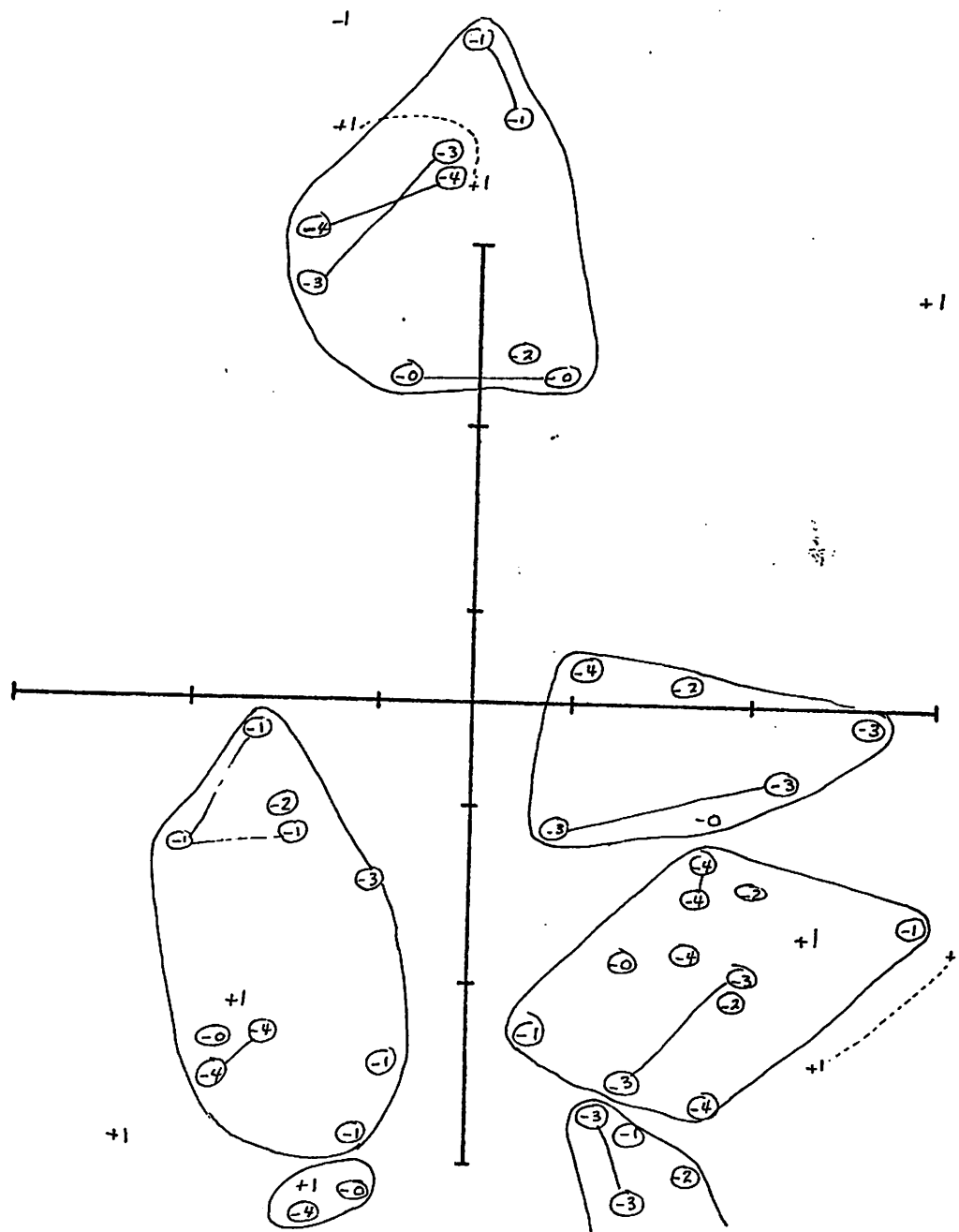


Fig. 12 Pre and post spray territories of the ruby-crowned kinglet, *R. calendula* (Linnaeus) on treatment plot 4. Chipman, New Brunswick, 1976.

————— Pre-spray territory  
 - - - - - Post-spray territory  
 ───────── Scale = 2 chains (40 meters)



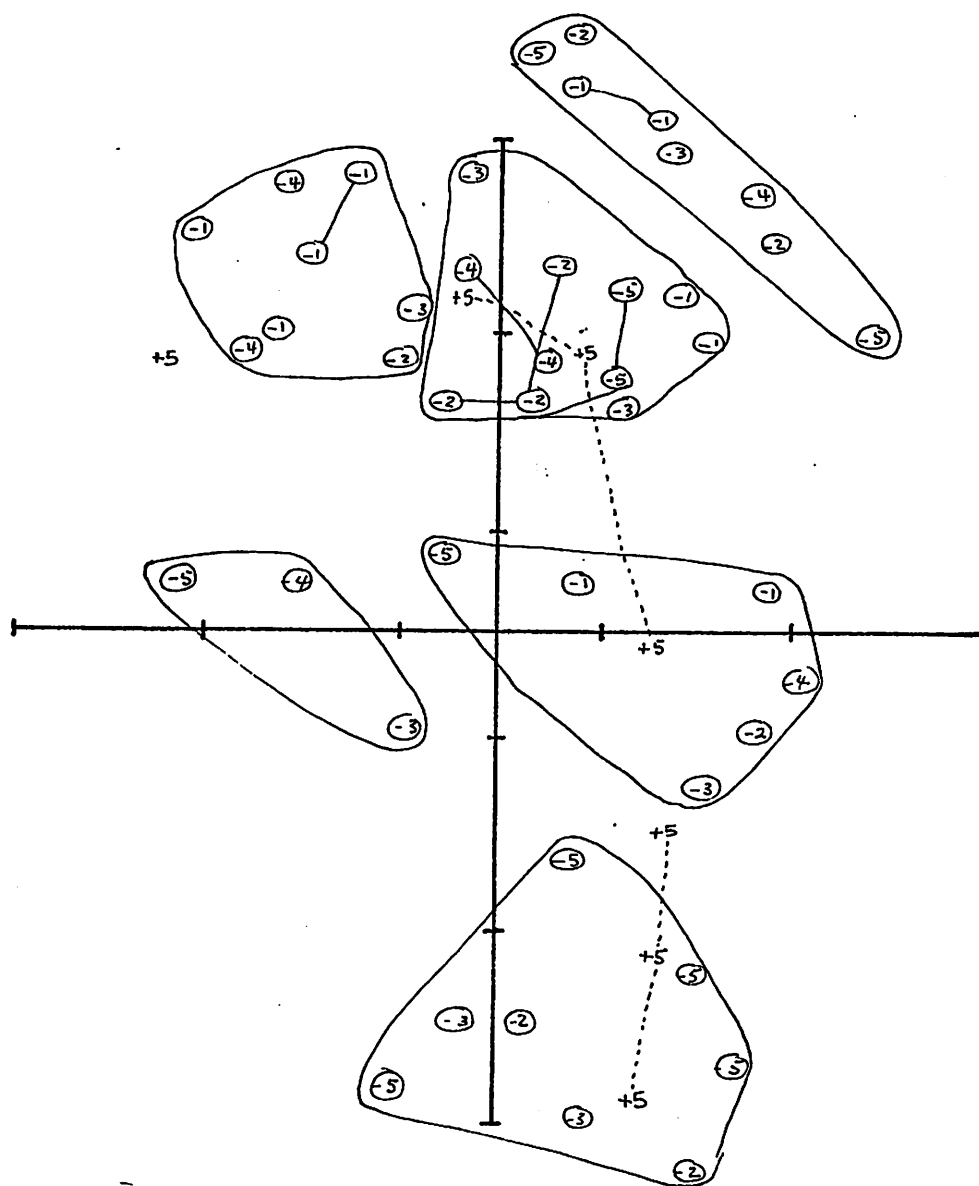


Fig. 13 Pre and post spray territories of the ruby-crowned kinglet, *R. calendula* (Linnaeus) on treatment plot 5. Chipman, New Brunswick, 1976

— Pre-spray territory  
 - - - Post-spray territory  
 ————— Scale = 2 chains (40 meters)

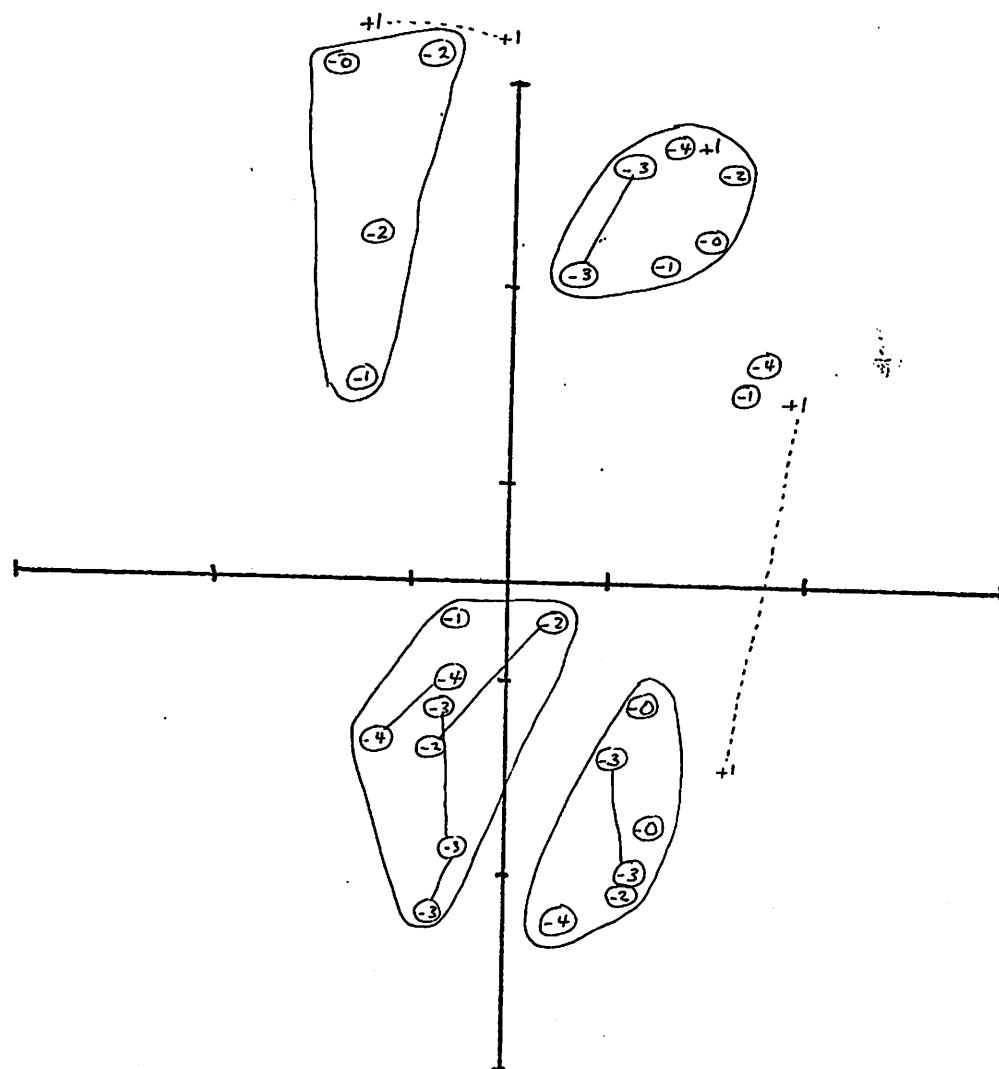


Fig. 14 Pre and post spray territories of the ruby-crowned kinglet, *R. calendula* (Linnaeus) in treatment plot 6. Chipman, New Brunswick, 1976.

— Pre-spray territory  
 - - - Post-spray territory  
 ————— Scale = 2 chains (40 meters)

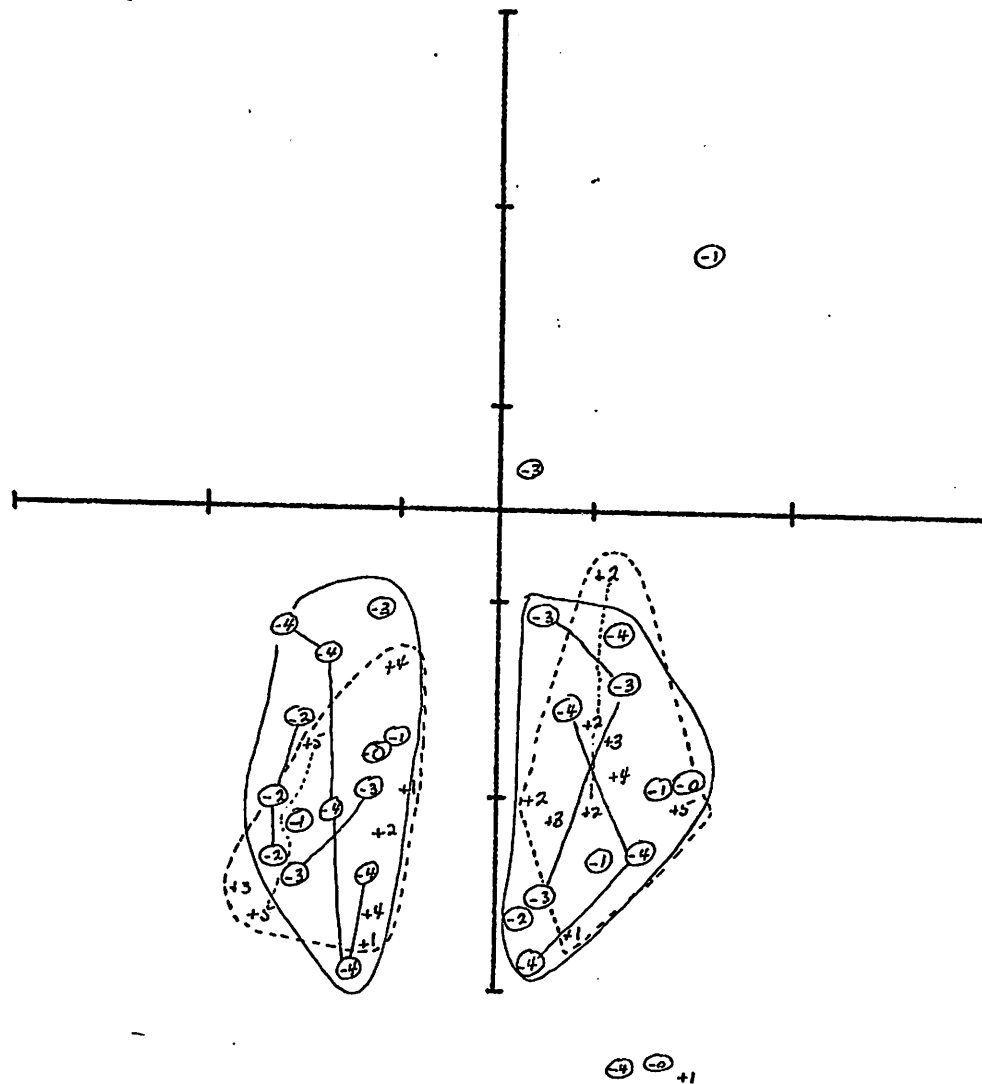


Fig. 15 Pre and post spray territories of the ruby-crowned kinglet, *R. Calendula* (Linnaeus) on treatment plot 7. Chipman, New Brunswick

———— Pre-spray territory  
 - - - - - Post-spray territory  
 ───────── Scale = 2 chains (40 meters)

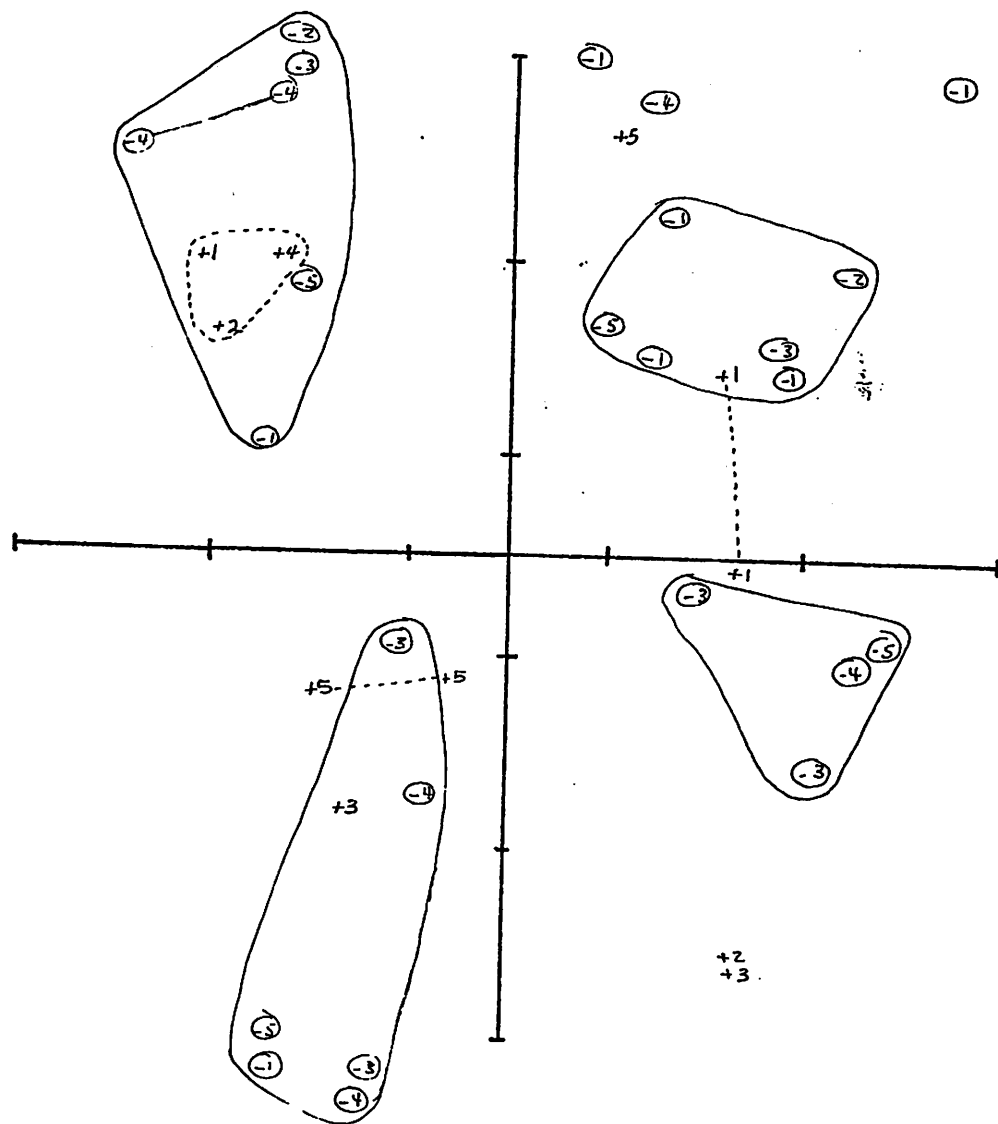


Fig. 16 Pre and post spray territories of the ruby-crowned kinglet, *R. calendula* (Linnaeus) on treatment plot 8. Chipman, New Brunswick, 1976

————— Pre-spray territory  
 - - - - - Post-spray territory  
 ————— Scale = 2 chains (40 meters)

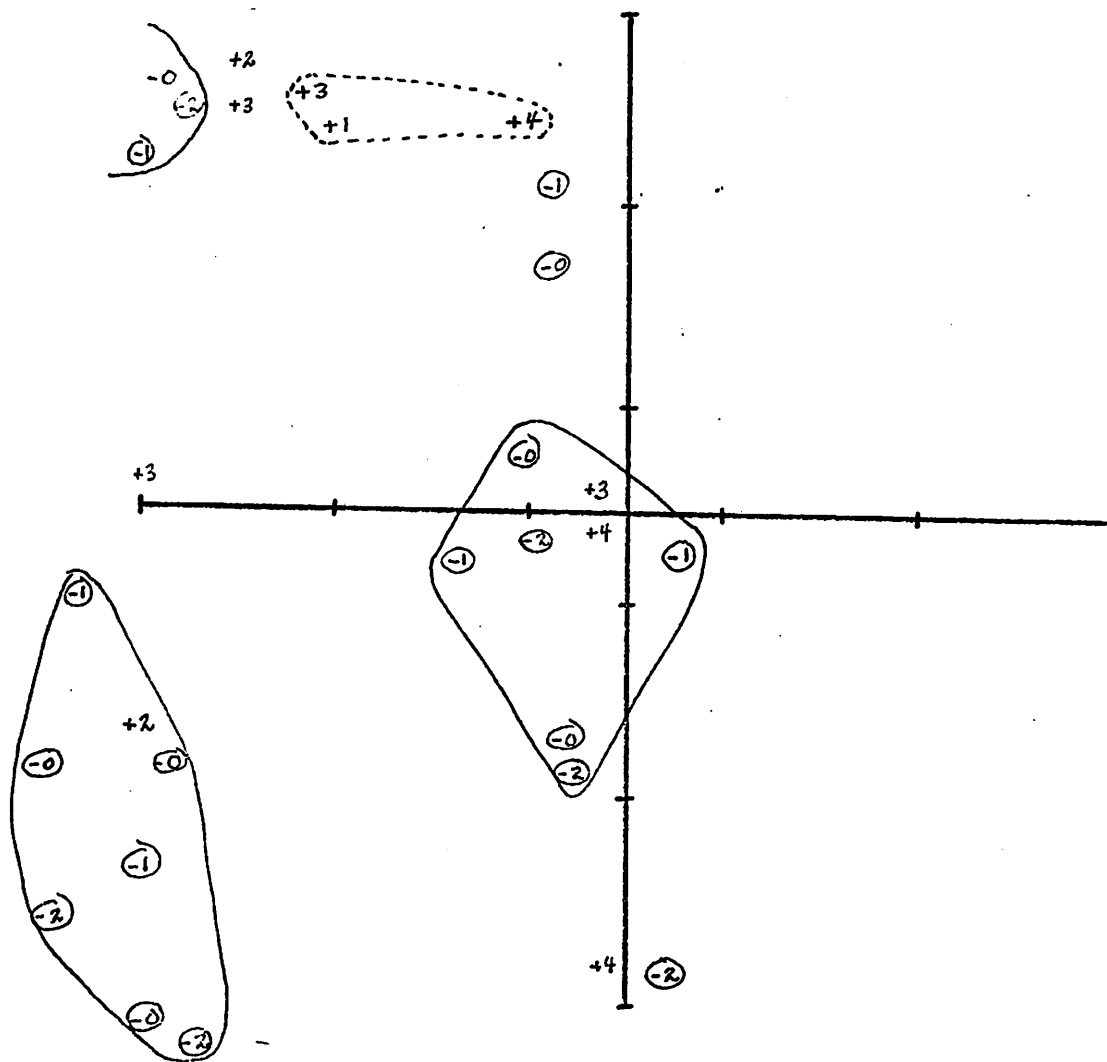


Fig. 17 Pre and post spray territories of the ruby-crowned kinglet, *R. calendula* (Linnaeus) on the untreated check plot (2nd application), Chipman, New Brunswick, 1976.

— Pre-spray territory  
 - - - Post-spray territory  
 ————— Scale = 2 chains (40 meters)



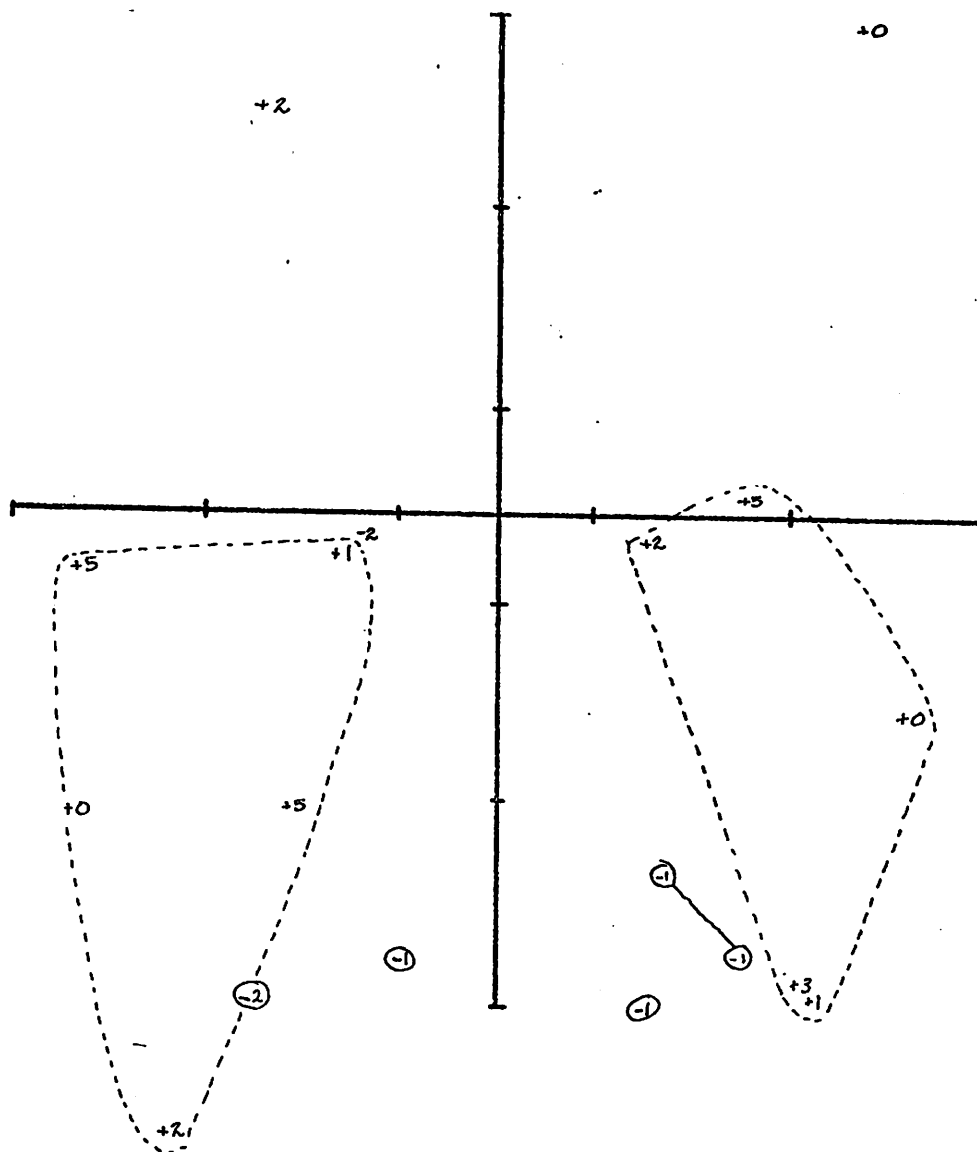


Fig. 19 Pre and post spray territories of the ruby-crowned kinglet, *R. calendula* (Linnaeus) on treatment plot 2 (2nd application) Chipman, New Brunswick, 1976

— Pre-spray territory  
 - - - Post-spray territory  
 ━━━━━━━━━ Scale = 2 chains (40 meters)





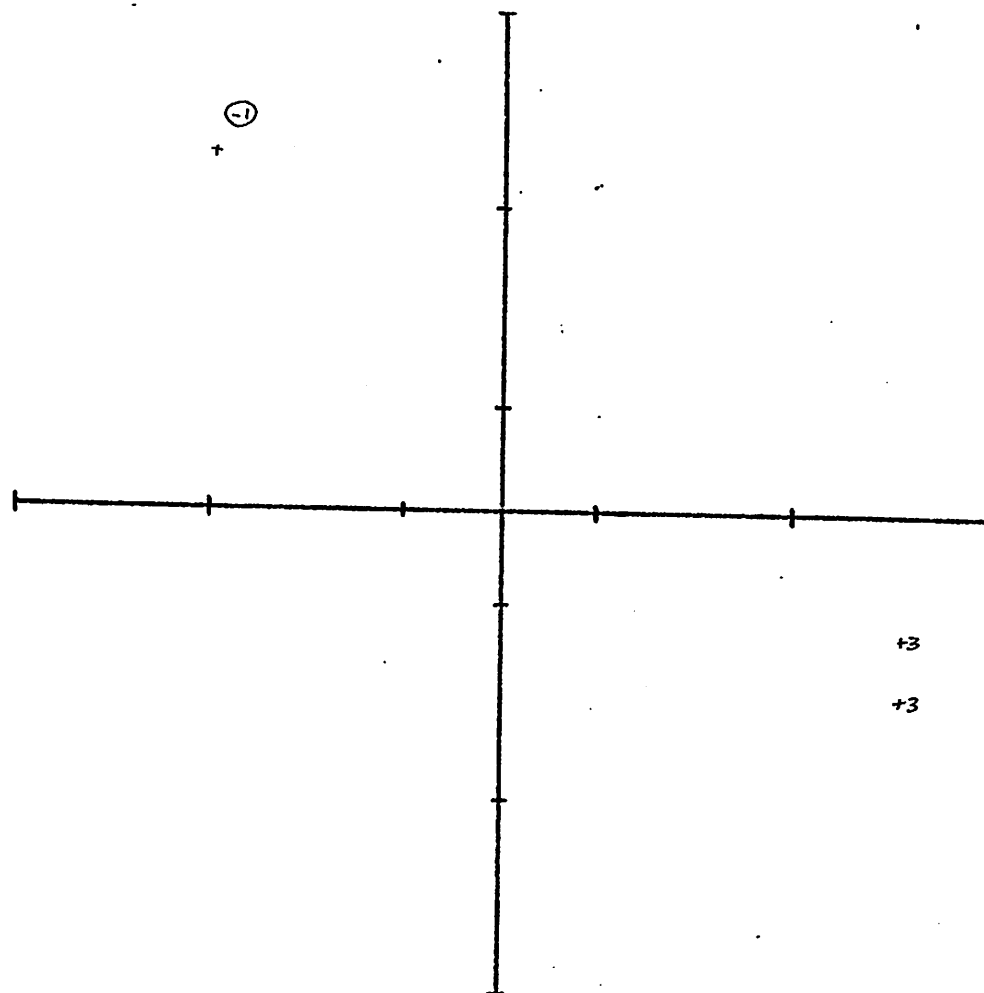


Fig. 21 Pre and post spray territories of the ruby-crowned kinglet,  
*R. calendula* (Linnaeus) on treatment plot 6 (2nd application)  
 Chipman, New Brunswick, 1976

————— Pre-spray territory  
 - - - - - Post-spray territory  
 ————— Scale = 2 chains (40 meters)

All plots were resurveyed between June 19th and 22nd to determine if ruby-crowned kinglets had returned to those plots which had suffered losses during the earlier trials (Tables XXIX to XXXVII). The data indicates that kinglet populations remained at the level approximately those recorded after the last treatment. Plot 3 showed a slight increase and plot 5 recorded a slight decrease. These population levels appear normal as populations on the treatment plots, with the exception of plots 3 and 5, parallel those recorded on the untreated check plot (Table XXXVIII).

Table XXXVIII

Ruby-crowned Kinglet (*R. calendula* Linnaeus)  
populations on Dimecron<sup>R</sup> experimental plots

Chipman, New Brunswick  
 1976

Plot No.	1st application		2nd application		Post trial
	pre-spray	post-spray	pre-spray	post-spray	Survey
Untreated					
Check Plot	6.2	6.0	3.5	3.8	3.0
1	4.0	4.0	2.0	3.0	2.0
2	5.8	2.6	2.5	1.8	1.0
3	7.0	0.4			3.5
4	7.2	1.8			0.5
5	8.2	0.6	3.0	3.2	2.5
6	4.0	0.8	0.5	0.6	0.5
7	4.2	2.8			2.0
8	4.8	1.8			1.5

Table XXIX  
Forest bird population census  
Dimecron Untreated Check Plot  
Chipman, New Brunswick  
June 19 and 21, 1976

Family	Species	June 19	June 21	Daily ave	Family	Species	June 19	June 21	Daily ave
Picidae	Common Flicker	5	1	3.0	Parulidae	Bay-breasted	1	0	0.5
	Yellow-bellied	1	0	0.5	cont'd	Warbler	5	2	3.5
	Sapsucker	0	1	0.5		Ovenbird	1	2	1.5
Tyrannidae	Alder Flycatcher	1	2	1.5		Wilson's Warbler	2	3	2.5
	Least Flycatcher	2	0	1.0		Canada Warbler	1	1	1.0
Corvidae	Blue Jay	0	1	0.5		American Redstart	6	3	4.5
	Common Raven	1	2	1.5	Icteridae	Brown-headed Cowbird	1	0	0.5
Turdidae	American Robin	2	1	1.5	Thraupidae	Scarlet Tanager	1	0	0.5
	Hermit Thrush	1	2	1.5	Fringillidae	Rose-breasted	1	2	1.5
	Swainson's Thrush	6	5	5.5		Grosbeak	1	0	0.5
	Veery	1	0	0.5		Pine Siskin	0	4	2.0
Sylviidae	Golden-crowned	3	3	3.0		Slate-coloured	0	1	0.5
	Kinglet	2	2	2.0		Junco	3	2	2.5
	Ruby-crowned	1	0	0.5		Chipping Sparrow	3	2	2.5
	Kinglet	0	1	0.5		White-throated	0	1	0.5
Vireonidae	Solitary Vireo	0	1	0.5		Sparrow	3	2	2.5
	Red-eyed Vireo	1	1	1.0		Song Sparrow	0	1	0.5
Parulidae	Tennessee Warbler	2	1	1.5		Swamp Sparrow	57	50	53.5
	Nashville Warbler	2	4	3.0	Totals:				
	Myrtle Warbler								
	Chestnut-sided								
	Warbler								

Table XXX  
Forest bird population census  
Dimecron treatment plot 1  
Chipman, New Brunswick  
June 20 and 22, 1976

Family	Species	June 20	June 22	Daily ave	Family	Species	June 20	June 22	Daily ave
Trochilidae	Ruby-throated Hummingbird	1	1	1.0	Parulidae	Cape May Warbler	0	1	0.5
Picidae	Yellow-shafted Flicker	0	2	1.0	cont'd	Black-throated Green Warbler	2	2	2.0
	Yellow-bellied Sapsucker	3	3	3.0		Blackburnian Warbler	0	3	1.5
Tyrannidae	Eastern Wood Pewee	0	1	0.5		Bay-breasted Warbler	4	2	3.0
	Olive-sided Flycatcher	1	1	1.0		Ovenbird	4	0	2.0
Paridae	Boreal Chickadee	1	0	0.5		Yellowthroat	1	1	1.0
Certhiidae	Brown Creeper	1	1	1.0		Canada Warbler	2	2	2.0
Troglodytidae	Winter Wren	1	1	1.0		American Redstart	2	2	2.0
Turdidae	American Robin	3	2	2.5	Fringillidae	Pine Siskin	4	2	3.0
	Hermit Thrush	3	0	1.5		Slate-coloured Junco	1	0	0.5
	Swainson's Thrush	1	2	1.5		White-throated Sparrow	3	7	5.0
Sylviidae	Ruby-crowned Kinglet	1	3	2.0					
Parulidae	Black and White Warbler	1	0	0.5	Totals:		46	44	45.0
	Tennessee Warbler	4	1	2.5					
	Parula Warbler	1	1	1.0					
	Magnolia Warbler	1	3	2.0					

Table XXXI  
Forest bird population census  
Dimecron treatment plot 2  
Chipman, New Brunswick  
June 20 and 22, 1976

Family	Species	June 20	June 22	Daily average
Trochilidae	Ruby-throated Hummingbird	1	1	1.0
Picidae	Yellow-bellied Sapsucker	3	1	2.0
Tyrannidae	Yellow-bellied Flycatcher	1	1	1.0
Turdidae	American Robin	1	1	1.0
	Hermit Thrush	2	1	1.5
	Swainson's Thrush	1	2	1.5
Sylviidae	Ruby-crowned Kinglet	0	2	1.0
Parulidae	Black and White Warbler	2	2	2.0
	Tennessee Warbler	1	1	1.0
	Nashville Warbler	1	1	1.0
	Parula Warbler	1	2	1.5
	Magnolia Warbler	3	2	2.5
	Myrtle Warbler	1	0	0.5
	Black-throated Green Warbler	3	1	2.0
	Blackburnian Warbler	2	2	2.0
	Bay-breasted Warbler	4	2	3.0
	Ovenbird	1	2	1.5
	Canada Warbler	2	1	1.5
	White-throated Sparrow	2	1	1.5
Totals:		32	26	29.0

Table XXXII  
Forest bird population census  
Dimecron treatment plot 3  
Chipman, New Brunswick  
June 20 and 22, 1976

Family	Species	June 20	June 22	Daily ave	Family	Species	June 20	June 22	Daily ave
Accipitridae	Marsh Hawk	0	1	0.5	Parulidae	Yellowthroat	2	1	1.5
Picidae	Yellow-bellied Sapsucker	0	1	0.5	cont'd	Canada Warbler	1	1	1.0
Tyrannidae	Yellow-bellied Flycatcher	1	0	0.5	Fringillidae	American Redstart	0	1	0.5
Corvidae	Gray Jay	0	3	1.5		Rose-breasted Grosbeak	1	0	0.5
Turdidae	Hermit Thrush	2	2	2.0		Purple Finch	2	0	1.0
	Swainson's Thrush	3	1	2.0		Pine Siskin	1	0	0.5
Sylviidae	Golden-crowned Kinglet	2	0	1.0		White-winged Crossbill	0	4	2.0
	Ruby-crowned Kinglet	4	3	3.5		Slate-coloured Junco	2	0	1.0
Vireonidae	Solitary Vireo	0	2	1.0		White-throated Sparrow	1	4	2.5
Parulidae	Tennessee Warbler	2	0	1.0		Lincoln's Sparrow	1	0	0.5
	Nashville Warbler	1	1	1.0					
	Magnolia Warbler	4	0	2.0	Totals:		36	34	35.0
	Cape May Warbler	1	3	2.0					
	Blackburnian Warbler	0	3	1.5					
	Bay-breasted Warbler	2	1	1.5					
	Ovenbird	3	2	2.5					

Table XXXIII ..  
Forest bird population census  
Dimecron treatment plot 4  
Chipman, New Brunswick  
June 20 and 22, 1976

Family	Species	June 20	June 22	Daily ave	Family	Species	June 20	June 22	Daily ave
Tyrannidae	Yellow-bellied Flycatcher	2	0	1.0	Parulidae	Ovenbird	2	3	2.5
	Eastern Wood Pewee	1	0	0.5	cont'd	Canada Warbler	1	1	1.0
Paridae	Black-capped Chickadee	1	0	0.5		American Redstart	2	3	2.5
Sittidae	Red-breasted Nuthatch	0	3	1.5	Fringillidae	Rose-breasted Grosbeak	2	0	1.0
Troglodytidae	Winter Wren	1	0	0.5		Evening Grosbeak	0	2	1.0
Turdidae	Hermit Thrush	0	1	0.5		Purple Finch	0	1	0.5
	Swainson's Thrush	2	1	1.5		Pine Grosbeak	1	0	0.5
Sylviidae	Ruby-crowned Kinglet	1	0	0.5		Pine Siskin	0	1	0.5
Vireonidae	Solitary Vireo	2	1	1.5		Slate-coloured Junco	0	1	0.5
Parulidae	Tennessee Warbler	5	4	4.5		White-throated Sparrow	5	3	4.0
	Nashville Warbler	2	0	1.0					
	Magnolia Warbler	3	1	2.0	Totals:		36	32	34.0
	Cape May Warbler	1	1	1.0					
	Myrtle Warbler	0	2	1.0					
	Blackburnian Warbler	2	2	2.0					
	Bay-breasted Warbler	0	1	0.5					

Table XXXIV  
Forest bird population census  
Dimecron treatment plot 5  
Chipman, New Brunswick  
June 19 and 21, 1976

Family	Species	June 19	June 21	Daily average
Tyrannidae	Yellow-bellied Flycatcher	1	1	1.0
Turdidae	American Robin	1	1	1.0
	Swainson's Thrush	0	1	0.5
Sylviidae	Golden-crowned Kinglet	1	1	1.0
	Ruby-crowned Kinglet	3	2	2.5
Parulidae	Tennessee Warbler	2	2	2.0
	Parula Warbler	1	0	0.5
	Magnolia Warbler	1	1	1.0
	Cape May Warbler	1	0	0.5
	Myrtle Warbler	1	0	0.5
	Bay-breasted Warbler	2	0	1.0
	Ovenbird	2	2	2.0
	Northern Waterthrush	2	0	1.0
	Canada Warbler	0	1	0.5
	Rose-breasted Grosbeak	2	0	1.0
Fringillidae	Purple Finch	0	1	0.5
	Slate-coloured Junco	1	1	1.0
	White-throated Sparrow	2	3	2.5
Totals:		23	17	20.0



Table XXXV  
 Forest bird population census  
 Dimecron treatment plot 6  
 Chipman, New Brunswick  
 June 19 and 21, 1976

Family	Species	June 19	June 21	Daily average
Picidae	Pileated Woodpecker	1	0	0.5
	Yellow-bellied Sapsucker	2	1	1.5
Troglodytidae	Winter Wren	3	1	2.0
Turdidae	Swainson's Thrush	3	1	2.0
Sylviidae	Ruby-crowned Kinglet	1	0	0.5
Parulidae	Magnolia Warbler	1	1	1.0
	Cape May Warbler	1	0	0.5
	Black-throated Blue Warbler	0	1	0.5
	Black-throated Green Warbler	2	2	2.0
	Blackburnian Warbler	1	1	1.0
	Bay-breasted Warbler	1	1	1.0
	Ovenbird	4	3	3.5
	Canada Warbler	1	1	1.0
	Rose-breasted Grosbeak	4	2	3.0
Fringillidae	Purple Finch	1	1	1.0
	White-throated Sparrow	2	2	2.0
Totals:		28	18	23.0

Table XXXVI  
Forest bird population census  
Dimecron treatment plot 7  
Chipman, New Brunswick  
June 19 and 21, 1976

Family	Species	June 19	June 21	Daily average
Picidae	Yellow-bellied Sapsucker	2	0	1.0
Tyrannidae	Least Flycatcher	2	1	1.5
Turdidae	Hermit Thrush	1	2	1.5
	Swainson's Thrush	5	4	4.5
Sylviidae	Ruby-crowned Kinglet	2	2	2.0
Vireonidae	Red-eyed Vireo	1	1	1.0
Parulidae	Parula Warbler	2	2	2.0
	Cape May Warbler	1	1	1.0
	Myrtle Warbler	0	1	0.5
	Black-throated Green Warbler	3	2	2.5
	Blackburnian Warbler	1	1	1.0
	Bay-breasted Warbler	0	1	0.5
	Ovenbird	2	1	1.5
	Canada Warbler	1	1	1.0
	American Redstart	3	2	2.5
	Rose-breasted Grosbeak	3	2	2.5
Fringillidae	Purple Finch	1	1	1.0
	White-winged Crossbill	2	2	2.0
	White-throated Sparrow	6	0	3.0
Totals:		38	27	32.5

Table XXXVII --  
 Forest bird population census  
 Dimecron treatment plot 8  
 Chipman, New Brunswick  
 June 19 and 21, 1976

Family	Species	June 19	June 21	Daily average
Picidae	Pileated Woodpecker	1	0	0.5
	Yellow-bellied Sapsucker	1	0	0.5
Turdidae	Swainson's Thrush	6	1	3.5
Sylviidae	Ruby-crowned Kinglet	2	1	1.5
Parulidae	Parula Warbler	2	1	1.5
	Magnolia Warbler	2	0	1.0
	Black-throated Green Warbler	2	1	1.5
	Bay-breasted Warbler	3	2	2.5
	Ovenbird	5	2	3.5
	Canada Warbler	1	1	1.0
	American Redstart	4	3	3.5
Fringillidae	Rose-breasted Grosbeak	1	1	1.0
	Purple Finch	0	1	0.5
	White-throated Sparrow	3	3	3.0
Totals:		33	17	25.0

Acadia Forest Experiment Station  
Dimecron<sup>R</sup> adulticide trials

Forest bird populations were monitored on 4 treatment and 1 untreated check plot throughout a series of experimental applications of Dimecron<sup>R</sup> designed to reduce populations of emerging spruce budworm adults. Three applications of Dimecron at the emitted dosage rate of 0.070 kg/ha (1 oz. AI/acre) were delivered on July 4, July 6 and July 9. Bird activity at this time of year had declined from a peak period about mid-June. Ruby-crowned kinglet activity on all the plots (Tables XXXVIII to XLII) remained relatively constant or showed signs of decline as is expected for that time of season (June 28 - July 13). Other species recorded in numbers such as Swainson's thrush *Hylocichla ustulata* (Nuttall), ovenbird *Seiurus aurocapillus* (Linnaeus) and white-throated sparrows *Z. albicollis* (Gmelin) were also not affected by this series of treatments.

Table XXXIX  
Forest bird population census  
Dimecron<sup>R</sup> adulticide untreated check plot  
Acadia Forest Experiment Station  
New Brunswick, 1976

Family	Species	Pre-spray days						Post-spray days									Daily ave
		June 28	June 29	June 30	July 3	July 4	Daily ave	July 5	July 6	July 7	July 8	July 9	July 10	July 11	July 12	July 13	
		-7	-6	-5	-2	-1											
Strigidae	Barred Owl	0	0	0	0	0	0.0	0	0	0	0	1	0	0	0	0	0.1
Trochilidae	Ruby-throated Hummingbird	1	1	1	0	1	0.8	1	2	1	2	2	1	0	0	0	1.0
Picidae	Common Flicker	1	0	1	1	0	0.6	0	2	2	0	0	0	0	1	0	0.4
	Yellow-bellied Sapsucker	5	3	5	2	2	3.4	4	3	4	2	3	6	5	5	1	3.6
	Hairy Woodpecker	0	0	0	0	0	0.0	0	0	0	0	1	4	0	1	0	0.6
	Black-backed Three toed Woodpecker	0	0	0	0	0	0.0	1	0	0	0	0	0	0	0	0	0.1
Tyrannidae	Yellow-bellied Flycatcher	10	8	2	3	4	5.4	4	2	4	4	2	2	4	4	4	3.3
Corvidae	Gray Jay	0	0	0	1	1	0.4	0	0	0	0	0	0	0	0	0	0.0
	Blue Jay	1	0	0	0	0	0.2	4	0	0	0	1	0	1	0	0	0.6
Paridae	Black-capped Chickadee	0	0	1	0	0	0.2	0	0	0	1	1	0	0	0	0	0.2
Sittidae	Red-breasted Nuthatch	1	1	0	0	1	0.6	0	0	0	0	1	1	1	1	0	0.4
Troglodytidae	Winter Wren	2	0	0	2	2	1.2	0	2	2	2	2	2	2	2	2	1.7
Turdidae	American Robin	1	0	2	0	1	0.8	1	1	0	2	1	2	4	1	1	1.4
	Hermit Thrush	0	4	2	2	2	2.0	0	4	1	0	2	0	2	1	2	1.3
	Swainson's Thrush	10	13	10	10	8	10.2	12	13	14	8	6	10	9	9	1	9.1
Sylviidae	Golden-crowned Kinglet	3	2	2	2	3	2.4	0	3	2	1	1	4	0	2	1	1.5
	Ruby-crowned Kinglet	2	0	0	2	2	1.2	1	0	0	2	0	0	0	0	2	0.5

Table XXXIX Cont'd

Family	Species	Pre-spray days						Post-spray days									
		June	June	June	July	July	Daily ave	July	July	July	July	July	July	July	July	July	Daily ave
		28	29	30	3	4		5	6	7	8	9	10	11	12	13	
		-7	-6	-5	-2	-1											
Vireonidae	Solitary Vireo	4	4	2	0	0	2.0	0	4	2	2	0	2	0	0	0	1.1
	Red-eyed Vireo	2	0	0	0	0	0.4	0	0	0	0	0	0	0	0	0	0.0
Parulidae	Black and white Warbler	4	2	2	2	2	2.4	3	2	3	2	1	0	2	2	0	1.6
	Tennessee Warbler	2	8	7	9	9	7.0	9	5	9	7	7	4	2	5	5	5.8
	Nashville Warbler	10	4	4	4	6	5.6	4	8	6	4	4	4	6	4	0	4.4
	Parula Warbler	0	2	2	0	0	0.8	0	0	0	2	0	2	2	2	0	0.8
	Magnolia Warbler	10	6	4	2	8	6.0	6	6	4	4	4	6	4	5	4	4.7
	Cape May Warbler	2	2	2	2	3	2.2	2	4	4	2	2	4	3	2	1	2.6
	Yellow-rumped Warbler	2	2	2	2	2	2.0	4	2	2	4	4	4	4	4	1	3.2
	Black-throated Green Warbler	4	2	6	6	0	3.6	4	2	3	2	0	3	2	2	2	2.2
	Blackburnian Warbler	2	0	2	0	0	0.8	0	0	0	0	0	2	0	2	2	0.6
	Bay-breasted Warbler	6	6	6	5	6	5.8	8	4	6	4	5	4	7	5	4	5.2
	Ovenbird	11	10	10	9	10	10.0	8	9	12	8	8	12	6	6	10	8.7
	Mourning Warbler	2	0	0	0	2	0.8	0	0	0	0	0	0	0	0	0	0.0
	Yellowthroat	3	2	4	2	6	3.4	4	3	2	4	4	9	3	4	0	3.6
	Wilson's Warbler	0	0	0	0	0	0.0	0	0	0	0	0	2	0	0	2	0.4
	Canada Warbler	2	2	2	4	3	2.6	4	6	2	3	6	5	2	5	2	3.8
	American Redstart	9	10	12	8	7	9.2	8	8	4	8	6	8	5	4	2	5.8

Table XXXIX Cont'd

Family	Species	Pre-spray days						Post-spray days									
		June	June	June	July	July	Daily ave	July	July	July	July	July	July	July	July	July	Daily ave
		28	29	30	3	4		5	6	7	8	9	10	11	12	13	
		-7	-6	-5	-2	-1											
Thraupidae	Scarlet Tanager	2	0	2	0	0	0.8	0	0	2	2	0	0	0	2	0	0.6
Fringillidae	Rose-breasted Grosbeak	0	2	2	2	0	1.2	2	2	2	2	2	0	0	0	0	1.1
	Evening Grosbeak	0	0	0	0	0	0.0	0	0	0	0	0	6	0	0	3	1.0
	Purple Finch	2	0	0	0	2	0.8	0	0	0	0	0	0	0	1	0	0.1
	Pine Siskin	0	0	0	0	0	0.0	0	0	0	0	0	1	0	0	0	0.1
	American Goldfinch	0	0	0	0	0	0.0	0	0	0	0	0	0	0	6	0	0.6
	White-winged Crossbill	8	3	0	7	6	4.8	0	0	12	8	4	6	10	1	0	4.5
	Dark-eyed Junco	7	4	4	7	6	5.6	0	6	2	1	3	6	2	3	0	2.5
	White-throated Sparrow	12	6	12	16	9	11.0	8	10	9	7	10	8	7	7	8	8.2
	Lincoln's Sparrow	0	2	2	2	2	1.6	2	2	2	2	4	4	4	4	2	2.8
Totals:		143	111	115	114	116	119.8	104	115	118	102	98	134	99	103	62	103.9

Table XL  
 Forest bird population census  
 Dimecron<sup>R</sup> adulticide treatment block I, plot I  
 Acadia Forest Experiment Station  
 New Brunswick, 1976

Family	Species	Pre-spray days						Post-spray days								
		June	June	June	July	July	Daily ave	July	July	July	July	July	July	July	July	Daily ave
		28	29	30	3	4		5	6	7	8	9	10	11	12	
		-7	-6	-5	-2	-1		+1	+2	0	+1	+2	+1	+2	+3	
Trochilidae	Ruby-throated Hummingbird	0	0	0	1	0	0.2	0	0	0	0	0	0	0	0	0.0
Picidae	Yellow-bellied Sapsucker	0	2	0	2	2	1.2	2	2	3	2	0	2	2	2	1.9
	Common Flicker	2	0	2	2	0	1.2	2	0	0	0	0	0	2	0	0.5
Tyrannidae	Least Flycatcher	6	4	4	0	0	2.8	6	6	0	6	6	10	8	4	5.8
Corvidae	Gray Jay	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
	Common Raven	0	0	0	0	0	0.0	0	0	0	0	0	0	2	0	0.3
	Common Crow	0	0	0	0	0	0.0	0	0	0	0	0	0	1	0	0.1
Paridae	Black-capped Chickadee	0	0	0	0	0	0.0	0	0	0	2	0	2	2	0	0.8
Sittidae	Red-breasted Nuthatch	0	0	0	0	0	0.0	0	0	2	0	0	0	0	0	0.3
Troglodytidae	Winter Wren	0	0	0	0	0	0.0	0	0	2	0	0	0	0	0	0.3
Turdidae	American Robin	2	2	0	4	2	2.0	2	3	0	1	2	3	3	2	2.0
	Hermit Thrush	6	0	4	2	0	2.4	4	4	0	0	0	2	2	0	1.5
	Swainson's Thrush	4	2	10	4	4	4.8	4	6	4	6	8	10	11	9	7.3
	Veery	6	4	4	4	4	4.4	6	4	4	8	6	8	4	4	5.5
Sylviidae	Ruby-crowned Kinglet	0	0	0	0	2	0.4	2	2	0	2	2	0	2	2	1.5
Vireonidae	Solitary Vireo	0	2	2	2	0	1.2	2	2	2	2	2	2	2	0	1.8
	Red-eyed Vireo	2	4	4	2	2	2.8	3	2	2	2	0	0	0	0	1.1



Table XL Cont'd

Family	Species	Pre-spray days					Post-spray days								
		June	June	June	July	July	Daily	July	July	July	July	July	July	July	July
		28	29	30	3	4		5	6	7	8	9	10	11	12
		-7	-6	-5	-2	-1	ave	+1	+2	0	+1	+2	+1	+2	+3
Parulidae	Blank and White Warbler	0	0	6	0	0	1.2	0	0	2	2	0	2	0	0
	Tennessee Warbler	0	0	1	2	2	1.0	4	2	0	0	0	0	1	0
	Nashville Warbler	2	0	0	0	0	0.4	0	0	0	0	0	0	0	0
	Parula Warbler	0	2	4	2	2	2.0	4	4	2	2	4	2	2	2
	Magnolia Warbler	0	0	0	2	0	0.4	2	4	3	4	4	6	2	2
	Cape May Warbler	0	0	0	0	2	0.4	2	0	0	0	0	0	0	0
	Myrtle Warbler	2	2	2	0	0	1.2	2	0	0	0	4	4	2	0
	Black-throated Green Warbler	4	2	2	4	2	2.8	2	4	2	2	2	2	2	2
	Blackburnian Warbler	0	0	2	0	0	0.4	0	0	0	0	0	0	0	0
	Bay-breasted Warbler	10	10	12	10	13	11.0	16	0	14	10	11	15	10	13
	Ovenbird	4	6	8	8	8	6.8	12	8	8	8	8	10	4	6
	Northern Waterthrush	4	2	2	4	2	2.8	0	0	2	2	0	4	2	0
	Yellowthroat	0	0	0	0	0	0.0	0	0	0	2	2	2	2	0
	Canada Warbler	2	0	0	2	2	1.2	0	2	0	0	2	4	2	2
	American Redstart	10	12	10	14	16	11.4	15	9	10	12	12	12	11	12
Fringillidae	Rose-breasted Grosbeak	0	2	0	0	0	0.4	2	0	0	0	0	0	0	2
	Evening Grosbeak	0	2	4	0	0	1.2	0	0	0	0	0	0	0	0

Table XL Cont'd

Family	Species	Pre-spray days						Post-spray days								
		June	June	June	July	July	Daily ave	July	July	July	July	July	July	July	July	Daily ave
		28	29	30	3	4		5	6	7	8	9	10	11	12	
		-7	-6	-5	-2	-1		+1	+2	0	+1	+2	+1	+2	+3	
Fringillidae	Purple Finch	6	2	0	2	2	2.4	3	0	6	4	2	2	2	4	2.9
	White-winged Crossbill	0	0	0	0	0	0.0	0	0	0	0	0	2	2	0	0.5
	Slate-coloured Junco	2	2	4	3	2	2.6	2	2	0	2	7	9	10	9	5.1
	White-throated Sparrow	2	2	2	2	4	2.4	4	4	4	0	4	2	2	2	2.8
Totals:		76	66	89	78	73	76.4	103	70	72	81	88	117	97	79	88.4

### Table XLI

[illegible]

Table XLI Cont'd

Family	Species	Pre-spray days						Post-spray days								
		June	June	June	July	July	Daily	July	July	July	July	July	July	July	July	Daily
		28	29	30	3	4		5	6	7	8	9	10	11	12	
		-7	-6	-5	-2	-1	ave	+1	+2	0	+1	+2	+1	+2	+3	ave
Parulidae	Black and White Warbler	2	0	2	0	0	0.8	0	0	0	0	2	0	0	0	0.3
	Tennessee Warbler	5	1	2	4	6	3.6	10	4	4	0	1	0	0	0	2.4
	Nashville Warbler	0	0	0	2	2	0.8	6	10	8	2	7	6	10	2	6.4
	Magnolia Warbler	6	2	4	6	8	5.2	10	4	8	6	4	6	4	6	6.0
	Cape May Warbler	0	0	4	2	0	1.2	2	0	0	0	0	0	2	0	0.5
	Myrtle Warbler	2	0	2	4	2	2.0	0	0	0	0	3	2	0	0	0.6
	Blackburnian Warbler	2	2	0	4	2	2.0	0	0	2	0	0	0	2	0	0.5
	Bay-breasted Warbler	2	6	0	4	10	4.8	2	0	0	2	0	10	4	2	2.5
	Ovenbird	4	2	8	6	10	6.0	8	10	6	6	16	20	8	14	11.0
	American Redstart	4	8	6	0	12	6.0	0	4	2	2	0	0	0	0	1.0
Fringillidae	Yellowthroat	10	8	6	18	16	11.6	10	10	4	10	8	14	8	10	9.3
	Rose-breasted Grosbeak	0	0	0	0	2	0.4	0	2	0	0	0	0	0	0	0.3
	Evening Grosbeak	0	0	0	0	2	0.4	0	0	1	0	0	0	0	0	0.1
	Purple Finch	2	0	2	2	0	1.2	2	0	2	4	2	3	0	2	1.9
	White-winged Crossbill	9	0	0	3	11	4.6	15	6	6	4	8	11	6	8	8.0
	Slate-coloured Junco	0	8	2	8	2	4.0	0	2	2	0	0	0	2	0	0.8
	White-throated Sparrow	8	8	12	13	14	11.0	14	8	10	8	8	6	9	20	10.4
Totals:		74	60	60	102	125	84.2	110	92	82	68	85	127	86	97	93.4

Table XLII  
Forest bird population census  
Dimecron<sup>R</sup> adulticide treatment block 2, plot 3  
Acadia Forest Experiment Station  
New Brunswick, June 28 - July 12, 1976

Family	Species	Pre-spray days						Post-spray days								
		June 28	June 29	June 30	July 3	July 4	Daily ave	July 5	July 6	July 7	July 8	July 9	July 10	July 11	July 12	Daily ave
		-7	-6	-5	-2	-1		+1	+2	0	+1	+2	+1	+2	+3	
Trochilidae	Ruby-throated Hummingbird	0	0	0	0	0	0.0	0	0	0	0	0	1	0	0	0.1
Picidae	Common Flicker	0	0	0	0	0	0.0	2	0	0	0	0	0	0	0	0.3
	Yellow-bellied Sapsucker	0	0	0	0	2	0.4	0	0	0	0	1	2	0	0	0.4
	Hairy Woodpecker	0	0	0	0	0	0.0	0	0	0	0	0	2	0	0	0.3
Tyrannidae	Least Flycatcher	6	8	6	2	6	5.6	4	3	7	1	5	5	4	1	3.8
	Eastern Wood Pewee	2	5	2	2	4	3.6	8	6	4	1	2	3	2	2	3.5
	Olive-sided Flycatcher	0	0	0	0	0	0.0	0	2	0	0	0	0	0	2	0.5
Paridae	Boreal Chickadee	0	0	0	0	0	0.0	2	2	0	0	0	0	0	0	0.5
Sittidae	Red-breasted Nuthatch	0	0	0	0	0	0.0	0	0	2	0	0	0	2	0	0.5
Troglodytidae	Winter Wren	0	0	0	2	0	0.4	0	0	0	2	2	0	2	0	0.8
Turdidae	Wood Thrush	0	1	0	0	2	0.6	1	1	1	2	4	2	3	2	2.0
	Hermit Thrush	1	0	0	0	0	0.2	1	0	1	0	1	3	1	2	1.1
	Swainson's Thrush	3	5	4	6	2	4.0	4	4	4	7	4	10	10	2	5.6
Sylviidae	Golden-crowned Kinglet	2	4	2	0	2	2.0	2	0	2	0	0	0	0	0	0.5
	Ruby-crowned Kinglet	4	2	3	0	0	1.8	0	2	1	0	2	0	0	0	0.6
Bombycillidae	Cedar Waxwing	0	0	0	0	0	0.0	0	0	1	0	0	0	0	1	0.3

Table XLII. Cont'd

Family	Species	Pre-spray days						Post-spray days								
		June	June	June	July	July	Daily ave	July	July	July	July	July	July	July	July	Daily ave
		28	29	30	3	4		5	6	7	8	9	10	11	12	
		-7	-6	-5	-2	-1		+1	+2	0	+1	+2	+1	+2	+3	
Vireonidae	Solitary Vireo	0	0	0	0	0	0.0	0	0	0	0	0	0	2	0	0.3
	Red-eyed Vireo	4	4	2	0	2	2.4	2	4	6	1	2	2	4	1	2.8
Parulidae	Black and White Warbler	2	0	0	0	0	0.4	0	3	0	2	0	0	0	2	0.9
	Tennessee Warbler	0	0	2	0	1	0.6	1	1	1	2	4	4	2	5	2.5
	Nashville Warbler	4	2	2	0	6	2.8	2	4	4	3	2	5	2	1	2.9
	Parula Warbler	0	0	0	0	0	0.0	0	0	0	0	0	0	0	1	0.1
	Magnolia Warbler	6	2	2	2	4	3.2	2	1	6	2	4	2	4	5	3.3
	Cape May Warbler	0	0	0	0	1	0.2	2	3	0	2	2	2	2	2	1.9
	Yellow Rumped Warbler	0	0	2	2	2	1.2	4	2	1	1	2	2	4	1	2.1
	Chestnut-sided Warbler	0	0	0	0	0	0.0	0	2	0	0	0	4	0	0	0.8
	Bay-breasted Warbler	2	2	0	0	2	1.2	1	1	4	4	6	2	1	1	2.8
	Ovenbird	14	10	14	2	10	10.0	18	13	14	12	10	8	12	6	11.6
	Yellowthroat	0	2	2	2	6	2.4	10	3	5	2	6	7	4	2	4.9
	Wilson's Warbler	0	0	0	0	0	0.0	0	0	0	2	0	0	0	0	0.3
	Canada Warbler	2	1	0	0	6	1.8	8	10	4	4	6	4	1	2	4.9
	American Redstart	9	18	16	8	16		20	17	18	11	12	19	20	7	15.5

Table XLII Cont'd

Family	Species	Pre-spray days						Post-spray days								
		June	June	June	July	July	Daily ave	July	July	July	July	July	July	July	July	Daily ave
		28	29	30	3	4		5	6	7	8	9	10	11	12	
		-7	-6	-5	-2	-1		+1	+2	0	+1	+2	+1	+2	+3	
Fringillidae	Rose-breasted Grosbeak	0	0	0	0	0	0.0	2	0	3	0	0	0	0	0	0.6
	Evening Grosbeak	8	0	0	0	0	1.6	0	0	0	0	0	0	0	0	0.0
	Purple Finch	8	8	7	0	8		9	2	4	2	4	9	6	6	5.3
	Junco	6	7	6	5	5	5.8	4	7	12	6	11	6	11	3	7.5
	American Goldfinch	0	0	0	0	0	0.0	2	0	0	0	0	0	0	0	0.3
	White-winged Crossbill	1	0	1	0	2	0.8	8	0	1	1	1	0	3	0	1.8
	White-throated Sparrow	18	17	13	2	14		10	14	15	7	14	12	8	3	10.4
	Chipping Sparrow	0	0	0	0	0	0.0	2	0	0	0	0	0	0	0	0.3
Totals:		102	100	86	35	103	85.2	131	107	122	77	107	116	110	60	103.8

Table XLIII  
Forest bird population census  
Dimecron<sup>R</sup> adulticide treatment block 2, plot 4  
Acadia Forest Experiment Station  
New Brunswick, June 28 - July 12, 1976

Family	Species	Pre-spray days						Post-spray days									
		June 28	June 29	June 30	July 3	July 4	Daily ave	July 5	July 6	July 7	July 8	July 9	July 10	July 11	July 12	July 13	Daily ave
Trochilidae	Ruby-throated Hummingbird	0	0	0	0	0	0.0	0	0	0	0	0	1	0	0	0	0.1
Tyrannidae	Yellow-bellied Flycatcher	4	8	2	3	2	3.8	2	0	2	6	4	4	3	2	5	3.1
	Eastern Wood Pewee	2	2	2	4	2	2.4	0	0	2	2	2	0	2	2	2	1.3
Corvidae	Gray Jay	2	0	0	0	1	0.6	1	1	0	1	0	1	0	0	1	0.5
	Blue Jay	0	0	0	0	1	0.2	0	0	0	0	0	0	0	0	0	0.0
Sittidae	Red-breasted Nuthatch	0	0	0	0	0	0.0	0	0	0	0	1	1	0	0	0	0.2
Troglodytidae	Winter Wren	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	1	0.1
Turdidae	American Robin	0	2	0	0	0	0.4	0	0	0	1	1	1	1	0	0	0.4
	Hermit Thrush	6	4	6	2	1	3.8	0	2	4	4	1	2	1	2	2	2.0
	Swainson's Thrush	6	4	10	6	4	6.0	6	10	14	12	14	12	10	6	5	9.8
Sylviidae	Golden-crowned Kinglet	4	2	2	3	1	2.4	3	1	3	2	2	2	3	1	3	2.2
	Ruby-crowned Kinglet	6	6	4	8	6	6.0	6	6	4	6	6	6	4	4	4	5.1
Bombycillidae	Cedar Waxwing	0	0	0	0	0	0.0	0	0	0	0	0	3	0	0	0	0.3
Vireonidae	Solitary Vireo	0	2	0	2	2	1.2	0	2	4	2	0	0	0	0	0	0.8
	Red-eyed Vireo	0	0	0	0	0	0.0	2	0	0	2	2	0	0	0	0	0.6
Parulidae	Tennessee Warbler	8	7	2	3	8	5.6	7	2	6	2	5	4	1	4	1	3.5
	Nashville Warbler	6	6	4	4	2	4.4	4	4	6	6	2	5	4	6	1	4.2
	Parula Warbler	0	0	0	0	0	0.0	0	2	0	0	0	0	0	0	0	0.2



Table XLIII Cont'd

Family	Species	Pre-spray days						Post-spray days									
		June 28	June 29	June 30	July 3	July 4	Daily ave	July 5	July 6	July 7	July 8	July 9	July 10	July 11	July 12	July 13	Daily ave
Parulidae	Magnolia Warbler	5	10	6	6	10	7.4	6	8	6	9	7	10	7	8	8	7.6
	Cape-May Warbler	4	0	2	0	0	1.2	4	2	2	2	2	2	1	0	1	1.7
	Black-throated Blue Warbler	0	0	2	0	0	0.4	0	0	0	0	0	0	0	0	0	0.0
	Yellow-rumped Warbler	1	0	2	0	2	1.0	2	2	2	4	0	2	4	0	0	1.7
	Black-throated Green Warbler	4	6	8	2	4	4.8	2	4	4	5	6	6	6	4	2	4.3
	Blackburnian Warbler	4	4	4	2	2	3.2	0	2	2	0	4	4	2	2	2	2.0
	Bay-breasted Warbler	6	4	4	0	0	2.8	2	2	3	3	4	0	2	1	2	2.1
	Palm Warbler	2	2	4	2	2	2.4	2	4	4	4	4	3	2	2	0	2.7
	Ovenbird	6	10	6	14	8	8.8	8	12	14	13	12	11	5	4	6	9.4
	Yellowthroat	0	6	5	3	6	4.0	6	6	6	6	4	5	4	3	7	5.2
	Canada Warbler	0	2	2	0	0	0.8	4	1	0	1	0	0	1	2	2	1.2
	American Redstart	4	4	2	2	0	2.4	2	2	0	0	4	2	0	0	2	1.3
Icteridae	Red-winged Blackbird	0	0	0	0	0	0.0	0	0	0	0	0	1	1	0	0	0.2
	Rusty Blackbird	0	0	0	0	0	0.0	0	0	0	0	0	1	0	0	0	0.1
Thraupidae	Scarlet Tanager	0	0	0	0	0	0.0	0	0	0	2	2	0	0	0	0	0.4
Fringillidae	Purple Finch	6	4	0	2	2	2.8	2	2	2	2	3	4	2	2	3	2.4
	White-winged Crossbill	6	0	10	14	4	6.8	0	6	5	10	5	8	0	5	1	4.4
	Dark-eyed Junco	2	4	4	4	3	3.4	5	6	1	4	4	4	2	2	3	3.4

Table XLIII Cont'd

Family	Species	Pre-spray days						Post-spray days									
		June 28	June 29	June 30	July 3	July 4	Daily ave	July 5	July 6	July 7	July 8	July 9	July 10	July 11	July 12	July 13	Daily ave
	White-throated Sparrow	6	14	12	11	8	10.2	8	8	8	12	12	10	5	6	6	8.3
	Lincoln's Sparrow	0	0	0	0	0	0.0	0	0	0	0	2	2	2	0	0	0.6
Total:		100	113	105	97	91	101.2	84	97	105	123	115	117	75	68	70	94.8

### Small Mammals

A total of 186 small mammals were trapped on the 3 plots, 66 on the untreated check plot, 73 from plot 1 (double application of Dimecron) and 47 from plot 2 (single application of Dimecron followed by a double application of fenitrothion). The red-back vole, *Clethrionomys gapperi* (Vigors) was the most abundant species in the sample with a total of 152 animals followed by the meadow vole, *Microtus pennsylvanicus* (Ord) with 23, the woodland jumping mouse, *Napaeozapus insignis* (Miller) with 7, *Peromyscus maniculatus* (Wagner) with 3 and the masked shrew, *Sorex cinereus* (Ker) with 1.

A large proportion of the animals trapped were sub-adults, 44% on the untreated check plot, 51% on plot 2 and 21% on plot 3. The sub-adult population would have been nestlings at the time of the Dimecron<sup>R</sup> trials. Dissection of the adult female animals showed a high incidence of pregnancy or animals containing placental scars indicating the recent birth of a litter, 75% on the untreated check plot, 100% on the Dimecron<sup>R</sup> treated plot and 100% on the Dimecron<sup>R</sup>-fenitrothion plot (Table XLIV).

Small mammal population assessment on 3 plots in the Dimecron<sup>R</sup>  
experimental area, Chipman, New Brunswick 1976

[illegible]

### Summary and Conclusions

Dimecron<sup>R</sup> insecticide was applied to forest experimental plots in Quebec and New Brunswick at emitted dosage rates ranging from 0.070 kg/ha to 0.280 kg/ha. Ruby-crowned kinglets proved to be the most sensitive species recorded with a suppression in activity but no mortality recorded in the 0.140 kg/ha range whereas mortality was recorded in the 0.210 and 0.280 kg/ha range. Other species such as dark-eyed juncos, purple finches, white-throated sparrows and some warblers were also affected at the higher dosage levels. Treatments applied at the 0.140 kg/ha very early in the year did not otherwise affect birds in these trials (Table III) and application of 0.070 kg/ha used in the adulticide trials also did not affect the birds. Dimecron or the combination of Dimecron and fenitrothion did not affect the small mammal complex.

### REFERENCES

- Buckner, C.H. and W.J. Turnock, 1965. Avian Predation on the Larch Sawfly *Pristiphora erichsoni* HTG. (Hymenoptera tenthredinidae) Ecology Vol. 46, No 3 3pp. 223-236.
- Kendeigh, S.C., 1944. Measurement of Bird Populations. Ecol. Monogr. 14: 67-106.

### Recommendations

The results of experimental applications of Dimecron<sup>R</sup> at the dosage rate of 0.140 kg/ha (2 oz./acre) indicate a possible activity decline (singing and foraging) of ruby-crowned kinglets which does not result in actual mortality (Table IX, Fig. 7). The same may be true of other birds at various dosage rates. In the light of the results obtained during the 1976 trials, we recommend that a series of trials be undertaken to determine this "threshold" dosage rate for such pesticide sensitive species as the kinglets and warblers.