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# Pine Siskin Irruption In The Piedmont Region Of Virginia

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A study of the local bird population was started in April of 1986 using the technique of bird banding. The purposes of the study were (1) to determine the local occurrence of birds, particularly those species in residential habitats (i.e., ground and low brush); (2) to determine the seasonal occurrence of these species; and (3) to follow up on Freer's (1973) suggestion that Am. Robins (*Turdus migratorius*) considered permanent residents here, move into and away from the local area during the changing seasons. After the summer of 1988, examination of the banding data suggested an irruptive occurrence of Pine Siskins (*Carduelis pinus*) had taken place.

## STUDY SITE AND METHOD

The banding station is 1-1/4 mile from the intersection of State Route 460 and County Route 622 (Waterlick Road) in a residential section of Campbell County. Campbell County is on the western edge of the Piedmont region in central Virginia. The mist nets are placed in the back of our 75' x 125' lot. Bird feeders with sunflower, mixed wild bird, and niger seeds are placed in the back section of the lot during the fall, winter and spring. In an effort to detect as much of the annual bird population as possible, the banding station is opened and closed in a random fashion throughout a twelve-month period. Strong windy conditions, extreme heat or cold, rain or snow, in addition to both family and work responsibilities prevent the nets from being opened on a more regular basis. For this study, we defined a banding time period as a station day, which is any day or portions of a day the station is open regardless of the number of nets used. One or two nets usually were used, occasionally as many as four. Each nylon net has four shelves of 1-1/4" mesh and is 12 feet long. After banding a bird, the (unflattened) wing chord was measured to the nearest millimeter using a rule with an end stop. The bird was aged and sexed before release.

## RESULTS

Table 1 summarizes the status, early and late dates, and peak counts for Pine Siskins within Virginia. Table 2 lists the number of station days per month the station was open. Table 3 lists the number of Pine Siskins banded monthly over the time period. Table 4 lists in descending order by number banded the species captured.

## BACKGROUND

The status, early dates, late dates, and peak counts for Pine

Siskins in the Piedmont and mountains and valleys physiographic regions of Virginia (Kane, 1987) are given in Table 1. Kinzie (1985) and Hansrote (1987), local annotated lists, agree with the status as given in the VSO guide. Freer (1973) listed the status of the Pine Siskin as irregular winter visitor, usually uncommon but sometimes in large flocks. Early dates for sighting Pine Siskins generally agreed with the 15 October date found in the VSO guide. In recent years, there have been no October sightings reported in Lynchburg and vicinity. Late dates range into June, well past the VSO accepted 15 May date. Peak count numbers vary widely.

John Dalmás (pers. comm.) has compiled the 47 Lynchburg Christmas Bird Counts on computer. Pine Siskins appeared on 27 (53%) of the CBCs. The highest number recorded (207) was in 1987. Dalmás found for the last fifteen years there were an average of 23 but only a medium of three Pine Siskins per Lynchburg CBC.

For the 1987-1988 invasion, the earliest reported sighting of a Pine Siskin in Lynchburg and vicinity was 1 November 1987 (Thiesinger, pers. comm.) and the latest date they were seen was 23 May 1988 (Moore, pers. comm.). The peak count of 2,450 was recorded on 14 February 1988.

Evidence that the Pine Siskin invasions of 1987-88 was widely spread over Atlantic Coast States is found in regional write-ups in American Birds. George Hall (1988) described the invasion in the Appalachian region as follows:

"The winter of 1987-1988 can best be described by calling it a Pine Siskin season. Starting in mid-December and continuing past the end of the period, siskins staged an invasion of unprecedented size. Flocks of 50-100 were going to feeders throughout the region, flocks of 200-300 were common, and some CBC counts topped 1000. A bander near Huntington, W. Va. banded over 500 birds in just over 100 net hours (LW), and dealers in niger seed made a killing. The total number of Pine Siskins in this region alone was extraordinarily high. If nearby regions experienced anything similar, the total numbers are mind-boggling."

Examination of American Birds regional reports from 1982 reveal seasons with high regional activity of Pine Siskins. Two major periods--December 1986 to May 1987 and December 1987 to May 1988--indicate large numbers of Pine Siskins in the Hudson/Delaware region (NY, Pa, Del, NJ), the mid-Atlantic region (Md, Va, DC, Del), and the South-

ern Atlantic region (NC, SC, Ga). Pine Siskins were also found in large numbers in the Appalachian region (W.Va, W.Md, W.Pa) throughout March to May 1987 and December 1987 to May 1988. Yet, from May 1982 through February 1986, the numbers of Pine Siskins in these four mid-Atlantic regions were either not mentioned or reported as scarce, absent, few, low, etc. December 1981 to May 1982 was a major Pine Siskin season in the Hudson/Delaware region (NY, Pa, Del, NJ), but not in the other surrounding regions. No pattern developed from this limited examination. Perhaps Potter et al. (1980), who suggested Pine Siskins are extremely abundant one winter and almost impossible to find the next, comes closest to capturing the status for the species in the states surrounding Virginia.

## DISCUSSION

Howard et al. (1989) noted that Pine Siskins are nomadic, wide-ranging birds during the non-breeding season. Both Bent (1968) and Ehrlich et al. (1988) offer discussions concerning the irruptive nature of Pine Siskins. One of the most widely accepted explanations for this tendency of Pine Siskins to wander is lack of food supply. No information concerning the food supply for Pine Siskins during the period of time covered in this study has been located by the authors. By December 1987 members of the Lynchburg Bird Club (LBC) had reported the early appearance and larger-than-normal numbers of Pine Siskins at their home bird feeders. In addition, the 1987 Lynchburg Christmas Bird Count (CBC) reported 205 Pine Siskins. This was a major increase over the 1986 CBC when only one Pine Siskin was detected (Dalmas, pers. comm.).

In January 1988, Myriam Moore (pers. comm.) suggested LBC members undertake a "Super Siskin Sunday" (SSS) count of Pine Siskins. The method was simply to observe your backyard bird feeder on the selected day and report the largest number of Pine Siskins seen at one time. Hansrote and Hansrote (1988) reported 60 participants saw 2,450 Pine Siskins on 14 February 1988 (SSS).

Examination of banding data in Table 3 show Pine Siskins appeared in increasing numbers starting in December 1987 and continuing into May 1988. Twelve hundred and eighty (1280) Pine Siskins were banded from December 1987 through May 1988.

Using data from Tables 2 and 3, the following expression can be solved.

$$\frac{\text{No. of Pine Siskins banded per month}}{\text{number station days per month}} = \text{a Numerical Index}$$

The resulting monthly indices

	<u>Dec</u>	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>
index =	0.9	34.7	59.1	38.5	22.1	9.3

suggest the invasion peaked in late February or early March. On two occasions, all size zero bands were used and we had to wait for resupply. The U.S. Fish and Wildlife Service was very helpful in getting additional bands to us. Because of these times when we could not band, our data under-estimates the magnitude of the invasion.

Table 4 reveals Pine Siskins made up 52% (1,347) of all the birds banded (2,585) from April 1986 to December 1988. Ninety-five percent (1,280) of the 1,347 banded Pine Siskins were netted between December 1987 and May 1988. Our bird banding data plus the information from Super Siskin Sunday document the irruption (invasions) by Pine Siskins that occurred in Lynchburg and vicinity throughout the winter of 1987 and spring of 1988.

## CONCLUSIONS AND SUMMARY

1. Banding provided a method of detecting an irruption (invasion) in the local bird population.
2. Pine Siskins staged an irruption in Lynchburg and vicinity during the period from December 1987 to May 1988.

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**Table 1. References from State and Local Annotated Lists.**

**PART A: STATUS OF PINE SISKIN IN VIRGINIA** (Kane<sup>1</sup>)  
 Piedmont: Irregularly common to rare transient and winter resident (15 Oct-15 May)  
 Mtns. & Valleys: Irregularly common to rare transient and winter resident (15 Oct-15 May). Rare summer visitor at high elevations.

**PART B:**  
**PINE SISKIN EARLY AND LATE DATES, PEAK COUNTS**

Kane<sup>1</sup>                      Freer<sup>2</sup>                      Hansrote<sup>2</sup>                      Kinzie<sup>3</sup>

EARLY DATE

Piedmont:  
 15 Oct                      16 Oct                      26 Nov 1984                      -----

Mtns & Valleys:  
 23 Oct. 1965                      -----                      -----                      15 Oct 1977

LATE DATE

Piedmont:  
 15 Jun 1978                      14 May                      30 May 1986                      -----

Mtns & Valleys:  
 8 Apr 1966                      -----                      -----                      12 May 1977

PEAK COUNTS

Piedmont:  
 (596)19 Dec 1981                      -----                      (48)17 Dec 1977                      -----

Mtns. & Valleys:  
 (700+)28 Feb 1982                      -----                      -----                      (150) 22 Oct 1977

<sup>1</sup> State of Virginia (Kane, 1987).

<sup>2</sup> In the Piedmont region of Virginia-Lynchburg & Vicinity (Freer, 1973); (Hansrote, 1987).

<sup>3</sup> In the Mountains and Valley region of Virginia-Roanoke (Kinzie, 1985)

**Table 2. Station Days/Month from April 1986 to May 1989.**

Month	1986	1987	1988	1989	Total
January	*	15	4	5	24
February	*	9	9	8	26
March	*	7	4	14	25
April	12	11	18	7	48
May	3	5	10		18
June	6	9	1		16
July	9	7	5		21
August	2	11	7		20
September	7	10	14		31
October	23	10	13		46
November	17	8	9		34
December	7	8	6		21

Days Banding	86	110	100	34	339
% Station Days	26%	33%	30%	10%	

NOTE: A station day is defined as any day or part of a day the banding station is open. It does not depend upon the number of nets opened.

**Table 3. Pine Siskins Banded/Month from April 1986 to May 1989.**

YR.	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1986	*	*	*	14	2	-	-	-	-	-	-	-
1987	1	-	30	13	-	-	-	-	-	-	-	7
1988	139	496	154	398	93	-	-	-	-	-	-	-
1989	-	-	-	-	#							

NOTES:

1. \* represents no banding that month.
2. - represents no pine siskins banded that banding month.
3. # represents no pine siskins banded to 16 May 1989.

**Table 4. Percentage of Bird Species Banded April 1986 to 30 December 1988, Campbell County, Virginia.**

<u>BIRD SPECIES</u>	<u>TOTAL BANDED</u>	<u>% TOTAL</u>
Pine Siskin ( <i>Carduelis pinus</i> )	1347	52.32
House Finch ( <i>Carpodacus mexicanus</i> )	406	15.77
American Goldfinch ( <i>Carduelis tristis</i> )	176	6.84
Northern Cardinal ( <i>Cardinalis cardinalis</i> )	103	4.00
White-throated Sparrow ( <i>Zonotrichia albicollis</i> )	82	3.19
Song Sparrow ( <i>Melospiza melodia</i> )	80	3.11
American Robin ( <i>Turdus migratorius</i> )	69	2.68
Blue Jay ( <i>Cyanocitta cristata</i> )	38	1.48
Tufted Titmouse ( <i>Parus bicolor</i> )	33	1.28
Gray Catbird ( <i>Dumetella carolinensis</i> )	33	1.28
Carolina Chickadee ( <i>Parus carolinensis</i> )	28	1.09
Dark-eyed Junco ( <i>Junco hyemalis</i> )	28	1.09
Common Grackle ( <i>Quiscalus quiscula</i> )	20	0.78
Purple Finch ( <i>Carpodacus purpureus</i> )	20	0.78
Field Sparrow ( <i>Spizella pusilla</i> )	19	0.74
House Wren ( <i>Troglodytes aedon</i> )	16	0.62
Carolina Wren ( <i>Thryothorus ludovicianus</i> )	15	0.58
Downy Woodpecker ( <i>Picoides pubescens</i> )	12	0.47
Northern Mockingbird ( <i>Mimus polyglottos</i> )	9	0.35
20 additional species	50	1.94
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Total Banded Individuals	2584	
Total Species Banded	39	