

1996

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Recommended Citation

Yunick, Robert P. (1996) "The Occurrence of Green-morph Pine Siskins in the Siskin Irruption of 1989-1990," *North American Bird Bander*. Vol. 21 : Iss. 3 , Article 1.
Available at: <https://digitalcommons.usf.edu/nabb/vol21/iss3/1>

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The Occurrence of Green-morph Pine Siskins in the Siskin Irruption of 1989-1990

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INTRODUCTION

An intense, nearly continent-wide irruption of Pine Siskins (*Carduelis pinus*) began in August 1989 and continued through the 1989-1990 winter (see numerous field reports in *American Birds*, Vol. 44(1) through Vol. 44(5)). Siskins penetrated as far south as the Gulf states and Florida in the East, and at record early dates in Texas. In many areas they lingered into April and May, later than usual. In some Midwestern states, they lingered into the following summer. Only in the Southwest and the Pacific Coast states was there little evidence of their appearance.

At three feeder/banding stations in the Schenectady, New York area, I banded 4045 Pine Siskins between January and June 1990 and assessed the occurrence of the rare green morph of this species.

METHODS

At the time of their capture and banding, I recorded age, sex, and certain plumage characteristics on 3356 Pine Siskins at my Schenectady, New York, backyard feeder; 407 from my Adirondack feeder at Jenny Lake, which is 7 km west of Corinth, New York; and 282 at Thomas Palmer's feeder, which is 5 km southeast of Amsterdam, New York.

Age was determined by rectrix shape and contrast, or lack thereof, between the primary covert tract and other dorsal wing covert tracts (Yunick 1995). Birds with pointed, narrow rectrices and contrasting coverts were classified as second-year (SY) birds, while those with rounded, wider rectrices and no covert contrast were recorded as after-second-year (ASY) birds. Birds

that could not be reliably classed as SY or ASY were referred to as after-hatching-year (AHY).

Birds fitting the following descriptions from McLaren et al. (1989) of the green morph were noted. They described this morph as follows:

(1) "[D]ark grayish-green on the back, with strong yellow wing and tail patches, a greenish-yellow rump, and tinged with yellow on the head and underparts."

(2) "These greenish Pine Siskins look like ordinary ones that have lost their heavy brown streak, revealing an underlying pattern of gray and yellow that blend into green hues overlaid by a fainter remnant of the original streaking."

(3) "Green morphs always lack the heavy, dark streaks usual in brownish Pine Siskins, and some have almost no streaking below. When present, the streaks appear broad and diffuse..."

RESULTS AND DISCUSSION

Table 1 represents, by month, the number of greenish individuals encountered and their percentage of the total population handled. Table 2 shows the age/sex class of the 51 observed greenish individuals.

The results in Table 1 show progressive increase in monthly occurrence of the green morph from 0.32 percent of the captures in February to 2.13 percent in May. The migratory status of siskins banded in January through March was not certain, but most likely they were birds moving south through the area or wintering in the Schenectady

Table 1. Monthly Totals of Green-morph Pine Siskins Banded near Schenectady, NY in 1990.

	Month of Banding						
	Jan	Feb	Mar	Apr	May	Jun	Total
Total No. Banded	9	312	1316	1773	609	26	4045
Green Morphs Banded	0	1	9	28	13	0	51
% of Green Morphs	0.0	0.32	0.68	1.58	2.13	0.0	1.26

area. April and May birds were largely northward migrants, while June and some May captures at Jenny Lake were breeding birds. From among nine of these bandings that were subsequently re-encountered, there were three whose re-encounter occurred in the same season (Yunick 1996). All three were April bandings (4-17 April) that were re-encountered to the northeast between 2 and 13 May, supporting the suggestion that April and May birds at Schenectady were northward migrants. It was at this time of return migration that occurrence of these green morphs was at its peak.

Overall, the total occurrence of green-morph siskins was 1.26 percent. This compares reasonably with McLaren et al.'s (1989) finding of about one percent. They examined 1525 specimens from six museum collections, finding 15 green morphs (0.98 percent).

The first green morph of recognizable sex was an ASY-M on 4 April. All told, 11 of the 51 birds were sexually recognizable. Males predominated 10:1 in keeping with McLaren et al.'s (1989) observation: "The green morph occurs largely or entirely in male Pine Siskins. All the strikingly dark green birds in the museum collections examined by us are males." The one SY-F which I encountered had a definitely well developed brood patch, casting no doubt on its sexual identity.

Green morphs occurred to a slightly larger degree in the ASY age class than in the SY age class.

Table 2. Distribution of 1990 Green-morph Pine Siskins by Age/Sex Class.

Age/Sex	Male	Female	Unknown	Total
SY	6	1	23	30
ASY	3		17	20
AHY	1			1
Total	10	1	40	51

Using the covert-contrast criterion referred to earlier, 3987 of the 4045 banded siskins were aged as follows: 1390 ASY (no contrast) and 2597 SY (contrast). Based on the 20 ASY and 30 SY green morphs identified in Table 2, the respective percentages of green morphs among the two age classes were 1.44 percent of the ASY's and 1.16 percent of the SY's.

Among the 51 birds I noted, one bird had a distinct yellowish cast, lacking most green (an SY on 27 February); two birds were yellowish-green on the back; and the remaining 48 were green. One bird, an ASY-M on 8 April, was an especially brilliantly marked bird that exemplified the plumage characteristics that differentiated the green morphs from the more normal brown morphs. My description at the time indicated it had a distinctly grayer abdomen and flank than those of the brown morph. The streaking in the olive-green crown was finer (differing slightly from McLaren et al.'s (1989) description of diffuse and broad) than the usual crown streaking in most brown morphs where this streaking is variable in width, amount, and darkness. The rump was greenish-yellow, the back was distinctly green, and the yellow in the wing and tail was resplendently bright. The bird was brilliant in coloration and so distinctively different from the typical brown morphs.

One of these 51 green morphs was among the nine individuals later re-encountered. I banded the bird at Schenectady on 4 April, and on 17 February 1991 (the following winter, which was not regarded as a siskin irruption year) the bird was trapped and released 1437 km south-southeast along coastal Georgia at Darien (Yunick in press).

From among the many reports of invading siskins in Vol. 44(1) through Vol. 44(5) of *American Birds*,

there is only one mention of occurrence of the green morph and gray morph, the latter also mentioned by McLaren et al. (1989). Boyle et al. (1990) refer to a report of these morphs as well as to a leucistic Pine Siskin. The former appeared at J.M.C. Peterson's feeder at Elizabethtown, New York (163 km north of Schenectady), and the latter at a feeder in Mineville, New York (14 km south of Elizabethtown).

It would be helpful for banders and field observers to record more data on green-morph siskins in subsequent invasions to assess whether their occurrence varies geographically as well as temporally; and at the same time, to take heed of McLaren et al.'s (1989) excellent advice on separating Eurasian Siskins (*C. spinus*) which might occur in these invading flocks of Pine Siskins.

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