

THE 1985 NESTING OF PINE SISKIN, RED CROSSBILL AND WHITE-WINGED CROSSBILL IN CHENANGO COUNTY, N.Y.

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In 1929 New York State authorized the purchase of one million acres of worn out, abandoned farmland in the Alleghany Plateau region. Ultimately almost 700,000 acres were purchased and about half was reforested with spruce, pine and larch. These lands, interspersed with private forests, farms and small towns, provide the setting for the following account.

In mid-December 1984 large flocks of Red Crossbills (*Loxia curvirostra*) were discovered in Pharsalia. A survey was initiated to determine the extent of the invasion. This search was concentrated in State owned conifer stands, which are at the highest elevations in the county. This search also revealed the presence of White-winged Crossbills (*Loxia leucoptera*) and a massive invasion of Pine Siskin (*Carduelis pinus*).

Pine Siskin

All areas surveyed had great numbers of Pine Siskins. They were present in hemlock stands (often mixed with hardwoods) at lower elevations as well as in spruce and larch stands at higher elevations. Some flocks of over 100 birds were seen. Siskins flew in almost immediately when tapes of the Red Crossbill "jip jip" call were played.

Pairing by some birds was seen in December and was widespread by February. In the last half of February, siskins were seen in courtship flight displays. The male flew in circles above the treetops, singing with rapidly fluttering wings. On sunny days these displays became magnificent as the sunlight above the birds turned their spread wings and tail to brilliant gold. This display is a spectacular contrast to their usually inconspicuous appearance.

During February and early March siskins were observed courtship feeding, copulating, and nest building. Courtship activity appeared to taper off in March.

On 29 March a female siskin was flushed from a nest in a large Norway Spruce in a backyard in the hamlet of South Otselic. The nest was located about six feet from the ground on a bottom branch far from the trunk. It held four bluish eggs. The following morning two eggs had hatched. The male was seen feeding the female by placing his bill deeply into the female's bill for a prolonged period, passing regurgitated food. Concern for the birds due to cold weather prevented my checking the nest until 1 April, when all four eggs had hatched.

By 10 April the female ceased her constant brooding and had stopped cleaning the nest. The nest was ringed with fecal matter indicating that the nestlings had been up and about. The young fledged on 17 April.

On 20 April several miles from the above nest, I found a siskin fledged on the road unhurt but barely able to fly. This bird probably had fledged on the same day. As I carried the bird to safety, I was able to examine its plumage carefully. In all respects except for size and the shorter tail feathers this young bird was identical to the adults. Pale yellow wing bars were present. I am certain that as soon as flight is attained by these young birds, they are indistinguishable from adults.

Both the found nest and the other fledgling were in the valley bottom at 1200-1300 feet elevation. Most siskins were in more isolated habitat and were present at the highest points in the county. Out of thousands of siskins in the area around my home, only two instances of breeding were proved, and these by pure luck.

Red Crossbill

Both Red and White-winged Crossbills were reported on the Sherburne Christmas Bird Count 15 December. The following day I chanced upon a road kill of 16 Red Crossbills. About six live birds remained with their flockmates even when passed over by automobiles. Only when I removed the dead birds would the remaining birds leave. All of the dead birds were in adult plumage and the sex ratio was about even. I returned daily to this spot and found groups of two, four or six birds, seemingly paired, licking road salt or eating poplar buds from roadside trees. Their continued presence prompted me to check other conifer stands. By early January I had found Red Crossbills in all nearby stands of white and Norway spruce. Ultimately other observers and I located crossbills throughout the reforestation lands at high elevations and dominated by spruce in Chenango County as well as in similar habitat in adjacent parts of Madison, Onondaga, Cortland and Otsego Counties.

Red Crossbills were observed in ritual feeding, gathering nest material and copulating during late January and February. In February males began singing their courtship song, unlike their usual "jip jip" call. By the beginning of March courtship activity had decreased and females no longer were seen.

After 1 March I concentrated all my observations in the town of Otselic. In late March female Red Crossbills began to reappear at roadsides searching for salt and grit. Pairs of adults began "jip jipping" and were answered by faint "jeep jeep" calls from the trees. On 28 March a male and two fledglings waited in a low roadside bush while the adult female ate road salt or grit. The young were heavily streaked

with sooty charcoal and had dark wings, uncrossed mandibles and short tails. By 10 April the fledglings had developed a more yellow-olive plumage and their mandibles had begun to cross.

White-winged Crossbill

At the end of January White-winged Crossbills appeared in pairs and small flocks in response to the playing of taped Red Crossbill "jip jip" calls. In February White-winged Crossbills appeared in all areas where Red Crossbills were present. They responded very aggressively to tapes of their own calls as well as to calls of Red Crossbills. Courtship display flights, billing, ritual feeding, female begging, copulation and nest material gathering were observed during February.

Because they remained very visible during March, although becoming less aggressive and finally non-responsive to play-backs of calls, I assumed that they would nest later or possibly not at all. However, after observing a fledgling crossbill "jeep jeeping" on 1 April, I decided to study it with my telescope. When I returned with my telescope, it had turned, revealing two narrow white wing bars! White-winged Crossbill fledglings were streaked with sooty charcoal, dark-winged, short-tailed and have uncrossed mandibles like fledgling Red Crossbills. Fledglings of both have a prominent buff rump mark. Fledgling White-winged Crossbills showed some mandible crossing and developed a yellow-olive tinge in about ten days.

White-winged Crossbills definitely were colonial nesters. Red Crossbills nested near each other but seemed to be independent of one another. White-winged Crossbills each held an acre or two around a spruce, which was used for singing and possibly for nesting. By observing from the center of a shale bed surrounded by forest, I was able to hear and see a dozen or more males each in the tip branch of a spruce. Later during the nesting, if I waited long enough in this spot, I would see and hear flocks of 25 to 50 birds return from feeding, each male dropping to a spruce tip. He would call and be answered, presumably by the female. Then the male would drop into the spruce and disappear. On warmer days and later, when the young were further developed, the females joined these flocks.

Young appeared only a few times in the nesting area. Newly fledged young remained hidden until they were able to fly well. When the young joined flocks, all birds became extremely jumpy. Close approach became almost impossible. Flocks of 100-150 birds, usually including some Red Crossbills, would fly at the slightest noise or movement, such as an approaching American Robin (*Turdus migratorius*) or Blue Jay (*Cyanocitta cristata*). Flocking, leaving the nest area, addition of fledged young to the flock occurred at the same time. At this time also

a large number of Sharp-shinned Hawks (*Accipiter striatus*) returned and often loitered at crossbill feeding areas. At a roadside spring surrounded by fields and leafless trees where both species regularly came for water, road salt or gravel, I saw many young of both species. The young always waited in the trees and never descended for water or gravel.

Discussion

The invasion of Pine Siskins coincided with, but was not restricted to, State reforestation areas in Chenango and surrounding counties. Breeding was widespread, involving thousands of birds. Few nests were discovered due to their remote habitat and the dearth of observers. Courtship and breeding took place earlier than previously recorded or believed to occur in New York (Bull, 1974). This may account for the scarcity of records of breeding Pine Siskins in past years.

Few Pine Siskins were reported at feeders. Their absence despite their unprecedented numbers seemed to be due to the abundant natural food supply. Although siskins did not come to feeders, they often fed on salt and grit on all area roads. Many were killed by passing cars. Because of their independence from feeders, they went unnoticed even though there are some competent feeder watchers in this area. The fact that a massive invasion can take place and go almost unnoticed suggests that siskins easily could nest in smaller numbers and never be seen. Indeed, the presence of Pine Siskins at feeders may be contraindicative of breeding in a given year.

The invasion involved thousands of Red and White-winged Crossbills. The breeding activities that I observed occurred throughout the reforestation areas, where there was a massive cone crop of white and Norway spruce, European larch and hemlock. Spruce seemed to be the factor most attractive to both crossbills. Larch and hemlocks also were used heavily, and occasionally they fed upon pines when their cones were open. Poplar and maple buds were eaten by both species. White-winged Crossbills regularly were seen foraging in a plowed field.

Norway spruce and European larch have larger cones and far more seeds than do our native spruce or larch. Norway spruce also holds its seeds longer than does white spruce. Both crossbills fed in Norway spruce long after the white spruce had emptied of seeds. Later in season, larch became an important food source.

Both Red and White-winged Crossbills came out to roads near their breeding grounds but only Red Crossbills habitually came to paved roads in valleys for salt. White-winged Crossbills were more skittish than Red Crossbills, and many of the latter were killed by passing cars.

There is evidence that both crossbill species have occurred here before

and past breeding is a possibility. Bull (1974) notes that in December 1963, 100 White-winged Crossbills were seen in Sherburne and 200 were seen in Eaton. The Cornell University collection contains series of White-winged Crossbills from Pharsalia taken in February 1947 and 1951. A series of Red Crossbills was taken there in 1951 in mixed flocks with White-winged Crossbills. It was noted that the male Red Crossbills were "singing." All Red Crossbills from Pharsalia at Cornell were labeled as the subspecies *sitkensis*, which normally breed on the Pacific coast.

Twenty-one recently road killed crossbills were salvaged and measured for subspecific determination. These have been deposited in the American Museum of Natural History. Culmen (average 14 mm) and wing chord (female average 80 mm, male average 85 mm) indicate that all but one bird are *sitkensis* (Griscom 1937). One large female (culmen 16.5 mm, wing chord 90 mm) definitely is not *sitkensis*. Its bill depth of 9 mm suggests that it is *minor*, the subspecies resident in the Adirondacks and the Northeast.

All three species still were present in this area in late May. The foliage made them hard to see and calling became much diminished. Generally, calling flocks are the only indication of their presence. Some still drink along roadsides, but feeding on road gravel or salt ceased completely. During May flocks began to drop in size from over 100 to small groups of six to ten. The decrease in flock size coincided with the development of foliage and the appearance of a few new cones (both staminate and ovate) on both larch and spruce. Late in the season larch became the main attraction for birds, which fed on the new, green cones in the topmost branches.

Literature Cited

- Bull, John. 1974. *The Birds of New York State*. Doubleday/Natural History Press, New York. 655 p.
Griscom, Ludlow. 1937. A Monographic Study of the Red Crossbill. *Proc. Boston Soc. Nat. Hist.* 41: 77-209.

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