

A REVIEW OF THE RED CROSSBILL IN NEW YORK STATE

Part 1. Historical and nomenclatural background.

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Introduction

The currently published taxonomic and distributional information on the subspecies of the Red Crossbill (*Loxia curvirostra*) is more complex and confused, or just plain wrong, than for any other North American avian species. This is in part due to the amazing and erratic movement patterns in which a population (or section thereof) may move thousands of miles, find suitable habitat and nest, and then disappear, apparently to return to their "core" region of distribution. This confusion has been further compounded by poor ornithology and by ornithological politics.

I decided to bring together specimens collected since K. C. Parkes (1952) last reviewed the status of the species in New York to help identify specimens salvaged from the massive 1984-1985 incursion into the northeast, the best documented invasion in decades. During the course of this study I found additional historical material that Parkes had not examined, and realized the need to correct some erroneous records of the species for New York. I contacted museum and educational institution collections for the loan of materials from New York (and from elsewhere in the northeast). I specifically requested the loan of all specimens collected since 1951, or not seen earlier by Parkes, and all specimens with a wing chord of 85 mm or greater collected since 1900. Birds with a wing chord measurement of less than 85 mm usually belong to the population whose "core" range is the Pacific northwestern coastal region. This invading subspecies is actually the one that has been recorded most frequently in New York during the last 70 years! The curators who kindly provided material are acknowledged beyond. A total of 77 specimens not examined by Parkes, mostly taken after 1950, was assembled. This total included 8 formalin injected mummies without date or locality but probably obtained during the last 20 years from within a radius of 20 miles of Oswego. The vast majority of all of these specimens was salvaged from road kills.

Review of Nomenclature

I must first attempt to explain the nomenclatural mess that North American Red Crossbills are in before I use trinomial names for the specimens from New York State. I will begin in 1934 and work forward and back as needed to clarify points. In that year A. J. van Rossem published a study of some old type specimens of North American taxa in European museums, including the types of *Loxia pusilla* Gloger (from Georgia) and *L. minor* Brehm (later shown to be from Michigan – for details regarding these types see van Rossem 1934 and Payne 1986).

He provided an excellent photograph of the two types and the measurements of the type of *pusilla*, but he forgot to measure the type of *minor*.

Van Rossem considered *pusilla* to represent "the larger crossbill of eastern North America," not realizing that the Newfoundland and the southern Appalachian populations were distinct. Thus, van Rossem started the erroneous use of *pusilla* in place of Bent's name *perna* for the Newfoundland subspecies. Later in a letter to L. Griscom, who was then working on his monograph of the species in the New World (Griscom 1937, p. 107), van Rossem stated that *minor* was the smallest billed bird of all.

We must next review Griscom's 1937 monograph, the first real synthesis of the North American populations. Figure 1A presents the approximate distribution of the subspecies as defined in that paper. Griscom did make two correct decisions. He followed van Rossem in applying the name *minor* to the population of the Pacific coastal region from northern Washington to Alaska, the smallest of the New World subspecies (indeed the smallest of all subspecies), making *L. c. sitkensis* Grinnell a synonym of *minor*. Because *minor* was no longer available as the name for the northeastern population for which it had been widely used, Griscom named this population *L. c. neogaea* based primarily on a large series of nesting birds collected in Maine. The rest of Griscom's decisions were wrong.

1. He recognized, but did not name, a small (wing under 85 mm) nesting population in the southern Appalachians – not recognizing that this was an invasion of *minor* from the Pacific northwest! That subspecies occasionally nests when abundant food is encountered after making a massive invasion eastwards, as it did in New York in 1984-1985.

2. He rejected the name *perna* described for the Newfoundland population of large dark birds, considering it a synonym of *pusilla*.

3. He ascribed the name *L. c. bendirei* (described as a large subspecies from western Oregon by Ridgway), to a population of medium-sized birds probably from an area of intergradation between *bendirei* and *minor*. He then inconsistently recognized this western population of medium-sized birds, although he considered that they probably were not separable from his eastern form *neogaea*.

4. He then named two large subspecies, *benti* from North Dakota and *grinnelli* from California.

Parkes (1952), in his discussions of the specimens of the species from New York, followed van Rossem in using *pusilla* for the Newfoundland subspecies, and later (1954) reconfirmed his belief that *minor* was the correct name for the northeastern population.

Unfortunately, the American Ornithologists Union Committee on Classification and Nomenclature that prepared the fifth edition (1957) of the AOU Check-list accepted most of Griscom's errors but rejected his correct decisions! Thus *sitkensis* was maintained for the small stubby-

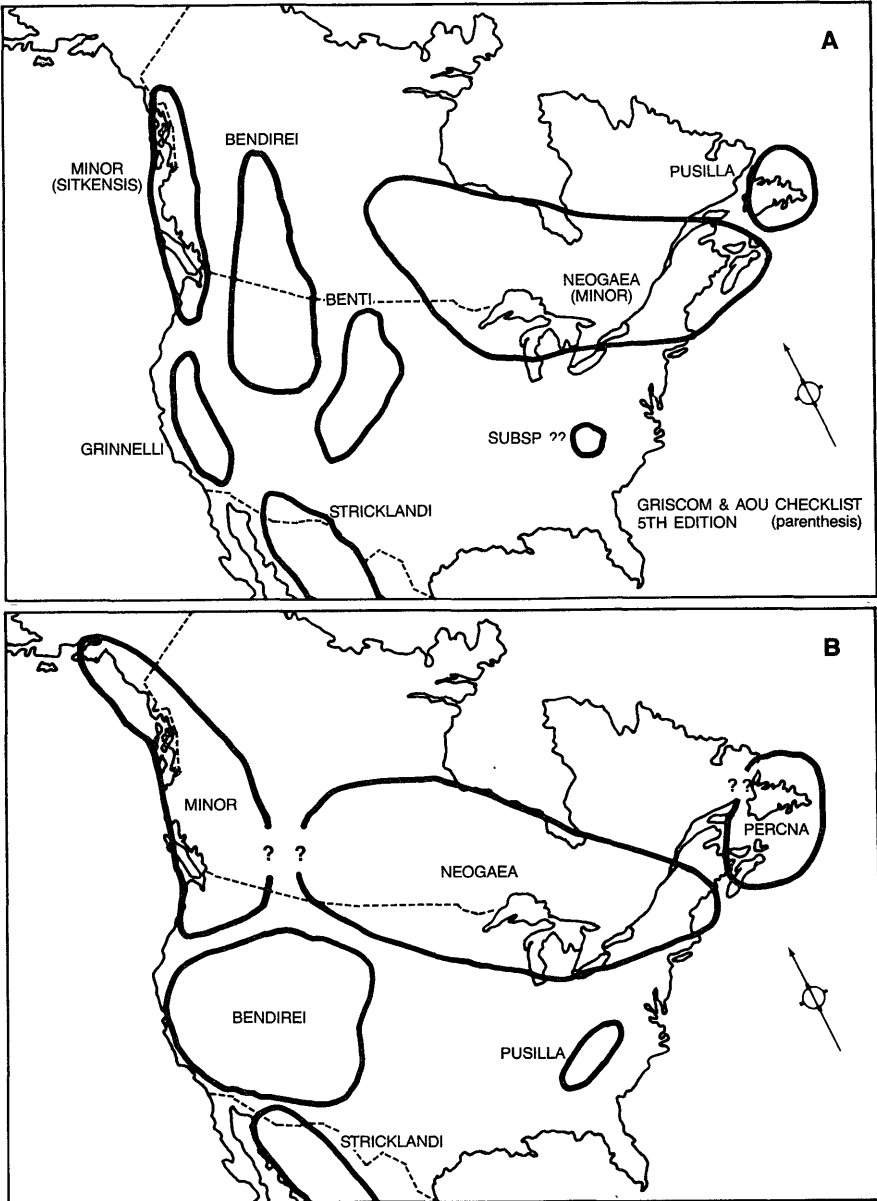


Figure 1. Distribution of "core ranges" of Red Crossbill subspecies.

billed population (for which it has almost become a common name); *minor* was used for the northeastern population; and the names *bendirei*, *benti* and *grinnelli* were used as defined by Griscom (fig. 1A). Most subsequent authors including Howell (1968) and Bull (1974) have followed this usage.

Without question the only person, since Griscom, who has examined over 90% of the specimens of Red Crossbill from the New World is Allan R. Phillips. Most bear one or more of his sometimes changed, and often cryptic annotations, some dating back decades. Unfortunately, he has not provided us with a lucid detailed discussion correcting past errors nor explained clearly his concepts of the species. However, his contributions are significant.

Phillips wisely, in the non-technical book *The Birds of Arizona* (Phillips, Marshall and Monson, 1964), essentially followed the AOU Check-list's nomenclature. However, he placed *grinnelli* in the synonymy of *benti*; indicated that *bendirei* was probably the correct name for the pale, large Rocky Mountain subspecies, and that *minor* was probably the proper name for "*sitkensis*." Later, incidental to a paper on age and sex determination in the species (Phillips 1977), he provided a size-class schema from small, class I, to large, class IV. Then, oddly placed as an appendix to the revised edition of the Checklist of the Birds of Arizona (Monson and Phillips 1981), he presented a partial revision of the Red Crossbill as follows, (AOU names are in quotes).

- I. Smallest – *minor* ("*sitkensis*")
- II. Small – *neogaea* and *pusilla* ("*minor*" and "*bendirei*")
- III. Large – *bendirei* and *percna* ("*benti*", "*grinnelli*" and "*pusilla*")
- IV. Largest – *stricklandi*

Figure 1B presents the approximate distributions of the "core ranges" of those forms as I understand them. In an irruptive species such as the Red Crossbill, which during a year of cone-crop failure may move hundreds or thousands of miles and, upon reaching a region with abundant food, may settle and even nest within the range of another subspecies, the usual term "breeding range" is meaningless. The "breeding range" of the subspecies *minor* for example would include the region British Columbia to New York! After nesting the invading population disappears, presumably to return to its own "core range."

Phillips (1981) also added two new names to the parthenon; *vividior* for class II birds from El Paso County, Colorado, and *raei* for class I birds from Dismal Lake, Shoshone County, Idaho. He also, properly in my opinion, rejected a multiple species concept for the various forms of Red Crossbill that does not take into account the biology of the species as a whole. Although the morphologically distinctive subspecies make massive irratc movements, and even nest within the core ranges of other subspecies, they maintain their separateness probably through the development of intra-group language that reduces out-breeding.

Still, the number of specimens intermediate between the various morphological groups is ample evidence that there are no absolute reproductive barriers between populations of Red Crossbill.

The most recent contribution, an important one by Payne (1986), is still in press, but was kindly loaned to me by the author. He was able to borrow from Berlin the types of *minor* and *pusilla* to measure and, at last, to compare them with *series of specimens*. He has demonstrated beyond question that *minor* is the same as "*sitkensis*" and that *pusilla* does represent the class II population of the southern Appalachians. He formally designated the larger of the two co-types of *bendirei* to be the lectotype, restoring Ridgway's original intent that this name represent large western birds. He defined *perna* as well marked in color, size and bill shape. Unfortunately, in his multivariate analysis he used series composed of two or three subspecies, especially from Michigan and from the southern Appalachians. Thus the characters of the rather well marked forms *minor*, *bendirei* and *neogaea* were blurred.

The accumulated series of specimens from a region, such as New York, can be compared to a series of sedimentary layers made up of two, three or four kinds of material (*i.e.*, subspecies). The layer (sample series) from any one year usually is made up of a single kind of material. For example, since 1939 both an invading subspecies and the local subspecies have been taken in New York in only five years, and two invading subspecies have been taken only once during the same year (in 1985). Thus, the layers are remarkably homogeneous. However, if one were to drill vertically through the layers, *i.e.* to mix the specimens, you would obtain a biologically irrelevant artifact.

In a subsequent paper I will discuss a change in the status of the Red Crossbill in New York and the northeast since the turn of the century, define subspecific characters, and identify the New York State specimens.

Currently Jeffery G. Groth, Museum of Vertebrate Zoology, University of California, Berkeley, is undertaking a modern revision of the species in North America, using morphological, electrophoretic, vocal and ecological data. Thus, conclusions reached in this series of papers must be considered tentative pending the publication of his major monograph.

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