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ADDITIONAL RECORDS AND A CORRECTION OF THE TYPE LOCALITY FOR THE BOREAL CHORUS FROG IN NORTHWESTERN ONTARIO

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COLLECTIONS OF AMPHIBIANS from northwestern Ontario are few and the present range maps are often inadequate for even the commonest species. This is particularly true for the Boreal Chorus Frog, *Pseudacris triseriata maculata* (the choice of scientific name for this form is discussed at the end of this paper). Logier and Toner (1961, p. 38) list and map its Ontario occurrences as: "Cochrane Dist., Fort Albany (ROM). Patricia Dist., Akimiski Island (PC: F. R. Gelbach). Fort Severn (ROM). Rainy River Dist. Emo (ROM)." One additional locality listed with the above but received too late to include on their map was "Thunder Bay Dist., Connor Twp. (PC: A. E. Allin)." This should be corrected to O'Connor Township, which is 20-25 miles almost due west of Fort William (PC: A. E. Allin, August 15, 1963).

On the afternoon of May 20, 1963, the writer heard several Boreal Chorus Frogs calling from small roadside ponds 10 miles northeast on Hwy. 11 of Beardmore, Ontario. One specimen (NMC 7077) was collected at that time.

The area was boreal forest with tamarack, black spruce and aspen predominating. The chorus frogs were calling from three small, shallow grass-edged ponds in roadside clearings. The locality was revisited after dark and eight more specimens (NMC 7081) were obtained. Only about a half dozen additional individuals were heard calling. Other species collected at this area, in roadside ponds or along the nearby flooded edge of a small lake, were *Rana clamitans*, *Rana sylvatica* and *Hyla crucifer*. The latter was in full breeding chorus and 68 specimens were collected. Tiny *Rana sylvatica* tadpoles were taken still clustered around the disintegrating egg mass from which they had hatched. The afternoon had been warm and partly sunny but temperatures dropped rapidly during the evening and most of the collecting after dark was done during a light but steady snowfall.

A survey was made along Hwy. 11 to Geraldton by car, stopping periodically to listen for chorus frogs. They were heard at the following localities (recorded by nearest town and distance from it by Hwy. 11): Jellicoe, 1 mi. E. (few), 11.6 mi. E. (several); Geraldton, 13.7 mi. W. (few), 12.2 mi. W. (one), 0.8 mi. W. (one). Falling evening temperatures made an auditory survey east of Geraldton impractical.

The range extension to Geraldton diminishes, to some extent, the eastern gap between records from the western end of Lake Superior and those from James Bay. Geraldton is about 150 miles northeast of O'Connor Township and 290 miles southwest of Fort Albany.

It is interesting to note that during field studies in the Lake Nipigon area in 1921, 1922 and 1924 by E. B. S. Logier of the Royal Ontario Museum this species was not found (Logier, 1928). As his studies were made in June, July and August it is likely the species escaped notice because its breeding season had ended.

A few additional Ontario locality records are available. The Royal Ontario Museum has five unreported specimens from Halfway Point, Cochrane District, collected June 1, 1942. Halfway Point is listed in the Ontario volume of the Gazetteer of Canada (p. 226) as on the west shore of James Bay at $51^{\circ} 54' \text{ N.}$, $80^{\circ} 45' \text{ W.}$. This is a slight eastward extension of the range along James Bay from the published limit, Fort Albany, $52^{\circ} 14' \text{ N.}$, $81^{\circ} 36' \text{ W.}$. One ROM specimen from Goldpines, Patricia District, collected in 1935 had been previously cited by Smith (1956). The National Museum of Canada has three unreported specimens (NMC 7036) from Big Trout Lake, collected by D. H. Johnston, June 20, 1961. This is the village at $53^{\circ} 49' \text{ N.}$, $89^{\circ} 53' \text{ W.}$, 170 miles southwest of Fort Severn, rather than any of the numerous bodies of water in Ontario by that name.

Dr. A. E. Allin of Fort William, who is familiar with the call of this species, has kindly contributed the following auditory records: Rossport, April 18, 1938; April 28, 1939; April 11, 1941; April 23, 1946; May 25, 1946, and Fort William, May 2, 1946 (PC: August 15, 1963). Rossport, on Lake Superior, is 85 miles due east of Fort William and 67 miles southwest of Geraldton. It is the easternmost locality known for the subspecies along the north shore of Lake Superior. Dr. Allin (PC: October 3, 1963) has also provided additional

records of when the species was heard, usually the "first heard" of the year, from his series, *The Canadian Lakehead*, published in *The Flicker*. All of these records are from the Thunder Bay District and are as follows: April 10, 1955 (*The Flicker* 27(2): 88); April 22, 1956 (*The Flicker* 28(2): 75); April 20, 1958 (*The Flicker* 30(2): 62); April 26, 1959 [at Whitefish Lake] (*The Flicker* 31(2): 49); April 28, 1960 (*The Flicker* 32(3): 95); April 21, 1961 (*The Flicker* 33(3): 79). The Whitefish Lake locality is southwest of O'Connor Township. In addition, Mr. Kenneth Campbell of Peterborough had reported that he collected, recorded and photographed this species within the city limits of Port Arthur in 1949 and 1950, and that it was heard commonly all over the district (PC: August 24, 1963).

Dr. Allin (PC: October 3, 1963) also heard the species at Emo, April 26, 1951 (This record was noted in his article in *The Flicker* 24(2): 92-93, June 1952). On May 27, 1959, the writer heard it calling fairly continuously from roadside ponds and ditches while driving from Fort Frances to Kenora via Hwy. 71 and 70, and from Kenora to the Manitoba border via Hwy. 17. One specimen (NMC 4470) was collected at Dryden, June 28, 1960. The species was heard at numerous localities along Hwy. 17 from 23.3 miles southeast of Borups Corners to the Manitoba border, May 1, 1962. All of the above localities are shown in Figure 1.

The nine specimens collected 10 miles northeast of Beardmore (NMC 7077, 7081) vary in snout-vent length from 25 to 29 mm. The tibia divided by the snout-vent length gives percentages of 33 to 36 with a mean of 34.1%. The Dryden specimen (NMC 4470) had a snout-vent length of 27 mm with a tibia/snout-vent percentage of 37. These are well below the 39.3% mean for the tibia/snout-vent percentage reported for the short-legged Boreal Chorus Frog by Smith (1956). Specimens reported here were measured after they had been killed with ether and before they were preserved. They would be expected to average less than Smith's figures as the latter were taken from preserved specimens. Bleakney (1959, pp. 202-203) has pointed out that differential shrinkage is common in preserved specimens. However, the percentage is enough below Smith's figure to indicate agreement even allowing for differential shrinkage.

The eastern limit of the Boreal Chorus Frog is still to be determined. The night previous (May 19) to the collections reported here from the Beardmore-Geraldton area was spent at Hearst, about 150 miles northeast. Due to snow and cool temperatures no amphibians of any species were heard.

By retracing the field work back to May 16, it is possible to show a real hiatus between the Boreal and Western chorus frogs. The evening of May 18 was spent collecting in the area around Kenogami Lake (the northernmost of the three solid triangles in Figure 1). *Rana sylvatica*, *Hyla crucifer* and *Bufo americanus* were calling in large choruses. A few *Rana pipiens*, although not calling, were collected. The evening of May 17 was spent collecting along Hwy. 17, 13½ to 10½ miles south of North Bay (southeasternmost of the three solid triangles in Figure 1). *Hyla crucifer* and *Bufo americanus* were calling in large choruses. A few *Rana pipiens* and *Hyla versicolor* were calling, and



FIGURE 1. Distribution of Chorus Frogs in Ontario.

Boreal Chorus Frog (northwestern Ontario): solid circles = published records, half-filled circles = new records (museum specimens) reported in this paper, hollow circles = new auditory records reported in this paper.

Western Chorus Frog (southern and eastern Ontario): solid squares = published records from Logier and Toner 1961, hollow squares = auditory records reported in this paper. Solid triangles are localities in central Ontario given in the text where Chorus Frogs are known to be absent.

Rana clamitans and *Rana septentrionalis*, although not heard, were also collected. At both of these localities ideal weather conditions prevailed. If *Pseudacris* occurred in these areas it certainly would have been heard calling.

The evening of May 16 was spent at Renfrew, which is within the range of the other Ontario chorus frog subspecies, the Western Chorus Frog, *Pseudacris triseriata triseriata*. *Pseudacris t. triseriata*, *Hyla crucifer*, *Bufo americanus* and *Rana pipiens* were noted calling. The limit in eastern Ontario for the

Western Chorus Frog is at or near 7 miles southeast of Pembroke. On April 28-29, 1962, the writer noted *Pseudacris* calling from roadside ponds and ditches along Hwy. 17 from Ottawa to this point but not beyond (see Figure 1). Other known limital records for the Western Chorus Frog in Ontario are given by Logier and Toner (1961, pp. 36-37) and are shown in Figure 1.

Some additional evidence is available for the gap between the two Ontario subspecies of *Pseudacris* in central Ontario. On May 24, 1959, the writer heard a loud chorus of breeding amphibians from roadside ponds at 2.1 miles east on Hwy. 17 of Narin Centre (southwesternmost of the three solid triangles in Figure 1). *Hyla crucifer*, *Hyla versicolor*, *Rana pipiens* and *Bufo americanus* were represented but no *Pseudacris* were heard. Logier (1942) did not find *Pseudacris* in the Sault Ste. Marie, Ontario, region. C. Bruce Powell collected for the National Museum of Canada at Massey, Ontario, from August 24 to September 3, 1963, without finding chorus frogs, although 568 specimens of other herptiles were taken during this time. Unfortunately, both of the latter studies were carried out after the *Pseudacris* breeding season and auditory checks were not possible.

Available data strongly suggest that, although the eastern limit of the Boreal Chorus Frog is not yet known, its apparent separation from the closely related Western Chorus Frog in Ontario as shown on previous range maps (Conant, 1958; Logier and Toner, 1961) is real. Auditory surveys during the peak of the spring amphibian breeding season in the critical area between the presently known limits of the two subspecies will eventually establish the area of separation. As shown by Bleakney (1959) auditory surveys at this time give positive evidence for the presence or absence of *Pseudacris*.

Although Harper (1963) has recently expressed reservations on the validity of the Boreal Chorus Frog as a distinct subspecies, it is accepted here pending further study. Collection and analysis of several thousand specimens of this form from the Canadian Prairies, which should shed light on the problem, is in progress as part of a general study of that region.

Some Beardmore specimens in life exhibited the green color phase which is typical of many individuals from the Canadian Prairies. This color does not occur in several hundred Ontario *Pseudacris triseriata triseriata* which have been examined. Some specimens exhibit the spotted pattern which is fairly frequent in the northern form but rare in *triseriata*. Although neither of these characters seems taxonomically significant in separating these subspecies, they do emphasize a difference in their gene pools. The best character for separating this subspecies seems to be the tibia/snout-vent ratio as outlined by Smith (1956).

The correct scientific name for the Boreal Chorus Frog has been a matter of contention. Despite recent papers recommending nomenclature changes, Logier and Toner (1961) and Harper (1963) have retained the name *Pseudacris nigrita septentrionalis* Boulenger. Smith (1956) re-evaluated the range of the subspecies and pointed out that the subspecies name *maculata* Agassiz 1850 should supplant *septentrionalis* Boulenger 1882. A subsequent change in the species name became necessary when Schwartz (1957) presented evidence that

the *Pseudacris nigrita* complex should be treated as two species, *P. nigrita* and *P. triseriata*. The latter separation has been questioned but is, at least tentatively, widely used (e.g. Conant, 1958). Boreal Chorus Frog is a subspecies of the *Pseudacris triseriata* group.

The problem of *maculata* vs. *septentrionalis* centers around Agassiz's failure to record where he collected the specimens on which he based his description of *Hylodes maculatus* (in Agassiz and Cabot, 1850, pp. 378-379). Nor is there any indication of this locality in Cabot's narrative in the same volume (pp. 11-133). However, Cope (1899, pp. 345-346) in placing *Hylodes maculatus* in the synonymy of *Chorophilus triseriatus* gave a description based on "Professor Agassiz's typical specimen," and noted three specimens from "Lake Superior, north shore; Prof. L. Agassiz." Barbour and Loveridge (1929, p. 281) also gave the locality as "Lake Superior" and listed two specimens, number 38, as the types of *Hylodes maculatus*. They indicated that this name was a synonym of *Pseudacris nigrita*. Schmidt (1953, p. 75) placed the name in the synonymy of *Pseudacris nigrita triseriata* and restricted the type locality to "vicinity of Sault Ste. Marie." As Harper (1963) has pointed out there is no indication whether he intended it to apply to the locality in Ontario or the one in Michigan, and if he intended the Ontario locality the restriction is invalid as no *Pseudacris* are known from that part of Ontario.

As the specimens were collected from Lake Superior according to Cope (1889) and Barbour and Loveridge (1929) they must have come from the north shore at or east of about 20 miles west of Fort William, the most westerly point of the expedition according to Cabot's narrative (in Agassiz and Cabot, 1850, pp. 11-133). Specimens from this area were correctly assigned to the Boreal Chorus Frog by Smith (1956) and *maculata* must therefore replace *septentrionalis* as he suggested. Previous assignments of *maculata* to the synonymy of *nigrita* or *triseriata* are invalid. *Pseudacris* is known along the north shore of Lake Superior only as far east as Rossport, although it may yet be found farther east. Lacking any other evidence, the type locality has to be arbitrarily chosen from somewhere within this area. As the Boreal Chorus Frog occurs at Fort William and the expedition is known to have stopped and explored there (in Agassiz and Cabot, 1850, p. 80-88), the corrected type locality designated here is the vicinity of Fort William, Ontario. This correction is in accordance with Recommendation 72E of the 1961 International Code of Zoological Nomenclature which states (p. 77) that "If a type locality was erroneously designated or restricted, it should be corrected."

The correct name for the Boreal Chorus Frog is *Pseudacris triseriata maculata*. Its synonymy is that presented by Smith (1956) with the addition of the change in species name from *Pseudacris nigrita* to *Pseudacris triseriata* according to Schwartz (1957) and the type locality corrected to "the vicinity of Fort William, Ontario" of this paper.

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SUMMARY

Nine specimens collected 10 miles northeast of Beardmore on May 20, 1963, and auditory records between this point and Geraldton extend the range of the Boreal Chorus Frog eastward in northwestern Ontario. Additional records for northeastern Ontario, including Halfway Point, an eastern extension along James Bay, and Rosspoint, an eastern extension along Lake Superior, are reported.

The reported gap between the range limit of the Boreal Chorus Frog and the Western Chorus Frog is real as substantiated by three localities between the known range of the two subspecies where no *Pseudacris* were calling during observations at the height of the spring amphibian breeding period.

The nomenclatorial problem of the correct scientific name for the Boreal Chorus Frog is discussed and the name *Pseudacris triseriata maculata* is accepted. The erroneous type locality restriction of Schmidt (1953) is rejected and a replacement, vicinity of Fort William, Ontario, is designated.

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