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Distribution of Sculpins (Pisces: Cottidae) in Iowa

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MARLIN JOHNSON. Distribution of Sculpins (Pisces: Cottidae) in Iowa. *Proc. Iowa Acad. Sci.*, 78 (3-4):79-80, 1972.

SYNOPSIS. Trout waters in Iowa were surveyed for the presence of sculpins. They were found to be confined to a few cool, spring fed streams in the northeast corner of the state. The slimy

Information herein presented is part of a more comprehensive study conducted during the summer of 1969 on the distribution of the slimy sculpin (*Cottus cognatus* Richardson) in and around the "Driftless Area" of Wisconsin, Minnesota, and Iowa. During the course of this study the mottled sculpin (*Cottus bairdi* Girard) was collected from Iowa waters and should be added to the state's faunal list. The presence of this species was expected due to its existence in nearby streams of Wisconsin and Minnesota. Bailey (1956), in the most recent comprehensive treatment of the fish fauna of Iowa, reported the presence of *C. cognatus* in the northeastern part of the state and suggested that *bairdi* might also be present, but had not then been collected.

Specimens of *Cottus* from Iowa (other than those collected by the author) are located at Iowa State University in Ames and the University of Michigan Museum of Zoology, Ann Arbor. These specimens have been examined by the author and Dr. Bailey. With one exception, collections made in Iowa before 1969 contain only *Cottus cognatus*. A reexamination of material collected in 1931, reveals that two of four specimens from the Yellow River, Allamakee County, are *bairdi* (UMMZ#197677). My collections verify the presence of both species in this drainage (Fig. 1). *C. bairdi* is also found in the Maquoketa River near Joy Springs, Clayton County, and in North Bear Creek, Winneshiek County. Specimens from collections made in 1941 also indicate the presence of *cognatus* in Bear Creek (UMMZ#147175).

Some difficulty was encountered in separating the species of *Cottus* in this geographical region. Many of the specimens of *cognatus* possessed palatine teeth, a characteristic usually reserved for *bairdi*. McAllister (1954) found 100% separation of Great Lakes *cognatus* and *bairdi* based on the ratio of postorbital length to caudal peduncle length. This does not hold true for northeastern Iowa specimens. The best distinguishing characteristic for this region seems to be the pelvic ray count (*bairdi* 1,4; *cognatus* 1,3).

The presence of slimy sculpins in and around the "Driftless Area" puts them several hundred miles south and west of the main body range of the species. (The term "Driftless Area" is a misnomer since glacial drift and erratics have been reported from the region by Black, 1960, 1966, and Trowbridge, 1966). Bailey (1956, and personal communication) suggests that this species, along with the lake chub, *Couesius plumbeus* (Agassiz), brook trout, *Salvelinus fontinalis* (Mitchill), and pickerel frog, *Rana palustris* Le Conte,

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sculpin (*Cottus cognatus* Richardson) is the most prevalent of the two species found. The first valid records for the presence of mottled sculpin (*Cottus bairdi* Girard) in the state are provided. INDEX DESCRIPTORS: Fish; sculpins; trout streams.

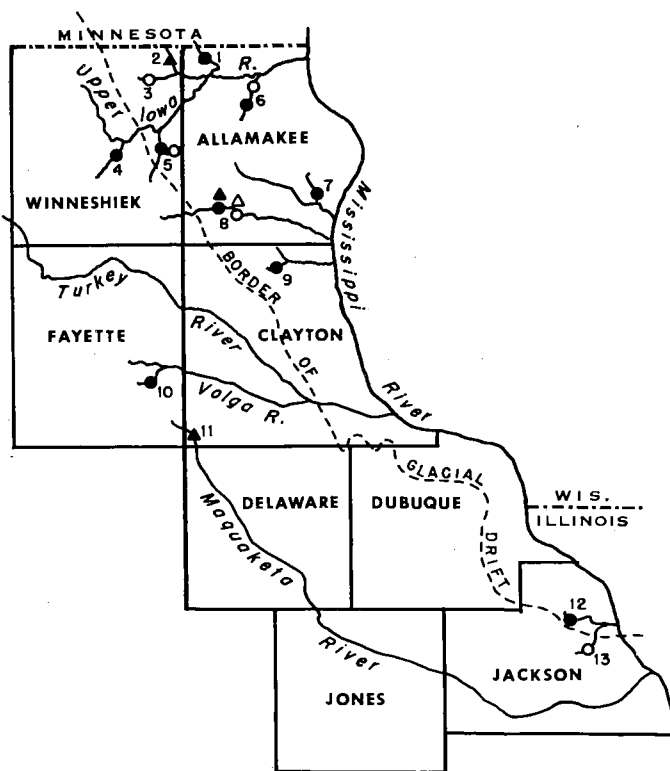


Fig. 1. Distribution of sculpins in Iowa. Open triangle—*Cottus bairdi*, previous collections; closed triangles—*C. bairdi*, 1969 collections; open circles—*C. cognatus*, previous collections; closed circles—*C. cognatus*, 1969 collections.

may have resided in this area during the late Wisconsin glacial period. They have persisted since that time in cool water provided by numerous springs. This study emphasized this habitat as a likely source of the slimy sculpin. All Iowa collections are from cool, spring-fed trout streams (Iowa State Conservation Commission, 1969).

The mottled sculpin is found throughout the "Driftless Area" and is more or less continuous with the rest of the eastern part of the range of the species. The new Iowa records are not believed to be extensions of the range of the species but rather are the result of more intensive collecting.

C. bairdi is found in somewhat warmer waters than *cognatus*. Average water temperatures taken at the time of collection (summer, 1969) indicate a 6°C difference between

the two species. *C. cognatus* averaged 14°C with a range of 11-17°C; *C. bairdi* averaged 20°C with a range 16-22°C. (These data are from Iowa collections only.) This suggests that the two closely related species may be ecologically separated by different temperature requirements.

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