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Notes on the Swampfish *(Chologaster corn uta* Agassiz) in the Dismal Swamp of Virginia

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The swampfish *(Chologaster corn uta)* is a member of the family of cave fishes, Amblyopsidae. It occupies one end of a continuum of species showing adaptations to cave life, such as eye degeneration and pigment reduction. The swampfish is the epigean representative of the group and has functional eyes, although the optic tectum and optic lobes are reduced (Poulson, 1963); it has a dark pigmentary pattern. It is a small fish (23-57 mm standard length) that occupies cryptic habitats in swamps, ponds, ditches, and slow-moving streams of the Atlantic Coastal Plain (Cooper and Rohde, 1980). Water temperatures in habitats with this nocturnal fish never exceed 23 C (Poulson, 1963). Southeastern Virginia is the northern range limit of the swampfish. Here this species is known from the Chowan drainage, a tributary of the Chickahominy system (James drainage), the Dismal Swamp, and from a pond in Seashore State Park in Virginia Beach (Jenkins and Burkhead, in press).

Between 20 September 1953 and 4 December 1954 I collected a total of 13 C. *corn uta.* All were found in a single pool in the Virginia portion of the Dismal Swamp. They were collected with a dipnet used to sweep the bottom of the pool. The fish were recovered by carefully searching among dead leaves and other debris. In this note I report observations on its habitat, body size, reproduction, habitat associates, and the extirpation of one population.

The habitat in which the specimens were collected was a small, stagnant pool 150 m from Jericho Ditch near Lake Drummond. The area surrounding the pool was covered with abundant, large deciduous trees which kept the pool shaded during summer. During periods of heavy rain in the fall and winter, water was transferred from a large ditch to the pool via a rivulet As a result, the water level of the pool varied from approximately 0.8 m in heavy rains to 0.5 m during normal weather, and 0.3- 0.5 m during dry weather. The pool was never completely dry during the study period, even during a prolonged drought

The specimens were collected as follows: 20 September 1953, adult, 23.5 mm total length (TL), water level 5 cm; 4 December 1953, 4 adults, water level 5 cm; 6 March 1954, 2 adult females, water level 0.6 m; 5 June 1954, 2 juveniles, 17 and 20 mm TL, water level 8 cm; 4 December 1954, 4 adults, water level 0.6 m. One of the females taken on 6 March was 40.5 mm TL and contained 131 undeveloped eggs and 63 mature, yolked ova measuring 1.5-2.0 mm in diameter. The number of mature ova is smaller than the average number of eggs (98) reported by Poulson (1961, in Cooper and Rohde, 1980) from a sample of 13 specimens taken from throughout the range of this species. The sizes of mature ova reported by Poulson (0.9-1.2 mm, 1963) are smaller than those from the single fish reported here. Ova size suggest spawning probably occurred in March or early-April in the Dismal Swamp, comparable to the period reported in Cooper and Rohde (1980).

Habitat associates in the Dismal Swamp included the

vertebrates many-lined salamander *(Stereochilus marginatus)* and mudminnow *(Umbra pygmaea),* and unidentified species of isopods, ostracods, copepods, and c1adocerans. The invertebrates are known prey of *Chologaster* (Cooper and Rohde, 1980).

During late April 1955 an electric transmission line was installed through the area and all the timber was removed to make this operation possible. The pool became exposed to sunlight and subsequently remained completely dry for a great portion of the summer and fall. No *Chologaster* have been found since the alteration of the habitat Increased water temperature and pool drying undoubtedly led to the local extirpation of *Chologaster* at this site. Before removal of the timber, the pool containing the swampfish was the only one in the area that never completely dried. Numerous additional collecting trips in 1955 yielded no swampfish at this or other locations in the Virginia portion of the Dismal Swamp. These observations suggest that *Chologaster corn uta* populations were declining in this area during the 1950s.

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Bothynotus johnstoni Knight in Virginia (Heteroptera: Miridae)

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Many species of the large family Miridae are specifically phytophagous, and such bugs are fairly easy to obtain by collecting on host plants. Others, frequently very rare in collections, appear to be ground dwellers and are taken by trapping techniques. The species under consideration at this time belongs in this category, and is moreover of particular interest owing to its striking sexual dimorphism: the females having convex and rather sclerotized hemelytra imparting the aspect of small beetles.

The genus *Bothynotus* was revised just over a decade ago (Henry, 1979), at which time existing knowledge about the several Nearctic species was reviewed. *B. johnstoni,* the second known Nearctic species, was named by Harry H. Knight in 1933 from a male collected at Carthage, Mississippi, and remained known only from that locality until appearance of Henry's paper, when material was recorded from central Florida (Highlands and Lake counties) and northern Georgia (Clarke and Union counties). Henry was able to match up the bizarre coleopteroid females with syntopic males, and provided an excellent drawing of a female from Georgia.

In sorting through the extensive pitfall samples made at three localities in Seashore State Park, City of Virginia Beach, by the Virginia Division of Natural Heritage in 1989 and 1990, technicians at the Virginia Museum of Natural History recovered a single female collected on 8 February 1990 from the drift fence sample established in a forested wetland site. It agrees in every respect with Henry's illustration (reproduced here as Fig. 1) and detailed description, and leaves no doubt about the identification. This discovery extends the known range of *B. johnstoni* some 700 km (420 miles) northeast of the Georgia localities and adds yet another element to the