Status of the Black Buffalo, *Ictiobus niger*, in Canada*

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The Black Buffalo, *Ictiobus niger,* has only recently been reported from Canadian waters in the western end of Lake Erie. One earlier United States record for western Lake Erie is also known. The species is less common than the other buffalofishes and appears to have declined or been extirpated in portions of its United States range, but has extended its range elsewhere through introductions. The lower Great Lakes, however, appear to be within the native range. The species is rare in Canadian waters.

Ce n'est que récemment que le buffalo noir, *Ictiobus niger*, a été signalé dans les eaux canadiennes à l'extrémité ouest du lac Erié. On connait également une mention américaine antérieure pour l'ouest du lac Erié. L'espèce est moins répandue que les autres buffalos et semble avoir diminué ou avoir été déracinée dans certaines zones de son aire de dispersion aux Etats-Unis, mais elle a étendu son aire ailleurs grâce à des introductions. Cependant, les lacs inférieurs des Grands Lacs semblent étre dans les limites de l'aire de dispersion naturelle. L'espèce est rare dans les eaux canadiennes.

Key Words: Black Buffalo, *Ictiobus niger*, buffalo noir, Catostomidae, suckers, buffalofish, rare and endangered fishes.

The buffalofishes (genus *Ictiobus*) are large suckers (family Catostomidae) characteristic of the rivers, lakes and larger streams of the Mississippi drainage basin. They are easily separated from other genera of the family (Catostomidae are represented in North America by 10 genera and some 65 species, seven of the genera have Canadian distributions) by their large size and the shape of the head and body which more closely resemble those of Carp (*Cyprinius carpio*). They are easily distinguished from the latter by lack of barbels, typical suckerlike mouth, and difference in colour. Amongst the suckers, buffalofishes most closely resemble the carpsuckers (Genus *Carpiodes*) from which large specimens can be distinguished by the thicker body and upward curve of the snout (*see* Clay 1962; Cross 1967), but juveniles may be confused with those of *Carpiodes* sp.

The Black Buffalo, *Ictiobus niger* (Rafinesque 1820), is the smallest of the buffalos, commonly 90 to 60 cm in length and 0.5 to 4.5 kg in weight (Figure 1). The species can be distinguished from the other buffalos by the darker colour, thicker body and ventral mouth (Clay 1962). The dorsal surface is usually slate-grey to black, the sides brownish and the belly yellow to white.

Distribution

In Canada, the species was first described from a single specimen from the western end of Lake Erie [Crossman and Nepszy 1979; ROM (Royal Ontario Museum) 34562]. The Black Buffalo has also been reported from Boston Creek [Haldiman — Norfolk County; 49°59′42″N, 80°16′18″W: OMNR (Ontario Ministry of Natural Resources) 575 #42] of the Lake Erie drainage and in central Lake Erie [ROM 53971]. The OMNR has recorded collections from Carp Creek, a tributary of the Saugeen River in Grey County [44°08′36″N, 80°32′00″W; 44° 09′36″N, 30° 54′24″W: OMNR #'s 83, 43, and 44 respectively]. There is one record of the species from the Niagara River near St. Catharines [43°19′27″N, 79°03′01″W: AOCMNR 86: OMNR]. (Figure 3).

These records have been checked by staff of the Royal Ontario Museum and the Boston Creek and Carp Creek records are catalogued as *Castostomus* sp. unidentified. The Niagara river specimen was returned to the water alive and cannot be verified (E. J. Crossman, ROM, Toronto, Ontario; personal communication).

In the United States, the Black Buffalo is known from most large rivers and many smaller rivers of the Mississippi, Missouri and Ohio river basins (Figure 2). It has also been reported as rare and extirpated or depleted in the Calcasieu, Sabine, Bryos and Rio Grande drainages by the U.S. states concerned, but these may be introduced populations or misidentifications of the more locally common Smallmouth Buffalo, *Ictiobus bubalus* (Hubbs and Lagler 1958; Shute 1980).

In the Great Lakes, the species has only been reported from southern Lake Michigan and Lake Erie (Hubbs and Lagler 1958). Although

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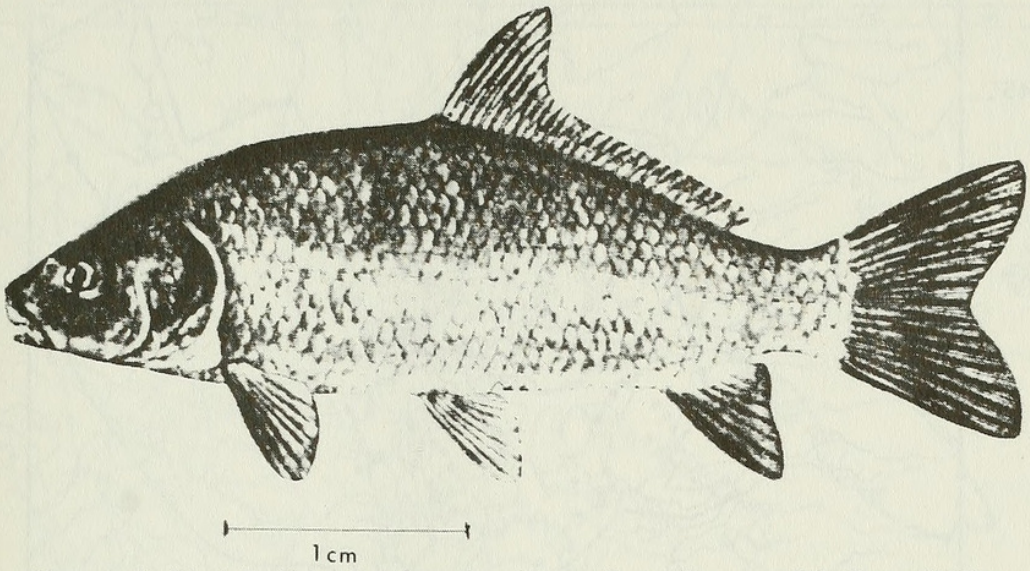

FIGURE 1. Black Buffalo, *Ictiobus niger* (drawn from photograph in Cross 1967).

Trautman (1957) indicates that the lower Great Lake populations resulted from introductions, Hubbs and Lagler (1998) disagree and consider the species to be native in these waters. Trautman (1957) does note the lack of early information on the species due to confusion with the Smallmouth Buffalo and its less common occurrence. He also indicates that hybrids between the species had been taken in Sandusky Bay, thereby supporting the existence of the species in Lake Erie. Moore (1968) listed the species for Lake Erie. The recent Canadian collections (1975 to 1987) confirm the presence of the species in Lake Erie.

Protection

There is no specific protection for this species in Canada although general protection is available through the Fisheries Act. In the United States, the Black Buffalo is listed as a species of special concern in Kentucky, Mississippi, South Dakota and West Virginia. It has been listed as protected in Wisconsin (Johnson 1987).

Population Sizes and Trends

Although Trautman (1957) indicated that the species was probably introduced to the lower Great Lakes, Hubbs and Lagler (1958) state they are native (*see* Distribution). Since the species is abundant in Ohio and can easily be confused with the Smallmouth Buffalo, especially smaller individuals (Smith 1979), it has probably gone unnoticed. Moreover, in the past, many fishermen and fisheries biologists believed this species to be a hybrid between the other two species and it was referred to as the Mongrel Buffalo Fish. The species is of no commercial interest and no attempt to ascertain populations in the Great Lakes have been made. Thus, it is probably native to Lake Erie and may have gone virtually undiscovered there because of its rarity, unimportance and similarity to the other species.

The origins of this species in Canada and its occurrence in the Lake Huron drainage may be questionable, but based on its apparent rarity and other factors as discussed above, it is not unreasonable to assume that this fish may be native to the Lake Huron drainage as well and have previously gone unnoticed. On the other hand, it may have been introduced through release of bait fish. More information on the distribution of the species in Canada is required before this question can be resolved. However, the species appears to be native to Canadian waters, at least in Lake Erie, where it is relatively rare.

In the United States, the species is still listed as common in some parts of the range, but has been depleted or extirpated in other parts (Smith 1979; Shute 1980). The distribution is sporadic, related to availability of suitable habitat and the species seems intolerant of pollution. On the other hand, they do adapt to impoundment conditions (Cross 1967). Nowhere are they as abundant as the other two buffalos.

Habitat

No specific information is available on the habitat preferences of the species, but Black Buffalo are often found in association with the Smallmouth and Bigmouth (*Ictiobus cyprinellus*) buffalos. However, Trautman (1957) indicated the preferred habitat was intermediate to that of the other two. The Bigmouth Buffalo is often found in shallow turbid pools, overflow ponds and lowland lakes and has a high tolerance for turbid waters (Trautman 1957). The Smallmouth Buffalo, on the other hand, frequents less turbid waters and its

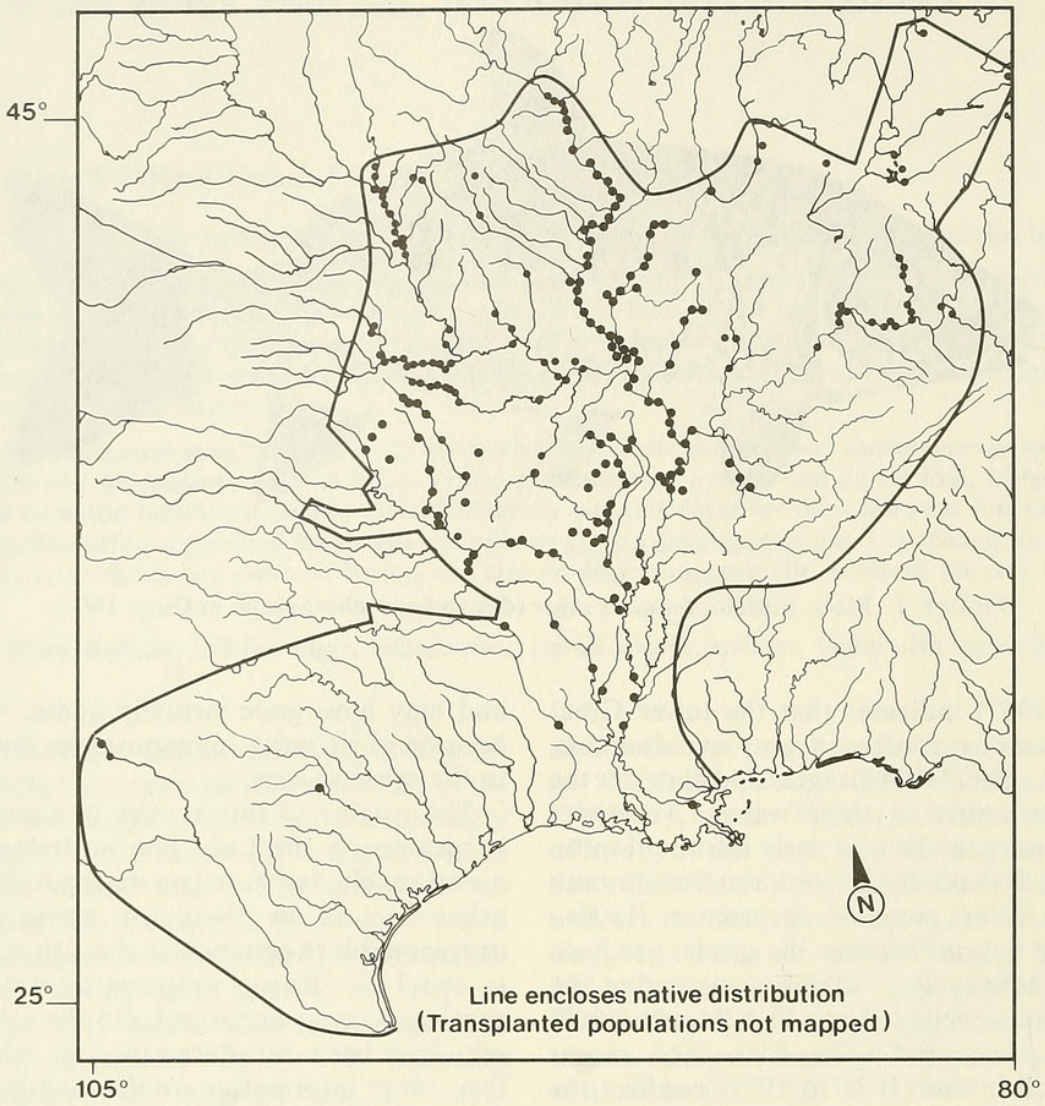

FIGURE 2. Canadian records of the Black Buffalo (see text for details).

most commonly found in the deeper, swifter, cleaner waters of larger rivers and does not move into flooded areas, remaining in the permanent river channels.

Although Trautman (1957) indicated that the species probably occupied a habitat intermediate to the Bigmouth and Smallmouth Buffalos, the habitat requirements seem to be closer to those of the latter. Clay (1962) stated that the species is intolerant of pollution; it is usually found in the deeper water of larger rivers, but may be found in marginal lakes (Smith 1979).

General Biology

There is little information on the biology of the species, but feeding and reproductive habits are said to be similar to those of the other buffalos (Smith 1979). Growth rates for the species in a Kansas reservoir were reported by Green and Cross (1956), and Carlander (1969) provides some additional age and growth data. Like most suckers, buffalos spawn in the spring after runoff raises stream levels. Thousands of eggs [up to 400 000 in larger fish, *see* Harlan and Speaker (1951)] are scattered over the bottom in shallow waters and abandoned. Hatching is assumed to occur in about 10 days at 15°C [if similar to the Smallmouth Buffalo — *see* Smith (1979)] and young-of-the-year of all three species show up by mid-June (*see* Cross 1967; Smith 1979). Growth is rapid, young-of-the-year attaining 2 to 3 cm at the end of the first summer. They are sexually mature by age 3 at 22.5 to 39 cm in length and 0.5 to 2 kg in weight (Harlan and Speaker 1951; Carlander 1969). By seven years, lengths of 100 cm or more may be achieved and fish of up to 24 years of age are known (Carlander 1969). One Black Buffalo taken in Kansas was 104.1 cm long and weighed 12.7 kg (Cross 1967).

The species is benthic, feeding on plankton, insect larvae and vegetation; snails and small molluscs may also be important food items (Harlan and Speaker 1951). The species apparently hybridizes with Bigmouth and Smallmouth Buffalos where they are sympatric (Shute 1980).

FIGURE 3. Native distribution of the Black Buffalo, *Ictiobus niger* (adapted from Shute 1980).

Limiting Factors

No specific limiting factors have been indicated, except that the Black Buffalo has been reported as being intolerant of pollution (Clay 1962). The species is of little or no commercial interest and is relatively rare compared to other buffalos (Smith 1979). It is often taken by anglers using worms or doughballs for bait (Cross 1967) but is not a sought after species (Harlan and Speaker 1951).

Like the Smallmouth Buffalo, it seems less tolerant of turbidity (Trautman 1957) and may be limited by availability of suitable habitat and by damming of rivers for hydroelectric developments etc. It apparently does adapt to life in impoundments (Cross 1967). They may also be limited by competition with Carp (Cross 1967). The Canadian distribution may be limited by available habitat as the United States distribution has been shown to be sporadic, presence of the species being related to suitable habitat and water quality (Cross 1967).

Special Significance of the Species

Although of no commercial or sport interest, the species, like other buffalos, grows fast, does well in impoundments, and could be utilized as a source of protein. Its presence in the lower Great Lakes could be indicative of changing water quality. The extent of the Canadian distribution requires clarification.

Evaluation

The lower Great Lakes would appear to be the northern fringe of the native range of the species. Although locally abundant in some locations within the United States range, it is relatively rare as opposed to the other buffalos and has apparently declined or been extirpated in some parts of its range. United States and Canadian records for the species in Lake Erie are few and the species should be considered rare and vulnerable in Canada. Although only recently discovered in Canadian waters, there is no reason to suppose its presence in

western Lake Erie is recent. Earlier United States records for the lake are known and the species is not easily identified and can be confused with the Smallmouth Buffalo, and younger fish of all these species are difficult to distinguish.

Acknowledgments

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