

The Tadpole Madtom, *Noturus gyrinus*, a rarely seen fish of the
Rideau River System, Ontario

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Tadpole Madtom, what a funny name for a fish. It is called a tadpole because its body shape resembles a larval frog (Figure 1). There are two explanations for the mad portion of the name. The first is that this little fish produces a poison that can cause a nasty sting and hence make the victim crazy with pain. The other explanation is that when these fish are disturbed they dart every which way in frenzy. This fish is called a tom because it belongs to the catfish family Ictaluridae, members of which have whiskers (or barbels) (Figure 1), and tom of course is just another word for cat.

The Tadpole Madtom is the smallest member of the Ictaluridae family in Canada, rarely measuring more than 90 mm in total length. This fish (Figure 1) is characterized by the presence of barbels, sharp pectoral spines (one spine on each side of the fish, just behind the head region), well-demarcated muscle bands along most of the body, no scales, and a long-based fleshy dorsal fin (called adipose fin) connected to the tail fin (Bernatchez and Giroux 1991, Scott and Crossman 1973). This adipose fin is not truly a fin in the same sense as the other fins on the body because fin rays do not support it.

Tadpole Madtoms are nocturnal creatures, active at night foraging along the bottom in search of small crustaceans and aquatic insects. These little fish are known among anglers because of their nasty sting. They produce a stinging poison used to immobilize potential predators such as large fish or gartersnakes. The poison is transmitted through two grooved spines (called pectoral spines). Despite their poison-injecting spines, they are used as bait to catch sport fishes (Scott and Crossman 1973). However, Tadpole Madtoms are difficult to catch with hook and line or nets due to their small size and nocturnal habits.

During the summers of 1998 and 1999, surveys of the fish community within the Rideau River and its tributaries were conducted as part of a three-year multidisciplinary study, the Rideau River Biodiversity Project, involving the Canadian Museum of Nature, the Rideau Valley Conservation Authority, and the University of Ottawa. As a result of these surveys, new information has been gathered about the distribution of the Tadpole Madtom, *Noturus gyrinus*, within the Rideau system.

During the 1998 sampling season, a Tadpole Madtom was captured in the Rideau River, halfway between Burritts Rapids and Becketts Landing (45° 00' 40''N, 75° 44' 40''W) (Figure 2). This is the first reported capture of this small catfish in the Rideau River proper. According to Canadian Museum of Nature records, its nearest known sites of capture are 10 km downstream in Kemptville Creek, a tributary of the Rideau River (43 specimens collected between 1976 and 1987; catalogue nos. NMC77-132, -134 to -136,

83-290, -316, -336, -804, -806, -816, 84-362, 85-143, 87-485). This is a significant distance for a small, sedentary fish with a limited home range. The Tadpole Madtom was caught along the edge of a cattail bed on 28 August 1998, amongst a dense cover of Wild Celery, *Vallisneria americana*, growing on a muddy substrate, situated within an agricultural area with very little tree cover. The fish measured 88 mm in total length and weighed 6 g, well below the maximum of 110 mm for the species in Canada (Scott and Crossman 1973). The gear used to catch the Tadpole Madtom was a DC backpack electrofisher. This is a battery-operated apparatus that generates an electrical field in the water. Fish are momentarily attracted to the electric current causing them to leave their hiding spots in the sediments. The people assisting the electrofisher operator then have a fraction of a second to scoop up the fish with a dipnet before they swim away. Needless to say, both the operator and the assistants wear insulated waders and gloves to protect them from the electric current.

During the 1999 sampling season, three tributaries of the Rideau River were sampled: Kemptville Creek, Stevens Creek, and the Jock River. On 19 July 1999, one young-of-the-year Tadpole Madtom (27 mm) was captured with a backpack electrofisher, in Kemptville Creek, at Currie Park in Kemptville (45° 01' 11"N, 75° 38' 30"W). Although only one Tadpole Madtom was captured, the presence of a juvenile is evidence of a reproducing population of Tadpole Madtoms in the Creek. In Stevens Creek, at North Gower, one adult Tadpole Madtom was captured with a backpack electrofisher and three adults were captured in unbaited minnow traps on 30 July 1999 (45° 07' 45"N, 75° 42' 45"W). Their total lengths ranged between 69 - 100 mm. At both the Kemptville Creek

and the Stevens Creek sites, the Tadpole Madtoms were captured within shallow, mucky stretches of densely planted Wild Celery, near cattail beds. The similarities between the 1998 and 1999 sites suggest that Tadpole Madtoms prefer shallow, weedy areas with very little rock. Captured specimens have been deposited in the fish collection of the Canadian Museum of Nature (catalog nos. CMNFI 1999-18, -24 to -26).

Looking further afield, Tadpole Madtoms have been reported in the Ottawa River, the South Nation River and its tributaries, in addition to the St. Lawrence River and Lake Ontario (McAllister and Coad 1974, Mandrak and Crossman 1992). There are two other catfish species which occur in the Rideau River System and which could be confused with the Tadpole Madtom. These are the Stonecat, *Noturus flavus* and especially the young of the Brown Bullhead, *Ameiurus nebulosus*. The Stonecat is distinguished from the Tadpole Madtom by possessing a square instead of a rounded tail fin and an upper jaw projecting beyond the lower jaw instead of the jaws being equal (Bernatchez and Giroux 1991).

This first record of a Tadpole Madtom, considered along with the first record of a Freshwater Drum (Phelps *et al.* in press), and that of the Oscar (Renaud and Phelps 1999), recently captured within the Rideau River, increases the total number of fish species reported in the Rideau River and Canal to 58 species belonging to 20 families. Despite the fact that the Rideau River flows through the nation's capital and that fishes are a fairly well studied group of vertebrates, these new records demonstrate that there is still much to be learned about the fishes of the Rideau River and Canal System.

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Fig. 1. Side-view of Tadpole Madtom, *Noturus gyrinus*, 88 mm total length, captured in the Rideau River on 28 August 1998 (Canadian Museum of Nature catalog no. CMNFI 1999-18).

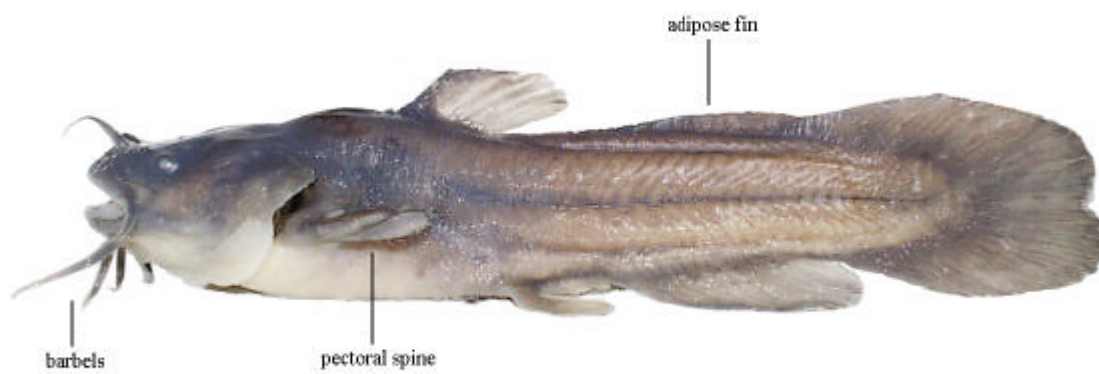


Fig. 2. Distribution map for the Tadpole Madtom, *Noturus gyrinus*, in part of eastern Ontario. The black triangles indicate the 1998 and 1999 records, the white triangles indicate past records of capture within the region. The dashed line indicates the divide between the Rideau and the Cataraqui rivers, which together constitute the Rideau River Canal System.

