

NANFA Members Search for Minnesota's Rarest Fishes

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Every state and province in North America has species so rare they are on the verge of extirpation. Very often these are common and widespread throughout their continental ranges. However, many species on the edge of their ranges barely hang on because climatic or habitat conditions are marginal for survival (Hrabik 2001). In Minnesota, there are two species that stand out far from the rest in rarity: Slender Madtom (*Noturus exilis*) and Bluntnose Darter (*Etheostoma chlorosoma*).

I began looking for both species in the mid-1970s while still in high school. I had met a NANFA member, Don Richmond, at a local pet store where we both worked. I was keeping tropical fish, but Don soon switched my allegiance to natives, recounting his collecting trips and the species he had brought home. Don would also often discuss minnows, darters, and other nongame species he read about in *Northern Fishes* by Samuel Eddy and James Underhill (1976). He was very intrigued with the Slender Madtom account that reported, "In 1954, three specimens were collected by a survey crew of the Minnesota Department of Conservation from Otter Creek, a tributary of the Cedar River in Mower County, not far from the town of Lyle." He was also equally enticed with the Bluntnose Darter account that reported Houston County, MN collections from the Mississippi River near the Iowa border in 1944; and Pine Creek and Root River near La Crescent in 1945. These were the sparks that led to many quests to come.

The Slender Madtom seemed to us the easier of the two species to find. From its headwaters to the Iowa border, Otter Creek was a small, mostly wadable stream usually less than 30 feet wide. However, despite more trips than I can remember, we always got skunked even though we did often find Stonecats (*Noturus flavus*) and collected our first Ozark Minnows (*Notropis nubilis*). We decided a new strategy was needed.

Don was building his native fish library and

was particularly impressed with *Fishes of Missouri* by William Pflieger (1975). He was very much interested in collecting Missouri's enviable diversity of killifish and darters, but what hooked me was how widespread Slender Madtoms were across the state. We agreed to make a collecting trip in the fall of 1983, but first needed to know what the regulations were in Missouri. I sent a very general "To whom it may concern" letter to the Department of Conservation and to my surprise received a handwritten letter from William Pflieger. He informed me all we had to do was purchase a non-resident angling permit. He also sincerely expressed his appreciation there were others who shared an interest in nongame fishes and wished us good luck on our collecting trip. Neither of us had been to the Ozarks before so we headed south using Pflieger's range maps to guide us.

Missouri proved to be a happy hunting ground for us! We collected Plains Killifish (*Fundulus zebrius*), Plains Topminnow (*F. sciadicus*), Northern Studfish (*F. catenatus*), possibly both Blackstripe (*F. notatus*) and Blackspotted (*F. oliveacous*) Topminnow, Yoke Darter (*Etheostoma juliae*), Orangethroat Darter (*E. spectabile*), Greenside Darter (*E. blennioides*) and Banded Sculpin (*Cottus carolinae*). Don was "filled to the gills" with fish he could safely take home so we decided to make a last ditch effort for Slender Madtoms. Again using Pflieger's maps, we zeroed in on Flat Creek near Cato in Barry County. We tried seining at a highway crossing, but no luck. One of us had a lightning bolt of an epiphany. It's way too long ago to remember who realized it first, but both of us angled for Channel Catfish (*Ictalurus punctatus*) and Flathead Catfish (*Pylodictis olivaris*) in Minnesota. One thing you don't do is fish for them during the DAYTIME – they are nocturnal. DUH! We returned to the same site just before sunset. Again the same old faces. However, when it got too dark to see and we pulled out the flash-

lights, one Slender Madtom showed up in a seine haul. We were elated! Successive seine hauls got several more. So this is their secret. The ride home did not seem as long as we reveled in a great sense of achievement.

I brought a few Slender Madtoms home to photograph. I had kept Stonecats and Tadpole Madtoms (*N. gyrinus*) before in aquariums and both species were extremely reclusive, only venturing out when food landed near their lairs. I expected the same of Slender Madtoms – NOT SO! They were out all the time cruising back and forth, but also exhibited goofy antics of resting on their heads and tails. Once I thought one had died lying flat on its back in the middle of the aquarium, but when I attempted to grab the body it sprang to life and shot for the nearest rock crevice. These “crazy characters” were a sheer joy to have in a community aquarium!

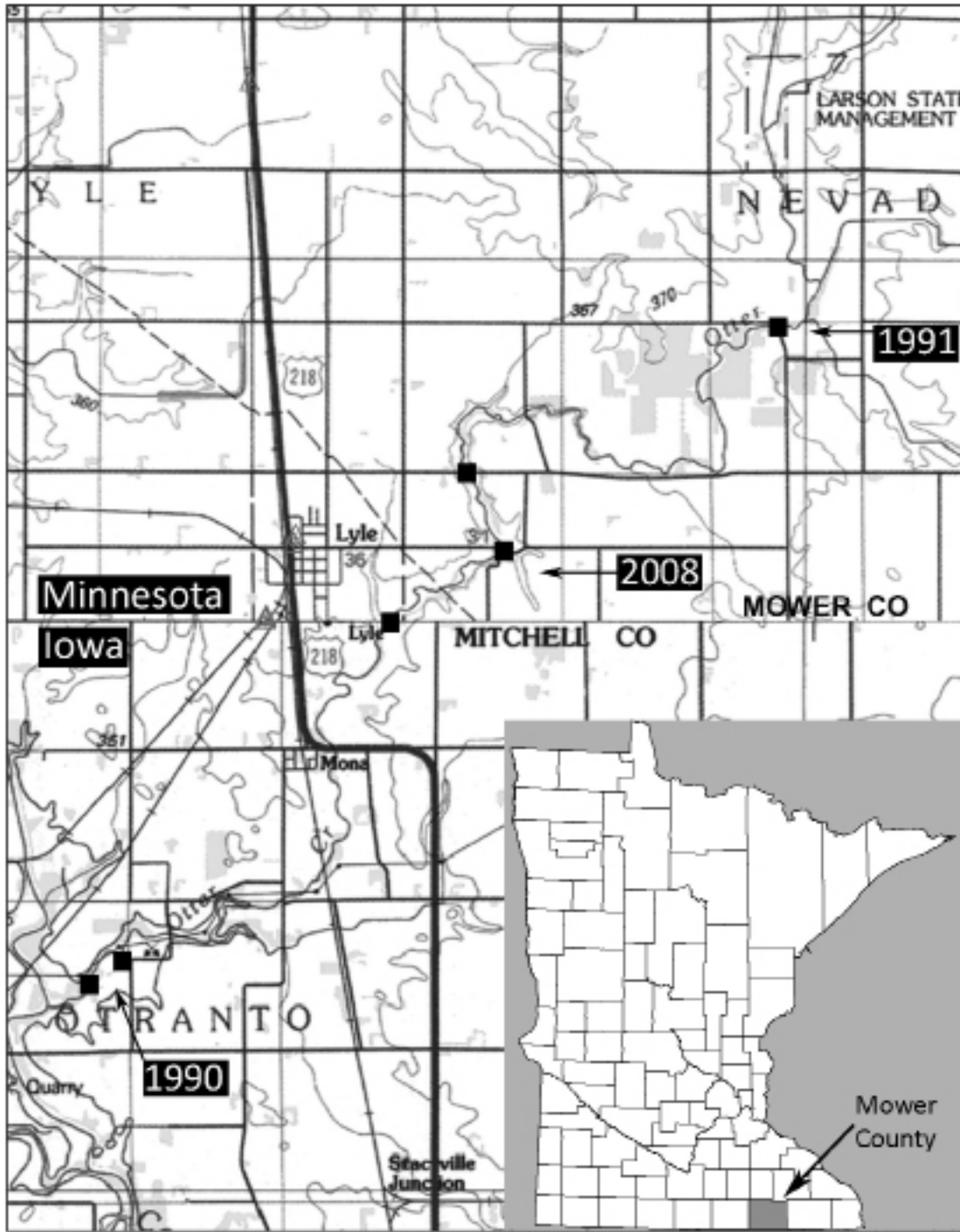
I was eager to try nocturnal sampling in

Minnesota on Otter Creek. Yes, it worked on Stonecats, but no Slenders. I also tried Rose Creek which was another tributary to the Cedar River and appeared to have suitable habitat. It was a dark evening and I turned on my headlamp accessing the creek near an old cemetery. I was using a push seine and very focused with my head down picking through the catch. Without any warning from cracking brush or footsteps, a shrieking voice yelled from the opposite bank. “WHAT THE HELL ARE YOU DOING?!” I thought I was going to jump straight out of my wading boots! My heart was pounding and I could not speak for several seconds. I shined my light toward the voice, but could see no one. I must have sounded like a blithering idiot when I finally did speak.

He sounded satisfied after several interrogating questions and left, but I knew he thought I was nuts. This trip again ended empty handed. I decided to focus on the Slender Madtom’s range in northern Iowa. I had



Slender Madtom Habitat in Otter Creek



Slender Madtom Collection Sites on Otter Creek

recently acquired *Iowa Fish and Fishing* by James Harlan and Everett Speaker (1987) who reported the Slender Madtom's greatest abundance was in the Upper Des Moines River drainage. I had to get a handle on the species' habitat and in October 1989 Don joined me for one more adventure to Brushy Creek (Webster County) in an Iowa state park. Success at last! In the

darkness under an old bridge, we got one!

In 1990, I began my career with the Minnesota Department of Natural Resources (MN DNR) as a Nongame Fish Biologist. Believe it or not, one of my first projects was looking for the Slender Madtom in Otter Creek. Of course I started on the Minnesota side, but I was hearing the same old song. In September 1990, I went off the reservation and 3 miles south of

the state line I found the Nelson Paradise Wildlife Area just east of Otranto, IA. Long after dark, I was electro-fishing solo with a backpack unit when two Slender Madtoms popped up. Absolutely incredible! I returned again in early October and had the most unique collecting experience in my memory. I was reconning another reach of stream in the wildlife area and entered a large pool. There was a huge boulder at the far end where I noticed a movement under the water. It hit the surface and erratically twirled in my general direction. As it got closer I realized it was a madtom. I frantically tried to scoop it with my hands and got it. Dang, it was another Slender! I had no buckets or jar to put it in so I slipped it into my shirt pocket thinking I better not fall! I had never been stung in the chest, but I have had madtom stings many times on my hands and fingers and they are always painful! These events wrapped up my field season on a triumphant note, but I was also haunted by the fact I could not find them in Minnesota. See page 16 for photos.

Slender Madtom Collection Sites on Otter Creek

Like a blood hound locked on a scent trail, I returned to Otter Creek in October 1991 and hit the same Minnesota sites all over again. I was just about to head home when I saw a road crossing on the map I had never tried. There was a cement culvert with rip-rap that contained some very appealing crevices. I donned a heavy backpack shocker and waved the “magic” wand over the rip-rap. I had no optimism left this late in the day, but I blinked several times in disbelief when two Slender Madtoms emerged from their dark caves. Finally after 37 years of absence, I had proof the species still occurred in Minnesota! Shortly before my retirement, I returned to Otter Creek in 2008 for one last visit. This time, I also had a commando squad of 20-somethings to assist me. We collected eight specimens at three sites. What a fitting way to wrap up a career!

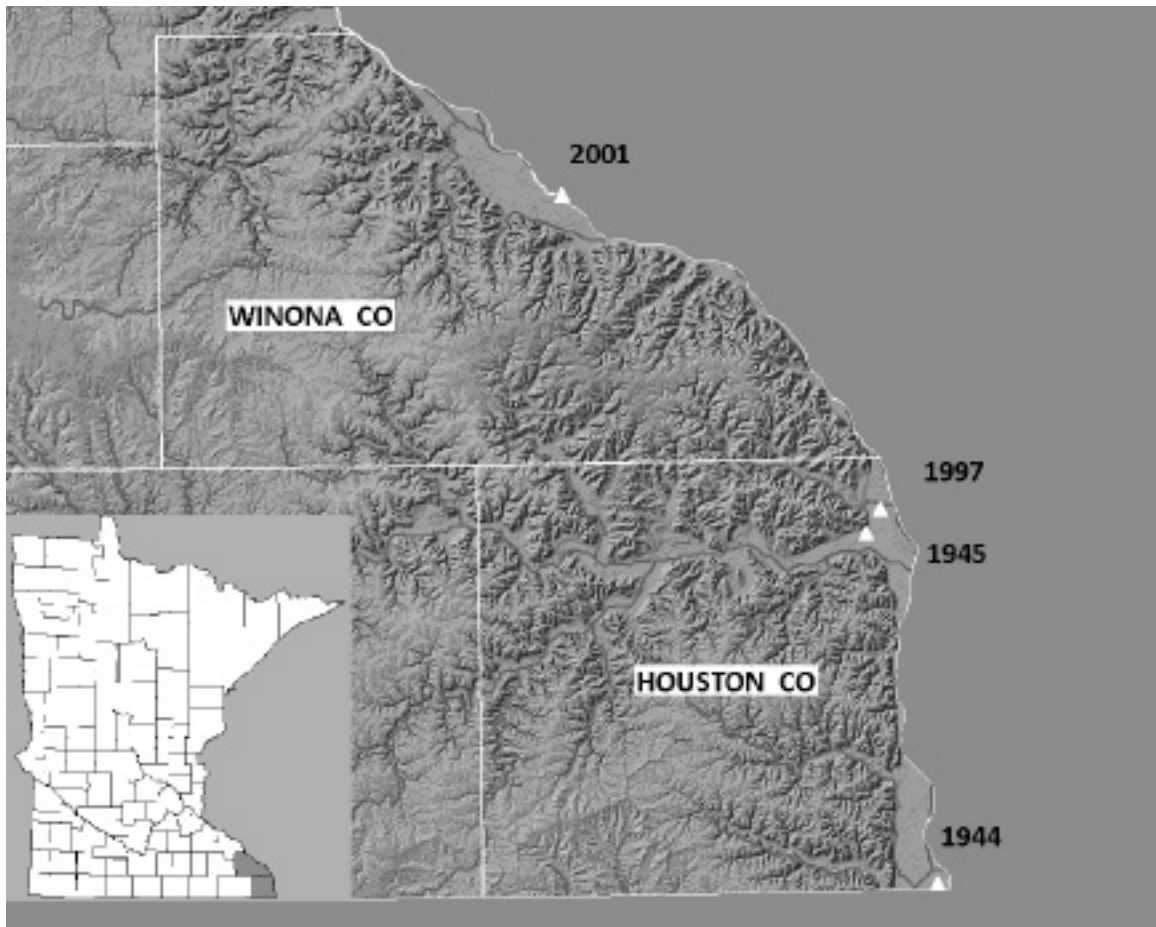
Bluntnose Darter Distribution in Minnesota

The Bluntnose Darter search followed another long journey again beginning with repeated visits to historical sites in Minnesota. This led to my first collections of Pirate Perch (*Aphredoderus sayanus*), Warmouth (*Lepomis gulosus*) and Mud Darter (*Etheostoma asprigene*). I also double-checked countless Johnny Darters (*E. nigrum*), but not a one raised

any hint of suspicion. In 1996, the MN DNR reviewed species for Endangered, Threatened, and Special Concern status. I was on the fish committee and we all agreed the Bluntnose Darter was *likely* extirpated from the state since it had not been reported for more than 50 years. However, I do recall one member commenting with a smile, “You know if we declare it gone, it’s going to pop up again just to spite us.”

In March 1997, I “joined forces” with NANFA member Ray Katula who was planning a collecting trip to Illinois. Again, I wanted to see the Bluntnose Darter’s preferred habitat and Illinois had no shortage of records. We stopped off at the Illinois Natural History Survey to visit another NANFA member, Dr. Larry Page. After a fascinating impromptu meeting with his students on egg mimicry in darters, he pointed us in the direction of Dismal Creek in Fayette County for the wily Bluntnose Darter. When we stopped at the road crossing, I realized the creek name was quite appropriate. The water was very turbid and bottom was carpeted with a thick layer of sand, silt, and clay. My first thought was I had been wasting my time looking in streams that were way too nice for this species! Need I add, here Bluntnose Darters were happy as clams.

I still had a nagging hunch Pine Creek held the best chance of having Bluntnose Darters. Ray was game for another try and I met him in August 1997 at an access on the Mississippi River east of La Crescent, MN. All I had was a canoe and a tired 4-“pony” outboard motor. We headed downstream for one-and-half miles sharing the river with commercial barges and pleasure yachts that dwarfed our small vessel before hooking a right into Target Lake. Now it got interesting looking for the mouth of Pine Creek which constantly “migrates” where ever it wants too. After poking up an old, now defunct channel of the creek, we found the true mouth. However, it was a shallow, silt-laden delta, and we had to laboriously trudge through the muck to drag the canoe upstream. After the channel deepened, we motored up past several winding bends and beached the bow in the cattail fringe along the creek. Ray worked one bank and I the other, each armed only with a kicknet and a vial of formalin. We had to travel light. The sandy-silty bottom grabbed our wading boots with every step and I soon was huffing and puffing with exhaustion. I worked the cattail edge where submerged vegetation was absent to sparse. After traveling several yards and sampling almost every inch, I lifted the net



Bluntnose Darter Distribution in Minnesota



Bluntnose Darter Sites: Left, Pine Creek (Houston County, MN); right, Mississippi across from Winona, MN

and saw a non-descript looking darter in the bottom. I cupped it in my hand through the mesh and raised it closer. Trying not to “jinx” what this could be I whispered to myself, “This is definitely **NOT** a Johnny Darter!” Carefully, I lowered the specimen vial into the net, dropped the fish in and tightly secured the cap. Then I turned and yelled, “RAY!” Filled with a rush of adrenaline, I “sprinted” over to Ray handing him the vial. I was surprised with Ray’s very excited reply, “That’s not a Johnny Darter!” Neither one of us wanted to say what we knew it was. It had been 52 years since Bluntnose Darters had been collected in Minnesota. The specimen had to be verified by an ichthyologist so I sent it to Dr. David Etnier at the University of Tennessee in Knoxville. Ray and I sat on pins and needles waiting for word. Finally in November 1997, “Ets” replied in an email, “Congrats - the darter is indeed *E. chlorosoma*.” Ray and I could now take a deep breath again and blow our horns from the highest mountain top! See page 16 for photos.


The End? Not quite. As Paul Harvey said every day on his radio show, “Here’s the rest of the story...” In late November 2001, Ray Katula and Ray Wolfe (yet another NANFA member) embarked on a day trip into the Wisconsin bottomlands of the Mississippi River just across from the Winona, MN. Ray K knew the foot trails well growing up in Bluff Siding, WI. After hiking in more than mile the trail ended at a backwater channel. There in some vegetation on a shelf against the bank, they seined one Bluntnose Darter which was again verified by Dave Etnier.

Currently in Minnesota, the Slender Madtom is a Special Concern species. This status by itself does not afford protection; however, the MN DNR has enacted special regulations prohibiting bait harvest in the Cedar River drainage south of Interstate 90. The demand for madtoms (a.k.a. Willow Cats) by anglers has skyrocketed in recent decades and sometimes a dozen will fetch \$15.00 or more during Walleye tournaments. Under an ongoing review process, the species has been proposed for Endangered status. The Bluntnose Darter was Special Concern until we designated it extirpated in 1996. “My bad!” Now, it’s being proposed again for Special Concern status.

Author’s Note: I wish to dedicate this article to the memory of John Bondhus who was NANFA’s founder. His vision of creating an organization dedicated to the study, appreciation, and concern of native

fishes will live on in the burning and diverse passions of its members. Their pursuits have and will continue to make valuable contributions to our knowledge and conservation of the North American Ichthyofauna.

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