Acute exposure to water with a pH between 3.5 and 5.0 is lethal to chloride cells in their branchial epithelium that allow them to not exchange gases. The swim bladder isn't the only anatomical advantage of this species; the bladder wall which serve for the deposition and absorption of gases. In hydrostatic pressure must take place between the swim bladder so all gas exchange for the purpose of adjusting to changes in water conditions of oxygen deprivation caused by temperature in hypoxic waters of a stratified lake. Ecology 75: 1246-1253.


Looking for something a little different to do on a weekend during the month of May? Here’s an annual event that has free, guided collecting trips to several localities in southern Minnesota. The trophies in the pursuit are, of course, darters. Minnesota may not be an epicenter of darter diversity, but we do boast a few gems (e.g., Banded, Iowa and Rainbow). There is also a smorgasbord of other species regularly collected such as Southern Redbelly Dace, Stonecat and Banded Killifish. The Minnesota Aquatic Society (MAS) sponsors the event and it’s open to all MAS and NAMF members. This is very much a family affair so spouses and children are welcomed too. MAS (now 81 years young) was founded in 1931 by some St. Paul residents who maintained fish ponds in their yards.

The first Darter Hunt I attended was in the early 1990s. When no one offered or organized at the following year, I stepped up and have led two and sometimes three outings every year since. Some excursions are lean with as few as four attendees, but generally 10-15 persons show up. NAMF members who have made appearances include Twin Cities’ residents Tom Ward, Troy Brantner, Jared Cruz, Robin Engelking and Konrad Schmidt. In 2010, Peter Unmack joined us while he was in town as an MAS guest speaker. The late John Bondhuis (NAMF’s founder) also attended a hunt or two and brought his two children who always had a blast scooping and dip netting.

A Department of Natural Resources permit is required to collect darters and MAS has an annual limit of 75 which has so far satisfied every one’s needs, but the group can also take minnows and other species designated as bait fish. Stipulations of the permit include any fish or offspring kept for home aquariums cannot be bought, sold or traded, and of course, ever released. I also have a personal stipulation that a Darter Hunt will never ever be scheduled on Mother’s Day! As for myself, it’s the perfect way to spend Mother’s Day, but I don’t believe most wives/moms would see it that way!

Participants need only bring their exuberant enthusiasm, waders, sunscreen, clothing for spring weather (including a long sleeve shirt, long pants and of course, rubber boots) to transport the “fruits” of their labor home. Since every weekend in May is a crap shoot weather-wise, I gather emails and keep everyone posted whether or not a scheduled trip is a go or a bust.

The first trip is the longest day because we try to collect at three sites. We meet at the scenic town of Welch which is nestled in a hollow in the foot of towering bluffs along the Cannon River. After arming ourselves with waders, seines, dip nets and float buckets, we hit the water in groups of four or five. Some collectors kick net slower, but most work on a seine gang where two throw the net and the rest kick over boulders downstream into the net. The booty is scooped from the seine and placed in float buckets. When I feel we have more than enough fish, we head back to the bank and put our catch in plastic Kitter Keepers for viewing. Even though the bright, green-colored Banded Darter is the Darter of the day, everyone is fascinated with the “spineless wonders” in the streams such as crayfish, stonefly larvae, hellgrammites, water scorpions, and yes, even lowly leeches. After a thorough and careful selection of keepers, most of the catch is released back into the Cannon River. Many in the group bring nothing home but photos and simply enjoy discovering the secret life of streams. The physical exertion in the stiff currents takes its toll and everyone looks forward to the Trout Screm Cafe which is just a short skip and hop from the river.

After lunch, the caravan of cars rolls out of Welch to nearby Belle Creek. This site is located on state forest land in another, but narrower valley. The stream community here is very different from the larger Cannon River and the species of choice is the Fantail Darter. We also help monitor a Rainbow Darter removal (a Eagle Scout project of Bryan Stefansky in 2004). After counting and photographing specimens and admiring the vibrant colors in the males, all are returned to finish on the promise of hopefully someday spreading downstream into Cannon River where they also once occurred. The last stop for this trip is the headwaters of the Little Cannon River. Here the landscape is gently, rolling hills which are mostly pasture and some cropland.

Darters are abundant, but not the only prize we seek for. Many love sampling the beautiful Southern Redbelly Dace, Blacknose Dace, Common Shiner and Central Storeroller. I used to allow them to take some specimens home, but since this species has been proposed for Special Concern status in Minnesota, I insist all are released after deeply appreciating their colorful and uniquely large, upright mouths.

The second outing begins at the historic town of Marine on St. Croix. The town was the first settlement in Minnesota where a saw mill was built on Old Mill Stream. Today, the site lies in the middle of the Cannon River National Wild and Scenic River. Upstream of town, Old Mill Stream holds a fly angler’s dream of trophy Brook Trout, but near the mouth, large, chunky Rainbow Darters dwell in the riffles and pools. Again, our catch is viewed by all in the plastic Kitter Keepers and a few gems are selected before releasing the rest. We have to keep our energy up for the last leg of the Darter Hunt and most order a sandwich from the Inver Grove Heights church take-out place. We finish outside at a Gazebo in the city park to dine with good company, and of course, carry on the never ending discussion about fish. The final destination for each Darter Hunt is Square Lake County Park where some of you may find yourselves, and include in the group of one of the most recent in Minnesota and the reason why so
many scuba divers frequent its depths. The lake is also home to the last species on our groups’ wish list: Iowa Darter and Banded Killifish. Scuba divers and other park users descend on us from “land and sea” to check out what the raucous hubbub is all about. The divers express amazement and an increased awareness about what they’ve seen underwater. The others learn about a lesser known member of the perch family and marvel that darters are related to the Walleye, Minnesota’s State Fish.

MAS sponsors an annual fish show every April and there is a native fish class. In the past, Southern Redbelly Dace and Spotfin Shiner have made appearances. However, most notably, a male Rainbow Darter took Reserve Best of Show in 2002. (Photo on p. 16). I entered the little fellow as a patriotic nod to the events of 9/11/2001. He was placed in a tank containing white gravel and with his intense red and blue stripes, many members and visitors were captivated by his striking colors and adorable disposition. Many could not believe he had been collected a year before during the 2001 Darter Hunt. It was the first year the Southern Redbelly Dace made appearances. However, most notably, a male Rainbow Darter took Reserve Best of Show in 2002.

Peter Unmack, front

Darter Hunt collecting sites

Jenny Kruckenberg (left) viewing and enjoying the catch.

2012 NANFA Convention

Salt Fork State Park, Eastern Ohio

The 2012 NANFA convention will be hosted by the Fish Division of the Ohio State University Museum of Biodiversity (Brian Zimmerman, Justin Baker, Marc Kibbee).

The convention will be held at scenic Salt Fork State Park at their lodge and conference center. This is Ohio’s largest state park and is located conveniently near the intersection of Interstates 70 and 77 for those who will be arriving by road. For those who fly in there are large airports in Cleveland OH (118 miles 2hr 4min), Columbus OH (94 miles 1hr 47min), or Pittsburg PA (96 miles 1hr 48min).

The convention will begin on Thursday Sept 13, 2012 and go through Sunday the 16. We are planning to have a group field trip on Thursday that will not start until mid-day for those that arrive that morning. We are hopeful we will line up demonstrations of electrofishing and trawling on the Muskingum River (Ohio’s largest inland River) below one of the large dams on this river. We will also have large seines available for use. Friday we will hold the talks and the banquet at the lodge. The meal will be catered by the lodge and menu is yet to be determined. A second group field trip on the Walhonding River with the option to canoe a stretch of the river with stops for sampling will be on Saturday. If you don’t like the idea of being in a boat, an alternative route along the river allowing you to stop at several sites will be available. Saturday evening after everyone returns from the Walhonding we will hold the annual auction. If you have items you would like to donate for the auction please let us know! We will conclude the event on Sunday with more traditional collecting trips with group leaders to some of the more unique and diverse localities in the state. More details on exactly what you have a chance to catch or view on each trip will be coming soon. For now some of my favorite Ohio species that you should have a high probability of catching include but certainly are not limited to: Bluebreast Darter, Variegate Darter, Rainbow Darter, Slenderhead Darter, Gravel Chub, Streamline Chub, Bigeye Chub, Redside Dace, Southern Redbelly Dace, Orangespotted Sunfish, Central Longear Sunfish and many more!

For those who may be travelling with you and not so interested in fish, there is plenty to do at this rather large state park. There is a golf course, miniature golf, plenty of games in the basement of the lodge, indoor pool (outdoor pool will be closed for the season at this time of year), boat rentals, lots of hiking trails, and a beach on the lake. For more about the park here is the website… http://www.saltforkstatepark.com/

To reserve your lodging call 1-800-AT-A-PARK (282-7275). It is VERY IMPORTANT that you mention that you are with NANFA. We have to have 60 total room/night rentals (at least 20 rooms or cabins for 3 nights) to get the conference facilities at no charge. You also won’t get the group rate if you don’t mention you are with NANFA. Our block of rooms and cabins reserved for the conference will NO LONGER BE RESERVED AFTER AUGUST 12, 2012, so get your room or cabin early or you may have to stay elsewhere because this is a very busy time of year at this lodge.

Lodging options are as follows…

- Lodge Rooms all $115 per night regardless of bed configuration:
  - 1 King Bed
  - 2 Double Beds
  - 2 Double Beds and set of bunk beds (2 more small beds)

- Hillside Cabins are $165 a night. These are a short walk up the hill to the lodge where the talks and banquet will be held. They are also right next to the lake if you want to do some extra collecting (there are Orangespotted Sunfish in the lake). These have 2 bedrooms one with a single Queen sized bed and one with 2 sets of bunk beds (4 beds). There also is a living room with a couch and a full kitchen.

- You can have up to 4 people in the lodge rooms and 6 in the cabins. That works out to be $28.75 or $27.50 per night respectively if you plan to share and fill a room or cabin.

- There are rooms reserved for both Wednesday evening the 12th and Sunday evening the 16th for those who want to be there the night before or stay over after that last collecting trip.

- There is also camping available in another part of the park, for rates and availability go here… http://www.dnr.state.oh.us/parks/parks/saltfork/tabid/785/Default.aspx

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Conference Registration…

What do you get for your registration fee?

- You get access to 2 full day and 1 half day guided field trips, full day of native fish related talks from professionals and native fish hobbyists followed by a Friday night banquet at the lodge with the keynote speaker (to be determined), and access to the annual auction on Saturday evening. On top of this there will be a hospitality suite open each evening for people to gather and socialize. This truly is one of a kind experience where professionals and hobbyist mingle and mix allowing for good conversation and unique perspectives on the conservation and captive care of our wonderful North American native fish fauna!

- Regular non-student
  - Before August 12 will be $75
  - After August 12 including upon arrival will be $95

- Spouse registration will be $35
Some fish that will be seen at the upcoming Ohio Convention. Photos by Brian Zimmerman see page 30

Variegate Darter, *Etheostoma virgatum*

Redside Dace, *Clinostomus elongatus*

Bluebreast Darter, *Etheostoma camurum*

Iowa Darter, *Etheostoma exile*


**MINNESOTA DARTER HUNT**

see page 28

(photos by Konrad Schmidt)

Banded Darter, *Etheostoma zonale*