

IOWA'S LONGEAR SUNFISH MYSTERY SOLVED...MAYBE



Konrad Schmidt

Saint Paul, MN

In June 2014, Iowa Department of Natural Resources personnel found three Longear Sunfish (*Lepomis megalotis*) in a pond at the Fairport Fish Hatchery near Muscatine. The origin of the fish was a mystery. It was the first record of the species in Iowa (see Fall 2014 Riffles). Recent revisions elevated the Northern Sunfish (*L. peltastes*) to species rank from the subspecies *L. megalotis peltastes*, which was known from Iowa but is now presumed extirpated. Bruce Bauer examined the Fairport specimens and tentatively identified them as the former subspecies *L. megalotis megalotis*. DNA sequencing supports this determination but it was not 100% on the separation of *peltastes* from *megalotis*. Currently, DNA sequencing has not distinguished *peltastes* specimens as distinct from *megalotis*. Future work will hopefully shed more light on the situation as more specimens from throughout the range of these sunfishes are added to the DNA and the morphometric databases (Bruce Bauer, pers. comm.)

In July 2015, Karen Rivera (Illinois Department of Natural Resources) emailed Bob Hrabik (Missouri Department of Conservation) mentioning that Lake George west of Rock Island, Illinois, had a population of one of the two sunfish species and requested identification pointers to separate them. Bob copied me and I made arrangements to collect specimens with Karen during their annual lake survey in September. Two shocking boats cruised the shoreline for about an hour and we collected 18 specimens. I could tell by their life colors they were Longear and not Northern Sunfish (Figure 1). Karen mentioned they had been much more abundant in the lake until recently when turbid conditions greatly reduced aquatic vegetation beds. Tissue samples from 10 of these specimens have been provided to Bruce Bauer for analysis. The addition of the Lake George tissues to the DNA database should help shed more light on the status of the specimens from the Mississippi River at Fairport as it is anticipated that these two samples will show up as sister to each other, which would be further evidence that the recent Iowa collections are indeed *L. megalotis*.

How did Longears get into Lake George? We did pass by the reservoir's outlet, which was a huge cement box culvert. I looked for the stream through the bridge and it appeared to be roughly a 50-foot almost vertical drop. No, Longears did not swim upstream into Lake George. Afterwards, Karen did some more digging and found some interesting things, which raised even more questions. Ken Clodfelter has managed the reservoir for 28 years and confirmed Longears had been present during this entire period. Big Branch Creek was dammed in 1967 to create Lake George, but there has never been a fish survey of the creek and the species may



Figure 1. Top: Longear Sunfish (*Lepomis megalotis*) from Lake George (Rock Island County, IL). Bottom: Northern Sunfish (*Lepomis peltastes*) from Clear Creek (Itasca County, MN). (Photos by Konrad Schmidt)

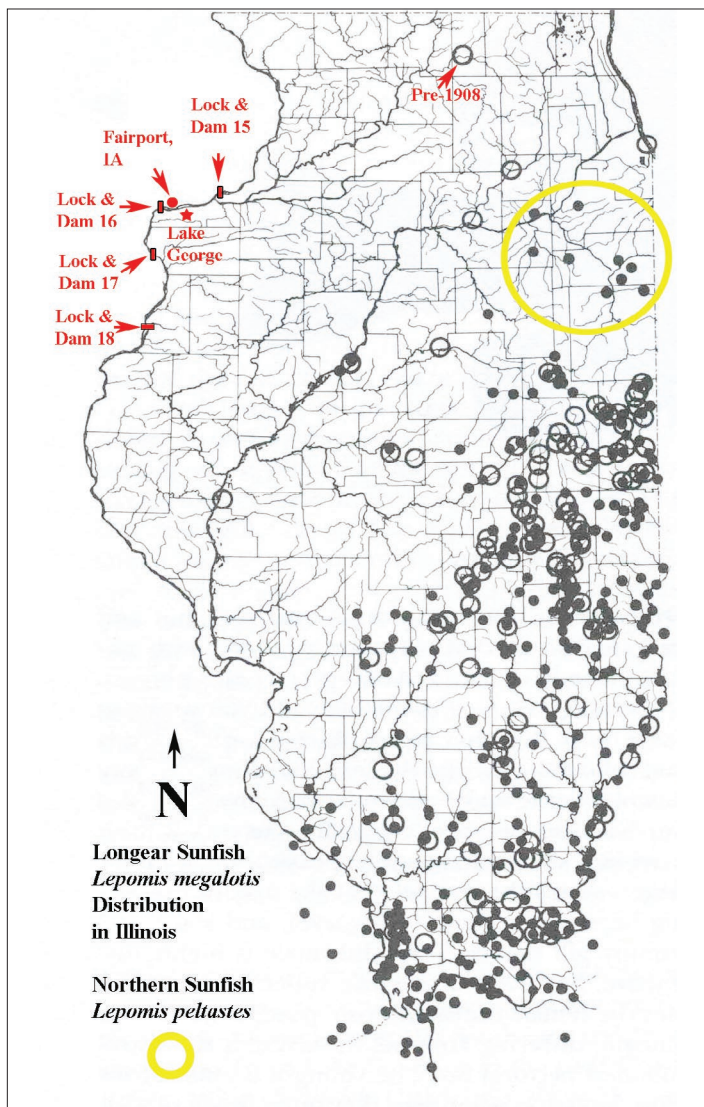


Figure 3. Distribution of Longear Sunfish in Illinois (Modified from Smith, 1979). Smith noted another distribution puzzle that will be raised, but not solved here. Northern Sunfish occur in four Illinois counties which I have circled in yellow on the map, but I do not know if all occurrences represent the same species. Perhaps biologists from Illinois can shed some light here. Below: Northern Sunfish from within the yellow circle (Carp Lake, Will County). (Photo by Olaf Nelson)



Figure 4. Banded Killifish (Muscatine County, IA). (Iowa DNR photo)

ADDENDUM

Believe it or not, a new mystery developed again at the Fairport State Fish Hatchery near Muscatine, Iowa. In May of this year, after draining a pond, hatchery staff found a fish initially thought to be minnow. After emailing images to several fish biologists, the shocking revelation turned out to be a Banded Killifish (*Fundulus diaphanus*). This species was previously known only from the other side of the state in Dickinson and Lyon counties (Harlan and Speaker 1987), which is roughly 250 air miles away (Figure 4). How this one found its way into the hatchery's pond is as yet unknown, though a few hypotheses have been suggested. It is quite possible the answer will never be known.

have always been present. Karen also queried Longear records from Pool 16 of the Mississippi River where Big Branch Creek is a tributary and the Fairport Hatchery is located on the Iowa side. She concedes it was not an exhaustive search, but did find records from 2003 and 2009. She also found one from Pool 15 in 2006 and 2014. Downstream of Pool 16 there is one record from Pool 18 in 2008.

After returning home, I pulled *Fishes of Illinois* (Smith 1979) off my book shelf and got another shock. With the exception of a single pre-1908 record, which likely lacks extant specimens to verify identification, Longears did not occur (by a long shot!) that far upstream in the Mississippi River (Figure 3). I was also surprised at the "stone's throw" proximity of Fairport, Iowa and Lake George. This does appear to be the smoking-gun connection. Now questions turn to the Longear's origin in Lake George and how far they may have spread in the Mississippi River. The latter may be learned as Mississippi River survey data from recent years become available to query. Iowa fisheries biologists are aware of the Fairport occurrence and have been on the "fish hunt" for Longears above Pool 16.

Literature Cited

- Harlan, J.R. and E.B. Speaker. 1987. *Iowa Fish and Fishing*. Iowa Department of Natural Resources. 323 p.
- Smith, P. W. 1979. *Fishes of Illinois*. Illinois State Natural History Survey. University of Illinois Press. 314 p.

