UC SANTA BARBARA
THE Current

February 27, 2019
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Hoodwinked

There are rare finds, and then there are those out-of-nowhere, first-ever discoveries that send scientists' hearts aflutter. An occurrence at Sands Beach in Goleta a week ago lands decidedly among the latter.

A fish that washed in with the tides at UC Santa Barbara's Coal Oil Point Reserve has been identified as a hoodwinker sunfish (proper name Mola tecta), a rare species whose very existence was only first described in 2017 — and has never before been observed in the Northern Hemisphere.

Thanks to the quick work and collaboration of reserve staff and UC Santa Barbara faculty, the official determination of Mola tecta was made by none other than the world's foremost expert on the species: Marianne Nyegaard, of Murdoch University in Australia, who discovered and described the hoodwinker in what became the first addition to the Mola genus in 125 years.

"It really was exciting to collect the photos and samples knowing that it could potentially be such an extraordinary sighting," said Jessica Nielsen, a conservation specialist at Coal Oil Point and coordinator for the reserve's snowy plover docent program, who was the first to see the deceased fish and helped facilitate its identification. "Mola tecta was just recently discovered so there is still so much to learn about this species. I'm so glad that we could help these researchers make the final definitive ID.

“This is certainly the most remarkable organism I have seen wash up on the beach in my four years at the reserve,” she added.

It all began when an intern alerted Nielsen to the stranded sunfish. Her initial assumption: this was a mola mola, an ocean sunfish known to swim the Santa Barbara Channel. She took some photos and a few measurements and posted her finding on the reserve’s Facebook page.

As soon he saw Nielsen’s post, Thomas Turner, an associate professor in UC Santa Barbara’s ecology, evolution and marine biology department, hustled down to the beach, family in tow, to see the fish for himself. Then he, in turn, posted some images of his own to iNaturalist, an online community for scientists where crowd-sourced species identification is a hot pursuit.

Turner’s post caught the eye of two fish scientists from the other side of the earth.

Enter sunfish expert Nyegaard and ichthyologist Ralph Foster, of South Australian Museum. The frequent collaborators suspected the Sands Beach wash-up could be a hoodwinker, but were hesitant to declare it so without definitive proof.

“I thought that the fish surely looked an awful lot like a hoodwinker, but frustratingly, none of the many photos showed the clavus (a diagnostic feature) clearly,” Nyegaard explained via email. “And with a fish so far out of range, I was extremely reluctant to call it a hoodwinker without clear and unambiguous evidence of its identity.”

Normally the scale, or denticle, structure of large sunfish serves as a reliable diagnostic, she noted, but the photos Turner and Nielsen had posted online lacked sufficient resolution for her to make any determination.

“I just couldn’t be sure due to pixilation and kept thinking I was totally being hoodwinked by this stranded sunfish,” continued Nyegaard, who in fact named the hoodwinker for its elusive nature. “I emailed a bit with Ralph, and we discussed how this fish would have been a dead-set hoodwinker had it been within range in the temperate Southern Hemisphere. But I felt I needed to be absolutely 100-percent sure before settling on an ID, seeing as I had described the hoodwinker and would need to back up my ID with absolute certainty with a specimen so far away from home.”

What to do? Get better pictures and tissue samples, of course. Re-enter Nielsen and Turner, who were only too happy — downright thrilled, in fact — to help. But would the fish even still be there when they returned to Sands Beach?

Armed with specific instructions from Nyegaard what photographs and samples would be required to make a definitive ID, Turner and Nielsen waited for low tide. Then, starting two miles apart at opposite ends of the beach — Tom from the east, Jessica from the west — they walked toward each other.

“We met in the middle, at the fish, now a few hundred yards farther east,” Turner said. “Jessica took a fin sample to send to Marianne for DNA, and I took pictures of the field marks. It was iNaturalist at its best: experienced novice loops in expert, who loops in *the* expert, who then helps us learn about our find and gets information she will use in her research. And it was fun and exciting for all.”

That’s putting it mildly, according to Nyegaard.

“I literally, nearly fell off my chair (which I was already sitting on the edge of!),” she said of her reaction to what the UC Santa Barbara naturalists provided. “Tom Turner and Jessica Nielsen had indeed found the fish and had photographed and examined it, and taken a tissue sample. A huge amount of extremely clear photos was in my inbox and there was just no doubt of the ID. They had also examined the clavus by hand to confirm the number of ossicles, which was just brilliant.

Nyegaard added, “Eyes and ears and hands on the ground half a world away — wow.”

Though it is unclear how the Mola tecta ended up so far from its known range in the Southern Hemisphere, having definitive identification is a crucial first step. And thanks to an enterprising conservationist, an organic collaboration between scientists near and far, and good old-fashioned social media, that ID is now confirmed.

“Without attentive eyes, camera phones and social media, the Australian ichthyologists would have never learned that this fish had just been seen for the first time in the Northern Hemisphere,” said Cris Sandoval, director of Coal Oil Point Reserve. “This type of crowd-sourced science is helping biologists map species in ways we could not have imagined just a few years ago.”

About UC Santa Barbara

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