

The Story of a Lost Species *Amphilophus margaritifer*, Gunther 1862 Part I



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Photographs by the author

One of the great mysteries about Central American cichlids has fascinated many professional and amateur ichthyologists for over 140 years. Indeed, there are almost as many opinions as there are cichlidiots in regards to the true nature of *Amphilophus margaritifer*. But the only thing that is certain, is that there is one pickled fish in the British Museum of Natural History that bears the name. All the rest is conjecture, spiced with a generous dose of political intrigue and environmental degradation. Let us go for a journey through history.

To begin our story, in the 1840s, the first American ambassador to the Confederation of Central America went looking for the government. What he found was a beautiful place. John L. Stephens wrote two books about his travels (Stephens, 1841), which were very popular in the time before photography became the dominant tool of travelers. He wrote,

“...WE SAW THE MOTAGUA RIVER, ONE OF THE NOBLEST IN CENTRAL AMERICA, ROLLING MAJESTICALLY THROUGH THE VALLEY...IT WAS ONE OF THE MOST BEAUTIFUL SCENES I EVER BEHELD...WE STOOD UP TO OUR NECKS IN WATER CLEAR AS CRYSTAL, AND CALM AS THAT OF SOME DIMINUTIVE LAKE, AT THE MARGIN OF A CHANNEL ALONG WHICH THE STREAM WAS RUSHING WITH ARROWY SPEED...MOUNTAINS ILLUMINATED BY THE SETTING SUN...FLOCKS OF PARROTS, WITH BRILLIANT PLUMAGE, ALMOST IN THOUSANDS, WERE FLYING OVER OUR HEADS, CATCHING UP OUR WORDS, AND FILLING THE AIR WITH THEIR NOISY MOCKINGS. IT WAS ONE OF THOSE BEAUTIFUL SCENES THAT SO RARELY OCCUR IN HUMAN

LIFE, ALMOST REALIZING DREAMS.”

What Central American government Stephens found was in turmoil, with the various nation-states fighting for control of the land, a struggle begun by the Maya which continues to this day. While the Maya had built a complex civilization in Guatemala, the inhabitants of the pyramids had long since disappeared by the time Ambassador Stephens arrived. Current speculation as to why the Maya disappeared centers around a long period, almost 100 years, of drought, with wars between the city-states certainly contributing to their demise (Drew, 1999; Harrison, 1999; Gill, 2000). By the time Stephens arrived, the jungle had grown back and covered the pyramids to such an extent that the local population no longer knew anything about the ancient structures. One hundred years later, in the 1950s, a democratic government of Guatemala held two election cycles before the United Fruit Company, in collaboration with the CIA, overthrew the government and installed a military dictatorship (Adams, 1914; Immerman, 1982). This led to over 30 years of civil war in Guatemala, “the land of many trees.” Today a fragile democracy has returned (Eltringham et al., 1999).

About 20 years after Stephens' journeys, two Englishmen became the most famous of the chroniclers of the flora and fauna of Central America. Osbert Salvin and Frederick Godman made several trips to Guatemala, and with the assistance of other paid collectors, eventually published the invaluable, 63 volume, “Biologia Centrali Americana.” Most of the fish they collected were described by Albert



Osbert Salvin from the Introductory Volume of the “Biologia Centrali Americana.”

Gunther, then the curator of fishes of the British Museum, in a paper which he read before the Zoological Society of London in 1864 and 1866 (Gunther, 1868). Later, in 1915, the section of the “Biologia Centrali Americana” entitled ‘Pisces,’ was written by the next curator of the British Museum, C. Tate Regan (Regan, 1915).

Gunther and Regan both gave accounts of some of the travels of Godman and Salvin. What information there is about their collections of fishes can be found in these papers and in the Introductory Volume of the “Biologia Centrali Americana,” written by Godman (Godman, 1915) after Salvin had passed away.

Evidently, in 1861 Godman and Salvin planned an extensive trip into the Peten, the northern, lowland region of Guatemala, in search of the ocellated turkey, a bird they had heard about but which had not been seen by either of them. They had



C. margaritifera. Line drawing from Gunther (1864).

spent most of their time in Guatemala around the slopes of the western volcanoes, where there were plenty of birds, their main interests of study, and where undoubtedly the weather was more agreeable, and more importantly, the threat of malaria and yellow fever were much reduced. After staging a test expedition to see how much supplies and how many porters they would need for the trip, Godman wrote that he “CONTRACTED A SHARP ATTACK OF FEVER, WHICH OBLIGED ME TO REMAIN FOR SOME DAYS AT COBAN TO RECRUIT AND PREVENTED MY ACCOMPANYING SALVIN ON HIS LONG AND ARDUOUS JOURNEY ON FOOT TO PETEN.” The reason Salvin could not wait for Godman to recover was because he needed to travel during the dry season.

After Godman recovered he returned to their base on the mountain at San Geronimo and then went to Buenaventura on the upper Motagua River (also known

Frederick Godman from the Introductory Volume of the “Biologia Centrali Americana.”

Map of Central America circa 1852.



as the Rio Grande) and made a collection of fishes. He hired some locals who beat a plant against the rocks, creating a froth which sickened the fish along nine miles of river, causing them to float to the surface where they were collected in V-shaped wicker baskets. He obtained large numbers which he pickled in “spirit” (aguardiente), but was disappointed that “THERE WERE BUT FEW SPECIES REPRESENTED.” Godman returned to the capital, visited the ruins at Copan, Honduras, met Salvin at Yzabal on his way back from Belize, and returned to England, while Salvin continued to the Pacific coast, finally returning to England in early 1863.

Gunther described over thirty species of cichlids in the collections made by Dow, Godman, and Salvin. Among them was *Heros margaritifera*, which he listed as being from Lake Peten in northern Guatemala. Most notably, the pectoral fin was long, extending to the 3rd or 4th anal spine. The lake bears the same name as the region, and today is known as Lago Peten-Itza. Other cichlids in his list of fishes, from Lake Peten, include *H. melanopogon*, *H. melanurus*, *H. urophthalmus*, *H. affinis*, *H. friedrichsthalii*, *H. intermedius*, and *H. splendida*. In his key to the cichlid species, the species name is written as *Heros margaritifera*, thus beginning the nomenclatural confusion. There is also a plate of a line drawing showing the fish labeled as *H. margaritifera*.

In Volume 4 of the “Catalogue of Fishes” of the British Museum (Gunther, 1859), Gunther calls the fish *Heros margaritifera*, says it is from Lake Peten, and remarks that it has seven black cross-bands, each with pearl colored spots.

Later, Jordan and Evermann, in “The Fishes of North and Middle America” (Jordan and Evermann, 1896), call it *Cichlasoma margaritifera*, again from Lake Peten. Among other things, they elaborate that the first cross band is in front of the dorsal fin, the second to fifth below the spinous dorsal, partly extending on the fin, the sixth below the end of the dorsal,



A species known to exist, “*Cichlasoma bocourti*” remains cryptic in nature.

the seventh across the free portion of the dorsal, each band with numerous pearl-colored spots, and further that the root of the caudal fin has a blackish spot. The Latin root of the name is given as *margarita*, meaning “pearl,” and *fero*, meaning “I bear,” hence “I bear pearls.”

In Regan’s ‘Pisces’ section of the “Biologia Centrali Americana,” he calls the fish *Cichlosoma margaritifera* (note the spelling “Cichlosoma”), places it into the section *Astatheros*, but calls the collecting location simply Guatemala.

The reason for the confusion over the collecting location is brought to light in a paper about the *Amphilophus* species group (Bussing and Martin, 1975). Bussing shows the collecting location of what he calls *Cichlasoma margaritifera* as northern Guatemala, but outside of the range of *Cichlasoma longimanus*. Bussing clarifies the confusion about the collecting location by revealing that on the original specimen jar, the line that would be occupied by the collecting location is left blank. Collected by Salvin, the specimens before *C. margaritifera* in the register are labeled Isabella, while the ones after *C. margaritifera* are listed as coming from Lake Peten. Either Gunther knew that *C. margaritifera* came from Lake Peten or he misread the register. In addition, Isabella could refer to Lago Isabel (Yzabal) or a town on the Belize River several kilometers upriver from Belize. Bussing also provides a photograph of the pickled fish; it is remarkably similar to the drawing in Gunther’s 1864 paper.

At this point scientific rivalries become relevant. Some scientists are

fondly referred to as lumpers, and others as splitters; one man's color morph is another man's new species. For instance, Seth Eugene Meek worked for the Field Museum of Natural History in Chicago and described many new species of cichlids from Central America (Meek, 1904). Unfortunately for Meek, he died young, probably of malaria, though the historical record is obscure. Later, Regan, not a field biologist but obviously a lumper, threw out most of Meek's species when he wrote the volume 'Fishes' for Godman and Salvin's "Biologia Centrali Americana." Somehow, news of a scientific publication in Chicago did not reach London for over 10 years. How Regan got the spelling "Cichlosoma" wrong is the subject of another article. But Regan was obviously a lumper. Even so, he recognized *A. margaritifera* as a valid species. He also divided "Cichlosoma" into the genres that are informally recognized today.

After this point in time the piscatorial record goes blank. It would not be until 50 years later that Carl Hubbs, Don Rosen, Reeve Bailey, and Robert Miller would go looking for *A. margaritifera*. The questions that confronted them are the same as the ones that confront us today.

Primarily, who was margaritifera? Was it the name of a woman who was a friend of Salvin? Or, was it a fish with a lot of pearl-like spots around its neck? Miller points out in a letter to Wessel (Wessel, Pers. Comm.) that "*margaritifera*" is not an adjective, but a "NOUN IN APPOSITION, AND NOUNS IN APPOSITION NEVER CHANGE THEIR ENDING TO AGREE WITH THE GENDER OF THE GENUS." So why did Gunther publish it spelled two different ways in the same paper?

Is the fish extinct? This is a difficult question, as only an exhaustive survey of the fish of Guatemala can give us the answer. And fish, like the Tennessee snail darter, may exist though no humans think they do.

Was *A. margaritifera* a strange hybrid? This question is obviously an easy answer to the dilemma, but what are the



Vieja melanurum 'Lago Yaxha.'

chances of this actually occurring? Species set boundaries for their distribution that get measured in centuries if not eons. While the occasional hurricane and tornado might pick up fish and deposit them many miles from their original location, most of the few hybrids that might result succumb to the local fishes, which are much more adapted to their environment, both geographical and piscatorial. At best a few of their traits may dissolve into the local gene pool. So even if there was an accidental hybrid, what are the odds that Salvin collected it?

There are certainly legitimate concerns about the collecting location. With the collecting site of the one pickled fish in the jar unlabeled, we are left only with the fish before it and the fish after it in the collecting series. There is no clear historical record about Godman and Salvin collecting fish in Lago Izabal, only the upriver collection on the Motagua. Salvin probably collected in other sites in Guatemala, notably on the west coast, but this was probably after Godman went back to England, and it was Godman who was the fish guy and Salvin primarily a birder. Salvin after all, wrote the account of the search for the ocellated turkey. Also, in the reference to *A. margaritifera* that Jordan and Everman published, they refer to the original description of *A. margaritifera* as being published in the "Catalogue of Fishes" of the British Museum in 1862, too soon for any specimens collected by Salvin on the west slope to be included, since he did not return to England until 1863. His specimens from the west slope would not have been described until the paper read by



“*Cichlasoma*” *microphthalmus* has only been collected sporadically.

Gunther to the Royal Society in 1864 and 1866 (Gunther, 1868).

On the other hand, other fish we absolutely know exist are almost as hard to find. They might be considered cryptic species. Take for example *Archocentrus spinosissimus*. This small fish hangs its eggs on plants like some of its cousins from South America. Another cryptic species is “*Cichlasoma*” *bocourti*. After two collecting trips to Guatemala, I have yet to see either of these species except in a fish market. Another obsession of mine, “*Cichlasoma*” *microphthalmus*, has only been collected twice in 20 years. When the local swimmers were shown a picture of the fish, their response was that it was very rare.

There exists a further possibility: that *A. margaritifer* may be a rare variant in a species flock. While this is similar to a hybrid, the situation is more complex. Species are artificial groupings of similar animals. The groupings are assembled by man. There are many cases where it is unclear to which species intermediate types belong. Conversely, there are occasions where seemingly different phenotypes of fish actually belong to the same species. The cichlid species found in Cuatro Ciénegas in northern Mexico, *Herichthys minkleyi*, has several different feeding types, or phenotypes, but all belong to the same species. On the other hand, the larger species *C. robertsoni* is similar to the many *Thorichthys affinis* types with its pointed

head. The same phenotype is seen in many *Geophagus* species. All these fish are eartheaters, or sandsifters. This phenotype is widespread throughout Central and South America. As local conditions change due to drought or flood, this phenotype may be selected for, or, be a penalty against those possessing it. What if as environmental conditions change, a variable species also changes the proportions of different phenotypes in its population? So that even though a phenotype is rare, it does not mean that it is a hybrid? ❖

We look forward to the author's continuing quest for these answers and more as he diligently perseveres in the next and final installment of 'The Story of a Lost Species- Amphilophus margaritifer, Gunther 1862.'
~ Ed.

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Noted author, avid collector, and eloquent speaker, Eric H. Hanneman is a respected leader in the aquarium hobby. Owner and manager of the eminent retail aquarium store, Liquid Sunshine Tropical Fish, www.liquid-sunshinetropicalfish.com, Eric has a keen concern for the preservation of our cichlids and their environment. With a focus on the cichlids of Central America and Africa, Eric's interests also lie in livebearers, catfish, tetras, and killifish. Having collected fish extensively in Mexico, Belize, Guatemala, Honduras, Panama, and Lake Tanganyika, he is a highly sought-after speaker and has given presentations across the country on a wide range of topics, including maintenance, breeding, and his far-reaching travels. Eric received his Ph.D. in Developmental Neurobiology from the University of Oregon in 1986 and has served on numerous aquarium society committees and boards, including many facets of the American Cichlid Association. We are fortunate to have the knowledge and concern for the conservation of our fishes that Eric has to offer to our hobby.



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The Story of a Lost Species — *Amphilophus margaritifer*, Gunther 1862 Part II

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Where We Left Off

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Archocentrus spinosissimus.

This small fish hangs its eggs on plants like some of its cousins from South America. Another cryptic species is "*Cichlasoma*" *bocourti*. After two collecting trips to Guatemala, I have yet to see either of these species except in a fish market. Another obsession of mine, "*Cichlasoma*" *microphthalmus*, has only been collected twice in 20 years. When the local swimmers were shown a picture of the fish, their response was that it was very rare.

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type is widespread throughout Central and South America. As local conditions change due to drought or flood, this phenotype may be selected for, or, be a penalty against those possessing it. What if as environmental conditions change, a variable species also changes the proportions of different phenotypes in its population? So that even though a phenotype is rare, it does not mean that it is a hybrid?

It was all of this conjecture that led me to simply try to understand where Salvin went in the Peten. Godman was unable to accompany "**Salvin on his long and arduous journey on foot to Peten.**" A footnote in the introduction to the "*Biologia Centrali Americana*" took me to the Bancroft Library at the University of California at Berkeley, where I was able to examine for a day the four volumes of "*Aves*" (Salvin and Godman, 1879). I read eagerly through the introduction. There was nothing new there. So for the next five hours I numbly scanned all of the species descriptions, looking for anything that said Guatemala or Peten, trying to piece something together. What I found were several entries that definitely placed Salvin not only at Lago Peten-Itza but also at Lago Yaxha, on the way to the border with Belize. Also, a few times a location called Sakluk was mentioned. A number of the entries referred to the ornithology journal, IBIS. Some of the other references, which were basically footnotes to the few relevant species' descriptions, were even more obscure.

There was really only one library in the United States that had a complete collection of IBIS journals, and luckily an opportunity arose to travel to Boston and visit the Ernst Mayer Museum of Natural History at Harvard University. After look-

ing fruitlessly at many old IBIS journals, the helpful librarian brought me a book, from one of my most obscure footnotes, by Daniel Giraud Elliot, entitled “Monograph of the Phasianidae or Family of Pheasants” (Elliot, 1872). They took away all my pens and made me wear gloves. They would not let me take pictures. Evidently during a more open time in the ‘70s, students used to check out similar books with colored plates, cut out the pictures and use them to adorn their walls. However, the librarian said no one else had ever requested this book. Recently I found it for sale in Los Angeles. The asking price was \$175,000 US.

What Elliot did was assemble some beautiful drawings of pheasants and turkeys from around the world and have a page or two written by someone familiar with the bird. The last chapter was written by Osbert Salvin, about his treasured ocellated turkey, *Meleagris ocellata*. I transcribed what he wrote as follows:

“...During my visits to the Republic of Guatemala, in the years 1857-58 and in 1859-60, I made constant inquiries respecting the Ocellated Turkey both in Vera Paz and elsewhere; but nothing was gathered concerning it beyond the report of its existence in the remote department of Peten. During my third visit to Central America, with Mr. F. Godman, in 1861-63, after having explored nearly the whole rest of Guatemala, we determined to go to Peten, expecting that a district which produced so remarkable a species as this Turkey could hardly fail to reveal other striking novelties. Unfortunately an attack of fever prevented Mr. Godman from undertaking so arduous a journey; so in March, 1862, I started alone from Coban, in Vera Paz, taking with me two half-caste servants, Manuel Contreras and Santos Teron, and Indians to carry provisions and other necessaries as far as Capabon, the last village on the track to Peten. Here I stayed two days, and having procured eleven fresh Indians to carry my



Central America.

cargoes, plunged into the forest which clothes almost the whole of this portion of the Isthmus, from the base of the main cordillera to the Atlantic Ocean. Out of this forest I emerged on reaching the village of San Luis. The whole district traversed is quite uninhabited, much of the country being apparently partially submerged during the rainy season. Though abounding in Curassow (*Crax globicera*) and Guans (*Penelope purpurascens*), I do not believe that the true Turkey is ever found in the forest. From San Luis I passed on to Poctun, a village in one of the open pine-tracts which form so conspicuous a feature throughout British Honduras and Yucatan. Beyond this point the tract lay through alternating forests and pine-ridges, the former usually skirting the streams on either side for a width of a mile or two. I thus journeyed on, till one day, as we were passing between a belt of forest, Santos, who was in front, came running back, saying there were Turkeys in the track before us. I hurried up, but failed to see any traces of these long-sought-for birds. After reaching Peten I made an excursion with the corregidor of the department to the village of Sakluk, situated about twenty miles to the westward of the town of Peten. Here I stayed several days, and was out constantly in search of Turkeys, but without avail. I was told that birds might sometimes be seen in the patches of trees that lay scattered over the open country;



Peten burning.

but I searched them in vain. At night an Indian would take me to a tree where he had observed them frequently roosting; and, taking off my shoes, I would creep up, hoping to see a dark object in the branches projected against the sky; but I had no luck at all. After waiting as long as it was safe, as the rains were approaching, I was obliged to leave Peten and the Turkey, and avail myself of the escort of the corregidor, and start for Belize. The very morning I started I passed a hut, round which lay strewn the feathers of a Turkey, which the occupant had that morning eaten for breakfast. Bad luck again! The next day, as we were skirting the shore of Lake Yashá in a canoe, we all heard the well-known sounds a Turkey makes when 'strutting.' My luck still pursued me. It was not possible to land, as the lake had been constantly rising, and dense brushwood reached far out into the water. The next day we stayed at the village of Yashá, and I prevailed upon an Indian who had a gun to go in search of Turkeys, whilst I myself went in another direction, bent on the same errand. That afternoon the Indian brought me a splendid male bird, which I at once preserved. The flesh of this bird was excellent, and quite equal to that of the domestic bird – even better to my taste, unaccustomed to such luxuries. When I started for Belize I left Santos and Manuel to return to Coban by the same road we had

come. Before they left they obtained two specimens of the Turkey, male and female; so that, altogether, I succeeded in procuring three birds, though I had not the good luck to see or shoot one myself."

Finally, a firsthand account of where Salvin went. Unfortunately, the town of Sakluk (or Sacluc) mentioned by Salvin no longer appears on modern maps. I found one old map that showed the name and the general location, but it could just as easily have been placed there by someone familiar with the account above. Many towns were wiped out during the 30 year civil war, and Sakluk might have had bad luck. There is a town to the southwest of Lago Peten-Itza called La Libertad. Joe Middleton found an account that described atrocities in the area during the civil war (Amnesty International, 2001). The road through La Libertad is well-paved, has sidewalks, and street lamps, all things very unusual for a town so far from anywhere. Local people asked about a massacre were reluctant to say a thing, and a hitchhiker in the area found that local drivers were reluctant to pick him up. After many inquiries, it was learned that the Maya name for La Libertad, was Sakluk (Hutchings, 2007). Given that the area around La Libertad and further south on the road to Sayaxche has been extensively collected, it is unlikely that *A. margaritifera* is from this area.

On our second trip to Guatemala we ventured in the general direction of Sakluk but northwest towards another lake, Laguna Perdida. There we found many beautiful cichlids, and the head of a large freshwater gar. This gar was significant for a very important reason. During the last ice age it has been assumed that many of the lakes in the Peten dried out. The only lake thought to have survived was Peten-Itza (Hodell et al., 2006). Finding a gar so far inland suggests that other lakes might have also survived. Another possibility is that the whole region had flooded, distributing gars everywhere. However, it is likely that all these lakes (Peten-Itza, Perdida, and Yaxha) had been isolated from each other and had contained water for a long time.

When my friends and I (Hanneman et al., 2007) visited Lago Yaxha near the border with Belize the first time, we caught fish very similar to those found in Peten-Itza, though they were distinct enough that a splitter might consider them a new species. We caught *Thorichthys* cf. *affinis*, *Amphilophus robertsoni*, and a single specimen of a third form that appeared intermediate between the two. The following year we were unsuccessful in collecting any of the intermediate form at Lago Yaxha. What is intriguing, is that at Laguna Perdida, where we found the head of a gar, we casted nets full of bright yellow *Thorichthys* sp., which all appeared similar, except that some of the males had red gular membranes like *T. meeki* and some had black gular membranes like *T. passionis*. However, upon our return home, my diligent friends split our collection into two groups, *T.* cf. *meeki* and *T.* cf. *passionis*. My own impression had been that we had found a species flock, where the fish all interbreed, and the population may shift one way or the other depending upon conditions, such as whether the water is high or low.

Regardless of these conjectures, Salvin not only did not find the turkey at Sakluk, he never went further into northwest Guatemala, since he wrote

“...a knowledge of the physical features of the tracts bordering the Usumacinta and Rio San Pedro would give grounds for a reasonable presumption as to the western limits of its range.”

Instead he left via Lago Yaxha. The water



Ocellated turkey.

was so high that he could not land the canoe to find the turkey he heard calling, but had to be satisfied with camping at the village of Yaxha, between the modern lakes Yaxha and Sacnab. It was here that he finally got his turkey. Can you imagine his excitement as he finally got out his preserving materials?! The locals, anticipating the usual rewards, began bringing him all sorts of birds, fish, and other critters. One of these fish seemed more interesting than the others, something he had never seen before, and in his excitement and haste he threw it into a collecting jar and placed it into his pack, forgetting to label the collecting location.

One hundred and forty years ago, Salvin collected one specimen of a fish that has never been seen again. Many ichthyologists have spent time looking for it and never found it. Carl Hubbs collected extensively in Lago Peten-Itza and the greater Peten (Hubbs, 1935). Don Rosen collected all over Guatemala (Rosen, 1979), with an eye to

Lago Yaxha 2004.



Lago Yaxha 2005. Note the decrease in the water level after one year.





Joe Middleton



Rusty Wessel

Thorichthys cf. pasionis 'Laguna Perdida' is called "pasionis" due to its black gular membranes.

Thorichthys cf. meeki 'Laguna Perdida' is called "meeki" due to the red color of its gular membranes.

writing a book about the fishes of Guatemala similar to the one recently published posthumously by Robert Rush Miller (Miller, 2005). Ross Socolof and Rusty Wessel made several trips to the Peten and never found *A. margaritifera*. Don Conkel published a picture of a fish he claimed was *A. margaritifera* (Conkel, 1993), but Miller wrote that the slides were labeled Rio San Pedro (Wessel, Pers. Comm.). Miller thought that the fish was actually from the west, or Pacific, slope of Guatemala. Paul Loiselle thinks that Rosen actually collected *A. margaritifera* in some of the west slope rivers (Loiselle, Pers. Comm.). These specimens, in the American Natural History Museum in New York, have not been examined by this author. If true, this would suggest that Salvin collected *A. margaritifera* after Godman returned to England. However, this would be too late to have it included in the "Catalog of Fishes" of the British Museum in 1862. Bill (William) Bussing disagreed with Miller, and believed that *A. margaritifera* was from the Peten.

The environment is changing again. To the casual observer, northern Guatemala is entering another period of drought. Fires set by recent migrants to the region are burning large tracts of what is left of the forest. Water levels of Peten-Itza and Yaxha/Sacnab have visibly dropped in recent years. There are rumors that several companies want to drill oil wells in Peten-Itza (Martone, 2000). The Motagua River has become heavily polluted from releases of industrial waste, killing fish and sickening humans and animals (Prensa Libre, 2007). The political situation in Guatemala is not stable, and the

area around the lost town of Sakluk is once again dangerous, due to illegal ranches and the trade in guns and drugs (Hutchings, Pers. Comm.).

The truth about *Amphilophus margaritifera* may never be known. By tracking the travels of Salvin through the Peten, I conclude that the fish is from Lago Yaxha. This lake while protected is still highly endangered. Its current low water level may not be conducive, to the *A. margaritifera* phenotype, to be able to express itself in the species flock of eartheaters found in the lake. But whether it is a cryptic species, a rare phenotype, an oddball hybrid, or extinct, *A. margaritifera* will always be alive in the piscatorial history of Guatemala.

Addendum

The more you read the descriptions of the fish in the jar, the more it becomes apparent that the fish we caught at Lago Yaxha is not identical to the pickled fish. There was no mid-lateral blotch on the pickled fish, though the fourth bar was darker in that area, the cross-bars were more prominent, there was a darker blotch at the base of the caudal, and the tail was slightly emarginate with rounded lobes. Though alive and not pickled, the fish from Lago Yaxha does not have vertical bars, has a mid-lateral blotch, and only a faint spot on the caudal peduncle; the caudal fin shape is not clear. Some of these differences may be artifacts of preservation, the size, age, or sex of the fish. It is up to the reader to decide.





Rusty Wessel

Amphilophus robertsoni 'Lago Yaxha.' Caught at the same location in Lago Yaxha as *A. margaritifera*.



Thorichthys cf. affinis 'Lago Yaxha.'



Rusty Wessel

This *Amphilophus cf. margaritifera* 'Lago Yaxha' was the only fish that was caught. It was deemed too large to keep so it was released. Note the faint color on the gular membranes and the hint of a black patch on the opercle, normally characteristics associated with *T. affinis* or *T. meeki*. Otherwise the body shape is similar to *A. robertsoni*, though the snout is shorter and the body is deeper. The pectoral fin extends to the 3rd or 4th anal spine, and the scales appear to be covered with pearls. Cross bands and the spot at the root of the caudal fin are not so evident, but like the spot on the opercle, may become more apparent when preserved.

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in contacting Luis should get in touch with the author at the e-mail or postal address listed in the opening.

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Did You Know?

ACA Founding Fellow Ross Socolof was the first to create and use Styrofoam shipping containers to import cichlids and other fish from the tropics. These replaced the shipping cans of the times, and of course remain invaluable to us in transporting fish today.