

SULAWESI

Land of Endemics

by Eric V. Goode

Sulawesi is one of the approximately 17,500 islands in Indonesia. It is the 11th largest island in the world and a world leader in endemic biodiversity. Like the rest of Indonesia, it has lost almost all of its lowland forest to logging and palm oil plantations seriously threatening its rich biodiversity. Among its many endemics are the Forsten's Tortoise (*Indotestudo forstenii*) and the Sulawesi Forest Turtle (*Leucocephalon yuwonoi*). They are two of the least known chelonians in the world, but their small range coupled with extreme pressure from the exotic pet trade makes them candidates for extinction.

SUMATRA

BORNEO

SULAWESI

PAPUA

JAVA

TIMOR

Forsten's Tortoise, one of the three species in the genus *Indotestudo* that range from South and Southeast Asia out to Sulawesi, was first described in 1845. However, it has remained one of the least known tortoises in the world. By the 1960s, it was still known from fewer than ten specimens. Perhaps confounded by the small sample size, in 1984 Hoogmoed and Crumly decided it was the same species as the Travancore Tortoise (*Indotestudo travancorica*) known only from the Western Ghats Mountains of South India. The 3,200 mile gap between the two species was ascribed to its having been introduced into Sulawesi by Arab traders. Without further evidence, many turtle biologists accepted this finding and, as an example of the adage that "bad taxonomy can kill," it aroused little interest from the conservation community. By the mid 1990s, specimens began to appear in China and subsequently in the pet trade in Europe and the US. In 2000, Dr. Peter C. H. Pritchard confirmed that it was, indeed, a distinct species and genetic and morphological studies have reinforced this conclusion.

At the same time, other turtles began to find their way out of Sulawesi into the pet trade. Among these was a remarkable new turtle that was unrelated to any other turtle. Described in 1995, it was placed in the catchall genus *Geoemyda*, but soon thereafter its uniqueness was recognized and it was placed in its own genus, *Leucocephalon*. This stunning new turtle immediately attracted the attention of turtle conservationists and collectors alike.

As the trade in turtles from Sulawesi grew in the 1990s, turtle conservation biologists such as Steven Platt of the Wildlife Conservation Society began visiting the island. Yet finding Forsten's Tortoise and the Sulawesi Forest Turtle proved to be a frustrating task. Both species could easily be found in captivity, being held on their way to Jakarta and then into the worldwide market, but finding these species in the wild was another story. Only a few western turtle biologists have successfully found the Sulawesi

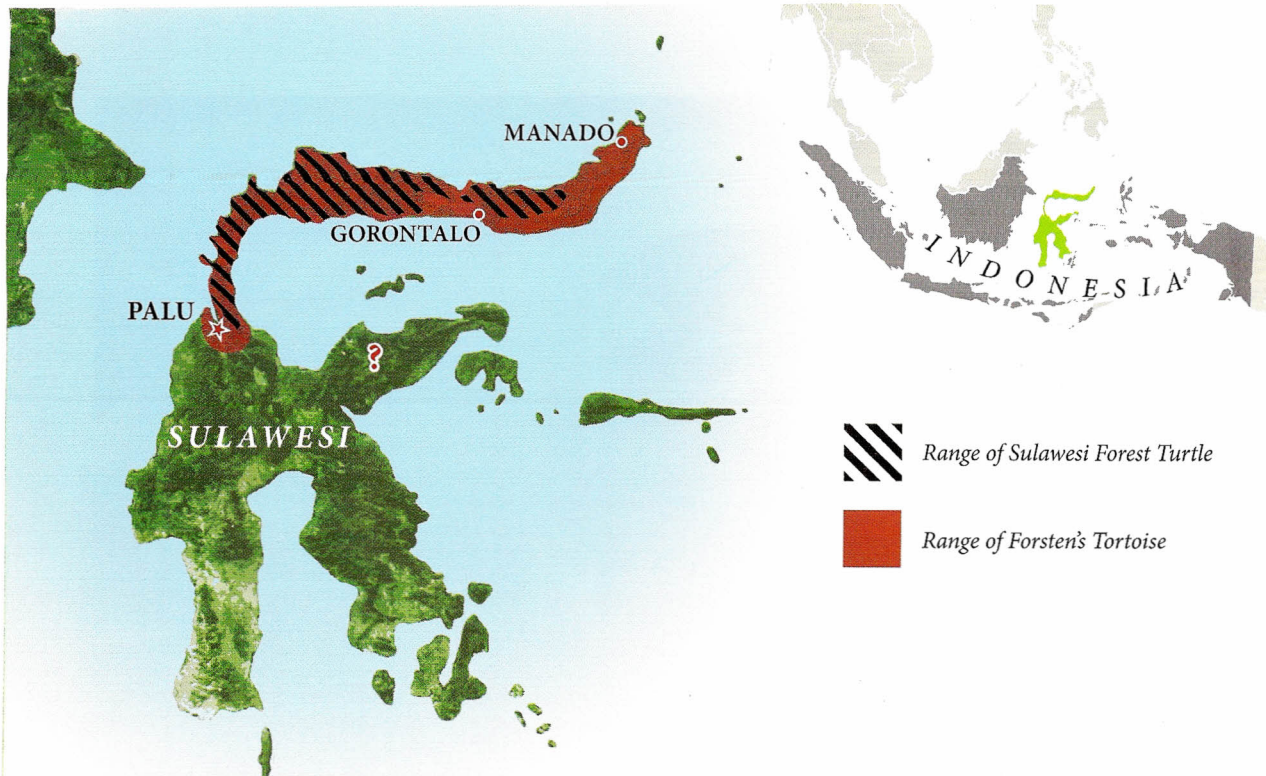
Forest Turtle in the field and possibly no non-Sulawesian has ever seen Forsten's Tortoise in the field. Now Forsten's Tortoise is listed as Endangered and the Sulawesi Forest Turtle as Critically Endangered. Both species are on CITES Appendix II. While the government of Indonesia has decreed a quota of zero for the Sulawesi Forest Turtle, there is still a quota of 150 for Forsten's Tortoise, meaning that 150 animals can be legally traded.

The Turtle Conservancy has managed Sulawesi Forest Turtles in the past, and are currently successfully breeding Forsten's Tortoise, having produced 11 offspring with more eggs currently incubating. Although we have had success with this species, it was important to better understand its status and natural history in Indonesia. Consequently, the Turtle Conservancy Team has wanted to visit Sulawesi for some time. In June of 2012, Eric Goode and Max Maurer finally got a chance to go there. Goode's journal picks up the story ...

Editor's Note: In order to protect individuals and our hard shelled friends, some of the names in this piece have been changed.

Forsten's Tortoise (*Indotestudo forsterii*)
at the Behler Chelonian Center.





The last known ranges of the Forsten's Tortoise and the Sulawesi Forest Turtle appear to be restricted to the northern peninsula (in the territories of Central and Northern Sulawesi). Surveys are needed to verify remaining viable populations. The ranges are approximations due to the fact that these species are so poorly known.

Monday June 4th, 2012

Palu, Sulawesi, is a city described in my *Lonely Planet* guide book as rather uninteresting and unremarkable. The only other fact mentioned in the guide is that the locals commonly serve dog meat in the restaurants. Palu, here I come.

Halfway through my flight to Palu, I notice that the well-dressed man seated next to me has a small white bag sitting on his lap. As he cracks open the small bag, out of the corner of my eye I glimpse what appears to be a tiny tortoise inside. Am I just overly tired or hallucinating? I inquire timidly about what is inside his bag.

He shyly shows me the contents. To my surprise, it is indeed a hatchling tortoise — a *sulcata*! Maybe not forbidden fruit perhaps, but a tortoise of all things! He quietly tells me it is against the law to travel with a tortoise on an airplane. I assure him that he can trust me. We begin to talk and he proudly shows me photos on his cell phone of his turtle collection: Radiated Tortoises, Alligator Snapping Turtles, Forsten's Tortoises, Painted Terrapins, Musk Turtles and others. Even though Indonesia has a budding turtle hobbyist culture, what are the odds that out

of all the passengers on the flight I would be seated next to a turtle hobbyist from Jakarta holding a tortoise? Is it my karma or just amazing luck?

I inform him that I am also interested in turtles and am traveling to Indonesia to learn more about the native species. His name is Abdu, and he gives me the name of a known trader in Palu, who deals in Forsten's Tortoises and Sulawesi Forest Turtles. He tells me I can find this man by going to the government's forestry offices, located at "Julur dua" near the airport and simply ask for him. The trader's name is Mr. Lam and Abdu tells me that Mr. Lam has a soccer field sized compound full of native species. Mr. Lam doesn't work for the government, but they have his contact information and address. Abdu is extremely forthcoming and informative and we exchange emails and part ways after landing. How can he know all this? Is he for real?

We land at 10 p.m. and are met by Karim Matunda and Cris Hagen. Karim is an Indonesian field biologist based in Jakarta and Cris works for the Turtle Survival Alliance. Both have previously worked in Sulawesi on these two endemic species.



PHOTOGRAPH BY TURTLE CONSERVANCY/ERIC V. GOODE

Hatchling Forsten's Tortoise (*Indotestudo forstenii*) at the Behler Chelonian Center.

Tuesday June 5th, 2012

We meet at 6:30 a.m. in the lobby of our hotel and wait for our driver and van, which Karim has organized to take us out to Forsten's Tortoise habitat in the Balle Hills. The region of Palu and the surrounding area is one of the driest places in all of Indonesia, situated in a rain shadow for most of the year. We leave the hotel and pick up four experienced Forsten's Tortoise trackers who know an area in the outskirts of Palu where we might find tortoises. We drive through the congested streets and into the rural outskirts of town and stop at a small village in the dry foothills surrounding the city. Karim assures us that he found tortoises in the Balle Hills back in 2007, when he had previously collected the species. Even back then, it required a full day with five people to find a single specimen. In my opinion, it seems far too close to civilization to be a viable habitat. We set out on foot, down a dirt road and cut through cultivated fields and grazing cattle until we get to the dry rugged hills where we leave the trail and begin bush whacking through the underbrush. The landscape is steep and punctuated with non-native towering (*Opuntia*) prickly pear cacti stands and thick underbrush with a canopy of low trees. The habitat has been seriously degraded from deforestation for firewood.

Cris and Karim have been in Sulawesi for four to five days by now, and have not seen a single living turtle. They believe that there has been no ongoing trade in the two endemic Sulawesi chelonians in recent years. Possibly there is still some local consumption of these species by the provincial people of Sulawesi or the Chinese population, but this could not be substantiated. The last known turtle trader in Palu, Mr. Fudin, died three years earlier. He had been responsible for much of the Sulawesi turtle trade for most of the 1980s, 1990s and 2000s, supplying the big dealers not only with turtles, but also with any other Sulawesi wildlife he could get his hands on. He would make monthly trips to all the coastal villages to purchase wildlife for both bush meat and pet trade. Prior to the mid 1990s, he moved large numbers of turtles to China, and in more recent years, to exporters for the pet trade. Cris and Karim had visited his widow a few days earlier, since Karim had known Mr. Fudin personally. They also visited his old shop where his business had once operated. It appeared that with his death the trade had ceased.

We visit the Balai Konservasi Sumbar Danga Alam (BKSDA) Forestry Offices in "Julur Jua" as Abdu, my contact on the plane, recommended, and



PHOTOGRAPH BY TURTLE CONSERVANCY

Cris Hagen, local villager, Max Maurer, local villager, and Eric Goode wading for the Sulawesi Forest Turtle (*Leucocephalon yuwonoi*) (above) in the Ganonggol River. Over 100 Forsten's Tortoises (*Indotestudo forstenii*) (below) seek the little shade provided at an exporter's "breeding facility" in Palu.



PHOTOGRAPH BY TURTLE CONSERVANCY/ERIC V. GOODE

sit down with two forest department government employees and inquire about Mr. Lam, who we understand collects, sells and keeps the two native turtle species. The forestry officers not only know Mr. Lam, but even have his number in their cell phones. They promptly call him and set up a meeting. It appears my contact on the plane, Abdu, knew what he was talking about.

The next thing I know, we are off to Mr. Lam's compound, following the Forestry Department truck through the city, towards the outskirts of town. We drive into his spacious gated compound, walled in by a 10-foot tall cinderblock and razor wire perimeter. Construction is under way with a swarm of workers laying bricks and mortar and building a number of new structures and enclosures. Mr. Lam saunters out of the building and greets the forestry employees warmly. Clearly, they are pals. Mr. Lam is a Chinese-Indonesian man and appears to be in his late 60s or early 70s. He proceeds to show us his facility and the many enclosures literally packed with turtles and tortoises.

One enclosure holds over 100 Forsten's Tortoises and two others must have over 200 Sulawesi Forest Turtles, separated by sex. The only shade provided in the hot mid day sun is under the small bamboo lean-tos, where the turtles are packed on top of each other like pancakes, all trying to escape the heat of the day. According to Mr. Lam, all of the animals have been collected over the last few months. Apparently most of the Sulawesi Forest Turtles were collected along the west coast of the island, near the town of "Bangkir" in the Kecamatan Dampal Selatan and Kecamatan regions. It isn't entirely clear where the Forsten's Tortoises were collected. Already we can see that many of the Sulawesi Forest Turtles are expiring from stress, overcrowding and lack of shade.

Almost certainly Mr. Lam has collected these turtles without permits or licenses and is breaking Indonesian wildlife laws. The plan on paper is that this will be a legitimate breeding facility, where all the new offspring will be sold and exported for the international pet trade. Clearly, the trade in both species is poised to increase dramatically. But why so many founders in such overcrowded enclosures? A major problem with the plan is that Forsten's Tortoises usually lay only one egg per clutch and Sulawesi Forest Turtles, are not prolific breeders, and notoriously difficult to keep alive in stressful overcrowded environments. One can do the math and realize that this is a deeply flawed plan where mortality will be high and reproduction low. Certainly the production will not justify Mr. Lam's investment.

All I can think of is that these Forsten's Tortoises are probably the last tortoises collected from the very hills where we painstakingly searched earlier in the day and found none. We have little baseline data to know what the status and range is of Forsten's Tortoise. All we know is that the historic range is small. The current range is even smaller and shrinking quickly.

Mr. Lam has been in the turtle trade in Sulawesi for over 30 years. He is no stranger to this business, and he previously operated out of the capital city of Makassar. Mr. Lam first began trading Sulawesi Forest Turtles in 1977, when he saw the species for the first time and thought it was only a different form of leaf turtle. Throughout the late 1970s and all of the 1980s, the turtle trade was mostly destined for the Chinese markets for consumption. After its description, as is so often the case, the market shifted to the international pet trade; the trade increased along with the prices offered for the species. It was no longer just another Asian leaf turtle, it was now a sought after collector's item. Mr. Lam and his predecessor were the middlemen, selling the Sulawesi turtles to the large Indonesian-based reptile exporters in Jakarta, who marked up the prices and exported thousands of Sulawesi turtles and tortoises to US, Europe and Japan, throughout the mid 1990s and into the 2000s.

A few years after Mr. Fudin's death, Mr. Lam moved from Makassar and began setting up his turtle operation in Palu to be closer to the range of both species. Based on the huge effort and investment he's making in Palu, it is obvious that this new trade in both species will have a significant impact on wild populations. The possibility that the trade is about to be up and running again on such a large scale is a disturbing discovery and underscores the urgent need to learn more about the remaining populations of each species, and to monitor Mr. Lam's operation to prevent it from becoming another government approved "captive breeding" facility.

The continued international demand from the pet trade for these two species is motivating dealers to find loopholes in the system to begin exporting them at an unsustainable rate. Since much of the global market in these two species exists outside of Southeast Asia (Europe, United States, and Japan), my strong recommendation is to up list both of these endemics to CITES Appendix I to avoid any further export. 🐢



PHOTOGRAPH BY TURTLE CONSERVANCY/ERIC V. GOODE

Searching through the thorny understory (above) for Forsten's Tortoises (*Indotestudo forstenii*). These deforested hills (below) outside of Palu were once a stronghold for the Endangered Forsten's Tortoise.



PHOTOGRAPH BY TURTLE CONSERVANCY/MAXIMILIAN S. MAURER



PHOTOGRAPH BY TURTLE CONSERVANCY/ERIC V. GOODE

An adult male Sulawesi Forest Turtle (*Leucocephalon yuwonoi*) (above) in its habitat. The habitat of the Sulawesi Forest Turtle (below). The majority of the turtles were found active during the day.



PHOTOGRAPH BY TURTLE CONSERVANCY/ERIC V. GOODE



This hatchling Sulawesi Forest Turtle was photographed at 8 a.m. exactly the way we found it.

PHOTOGRAPH BY TURTLE CONSERVANCY/ERIC V. GOODE