

Herpetofauna in the Wildlife Trade and Nature: On the Difficulty of Estimation

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Abstract

Due to the complexity of animal populations both in the wild and the marketplace, it is difficult for scientists to estimate the actual numbers. Obstacles in the marketplace include: illegal activities, inefficient estimation procedures, and understaffed monitoring agencies. Most experts agree that the existing numbers often times are estimated extremely low. All numbers should be used with caution. Further research and tighter controls are called for.

One of the first things we learn as children is the art of counting. As adults, counting large numbers is replaced by complicated estimation techniques. Large numbers of variables makes estimation difficult. Nowhere is this more true than when trying to measure the trade in reptiles and amphibians and its impact on wild populations.

Simply, the problem is that reliable numbers of how many animals are being sold, collected, or in the wild do not exist. At least, numbers which are precise.

Take for example the seemingly simple act of estimating how many animals are sold in a given year. Any well run business has this statistic but is

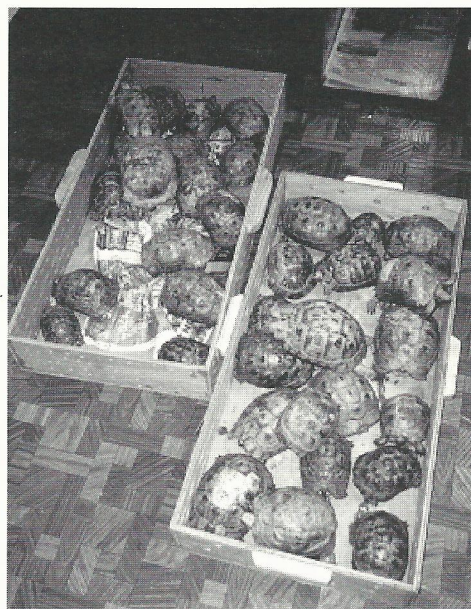
reluctant to make it public unless it is somehow mandated by law. This is especially true of some dealers and collectors of live animals who are afraid of a sudden surge in a certain species attracting the unwanted attention of their competition, scientists, conservationists or law enforcement officers (Enge 1994).

So ruling out the passing of new laws, for example, how does one find out how many reptiles and amphibians are sold within the United States? Currently the only numbers on pet herpetofauna in the U.S. that exist are guesses made by two recent pet industry surveys (American Pet Products Manufacturers 1994, American Veterinary Medical Association 1992). They estimate in the United States there are between one to four million reptiles and amphibians kept as pets.

Not only is this number too broad to be usable, surveys failed to ask specific questions that would supply data which would be more useful. They asked pet owners if they owned a snake or a turtle. If they had asked, more specifically, what species owners had then scientists could better estimate how many amphibians and reptiles are

caught and sold each year and their impact on wild populations.

One would have better luck trying to find the numbers of herpetofauna being sold into and out of the United States. At least



Greek tortoises from Jordan in their original shipping crates. The shipper of these turtles had a CITES permit for a specific number of animals. But as many CITES shipments do, this shipment had 43 more animals than allowed, so the excess animals were confiscated. Due to infrequent inspections most "padded" shipments go through, indicating that official CITES numbers do not reflect actual number traded.

there exists established trade data bases; LEMIS, or The Law Enforcement Management Information System run by the U.S. Fish & Wildlife Service and a count of CITES animals traded, put out

by England's World Conservation Monitoring Centre (WCMC).

LEMIS shows that the U.S. either imports or exports up to ten million live or dead reptiles and amphibians per year. But even here there are problems. LEMIS doesn't include all species. The all mysterious

category of non-CITES reptiles includes hundreds of thousands of animals, of unknown species, each year. Entire families of lizards such as skinks, agamas and geckos are only listed by their common family name. And then certain reptiles, like *Graptemys* and *Apalone* are listed only by genus. (The situation for these two genera improved last year with the addition of several species for both). This forced the wildlife officer entering the data to list numerous species and subspecies together, thus losing valuable data. Documents are most often wrong. The right thing would be to open each crate and count each animal, something which few Fish & Wildlife Inspectors have the time to do unless they are suspicious of some wrongdoing (Luijff 1994).

The WCMC collects the numbers submitted by CITES countries of just CITES listed animals which have been traded. Though the species listing is more exact, the problem here is that WCMC has no enforcement or checking ability. It's purely an honor system. So a local CITES



Baby sliders in a Florida dealer's shop awaiting shipment. It is estimated that over 6 million of these were shipped out of the US last year alone.

officer who is allowing a lot of CITES animals out, and doesn't want to attract attention, might just fudge his country's numbers (Groombridge 1994).

One common gap that both these databases share is that there is no record keeping of the animals' ages (Anderson 1994). When it comes to reptiles, especially turtles, this is very important information since collection of adults does more harm to a wild population than of hatchlings (Congdon 1994).

Counting is also a problem when keeping track of wild populations. Examples exist of population studies which have proven inaccurate because they didn't take into account the animal's natural habits. This resulted in scientists looking for animals where they were least likely to find them (Gibbons 1993).

We also know that populations often naturally increase or decrease tremendously, and only long-term population studies take that into account and more accurately measure a population's trend (Gibbons 1993).

Another problem is who does the collecting. My favorite example of this is a story about *Carettochelys inculcata*. It originally was believed to be a very rare species. It turned out that the scientists who first discovered this animal were totally dependent on natives to collect their

specimens. They asked the natives to bring back any turtle they caught when they would go upriver. The problem was that the natives like to eat *Carettochelys* and so gave the scientists only the bad tasting turtles (Pritchard 1993).

Now does this mean that these numbers are useless? No. Even if the numbers are incomplete they are useful. Most herpetologists believe the numbers are way too low, (Enge 1994) describing live animal shipments that are smuggled through customs with invoices listing the boxes' contents as light bulbs and so they are never seen by Wildlife officers (Luijff 1993).

And like the canary in the mines, LEMIS and WCMC data can act as a warning to trade activities, excessive or illegal. Large numbers, even of just lizards or softshells, suddenly being reported can indicate to conservationists and scientists that further study or action is necessary.

Recently, Togo and Ghana was reporting to WCMC an incredible amount of reptiles being exported, more than those small

countries could possibly collect. This tipped off wildlife officials to investigate. They discovered that Togo and Ghana was laundering animals illegally collected from other countries (Ventura 1994).

But still we have to figure out how best to estimate amphibians and reptiles, both collected and traded (these two numbers are usually different because animals do die in transit, or are kept for personal use by the collector). The U.S. Fish & Wildlife Service needs to be encouraged to improve LEMIS so it reflects the biological and natural history of the animals being counted. Every shipment should be opened and counted. And any animal traded should be on that system. Herpetologists and conservationists need to conduct their own surveys of what is being sold in pet shops.

As for counting amphibians



A typical storage set up for small snakes at a Florida dealer. A common marketing technique of animal dealers is to under-list the amount of animals available in their mail order catalogs—by as much as 90 %. This creates the illusion of rarity and thus boosts demand for the animal.

and reptiles in the wild, an excellent reference is *Measuring and Monitoring Biological Diversity: Standard Methods for Amphibians* (Heyer *et al.* 1994). Though I look forward to an edition on reptiles, this book, with its detailed studies of different collection and recording techniques, should give anyone doing population studies on reptiles help on how to formulate a useful, comparable, population study.

Simply: You can't save what you don't know you have.

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Allen Salzberg's interests in environmental issues began back in 1965 after he saw his first wild turtle. Mr. Salzberg has written numerous articles on the environment for magazines including Health, Outside, and The New York Times. Recently, he completed a report titled The Preliminary Report: Live Freshwater Turtle & Tortoise Trade in the United States for the US Humane Society and Humane Society International. He is presently working on updating and expanding that report to include all reptiles. With his wife, Anita Baskin Salzberg, he has cowritten a children's book on turtles for "all those kids like me back in 65."
