

CHECKLIST OF EXOTIC SPECIES IN THE PHILIPPINE PET TRADE, II. REPTILES

Emerson Y. Sy

Philippine Center for Terrestrial and Aquatic Research

1198 Benavidez Street, Unit 1202,

Tondo, Manila, Philippines

Corresponding author: emersonsy@gmail.com

ABSTRACT – Keeping reptiles as pets has steadily increased in popularity as evidenced by increasing trade volume in the last few decades. To establish a baseline data on available exotic reptiles and to elucidate the dynamics of reptile trade in the Philippines, wildlife trade surveys and interviews were conducted between 2008–2013 in Metro Manila, Cebu, and Davao. Additional trade data were obtained by retrieving data from the CITES trade database and by reviewing the Department of Environment and Natural Resources (DENR) unpublished reports. A comprehensive list of exotic reptile taxa (N = 197) documented in the Philippine pet trade is provided for the first time, including the ubiquitous *Trachemys scripta elegans* to the critically endangered *Astrochelys yniphora* and *Astrochelys radiata*. Wildlife laundering is emerging as an important mechanism utilized by breeding farms and private zoological parks to circumvent wildlife laws and regulations in the Philippines.

Keywords: *reptile, exotic pet trade, critically endangered species, CITES, wildlife laundering, Astrochelys, Philippines*

INTRODUCTION

The international pet trade in live reptiles has increased significantly, in quantity and number of taxa, in the last few decades (Gong et al. 2009; Smith et al., 2009). The trade volume of the United States, the leading importer and exporter of live reptiles, for the 15 most traded reptiles covering the period 2001–2009 amounted to more than 62 million reptile specimens (Herrel and van der Meijden, 2014). According to Hoover (1998), the increasing demand may be attributed to the following reasons: 1. More wild-caught and captive-bred specimens are available to supply the demand; 2. Advances in reptile husbandry and propagation make reptiles as viable alternative pets; 3. Trade restrictions on another faunal group (e.g. bird) prompted enthusiasts to seek alternative pets; 4. Changing perceptions about reptiles as pets; and 5. May be about fad.

Several reptile species are now routinely propagated in captivity in large volume to supply the pet trade industry. However, threatened and endangered reptile species are still heavily collected, legally and illegally, in the wild. Unsustainable collection practices, threats of habitat degradation, and climate change increase the extinction risk of reptiles (Böhm et al., 2013; Herrel and van der Meijden, 2014).

Parallel to the increasing trade volume in pet reptiles is the increasing incidents of injuries and transmissions of animal-borne diseases. Children below five years old are particularly more prone to sustaining injuries from pet reptiles due to their natural curiosity and sub-optimal hygiene practices. In 1975, the United States Food and Drug Administration banned the sale of turtles less than four inches after numerous salmonellosis cases linked to turtle ownership were reported (Smith et al., 2012). An increasing trend of pet constrictor snake injuries in the United States has also been documented. Reported incidents steadily climbed from a few in 1990 to more than 60 in 2012, including 12 fatalities between 1990–2012 (HSUS, 2012). More recently in Canada, two young children were constricted to death as they sleep, by a python kept as pet (Gillies, 2013).

Several studies on live reptile trade have been conducted in America (Hoover, 1998; Herrel and van der Meijden, 2014; Mali et al., 2014), Europe (Auliya, 2003; Turkozian and Kiremit, 2007), Africa (Carpenter et al., 2004; Ramahaleo and Virah-Sawmy, 2013), and Asia (Sharma, 1999; Shiau et al., 2006; Shepherd and Nijman, 2007, 2008; Gong et al., 2009). However, there is a paucity of information on exotic wildlife trade in the Philippines (Sy, 2014c). Wildlife trade surveys and interviews were conducted and unpublished trade data was analyzed to establish a baseline of available exotic reptiles and to elucidate the dynamics of exotic reptile trade in the Philippines.

METHODS

Visual encounter surveys were conducted in 235 pet shops in Metro Manila, Cebu, and Davao between June 2008 to June 2013. Pet centers in Metro Manila (Cartimar Pet Center, Arranque Market, and Tiendesitas Complex) were visited unannounced and without set interval between visits at least three times a year during the study period. Pet center in Cebu located along Manalili Street was visited twice and pet shops in Davao City were visited three times during the same period. Specimens displayed in plain view or hidden in backrooms were photographed when permitted by shop personnel. Opportunistic interviews with shop personnel and enthusiasts were conducted to determine price, quantity, source, and availability of other species hidden in plain view. Additional trade data was gathered by Internet surveys on local trading and social networking websites, visit to private facilities of importers and enthusiasts, review of unpublished reports (Issuance of non-CITES import/export permit, Issuance of wildlife local transport permit, inventory/monitoring of wildlife, and wildlife confiscation) from the Department of Environment and Natural Resources – National Capital Region (DENR–NCR), review of list of registered turtle and tortoise owners from the Biodiversity Management Bureau – DENR (BMB–DENR), and retrieval of data on importation of live CITES listed reptile species from the CITES trade database for the period 1990–2012. Since private zoological parks and reptile propagation enterprises are important sources of specimens in the Philippine reptile trade, species imported with stated purpose for commercial (letter code in the CITES database = T), breeding in captivity (B), personal (P) and zoo (Z) were also included in the checklist.

Specimens were identified to species or subspecies level whenever possible by examining their distinguishing morphological characters or by comparing photographs posted by sellers with identification keys and published photographs from literature (e.g. Ross and Marzec, 1990; Necas, 1999; Pianka and King, 2004; Auliya, 2007; Shi et al., 2013). Scientific nomenclature follows Ross (1998) for crocodilians, TWTG (2014) for turtles and tortoises, Townsend and Larson (2002) for chameleons,

Hedges (2014) for skinks, Harvey et al. (2012) for teiid lizards, Böhme (2003) and Koch et al. (2010) for monitor lizards, Reynolds et al. (2014) for pythons and boas, Wallach et al. (2009) for cobras, Pyron and Burbink (2009) for kingsnakes, and Pyron et al. (2013) for other lizards and snakes. Listed species that also naturally occur in the Philippines (e.g. Reticulated Python, Spiny Turtle) pertained to imported specimens.

RESULTS AND DISCUSSION

A total of 197 exotic reptile taxa (6 crocodilians, 72 turtles and tortoises, 64 lizards, and 55 snakes), representing 30 families and 100 genera were documented (Appendix 1). Pet shops with exotic reptiles varied from 21–32 shops during the study period. Most shops only had the Red-eared Slider (*Trachemys scripta elegans*) (Fig. 1 A-C), but four reptile specialty shops had between 9–15 species in plain view, including critically endangered species such as the Radiated Tortoise (*Astrochelys radiata*) and Siamese Crocodile (*Crocodylus siamensis*). Traditionally, pet centers were the main sources of exotic pets, but in the last decade, more traders are primarily utilizing the Internet in their trading activities. Legal and illegal reptile traders utilized local trading and social networking websites (e.g. Facebook) to advertise available specimens. Traders offering exotic reptiles for sale posted more than 200 online advertisements in randomly surveyed month during this study.

An analysis of the data retrieved from the CITES trade database for live CITES listed reptiles showed that 92 exotic taxa involving 10,248 specimens were imported in the Philippines from 1990–2012. The top 10 taxa represented 8,253 specimens (80.53%) of the total legal import (Table 1).

Table 1. Top 10 legally imported CITES listed exotic reptiles from 1990–2012

TAXON	QUANTITY	PERCENT
<i>Iguana iguana</i>	3,594	35.07%
<i>Python regius</i>	1,842	17.97%
<i>Pelodiscus sinensis</i> *	1,200	11.71%
<i>Caiman crocodilus</i>	376	3.67%
<i>Boa constrictor</i>	294	2.87%
<i>Varanus exanthematicus</i>	224	2.19%
<i>Cuora amboinensis</i>	202	1.97%
<i>Chelonoidis carbonaria</i>	196	1.91%
<i>Python bivittatus</i>	178	1.74%
<i>Malayopython reticulatus</i>	147	1.43%

**Pelodiscus sinensis* was listed in CITES Appendix III when imported in 2005

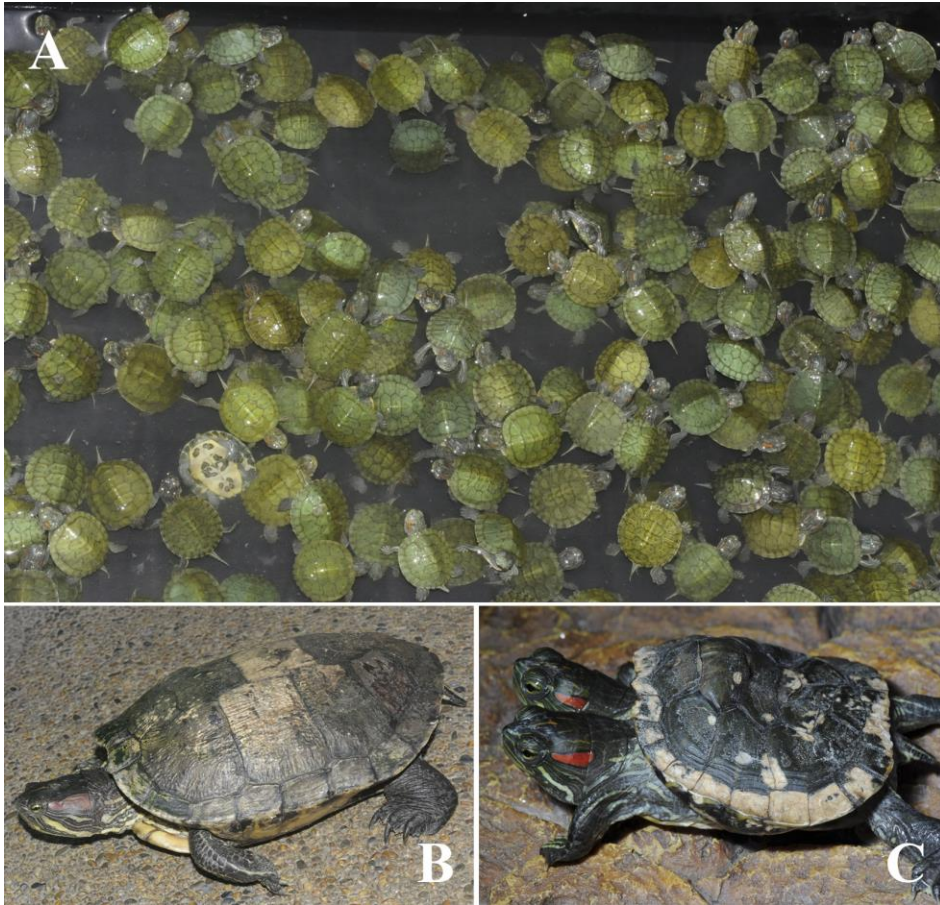


Figure 1. A) Red-eared Slider hatchlings are imported, legally and illegally, by the thousands annually; B) An adult female Red-eared Slider; C) A bicephalic Red-eared Slider. Photos by Emerson Y. Sy.

Popular Species

The most conspicuous reptile species in the Philippine pet trade was the Red-eared Slider, which is imported legally and illegally by the thousands annually. For instance, 11,000 live Red-eared Sliders were legally imported in the second quarter of 2014 (DENR-NCR, unpubl. report). The hatchling (straight carapace length [SCL] = 30–33 mm) of the species is easily identified by its attractive bright green-colored carapace and red patch behind the eye. In the United States, it is extensively bred in captivity and exported through out the world. In a four-year period (1993–1996), the US exported more

than 31 million live Red-eared Sliders (Hoover, 1998) and in a more recent study, Herrel and van der Meijden (2014) documented the US exported more than 48 million live specimens over the period 2001–2009. The voluminous worldwide trade in live Red-eared Sliders in the last few decades resulted in establishment of feral populations in at least 70 countries and territories (Uetz and Hosek, 2014) and paved the way for it to become one of the 100 worst invasive species in the world (Lowe et al., 2000). The species is typically purchase on impulse by novice enthusiasts in the Philippines due to its initial small size, attractiveness, and low retail price (PHP 100–150 / USD 2.2–3.3). However, keepers are generally unaware that it can grow up to 25 cm in SCL (McKeown, 1996), will quickly outgrow small aquaria, and a potential source of salmonella bacteria which may cause serious illness especially to young children (CDCP, 2007). Some unwanted specimens end up being intentionally released in the wild resulting in thriving populations with undetermined ecological impact occurring in several locations on Luzon, Cebu, and Mindanao (Diesmos et al., 2008). Other introduced reptile species in the Philippines are: Painted Turtle (*Chrysemys picta*) through the pet trade; Chinese Softshell Turtle (*Pelodiscus sinensis*) through the food trade; and Common Garden Lizard (*Calotes versicolor*) possibly as cargo stowaways (Sy et al., 2004; Diesmos et al., 2008; Sy, 2013; Sy, 2014a). Additional reproducing populations of exotic reptiles are expected to be documented in the near future since a few escaped or released pets such as Alligator Snapping Turtle (*Macrochelys temminckii*), Common Caiman (*Caiman crocodilus*), Pig-nosed Turtle (*Carettochelys insculpta*), and Green Iguana (*Iguana iguana*) have been retrieved from the wild (Sy, unpubl. data).

The other popular species among reptile enthusiasts were the Leopard Gecko (*Eublepharis macularius*), Bearded Dragon (*Pogona vitticeps*), Ball Python (*Python regius*), and Reticulated Python (*Malayopython reticulatus*) due to the availability of numerous morphs (e.g. albino, melanistic, leucistic) selectively bred by herpetoculturists. Reptile breeders and traders can usually command high prices for new morphs in the market, but drastic drop in demand and price occurs after 2–3 years when certain morph becomes widely available and enthusiasts shift their attention to newer morphs or other species.

In 2008–2012, CITES-listed exotic reptiles imported in the Philippines ranged from 2–13 species per year representing 1,861 specimens (Table 2). A total of 1,306 specimens (70.18%) were *P. regius*, which clearly indicated its popularity among enthusiasts during the period.

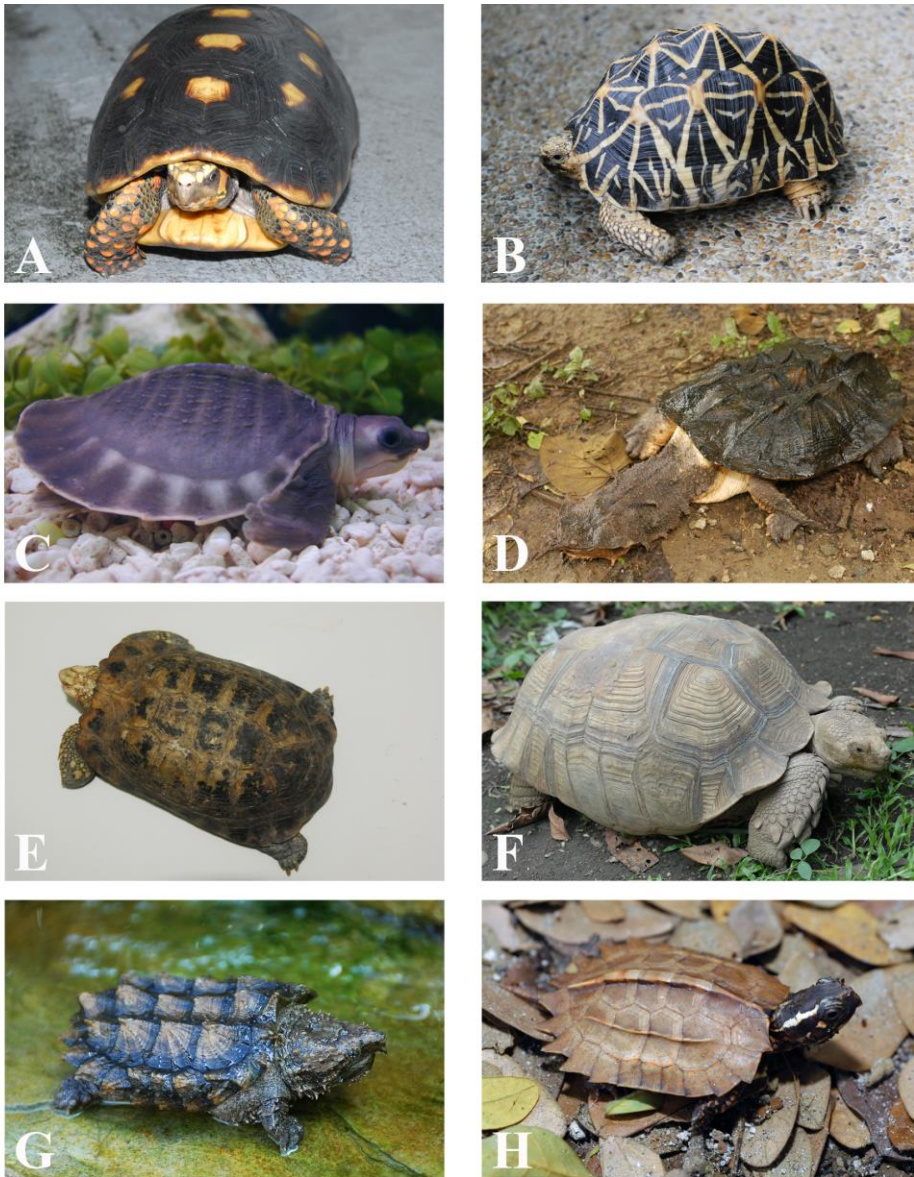


Figure 2 A–H. Turtles and Tortoises: A) *Chelonoidis carbonaria*; B) *Geochelone elegans*; C) *Carettochelys insculpta*; D) *Chelus fimbriata*; E) *Indotestudo elongata*; F) *Centrochelys sulcata*; G) *Macrochelys temminckii*; H) *Geoemyda spengleri*. Photos by Emerson Y. Sy.

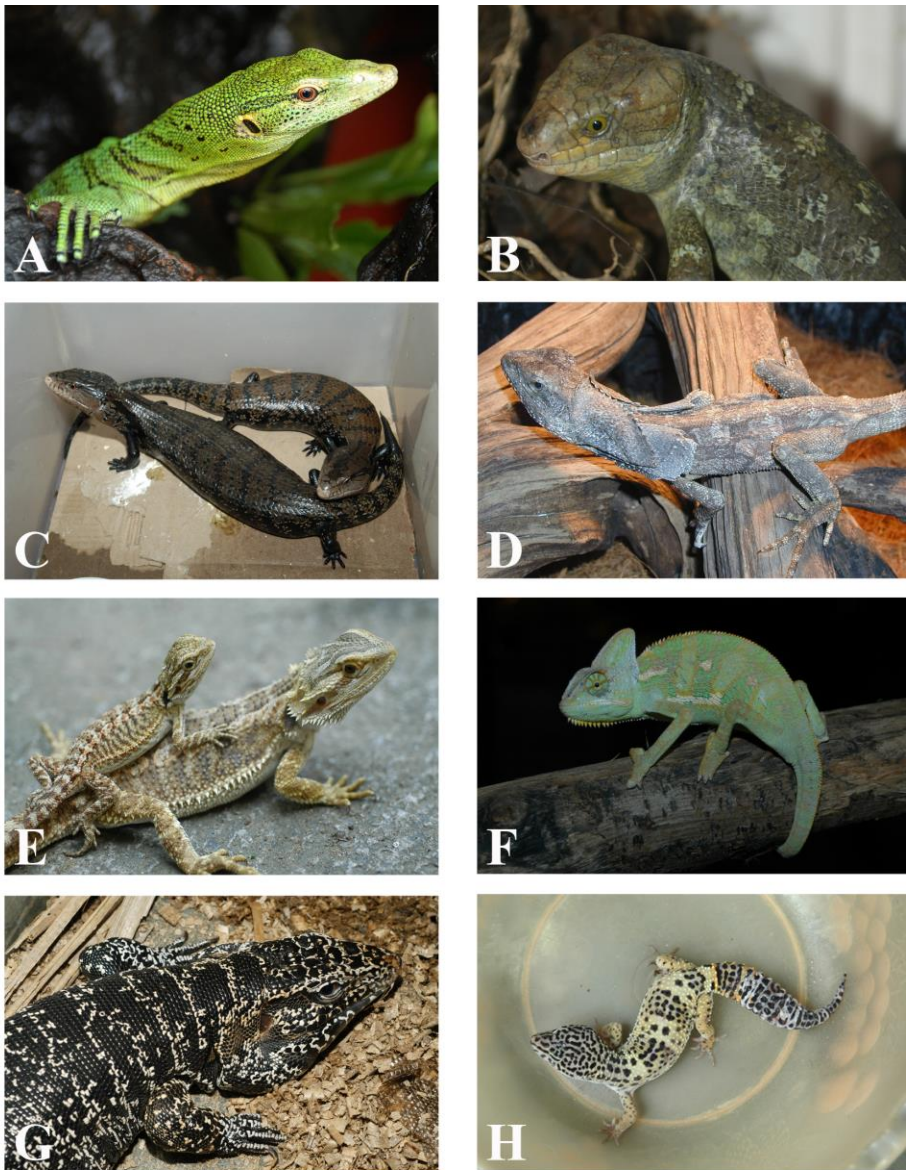


Figure 3 A–H. Lizards: A) *Varanus prasinus*; B) *Corucia zebrata*; C) *Tiliqua gigas*; D) *Chlamydosaurus kingii*; E) *Pogona vitticeps*; F) *Chamaeleo calytratus*; G) *Tupinambis tequixin*; H) *Eublepharis macularius*. Photos by Emerson Y. Sy.

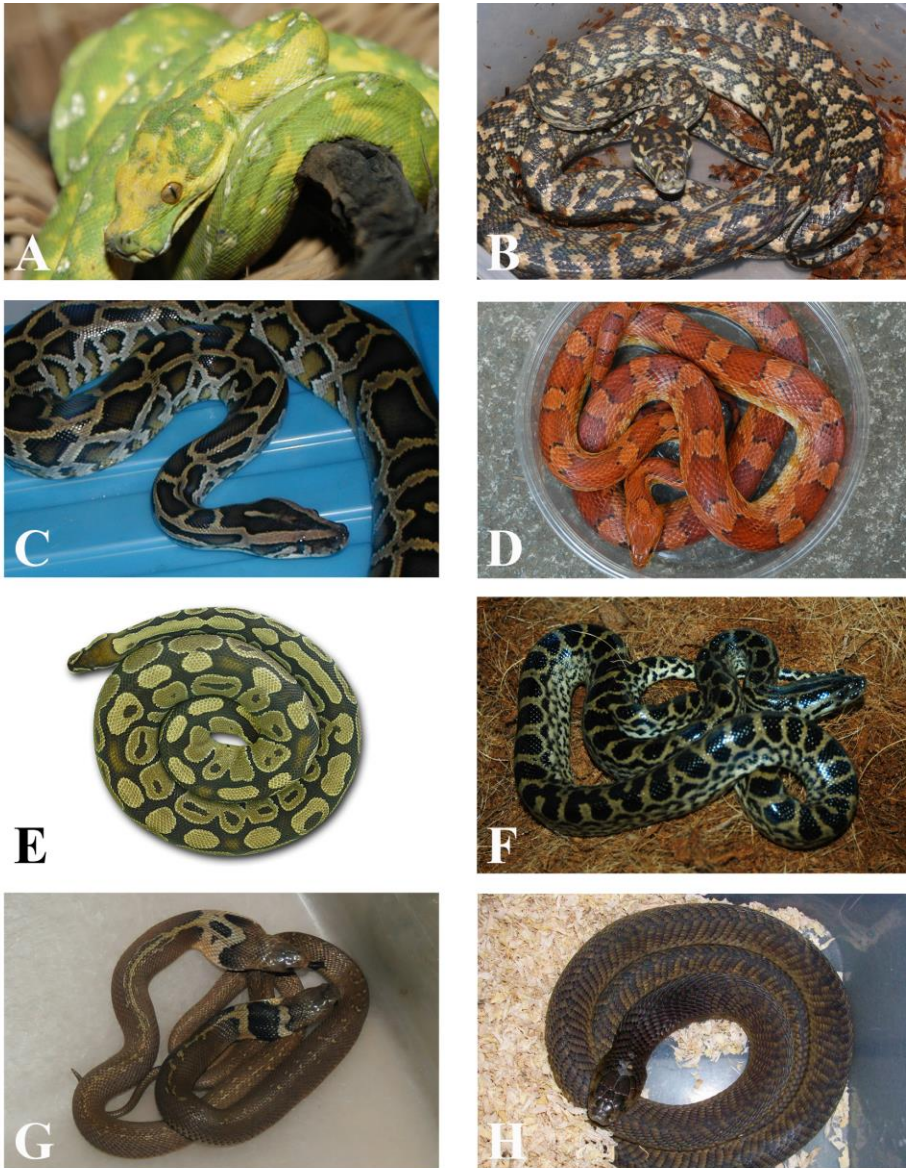


Figure 4 A–H. Snakes: A) *Morelia viridis*; B) *Morelia spilota*; C) *Python bivittatus*; D) *Pantherophis guttatus*; E) *Python regius*; F) *Eunectes notaeus*; G) *Naja atra*; H) *Naja annulifera*. Photos A–G by Emerson Y. Sy; Photo H screen captured by Emerson Y. Sy.

Table 2. Imported CITES listed exotic reptiles between 2008-2012 in the Philippines

	2008	2009	2010	2011	2012	Total	Percent
<i>Centrochelys sulcata</i>	7		6	2		15	0.81%
<i>Chelonoidis carbonaria</i>	129	10		4		143	7.68%
<i>Chelonoidis denticulate</i>	5	2		2	5	14	0.75%
<i>Chelonoidis nigra</i>		6				6	0.32%
<i>Cuora amboinensis</i>		2				2	0.11%
<i>Stigmochelys pardalis</i>		6	6			12	0.64%
<i>Terrapene ornate</i>				1		1	0.05%
<i>Iguana iguana</i>	56	39				95	5.10%
<i>Salvator merianae</i>				1		1	0.05%
<i>Salvator rufescens</i>				8		8	0.43%
<i>Aspidites ramsayi</i>		3	3			6	0.32%
<i>Boa constrictor</i>	8	76	28	2		114	6.13%
<i>Epicrates cenchria</i>	2					2	0.11%
<i>Eunectes murinus</i>	6					6	0.32%
<i>Malayopython reticulatus</i>	1	13		13		27	1.45%
<i>Morelia spilota</i>		14	11			25	1.34%
<i>Python bivittatus</i>		8		6		14	0.75%
<i>Python brongersmai</i>	14	17	27			58	3.12%
<i>Python curtus</i>			6			6	0.32%
<i>Python regius</i>	87	509	386	79	245	1,306	70.18%
Quantity	315	705	473	118	250	1,861	
Taxon	10	13	8	10	2		

CITES Species

Out of the total 197 exotic reptiles in the Philippine pet trade, 137 taxa (70%) are listed in CITES appendices. Twelve taxa (6.1%) are listed in CITES Appendix I, 119 taxa (60.5%) are listed in CITES Appendix II, and six taxa (3.0%) are listed in Appendix III (Figure 5).

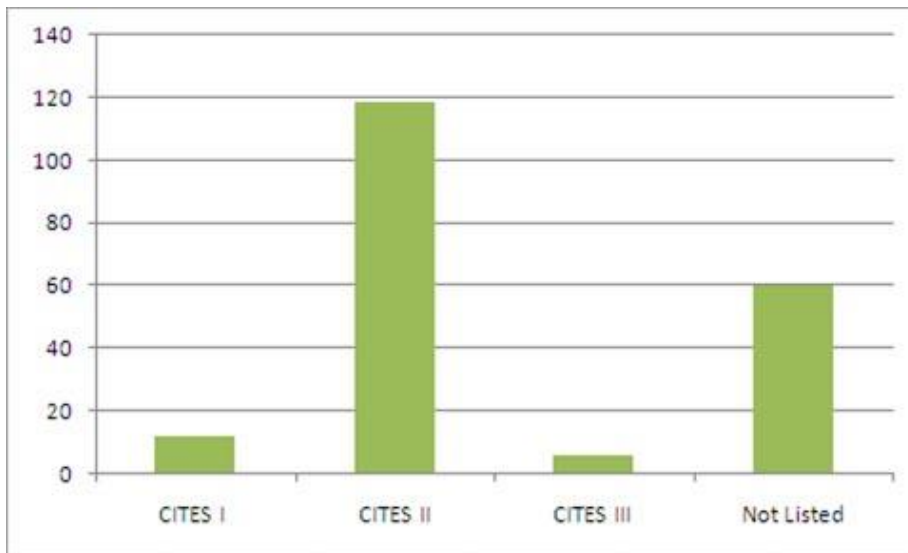


Figure 5. Number of exotic reptile species in the Philippine pet trade and CITES listing

Out of the 12 CITES Appendix I-listed reptiles documented in the Philippine pet trade (Table 3), only three species had records of legal importation. 100 and 30 live *Crocodylus siamensis* were imported in 1999 and 2005, respectively; one *Platysternon megacephalum* was imported in 2005 before it was listed in Appendix I; and six *Chelonoidis nigra* were imported in 2009. Among the 119 documented CITES Appendix II-listed species, only 86 had records of legal importation. This suggests all specimens of the other nine CITES Appendix I-listed species and at least 33 CITES Appendix II-listed species were smuggled and illegally traded in the country (Table 4).

Table 3. CITES Appendix I-listed reptiles in the Philippine pet trade

TAXON	DATE LISTED
<i>Crocodylus siamensis</i>	1 July 1975
<i>Tomistoma schlegelii</i>	1 July 1975
<i>Astrochelys radiata</i>	1 July 1975
<i>Astrochelys yniphora</i>	1 July 1975
<i>Chelonoidis nigra</i>	1 July 1975
<i>Geochelone platynota</i>	12 June 2013
<i>Platysternon megacephalum</i>	12 June 2013
<i>Pyxis arachnoides</i>	12 January 2005
<i>Pyxis planicauda</i>	13 February 2003
<i>Testudo kleinmanni</i>	16 February 1995
<i>Varanus nebulosus</i>	1 July 1975
<i>Acrantophis dumerili</i>	4 February 1977

Traders have been known to utilize CITES listing and IUCN conservation status of species as selling points to enthusiasts (Shepherd and Nijman, 2008). As expected, two of the most expensive exotic reptiles documented in this study were the CITES Appendix I-listed and critically endangered Radiated Tortoise (*Astrochelys radiata*) (Fig. 6 A-C) and Ploughshare Tortoise (*Astrochelys yniphora*) (Fig. 7) with asking prices of PHP 18,000–125,000 (USD 400–2,778) and PHP 75,000–450,000 (USD 1,667–10,000) per specimen, respectively. In comparison, Nijman and Shepherd (2009) reported no significant price difference between CITES Appendix I- and II-listed turtles and tortoises traded in Thailand.



Figure 6 A–C. Online for sale advertisements of *Astrochelys radiata* in a local wildlife trading website. Screen captured by Emerson Y. Sy.

Table 4. CITES Appendix II-listed exotic reptiles in the Philippine pet trade without importation records

ORDER	TAXON
Crocodylia	<i>Crocodylus novaeguineae</i>
Testudines	<i>Carettochelys insculpta</i>
	<i>Malaclemys terrapin</i>
	<i>Batagur borneoensis</i>
	<i>Cuora flavomarginata</i>
	<i>Geoemyda spengleri</i>
	<i>Heosemys spinosa</i>
	<i>Malayemys macrocephala</i>
	<i>Orlitia borneensis</i>
	<i>Pangshura tentoria</i>
	<i>Podocnemis unifilis</i>
	<i>Indotestudo elongate</i>
	<i>Indotestudo travancorica</i>
	<i>Malacochersus tornieri</i>
	<i>Manouria impressa</i>
	<i>Testudo graeca</i>
	<i>Testudo marginata</i>
	<i>Lissemys punctata andersoni</i>
Squamata - Sauria	<i>Brookesia sp.</i>
	<i>Calumma parsonii</i>
	<i>Furcifer lateralis</i>
	<i>Trioceros rudis</i>
	<i>Phrynosoma sp.</i>
	<i>Dracaena guianensis</i>
	<i>Varanus auffenbergi</i>
	<i>Varanus boehmei</i>
	<i>Varanus indicus</i>
	<i>Varanus macraei</i>
	<i>Varanus melinus</i>
	<i>Varanus prasinus</i>
Squamata – Serpentes	<i>Simalia clastolepis</i>
	<i>Naja atra</i>
	<i>Naja naja</i>

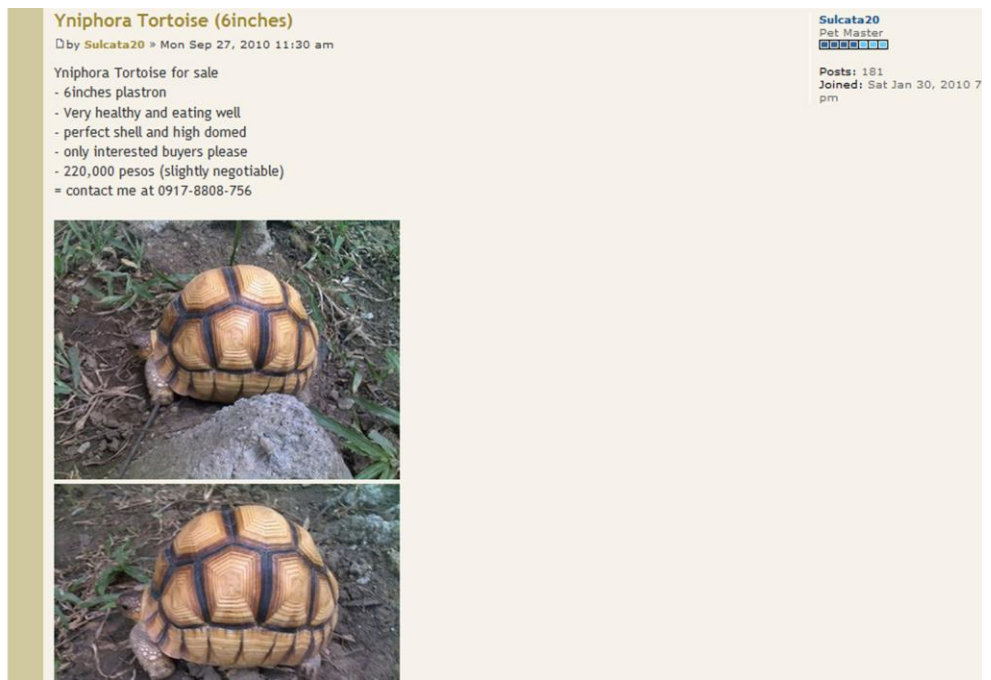


Figure 7. The critically endangered and CITES Appendix I-listed *Astrochelys yniphora* being offered for sale online. Screen captured by Emerson Y. Sy.

Emergence of support industry

The increasing volume of live reptile trade in the Philippines provided an opportunity for the emergence of the live feeder industry. Commercial and backyard breeders of live rats, mice, beetles sold in larvae form (*Tenebrio molitor*, *Zophobas morio*), crickets (*Acheta domestica*, *Gryllus bimaculatus*), and cockroaches (*Blatta lateralis*, *Blattella dubia*, *Nauphoeta cinerea*, *Eublabeus posticus*, *Gromphadorhina portentosa*) are operating in major cities throughout the country. Live rats and mice are sold per head, while live insect feeders are sold by piece, weight, cupful, or colony (cockroaches). This unregulated support industry supplies live feeders to pet shops for resale or directly to enthusiasts. The activities of participants in this industry provide livelihood to breeders and undoubtedly contribute economically. However, the likelihood of live feeders becoming established in the wild when they escape confinement or accidentally released is very high due to a favorable tropical climate.

WILDLIFE LAUNDERING

Under the Wildlife Resources Conservation and Protection Act of 2001 (R.A. No. 9147), individuals or enterprises are allowed to possess, propagate, and trade wildlife species provided that specimens were legally obtained. However, a few unscrupulous individuals and enterprises, with DENR

issued certificates of wildlife registration (CWR) or wildlife farm permits (WFP), utilize these legal document as cover to their wildlife laundering and illicit trading activities. For instance, an individual may register specimens of endangered species with high commercial value with the DENR, illegally acquire more specimens, falsely report captive breeding successes, and trade the species under the guise that they are progenies of the duly registered specimens. The practice of wildlife laundering is becoming more prevalent especially for charismatic species with high commercial value in the international reptile market (Lyons and Natusch, 2011; Bennett, 2014; Sy, 2014b).

Based on the DENR list of CWR/WFP holders of turtles and tortoises, only nine individuals/enterprises out of 245 registered owners have *Astrochelys radiata* and no individuals have *Astrochelys yniphora*. Both of these critically endangered species from Madagascar are listed in CITES Appendix I since 1 July 1975, hence utilization primarily for commercial purposes is not allowed. However, a wildlife farm permit holder based in the National Capital Region with no registered *Astrochelys* specimens was able to illegally acquire and trade both species in the country between 2009–2012 (Sy, unpubl. data). Another wildlife farm permit holder based in Manila attempted to smuggle 70 albino Burmese Pythons (*Python bivittatus*; CITES Appendix II species) out of the country in September 2012, but the cargo was intercepted by vigilant wildlife officers at the Ninoy Aquino International Airport (R. Fernandez-Salinas, pers. comm.). These cases illustrate methods how permit holders have exploited and disregarded both international and national wildlife laws for monetary gain.

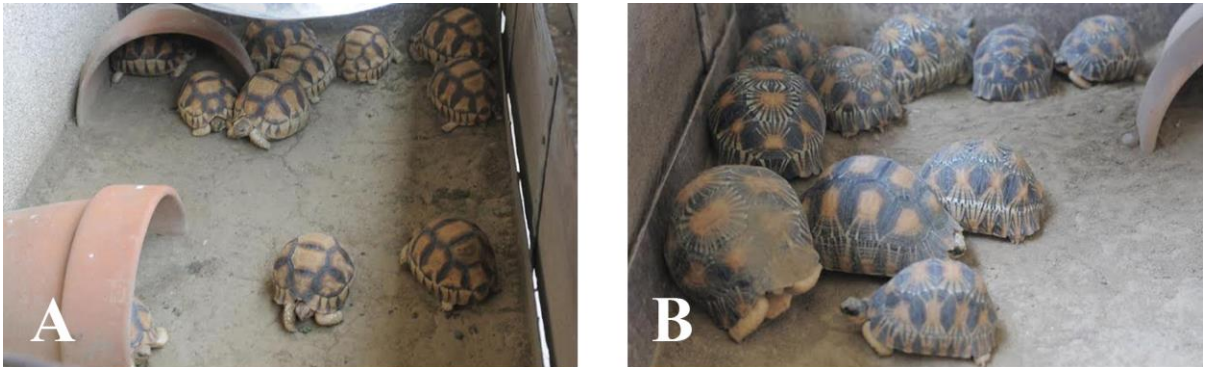


Figure 8 A–B. Several smuggled specimens of *Astrochelys yniphora* (A) and *Astrochelys radiata* (B) in the Philippines. Photos by Emerson Y. Sy.

Currently, the Philippine wildlife authority is not requiring breeders to show proof of captive breeding successes and accept on good faith reported progenies. Credible evidences of captive breeding successes such as egg shells, photographs or videos of hatchlings emerging from eggs or specimens with egg tooth or residual yolk still attached should be considered as requirement to corroborate reported progenies.

CONCLUSION

This study provides, for the first time, a comprehensive list of exotic reptiles and an overview of dynamics of reptile trade in the Philippines. While keeping reptiles as pets is steadily gaining widespread popularity, it must be conducted in accordance with the international and national wildlife laws and regulations. Wildlife laundering in breeding farms and private zoological parks is emerging as an important mechanism to circumvent laws and regulations. The Philippine wildlife authority should consider implementing a more stringent requirement to authenticate reported captive breeding successes, particularly for critically endangered (e.g. *Astrochelys yniphora*) and Philippine endemic species (e.g. *Varanus olivaceus*, *Siebenrockiella leytenensis*), to eliminate or mitigate wildlife laundering in the Philippines.

ACKNOWLEDGEMENTS

Many individuals provided valuable information and support during this study. In particular, I would like to thank Theresa Mundita Lim, Josefina de Leon, Nelson Devanadera, Rizza Fernandez-Salinas, Esteven Toledo (BMB-DENR), Lourdes Wagan, Catalina Garingarao, and Leah Orcilla (DENR-NCR) for providing unpublished reports; Benjamin Eleazar III, Neil Hendrix Margarico, Matthew Yuyek, Ronald Achacoso, Rico Pampolina, Dennis Uy, and Jansie Uy for providing data and/or accompanying me in wildlife trade surveys; Arvin Diesmos (PNM), Rafe Brown (KU), Guarino Colli (University of Brazil), Indraneil Das (UNIMAS), Sabine Schoppe (Katala Foundation), Hai Tao Shi (Hainan Normal University), Gernot Vogel, and Wolfgang Wüster (Bangor University) for providing critical references and/or assisting in species identification; and two anonymous reviewers for their comments on an earlier draft of this paper.

REFERENCES

- Auffenberg, W. and Rehman, H. 1993. Studies on Pakistan reptiles, part 3: *Calotes versicolor*. Asiatic Herpetological Research 5: 14-30.
- Auliya, M. 2003. Hot trade in cool creatures: a review of the live reptile trade in the European Union in the 1990s with a focus on Germany. Traffic Europe, Brussels, Belgium. 105 pp.
- Auliya, M. 2007. Gabay sa pagkakakilanlan sa mga pagong sa Brunei Darussalam, Indonesia, Malaysia, Papua New Guinea, Pilipinas at Timor Leste. TRAFFIC Southeast Asia, Petaling Jaya, Malaysia. 100 pp.
- Behler, J.L. and King, F.W. 1979. National Audubon Society field guide to North American reptiles and amphibians. Alfred A. Knopf, Inc., New York. 744 pp.
- Bennett, D. 1998. Monitor lizards: natural history, biology and husbandry. Edition Chimaira, Frankfurt, Germany. 352 pp.

- Bennett, D. 2014. A dubious account of breeding *Varanus olivaceus* in captivity at the Paradise Reptile Zoo in Mindoro, Philippines. *Biawak* 8(1): 12-14.
- Bennett, D. and R. Thakoordyal. 2003. The savannah monitor lizard: the truth about *Varanus exanthematicus*. Viper Press, Glossop, England. 84 pp.
- Böhm, M., Collen, B., Baillie, et al. 2013. The conservation status of the world's reptiles. *Biological Conservation* 157: 372-385.
- Böhme, W. 2003. Checklist of the living monitor lizards of the world (family Varanidae). *Zoologische Verhandelingen* 341: 3-43.
- Böhme, W. and Ziegler, T. 2005. A new monitor lizard from Halmahera, Moluccas, Indonesia (Reptilia: Squamata: Varanidae). *Salamandra* 41(1/2): 51-59.
- Broadley, D.G. and Wüster, W. 2004. A review of the southern African non-spitting cobras (Serpentes: Elapidae: *Naja*). *African Journal of Herpetology* 53(2): 101-122.
- Carpenter, A.I., Rowcliffe, J.M., and Watkinson, A.R. 2004. The dynamics of the global trade in chameleons. *Biological Conservation* 120: 291-301.
- Centers for Disease Control and Prevention. 2007. Turtle-associated salmonellosis in humans – United States, 2006-2007. *Morbidity and Mortality Weekly Report* 52(26): 649-652.
- Cheke, A. 1982. *Phelsuma* GRAY 1825 in the Seychelles and neighbouring islands: a re-appraisal of their taxonomy and description of two new forms (Reptilia: Sauria: Gekkonidae). *Senckenbergiana Biologica* 62: 181-198.
- CITES. 2013. Appendices I, II and III. International Environment House. Geneva, Switzerland. 46 pp.
- Colli, G.R., Peres, Jr., A.K., and da Cunha, H.J. 1998. A new species of *Tupinambis* (Squamata: Teiidae) from central Brazil, with an analysis of morphological and genetic variation in the genus. *Herpetologica* 54(4): 477-492.
- Conant, R. and Collins, J.T. 1991. A field guide to reptiles and amphibians of eastern and central North America, 3rd ed. Houghton Mifflin Company, Boston. 450 pp.
- Cox, M.J., van Dijk, P., Nabhitabhata, J., and Thirakhupt, K. 1998. A photographic guide to snakes and other reptiles of peninsular Malaysia, Singapore and Thailand. New Holland Publishers (UK) Ltd. 144 pp.
- Das, I. 2002. A photographic guide to snakes and other reptiles of India. 2002. New Holland Publishers (UK) Ltd. 144 pp.

- Diesmos, A.C., Brown, R.M., Alcala, A.C., and Sison, R.V. 2008. Status and distribution of non-marine turtles of the Philippines. *Chelonian Conservation and Biology* 7(2): 157-177.
- Ferguson, G.W., Murphy, J.B., Ramanamanjato, J.B., and Raselimanana, A.P. 2004. The panther chameleon: color variation, natural history, conservation and captive management. Krieger Publishing Company, Malabar, Florida. 118 pp.
- Georges, A. and Thomson, S. 2010. Diversity of Australasian freshwater turtles, with an annotated synonymy and key to species. *Zootaxa* 2496: 1-37.
- Gillies, R. 2013. Python's strangling of 2 boys in Canada probed. Available at <http://bigstory.ap.org/article/2-boys-killed-after-python-escapes-store-canada>
- Glaw, F., Vences, M., Ziegler, T., Böhme, W., and Köhler, J. 1999. Specific distinctness and biogeography of the dwarf chameleons *Brookesia minima*, *B. peyrierasi* and *B. tuberculata* (Reptilia: Chamaeleonidae): evidence from hemipenial and external morphology. *Journal of the Zoological Society of London* 247: 225-238.
- Gong, S.P., Chow, A.T., Fong, J.J., and Shi, H.T. 2009. The chelonian trade in the largest pet market in China: scale, scope, and impact on turtle conservation. *Oryx* 43(2): 1-4.
- Harvey, M.B., Ugueto, G.N., and Gutberlet, Jr., R.L. 2012. Review of teiid morphology with a revised taxonomy and phylogeny of the Teiidae (Lepidosauria: Squamata). *Zootaxa* 3459: 1-156.
- Hedges, S.B. 2014. The high-level classification of skinks (Reptilia, Squamata, Scincomorpha). *Zootaxa* 3765(4): 317-338.
- Henkel, F.W. and Schmidt, W. 2000. Amphibians and reptiles of Madagascar and the Mascarene, Seychelles, and Comoro Islands. Krieger Publishing Company, Florida. 316 pp.
- Herrel, A. and van der Meijden, A. 2014. An analysis of the live reptile and amphibian trade in the USA compared to the global trade in endangered species. *Herpetological Journal* 24: 103-110.
- Hoover, C. 1998. The US role in the international live reptile trade: Amazon Tree Boas to Zululand Dwarf Chameleons. TRAFFIC North America. Washington, DC. 59 pp.
- Humane Society of the United States (HSUS). 2012. Constrictor snake incidents. Washington, DC. 66 pp.
- Koch, A., Auliya, M., and Ziegler, T. 2010. Updated checklist of the living monitor lizards of the world (Squamata: Varanidae). *Bonn Zoological Bulletin* 57(2): 127-136.
- Koch, A., Ziegler, T., Böhme, W., Arida, E., and Auliya, M. 2013. Pressing problems: distribution, threats and conservation status of the monitor lizards (Varanidae: *Varanus* spp.) of Southeast

- Asia and the Indo-Australian Archipelago. *Herpetological Conservation and Biology* 8(Monograph 3): 1-62.
- Krisko, K.L. and Daniels, K.J. 2005. A key to the geckos (Sauria: Gekkonidae) of Florida. *Caribbean Journal of Science* 41(1): 28-36.
- Leary, T. 1991. A review of terrestrial wildlife trade originating from Solomon Islands. *Australian Zoologist* 27(1 & 2): 20-27.
- Lowe, S., Browne, M., Boudjelas, S., and de Poorter, M. 2000. 100 of the world's worst invasive alien species: A selection from the global invasive species database. Invasive Species Specialist Group. Auckland, New Zealand. 12 pp.
- Lyons, J.A. and Natusch, D.J.D. 2011. Wildlife laundering through breeding farms: illegal harvest, population declines and a means of regulating the trade of green pythons (*Morelia viridis*) from Indonesia. *Biological Conservation*, 144: 3073–3081.
- Mali, I., Vandeweghe, M.W., Davis, S.K., and Forstner, M.R.J. 2014. Magnitude of the freshwater turtle exports from the US: long term trends and early effects of newly implemented harvest management regimes. *Plos One* 9(1): e86479.
- McKeown, S. 1996. A field guide to reptiles and amphibians in the Hawaiian Islands. Diamond Head Publishing, Inc., Los Osos, California. 172 pp.
- Necas, P. 1999. Chameleons: nature's hidden jewels. Edition Chimaira, Frankfurt, Germany. 348 pp.
- Nijman, V. and Shepherd, C.R. 2009. Trade in non-native, CITES-listed wildlife in Asia as exemplified by the trade in freshwater turtles and tortoises (Chelonidae) in Thailand. *Contribution to Zoology* 76(3): 207-211.
- Pianka, E.R. and King, D.R. (Eds.). 2004. Varanoid lizards of the world. Indiana University Press. Bloomington, IN, USA. xiii + 588 pp.
- Pyron, R.A. and Burbrink, F.T. 2009. Systematics of the Common Kingsnake (*Lampropeltis getula*; Serpentes: Colubridae) and the burden of heritage in taxonomy. *Zootaxa* 2241: 22-32.
- Pyron, R.A., Burbrink, F.T., AND Wiens, J.J. 2013. A phylogeny and revised classification of Squamata, including 4161 species of lizards and snakes. *BMC Evolutionary Biology* 13(93): 1-53.
- Ramahaleo, T.A. and Virah-Sawmy, M. 2013. Illegal poaching of Radiated Tortoises, *Astrochelys radiata*, in arid southern Madagascar: Contributing factors, conservation initiatives, critical challenges, and potential solutions. In Castellano, C.M., Rhodin, A.G.J., Ogle, M., Mittermeier, R.A.,

- Randriamahazo, H., Hudson, R., and Lewis, R.E. (Eds.). Turtles on the Brink in Madagascar: Proceedings of Two Workshops on the Status, Conservation, and Biology of Malagasy Tortoises and Freshwater Turtles. Chelonian Research Monographs No. 6: 124-131.
- Reynolds, R.G., Niemiller, M.L., and Revell, L.J. 2014. Toward a tree-of-life for the boas and pythons: Multilocus species-level phylogeny with unprecedented taxon sampling. *Molecular Phylogenetics and Evolution* 71: 201-213.
- Rocha, S., Rösler, H., Gehring, P.S., Glaw, F., Posada, D., Harris, D.J., and Vences, M. 2010. Phylogenetic systematics of day geckos, genus *Phelsuma*. Based on molecular and morphological data (Squamata: Gekkonidae). *Zootaxa* 2429: 1-28.
- Rocha, S., Vences, M., Glaw, F., Posada, D., and Harris, D.J. 2009. Multigene phylogeny of Malagasy day geckos of the genus *Phelsuma*. *Molecular Phylogenetics and Evolution* 52: 530-537.
- Ross, J.P. (Ed.). 1998. Crocodiles: Status survey and conservation action plan, 2nd edition. IUCN Publications Services Unit. Cambridge, UK. 96 pp.
- Ross, R.A. and Marzec, G. 1990. The reproductive husbandry of pythons and boas. The Institute for Herpetological Research. Stanford, California. 270 pp.
- Schleip, W.D. and O'Shea, M. 2010. Annotated checklist of the recent and extinct pythons (Serpentes, Pythonidae), with notes on nomenclature, taxonomy and distribution. *ZooKeys* 66: 29-79.
- Seipp, R. and Henkel, F.W. 2000. *Rhacodactylus*: biology, natural history and husbandry. Edition Chimaira, Frankfurt, Germany. 174 pp.
- Sharma, D.S.K. 1999. Tortoise and freshwater turtle trade and utilization in peninsular Malaysia. Traffic Southeast Asia, Petaling Jaya, Malaysia. iv + 39 pp.
- Shepherd, C.R. and Nijman, V. 2007. An overview of the regulation of the freshwater turtle and tortoise pet trade in Jakarta, Indonesia. Traffic Southeast Asia, Petaling Jaya, Malaysia. v + 23 pp.
- Shepherd, C.R. and Nijman, V. 2008. Pet freshwater turtle and tortoise trade in Chatuchak Market, Bangkok, Thailand. Traffic Southeast Asia, Petaling Jaya, Malaysia. 16 pp.
- Shi, H.T., Hou, M., Pritchard, P., Lau, M., Wang, J.C., Liu, Y.X., and Yeh, F. (Eds.). 2013. Identification manual for the conservation of turtles in China, 3rd Edition. Encyclopedia of China Publishing House. Beijing, China. 174 pp.
- Shiau, T.W., Hou, P.C., Wu, S.H., and Tu, W.C. 2006. A survey on alien pet reptiles in Taiwan. *Taiwania* 51(2) 71-80.
- Smith, K.F., Behrens, M., Schloegel, L.M., Marano, N., Burgiel, S., and Daszak, P. 2009. Reducing the risks of the wildlife trade. *Science* 324: 594-595.

- Spinks, P.Q., Thomson, R.C., Hughes, B., Moxley, B., Brown, R., Diesmos, A., and Shaffer, H.B. 2012. Cryptic variation and the tragedy of unrecognized taxa: the case of international trade in the spiny turtle *Heosemys spinosa* (Testudines: Geoemydidae). *Zoological Journal of the Linnean Society* 164: 811-824.
- Stebbins, R.C. 1985. A field guide to western reptiles and amphibians. Houghton Mifflin Company, Boston. 336 pp.
- Sy, E.Y. 2013. Geographic distribution: *Calotes versicolor* (Common Garden Lizard). *Herpetological Review* 44(4): 625.
- Sy, E.Y. 2014a. Geographic distribution: *Pelodiscus sinensis* (Chinese Softshell Turtle). *Herpetological Review* 45(2): 280-281.
- Sy, E.Y. 2014b. *Siebenrockiella leytensis* artificial incubation and hatchling size. *Herpetological Review* 45(3): 454-455.
- Sy, E.Y. 2014c. Checklist of exotic species in the Philippine pet trade, I. Amphibians. *Journal of Nature Studies* 13(1): 48-57.
- Sy, E., Farkas, B., and Buzas, B. 2004. The Chinese softshell turtle established in the Philippines? *Turtle and Tortoise Newsletter* 7: 17-18.
- Tilbury, C.R. and Tolley, K.A. 2009. A re-appraisal of the systematics of the African genus *Chamaeleo* (Reptilia: Chamaeleonidae). *Zootaxa* 2079: 57-68.
- Townsend, T. and Larson, A. 2002. Molecular phylogenetics and mitochondrial genomic evolution in the Chamaeleonidae (Reptilia, Squamata). *Molecular Phylogenetics and Evolution* 23(1): 22-36.
- Turkozan, O. and Kiremit, F. 2007. Testudo trade in Turkey. *Applied Herpetology* 4: 31-37.
- Turtle Taxonomy Working Group (van Dijk, P.P., Iverson, J.B., Rhodin, A.G.J., Shaffer, H.B., and Bour, R.). 2014. Turtles of the world, 7th edition: Annotated checklist of taxonomy, synonymy, distribution with maps, and conservation status, pp. 000.329-479. *In* Rhodin, A.G.J., Pritchard, P.C.H., van Dijk, P.P., Saumure, R.A., Buhlmann, K.A., Iverson, J.B., and Mittermeier, R.A. (Eds.). *Conservation biology of freshwater turtles and tortoises: A compilation project of the IUCN/SSC Tortoise and Freshwater Turtle Specialist Group*. Chelonian Research Monographs No. 5(7).
- Uetz, P. and J. Hosek (eds.). 2014. The reptile database. Available at <http://www.reptile-database.org>. Accessed on 31 July 2014.
- UNEP-WCMC. 2011. Checklist of CITES species. CITES Secretariat, Geneva and UNEP-WCMC, Cambridge. 552 pp.

- UNEP-WCMC. 2013. A guide to using the CITES trade database, version 8. United Nations Environment Programme – World Conservation Monitoring Centre. Cambridge, UK. 21 pp.
- Wallach, V., Wüster, W., and Broadley, D.G. 2009. In praise of subgenera: taxonomic status of cobras of the genus *Naja* Laurenti (Serpentes: Elapidae). *Zootaxa* 2236: 26-36.

Appendix 1. List of exotic reptiles in the Philippine pet trade

ORDER	FAMILY	TAXON	ENGLISH NAME	AUTHOR, YEAR	CIT ES
Crocodilia	Alligatoridae	<i>Alligator mississippiensis</i>	American Alligator	(Daudin, 1802)	II
		<i>Caiman crocodilus</i>	Common Caiman	(Linnaeus, 1758)	II
		<i>Paleosuchus palpebrosus</i>	Dwarf Caiman	(Cuvier, 1807)	II
	Crocodylidae	<i>Crocodylus novaeguineae</i>	New Guinea Crocodile	Schmidt, 1928	II
		<i>Crocodylus siamensis</i>	Siamese Crocodile	Schneider, 1801	I
		<i>Tomistoma schlegelii</i>	False Gharial	(Müller, 1838)	I
Testudines	Carettochelyidae	<i>Carettochelys insculpta</i>	Pig-nosed Turtle	Ramsay, 1886	II
	Chelidae	<i>Chelodina novaeguineae</i>	New Guinea Snake-necked Turtle	Boulenger, 1888	NL
		<i>Chelodina oblonga</i>	Northern Snake-necked Turtle	Gray, 1841	NL
		<i>Chelus fimbriata</i>	Mata Mata	(Schneider, 1783)	NL
		<i>Emydura macquarii</i>	Murray River Turtle	(Gray, 1830)	NL
		<i>Emydura subglobosa</i>	Red-bellied Short-necked Turtle	(Krefft, 1876)	NL
	Chelydridae	<i>Chelydra serpentina</i>	Common Snapping Turtle	(Linnaeus, 1758)	NL
		<i>Macrochelys temminckii</i>	Alligator Snapping Turtle	(Troost in Harlan, 1835)	III
	Emydidae	<i>Chrysemys picta bellii</i>	Western Painted Turtle	(Gray, 1830)	NL
		<i>Chrysemys picta picta</i>	Eastern Painted Turtle	(Schneider, 1783)	NL
		<i>Graptemys ouachitensis</i>	Ouachita Map Turtle	Cagle, 1953	III
		<i>Graptemys pseudogeographica</i>	False Map Turtle	(Gray, 1831)	III
		<i>Graptemys pseudogeographica kohnii</i>	Mississippi Map Turtle	(Baur, 1890)	III
		<i>Malaclemys terrapin</i>	Diamondback Terrapin	(Schoeppf, 1793)	II
		<i>Pseudemys floridana floridana</i>	Florida Cooter	(Le Conte, 1830)	NL
		<i>Pseudemys peninsularis</i>	Peninsula Cooter	Carr, 1938	NL
		<i>Pseudemys rubriventris</i>	Northern Red-bellied Turtle	(Le Conte, 1830)	NL
		<i>Terrapene carolina</i>	Box Turtle	(Linnaeus, 1758)	II
		<i>Terrapene ornata</i>	Ornate Box Turtle	(Agassiz, 1857)	II
		<i>Trachemys scripta elegans</i>	Red-eared Slider	(Wied, 1839)	NL
	Geoemydidae	<i>Batagur borneoensis</i>	Painted Terrapin	(Schlegel & Müller, 1845)	II

Checklist of Exotic Species in the Philippine Pet Trade, II. Reptiles

		<i>Cuora amboinensis</i>	Southeast Asian Box Turtle	(Riche in Daudin, 1801)	II
		<i>Cuora flavomarginata</i>	Yellow-margined Box Turtle	(Gray, 1863)	II
		<i>Geoemyda spengleri</i>	Black-breasted Leaf Turtle	(Gmelin, 1789)	II
		<i>Heosemys spinosa</i>	Spiny Turtle	(Gray, 1830)	II
		<i>Malayemys macrocephala</i>	Malayan Snail-eating Turtle	(Gray, 1859)	II
		<i>Malayemys subtrijuga</i>	Mekong Snail-eating Turtle	(Schlegel and Müller, 1845)	II
		<i>Mauremys reevesii</i>	Reeves' Turtle	(Gray, 1831)	III
		<i>Mauremys sinensis</i>	Chinese Stripe-necked Turtle	(Gray, 1834)	III
		<i>Orlitia borneensis</i>	Malayan Giant Turtle	Gray, 1873	II
		<i>Pangshura tentoria</i>	Indian Tent Turtle	(Gray, 1834)	II
		<i>Siebenrockiella crassicolis</i>	Black Marsh Turtle	(Gray, 1830)	II
	Kinosterni dae	<i>Kinosternon flavescens</i>	Yellow Mud Turtle	Agassiz, 1857	NL
		<i>Kinosternon scorioides</i>	Scorpion Mud Turtle	(Linnaeus, 1766)	NL
		<i>Staurotypus triporcatus</i>	Mexican Giant Musk Turtle	(Wiegmann, 1828)	NL
		<i>Sternotherus carinatus</i>	Razorback Musk Turtle	(Gray, 1856)	NL
		<i>Sternotherus odoratus</i>	Common Musk Turtle	(Latreille, 1801)	NL
	Pelomedusi dae	<i>Pelomedusa subrufa</i>	African Helmeted Turtle	(Bonnaterre, 1789)	NL
		<i>Pelusios castaneus</i>	West African Mud Turtle	(Schweigger, 1812)	NL
	Platysterni dae	<i>Platysternon megacephalum</i>	Big-headed Turtle	Gray, 1831	I
	Podocnemi didae	<i>Podocnemis unifilis</i>	Yellow-spotted River Turtle	Troschel, 1848	II
	Testudinid ae	<i>Aldabrachelys gigantea</i>	Aldabra Giant Tortoise	(Schweigger, 1812)	II
		<i>Astrochelys radiata</i>	Radiated Tortoise	(Shaw, 1802)	I
		<i>Astrochelys yniphora</i>	Ploughshare Tortoise	(Vaillant, 1885)	I
		<i>Chelonoidis carbonaria</i>	Red-footed Tortoise	(Spix, 1824)	II
		<i>Chelonoidis denticulata</i>	Yellow-footed Tortoise	(Linnaeus, 1766)	II
		<i>Chelonoidis nigra</i>	Galapagos Giant Tortoise	(Quoy and Gaimard, 1824)	I
		<i>Geochelone elegans</i>	Indian Star Tortoise	(Schoepff, 1795)	II
		<i>Geochelone platynota</i>	Burmese Star Tortoise	(Blyth, 1863)	I
		<i>Centrochelys sulcata</i>	African Spur-thighed Tortoise	(Miller, 1779)	II
		<i>Indotestudo elongata</i>	Elongated Tortoise	(Blyth, 1853)	II
		<i>Indotestudo forstenii</i>	Forsten's Tortoise	(Schlegel and Müller, 1845)	II
		<i>Indotestudo</i>	Travancore Tortoise	(Boulenger,	II

		<i>travancorica</i>		1907)	
		<i>Kinixys belliana</i>	Bell's Hingeback Tortoise	Gray, 1830	II
		<i>Kinixys erosa</i>	Eroded Hingeback Tortoise	(Schweigger, 1812)	II
		<i>Kinixys homeana</i>	Home's Hingeback Tortoise	Bell, 1827	II
		<i>Kinixys spekii</i>	Spek's Hingeback Tortoise	Gray, 1863	II
		<i>Malacochersus tornieri</i>	Pancake Tortoise	(Siebenrock, 1903)	II
		<i>Manouria emys phayrei</i>	Burmese Black Giant Tortoise	(Blyth, 1853)	II
		<i>Manouria impressa</i>	Impressed Tortoise	(Günther, 1882)	II
		<i>Pyxis arachnoides</i>	Madagascan Spider Tortoise	Bell, 1827	I
		<i>Pyxis planicauda</i>	Flat-tailed Tortoise	(Grandidier, 1867)	I
		<i>Stigmochelys pardalis</i>	Leopard Tortoise	(Bell, 1828)	II
		<i>Testudo graeca</i>	Mediterranean Spur-thighed Tortoise	Linnaeus, 1758	II
		<i>Testudo hermanni</i>	Hermann's Tortoise	Gmelin, 1789	II
		<i>Testudo horsfieldii</i>	Horsfield's Tortoise	Gray, 1844	II
		<i>Testudo kleinmanni</i>	Egyptian Tortoise	Lortet, 1883	I
		<i>Testudo marginata</i>	Marginated Tortoise	Schoepff, 1793	II
	Trionychidae	<i>Amyda cartilaginea</i>	Black-rayed Softshell Turtle	(Boddaert, 1770)	II
		<i>Apalone ferox</i>	Florida Softshell Turtle	(Schneider, 1783)	NL
		<i>Lissemys punctata andersoni</i>	Anderson's Flap-shelled Turtle	Webb, 1980	II
		<i>Pelodiscus sinensis</i>	Chinese Softshell Turtle	(Wiegmann, 1835)	NL
Squamata - Sauria	Agamidae	<i>Calotes versicolor</i>	Common Garden lizard	(Daudin, 1802)	NL
		<i>Chlamydosaurus kingii</i>	Australian Frilled Dragon	Gray, 1825	NL
		<i>Physignathus cocincinus</i>	Asian Water Dragon	Cuvier, 1829	NL
		<i>Pogona henrylawsoni</i>	Rankin's Dragon	Wells and Wellington, 1985	NL
		<i>Pogona vitticeps</i>	Bearded Dragon	(Ahl, 1926)	NL
		<i>Uromastyx aegyptia</i>	Egyptian Spiny-tailed Lizard	(Forsk., 1775)	II
		<i>Uromastyx dispar dispar</i>	Sudan Spiny-tailed Lizard	Heyden, 1827	II
		<i>Uromastyx dispar maliensis</i>	Mali Spiny-tailed Lizard	Joger & Lambert, 1996	II
		<i>Uromastyx geyri</i>	Geyr's Spiny-tailed Lizard	Müller, 1922	II
	Chamaeleonidae	<i>Brookesia sp.</i>	Leaf Chameleon	Gray, 1864	II

Checklist of Exotic Species in the Philippine Pet Trade, II. Reptiles

		<i>Calumma parsonii</i>	Parson's Chameleon	(Cuvier, 1824)	II
		<i>Chamaeleo calypratus</i>	Veiled Chameleon	Dumeril & Dumeril, 1851	II
		<i>Chamaeleo gracilis</i>	Graceful Chameleon	Hallowell, 1844	II
		<i>Chamaeleo senegalensis</i>	Senegal Chameleon	Daudin, 1802	II
		<i>Furcifer lateralis</i>	Carpet Chameleon	(Gray, 1831)	II
		<i>Furcifer pardalis</i>	Panther Chameleon	(Cuvier, 1829)	II
		<i>Trioceros deremensis</i>	Usambara Three-horned Chameleon	(Matschie, 1892)	II
		<i>Trioceros jacksonii</i>	Jackson's Chameleon	(Boulenger, 1896)	II
		<i>Trioceros melleri</i>	Meller's Chameleon	(Gray, 1865)	II
		<i>Trioceros rudis</i>	Coarse Chameleon	(Boulenger, 1906)	II
	Cordylidae	<i>Cordylus tropidosternum</i>	Tropical Girdled Lizard	(Cope, 1869)	II
	Crotaphytidae	<i>Crotaphytus collaris</i>	Collared Lizard	(Say, 1823)	NL
	Diplodactylidae	<i>Correlophus ciliatus</i>	New Caledonian Crested Gecko	(Guichenot, 1866)	NL
	Eublepharidae	<i>Aeluroscalabotes felinus</i>	Cat-eyed Gecko	(Günther, 1864)	NL
		<i>Eublepharis hardwickii</i>	Indian Leopard Gecko	Gray, 1827	NL
		<i>Eublepharis macularius</i>	Leopard Gecko	(Blyth, 1854)	NL
		<i>Hemitheconyx caudicinctus</i>	African Fat-tailed Gecko	(Dumeril, 1851)	NL
	Gekkonidae	<i>Gekko gekko</i>	Tokay Gecko	(Linnaeus, 1758)	NL
		<i>Phelsuma laticauda</i>	Broad-tailed Day Gecko	(Boettger, 1880)	II
		<i>Phelsuma lineata</i>	Striped Day Gecko	Gray, 1842	II
		<i>Phelsuma madagascariensis</i>	Madagascan Giant Day Gecko	Gray, 1831	II
		<i>Phelsuma quadriocellata</i>	Peacock Day Gecko	(Peters, 1883)	II
		<i>Phelsuma standingi</i>	Standing's Day Gecko	Methuen and Hewitt, 1913	II
	Iguanidae	<i>Ctenosaura similis</i>	Black Iguana	(Gray, 1831)	NL
		<i>Iguana iguana</i>	Green Iguana	(Linnaeus, 1758)	II
	Phrynosomatidae	<i>Phrynosoma sp.</i>	Horned Lizard	Wiegmann, 1828	II
	Egerniidae	<i>Corucia zebrata</i>	Monkey-tailed Skink	Gray, 1855	II
		<i>Tiliqua gigas</i>	Giant Blue-tongued Skink	(Schneider, 1801)	NL
		<i>Tiliqua scincoides</i>	Common Blue-tongued Skink	(White, 1790)	NL
		<i>Tiliqua scincoides chimaerea</i>	Tanimbar Blue-tongued Skink	Shea, 2000	NL
	Lygosomidae	<i>Lepidothyris fernandi</i>	Fire Skink	(Burton, 1836)	NL
	Teiidae	<i>Dracaena guianensis</i>	Northern Caiman Lizard	Daudin, 1802	II

		<i>Salvator merianae</i>	Argentine Black & White Tegu	(Dumeril & Bibron, 1839)	II
		<i>Salvator rufescens</i>	Red Tegu	(Günther, 1871)	II
		<i>Tupinambis tequixín</i>	Black Tegu	(Linnaeus, 1758)	II
	Varanidae	<i>Varanus albigularis ionidesi</i>	White-throated Monitor Lizard	Laurent, 1964	II
		<i>Varanus auffenbergi</i>	Auffenberg's Monitor Lizard	Sprackland, 1999	II
		<i>Varanus boehmei</i>	Golden-spotted Tree Monitor Lizard	Jacobs, 2003	II
		<i>Varanus doreanus</i>	Blue-tailed Monitor Lizard	(Meyer, 1874)	II
		<i>Varanus dumerilii</i>	Dumeril's Monitor Lizard	(Schlegel, 1839)	II
		<i>Varanus exanthematicus</i>	Savannah Monitor Lizard	(Bosc, 1792)	II
		<i>Varanus indicus</i>	Mangrove Monitor Lizard	(Daudin, 1802)	II
		<i>Varanus jobiensis</i>	Peach-throated Monitor Lizard	Ahl, 1932	II
		<i>Varanus macraei</i>	Blue Tree Monitor Lizard	Böhme & Jacobs, 2001	II
		<i>Varanus melinus</i>	Banggai Island Monitor Lizard	Böhme & Ziegler, 1997	II
		<i>Varanus nebulosus</i>	Clouded Monitor Lizard	(Gray, 1831)	I
		<i>Varanus niloticus</i>	Nile Monitor Lizard	(Linnaeus, 1766)	II
		<i>Varanus panoptes</i>	Yellow-spotted Monitor Lizard	Storr, 1980	II
		<i>Varanus prasinus</i>	Green Tree Monitor Lizard	(Schlegel, 1839)	II
		<i>Varanus rudicollis</i>	Rough-necked Monitor Lizard	(Gray, 1845)	II
		<i>Varanus salvadorii</i>	Crocodile Monitor Lizard	(Peters and Doria, 1878)	II
		<i>Varanus salvator</i>	Asian Water Monitor Lizard	(Laurenti, 1768)	II
		<i>Varanus similis</i>	New Guinea Spotted Tree Monitor Lizard	Mertens, 1958	II
		<i>Varanus timorensis</i>	Spotted Tree Monitor Lizard	(Gray, 1831)	II
Squamata - Serpentes	Boidae	<i>Acrantophis dumerili</i>	Dumeril's Boa	Jan, 1860	I
		<i>Boa constrictor</i>	Boa constrictor	Linnaeus, 1758	II
		<i>Calabaria reinhardtii</i>	Calabar Ground Python	(Schlegel, 1848)	II
		<i>Candoia aspera</i>	New Guinea Ground Boa	(Günther, 1877)	II
		<i>Candoia carinata</i>	Pacific Ground Boa	(Schneider, 1801)	II
		<i>Corallus caninus</i>	Emerald Tree Boa	(Linnaeus, 1758)	II
		<i>Corallus hortulanus</i>	Garden Tree Boa	(Linnaeus, 1758)	II
		<i>Epicrates cenchria cenchria</i>	Brazilian Rainbow Boa	(Linnaeus, 1758)	II
		<i>Epicrates maurus</i>	Columbian Rainbow Boa	Gray, 1849	II
		<i>Eryx colubrinus</i>	Kenyan Sand Boa	(Linnaeus, 1758)	II

		<i>Eryx conicus</i>	Rough-scaled Sand Boa	(Schneider, 1801)	II
		<i>Eunectes murinus</i>	Green Anaconda	(Linnaeus, 1758)	II
		<i>Eunectes notaeus</i>	Yellow Anaconda	Cope, 1862	II
		<i>Lichanura trivirgata</i>	Rosy Boa	Cope, 1861	II
	Colubridae	<i>Coelognathus radiatus</i>	Radiated Ratsnake	(Boie, 1827)	NL
		<i>Drymarchon couperi</i>	Eastern Indigo Snake	(Holbrook, 1842)	NL
		<i>Euprepophis mandarinus</i>	Mandarin Ratsnake	(Cantor, 1842)	NL
		<i>Heterodon nasicus</i>	Western Hognose Snake	Baird & Girard, 1852	NL
		<i>Lampropeltis californiae</i>	California Kingsnake	(Blainville, 1835)	NL
		<i>Lampropeltis getula</i>	Eastern Kingsnake	(Linnaeus, 1766)	NL
		<i>Lampropeltis holbrooki</i>	Holbrook's Kingsnake	Stejneger, 1902	NL
		<i>Lampropeltis mexicana mexicana</i>	Mexican Kingsnake	(Garman, 1884)	NL
		<i>Lampropeltis mexicana theyeri</i>	Variable Kingsnake	Loveridge, 1924	NL
		<i>Lampropeltis nigra</i>	Black Kingsnake	(Yarrow, 1882)	NL
		<i>Lampropeltis splendida</i>	Desert Kingsnake	(Baird & Girard, 1853)	NL
		<i>Lampropeltis triangulum</i>	Milksnake	(Lacepede, 1789)	NL
		<i>Lampropeltis triangulum campbelli</i>	Pueblan Milksnake	Quinn, 1983	NL
		<i>Lampropeltis triangulum conanti</i>	Conant's Milksnake	Williams, 1978	NL
		<i>Lampropeltis triangulum hondurensis</i>	Honduran Milksnake	Williams, 1978	NL
		<i>Lampropeltis triangulum nelsoni</i>	Nelson's Milksnake	Blanchard, 1920	NL
		<i>Lampropeltis triangulum sinaloae</i>	Sinaloan Milksnake	Williams, 1978	NL
		<i>Pantherophis emoryi</i>	Great Plains Ratsnake	(Baird & Girard, 1853)	NL
		<i>Pantherophis guttatus</i>	Cornsnake	(Linnaeus, 1766)	NL
		<i>Pantherophis obsoletus</i>	Western Ratsnake	(Say, 1823)	NL
	Elapidae	<i>Naja annulifera</i>	Snouted Cobra	Peters, 1854	NL
		<i>Naja atra</i>	Chinese Cobra	Cantor, 1842	II
		<i>Naja naja</i>	Indian Cobra	(Linnaeus, 1758)	II
		<i>Naja pallida</i>	African Red Spitting Cobra	Boulenger, 1896	NL
		<i>Naja sputatrix</i>	Indonesian Cobra	Boie, 1827	II
	Pythonidae	<i>Aspidites ramsayi</i>	Woma Python	(Macleay, 1882)	II
		<i>Bothrochilus albertisii</i>	White-lipped Python	(Peters & Doria, 1878)	II
		<i>Bothrochilus boa</i>	Bismarck Ringed Python	(Schlegel, 1837)	II
		<i>Liasis mackloti</i>	Macklot's Python	Dumeril and	II

				Bibron, 1844	
		<i>Liasis papuana</i>	Papuan Olive Python	(Peters & Doria, 1878)	II
		<i>Malayopython reticulatus</i>	Reticulated Python	(Schneider, 1801)	II
		<i>Morelia spilota</i>	Carpet Python	(Lacepede, 1804)	II
		<i>Morelia viridis</i>	Green Tree Python	(Schlegel, 1872)	II
		<i>Python bivittatus</i>	Burmese Python	Kuhl, 1820	II
		<i>Python brongersmai</i>	Red Blood Python	Stull, 1938	II
		<i>Python curtus</i>	Blood Python	Schlegel, 1872	II
		<i>Python molurus</i>	Indian Rock Python	(Linnaeus, 1758)	II
		<i>Python regius</i>	Ball Python	(Shaw, 1802)	II
		<i>Python sebae</i>	African Rock Python	(Gmelin, 1789)	II
		<i>Simalia amethystina</i>	Amethystine Python	(Schneider, 1801)	II
		<i>Simalia clastolepis</i>	Mollucan Python	(Harvey, Barker, Ammerman & Chippindale, 2000)	II

NL = not
listed



JOURNAL OF NATURE STUDIES
(formerly Nature's Bulletin)
ISSN: 1655-3179