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May 5, 2010

Mr. Kevin Gallagher
Associate Director, Geospatial Information Office
United States Geological Survey
National Center
12201 Sunrise Valley Drive
Reston, VA 20192

Re: Request for Correction of Information

Dear Mr. Gallagher:

The Pet Industry Joint Advisory Council (PIJAC) is aware of the Request for Correction of Information sent to US Geological Survey by United States Association of Reptile Keepers (USARK) on May 3, 2010. This letter specifically addressed Open-File Report 2009-1202, entitled *Giant constrictors: biological and management profiles and an establishment risk assessment for nine large species of pythons, anacondas, and the boa constrictor (Constrictor Report)*. In the letter, Mr. Wyatt appropriately notes the influential nature of the information in question and its substantial impact on public policies of concern to persons who own, acquire or trade in reptile species. This potential impact is not limited to members of USARK, but includes a wide range of business persons (those working directly in and indirectly in support of the reptile industry) and individual pet owners. Many PIJAC members would be devastated.

PIJAC is the largest pet trade association in the United States representing the interests of all segments of the pet industry, including those who buy, breed, sell and distribute companion animals and related products, as well as the pet-owing public at large. Our mission is to promote responsible pet ownership and animal welfare, foster environmental stewardship, and ensure the availability of pets. In implementing this mission, PIJAC has works closely with many Federal and state agencies, NGO's, and other industries. For example, PIJAC has an MOU with the Department of the Interior (DOI) to implement the Habitattitude™ campaign – an initiative that, among other things, educates pet owners not to release unwanted animals. Additional information about PIJAC and its programs is readily available on our website at www.pijac.org.

PIJAC has undertaken an extensive analysis of the USGS large constrictor risk assessment, as well as previous publications by the same authors. PIJAC contributed some of this information, as well as other comments, to the letter submitted by USARK. For your reference, we are including our review of the USGS document in question. Inasmuch as the USARK letter relies heavily on information provided by PIJAC, we wish to advise you that PIJAC supports in large measure the contentions and conclusions of the USARK Request for Correction of Information, and we echo the request for an appropriate response.

While we see no need to reiterate the various comments set forth in the USARK letter, PIJAC will be pleased to clarify or expand upon any issue of concern as needed. We have every interest and intention of continuing to engage in a constructive relationship with DOI and its agencies.

We thank you for your consideration of our request.

Respectfully submitted,

Pet Industry Joint Advisory Council
By Michael Maddox
Vice President of Government Affairs
& General Counsel

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RISK ASSESSMENT REVIEW

Reed, R.N. and Rodda G.H. 2009. Giant constrictors: biological and management profiles and an establishment risk assessment for nine large species of pythons, anacondas, and the boa constrictors. U.S. Geological Survey Open-File Report 2009-12-2, 302 p.

BACKGROUND

This document is not intended to serve as an exhaustive review of the Reed and Rodda risk assessment. Rather, it provides a general overview of the major types of technical concerns and includes specific examples to demonstrate the inherent biases, inconsistencies, and errors contained within the report.

Although the authors and U.S. Fish and Wildlife Staff[1] have stated that the risk assessment was peer-reviewed, the poor quality of the study leads us to question the qualifications and potential biases of the reviewers. We strongly recommend that the U.S. Fish and Wildlife Service, as report contractor and lead agency for the Notice of Inquiry on Pythons, Boas, and Eunectes, invite qualified peer-review through the Federal Register.

Because of the substantial need for further professional review and revision of the risk assessment, we believe that it is premature for policy makers to base decisions on the Reed and Rodda report. Any such policies would be ill-informed and quite possibly result in unintended negative consequences (e.g., mass release of large constrictors throughout the country), as well as the misappropriation of tax payer dollars.

It should also be noted that even under the worse case scenario (discussed further below), the maps matching climate envelopes clearly indicate that management of these large constrictors as invasive species, or potentially invasive species, should be a state/territorial issue rather than a priority for federal action. Climate suitability, at best, is limited to a handful of southern states[2]. Florida and Texas are already implementing state regulations to manage large constrictors and Hawaii bans all snakes.

AUTHOR BIAS

- **The authors choose to use non-technical terms and present speculative scenarios which are no doubt intended to invoke fear.** For example the word "giant" is used in the title throughout the report rather than "large" or any specific referential size as a means of categorizing the snakes in question. The term "giant" plays on the human psyche, calling up images of huge, malicious monsters.
- **The authors foster a state of fear regarding these snakes by painting a picture of large constrictors as an imminent threat to national security** by making statements such as, "we…consider what effects these species might have on…domestic tranquility of the United States…" (page 1, para. 1, line. 1), "Citizens have legitimate expectation that their government

[1] Dan Ash, verbal testimony before the Subcommittee on Crime, Terrorism, and Homeland Security. 6 November 2009.
[2] The map for the Burmese python shows the widest range but we and others contend that the actual range for *Python molurus bivittatus* (or *Python bivittatus*) would be substantially smaller than that shown for the two subspecies of *P. molurus* (or two separate species) combined.

will protect their personal safety" (page 2, para 2, line 3), and "marauding terror" (page 242, para. 3, line 3). This kind of dramatization is generally unacceptable in scientific literature.

- Risk assessments are intended to be applied to specific species without bias to the outcome of the assessment. **However, in this study, the authors clearly state that they chose which species to analyze based on their presupposed likelihood of establishment**, "...we selected the species not only for their size, but also for the likelihood of establishment" (page 1, para. 2, line 9). Thus, they selected species with the intent of concluding they were especially risky.
- On page 93 (para. 1, line 5), the authors state that "To our knowledge, illegitimate bites have never resulted in the ingestion of the human, probably because the bites were defensive in nature, intended merely to cause the human to stop bothering the snake (lethal constriction is effective for this)." **The latter statement in parenthesis appears to be a snide remark inadvertently added to the text** – perhaps a reviewer's remark made in track changes that was mistakenly accepted. This kind of comment suggests that the authors and/or a reviewer were not approaching the study from a neutral perspective.
- On page 101 (para. 1), the authors state, **"However, southern Florida has an acknowledged reputation for unsavory characters, both reptilian and otherwise."** This statement alone should raise ample concern over the attitude of the authors and the quality of the technical review the report received. Statements such as this one are unacceptable in scientific literature.

SPECIES IDENTIFICATION

- Undoubtedly, the risk assessment associated with the Burmese python (*Python molurus bivittatus*) is one of the most politically sensitive due to the press surrounding its establishment in the Everglades and the sizable impact on the importers, breeders, and hobbyists if it is banned. Reed and Rodda deliberately lump the two commonly recognized subspecies of *Python molurus* (*P. m. molurus* and *P. m. bivitattus*) despite the clear bias this presents (e.g., *P. m. bivittatus* has a much smaller native range and climate envelope than does *P. m. molurus*), considerable criticism for having used this approach in a previous USGS paper on Burmese python climate matching, and sentiment/evidence that *P. m. bivittatus* should be recognized as a full species (as it was originally designated by Kuhl in 1820). Jacobs et al. (2009)[3] recently published a paper in the journal *Sauria* in which they not only elevate *P. m. bivittatus* to full species (i.e., *P. bivittatus*), but also designate a dwarf form as a subspecies. Reed and Rodda do not acknowledge the Jacobs et al. paper nor other credible sources that have questioned the legitimacy of the Burmese python as a subspecies of *P. molurus*. **Separate risk assessments need to be applied to *Python molurus* and *Python bivittatus*.** It should also be noted that CITES recognizes these snakes as separate biological entities and assigns them different protection status. *Python molurus molurus* is listed on Appendix 1, the most restricted list, and is no longer imported for commercial purposes.

RISK ASSESSMENT PROCESS

- Risk assessments are intended to be applied to specific species by unbiased analysts. See remarks under author bias. **The risk assessment conducted by Reed and Rodda has numerous author biases.**
- Reed and Rodda state that the risk assessment process they used is "Reflecting a consensus of the field" (page 3, para. 6, line 3). The risk assessment only represents the work of those individuals associated with the Aquatic Nuisance Species Task Force (ANSTF) at the time the document was prepared. Subsequent workshops and peer-reviewed publications have raised questions

[3] Jacobs, H.J., M. Auliy and W. Bohme. 2009. Zur Taxonomie des Dunklen Tigerpythons, Python molurus bivittatus Kuhl, 1820, speziell der Population von Sulawesi. Sauria 31 :5-16.

about implementation of the approach. Other groups and governments have adopted a wide-range of alternative approaches. **The outcomes of the large constrictors risk assessment would be far more credible if a team of non-biased authors ran the available data through various risk assessment approaches, rather than relying on a single approach that has come into question.**

- In order for species to become established, viable individuals must be introduced into and sustained in the same general area in adequate numbers to found a population. **Large constrictors have been in the US in captivity in large numbers for at least three decades. Only a single population of two species (with speculation of a third) has become established. This clearly indicates that establishment of large constrictors in the US has been a very rare event** and there is no reason to believe that such an event would increase in frequency...unless snake owners deliberately decided to release large numbers of snakes out of fear of criminal violation or as reaction to federal regulation. Reed and Rodda do not adequately acknowledge the rarity of large constrictor survival and establishment in the US, rather they seem to suggest that large numbers of individuals in captivity will automatically translate to a large risk of introduction and establishment of the species. This bias leads to a substantial over-dramatization of risk.
- The context in which an animal is introduced has a profound impact on its ability to survive and establish a population. Although Reed and Rodda provide a coarse-scale assessment of potential climatic conditions that could support a species' survival, they do not give adequate attention in the risk assessment to the various other factors which would limit their ability to survive even within the areas of potential climate match. **Automobile traffic, persecution by humans, predation by wildlife and domestic animals, various landscape hazards in human-developed environments, and other factors would substantially reduce the likelihood of snake survival and establishment**. The climate maps are thus over-estimates of potential range. The locales in southern Florida hosting large constrictor populations are not subject to many of the variables that would routinely limit large constrictor establishment in the suburban and urban contexts. However, the spread of snakes from these locales will undoubtedly be limited by urbanization factors.
- The authors state that "decision-makers must account for the societal values from all viewpoints of any potential regulatory action. We will not do so in this risk assessment" (page 2, para. 3, line 12). Indeed **Reed and Rodda do not account for societal values from all viewpoints, nor do they present a balanced account of the viewpoints addressed within the report**. Rather, they appear to "cherry pick" issues and present highly speculative viewpoints (e.g., the potential impact of large constrictors on birdwatching) absent scientific justification. **They also ignore information that has been previously provided to the Federal government by the Pet Industry Joint Advisory Council (PIJAC) on estimates of species numbers and value in the trade which was submitted in response to the NOI**. They repeatedly state that "no credible" information on this topic is available.
- Reed and Rodda present the risk of "Entry Potential" as the risk of the species surviving as it enters the US upon importation. **One of the most critical missing factors for this study in an unbiased assessment of the risk of entry potential into the natural environment**. This clearly differs among species and localities (e.g., where natural disasters are more common) and is impacted by numerous release/escape prevention measures. For this risk assessment to be credible the true risk of these species *entering the natural environment* needs to be adequately addressed. Reed and Rodda state that "For most giant constrictors there is a high likelihood of release of unwanted adult constrictors, as evidenced by dozens of media reports of individuals found across the country" (p. 248 para. 1, line 10). Given the large volume of these constrictors in the US, and the fact that they've been popular for decades, dozens of media reports does not

indicate a "high likelihood" of deliberate release, nor escape. If this risk were truly high, the US would already be "crawling" with large constrictors.

UNCERTAINTY

- **Nearly every section of every biological profile states that information is lacking or available only for a small number of captive specimens.** Even where data are present from animals in the field, the sample sizes are small and the samples typically drawn from a very limited area in the species' range. The level of biological and ecological uncertainty for these large constrictors is substantial. The authors acknowledge this, yet proceed to make highly speculative statements in a tenor of "conclusiveness" that is not supported by science. From a scientific and ethical perspective, the over-riding tenor for an assessment based on this much uncertainty should be "we don't know." See e.g., "...the biological and environmental unknowns associated with giant constrictors are numerous and profound," (page 3, para 3, line 1). "There is great uncertainty about all aspects of this risk assessment..." page 4, para 4, line 16). "No single species has received across-the-board ecological study, and the ecology of some species is almost completely unknown" (page 9, para 2, last line).

PRESENTATION OF INFORMATION

- Throughout the text, the authors present data in tabular format that lacks many of the features of standard presentation of scientific data. For example, on page 11 they present sizes without indicating if these numbers represent means or extremes and what the sample sizes are. In the context of the large constrictors, it would also be important to note if the data are derived from captive or wild caught specimens. **Because the authors have not presented their data in a commonly accepted manner, it is difficult to determine whether or not they have based their analyses on the most relevant statistics or selected data (e.g., extremes in length or clutch size) that would bias the outcomes of the study.**
- Reed and Rodda provide a section on eradication tools, but do not provide any information on the various approaches that exist to prevent the introduction of large constrictors into the natural environment. This is a key factor in the likelihood of large constrictors becoming established in the US. **By failing to provide a discussion of the various factors preventing large constrictor introduction (e.g., state regulations, amnesty events, educational campaigns, financial disincentives), Reed and Rodda greatly bias their presentation of risk.**
- The discussion of eradication tools presents a rather dismal picture. **However, it fails to focus on the fact that the ability to eradicate a species depends on many factors besides technical tools.** The most important factors include the number of individuals and the context in which they are found. Large constrictors in an urban environment are far more likely to be encountered and "eradicated" than individuals in remote natural locations. If introduced outside of their climate tolerance, natural conditions will eventually "eradicate" large constrictors. Numerous media reports indicate that escaped large constrictors are typically "eradicated" from the natural environment by human observers.
- **Readers of the report need to focus on the fact that a considerable amount of the information presented in Chapter Ten (Risk Assessment) is, in fact, "hypothesized" – meaning that it is at best an "educated guess."** Although the authors acknowledge great uncertainties and a lack of information in the introduction and species accounts, the narrative in this section tends to read as if supported by "conclusive" information. **Furthermore, they state that they have a "high certainty" or "moderate certainty" of outcomes despite having acknowledged earlier in the text that scientific information was substantially lacking for all of these species.**

SPECULATION/EXAGERATION

- **Throughout the text, Reed and Rodda present information in an exaggerated, often dramatized manner.** For example, on page 7 they list a series of traits that they claim are shared by "giant constrictors" and then proceed to state that "Thus in comparison to potential invaders lacking these traits, this group of snakes constitutes a particularly high risk" (page 7, para 3, final sentence). Some of the traits listed lack scientific support (e.g., that these species are all long distance dispersers, tolerant of urbanization, and have high-population densities), while others are very context specific (e.g., pathogens and parasites – as stated elsewhere in their own report – are not common in captive bred specimens, and detectability depends on the setting the snake is in).
- **Word choice frequency is vague, and seemingly chosen to suggest negative outcomes.** For example, on page 61 (section 8.1) Reed and Rodda state, "Snakes in the international trade pathway constitute a somewhat higher risk than domestically bred animals, in that wild snakes often carry exotic parasites or pathogens that may transfer to other captive snakes during transport…etc." What evidence do they have that these snakes OFTEN carry exotic parasites that MAY transfer them? What does OFTEN mean scientifically? What are the accounts of these snakes transferring exotic parasites to other animals in captivity or the wild? The reptile industry is self-policing in that parasitized animals are not commercially viable.
- **In each of the species accounts the authors grossly speculate on the potential impacts** of large constrictors as predators, traffic hazards, and factors in tourism, hunting, and bird watching. In some sections, they even state, "one can imagine…" (page 101, 12.7.2). Impacts of this nature would be very context specific and, with the exception of localized rare species of prey, require a rather large population of snakes for the impact to be significant in socio-economic and biological terms. They do not give equal presentation to the potential benefits that large constrictors might provide (e.g., as prey, game, or the focus of tourism) in certain contexts nor do they readily acknowledge that humans have and are routinely adapting to predators that threaten pets and recreational opportunities (e.g., alligators and coyotes).

INCONSISTENCIES

- **Issues are treated quite inconsistently throughout the species accounts.** For example in the discussions of large snakes as predators, some accounts acknowledge that young snakes might be valued prey, others seem to suggest that the species are generally invulnerable to predation (as if they all hatch out as large snakes), while others acknowledge they might be both predators and prey but that the "overall demographic effects" will either be negative or neutral. For the most part, there are no data to support these statements/speculations.

UNFOUNDED CONCLUSIONS

- **There are a large number of statements throughout the text based on a lack of scientific evidence**. For example, Reed and Rodda state that "These factors combine to make it hard to limit the spread of their colonies" (page 6, para. 3, line 4). There are no studies undertaken to limit the spread of these large constrictors as introduced species. The authors' statement, though it could prove true under certain circumstances, has no basis in science. It does, however, serve to encourage fear that these "giant" snakes can not be maintained. Qualified peer-reviewers would have found fault with this kind of approach.
- **The risk assessments are based on far too much speculation and not enough scientific information to warrant the high level of certainty ascribed by the authors.** This analysis needs to be repeated by unbiased observers using scientifically-supported information. Furthermore, multiple risk assessment approaches should be applied to these species so as to explore/elucidate the biases of different risk assessment methods.