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**VIA ELECTRONIC MAIL
AND U.S. CERTIFIED MAIL, RETURN RECEIPT REQUESTED**

May 3, 2010

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

RE: Information Quality Act Request for Correction of Information

Dear Mr. Gallagher,

This Request for Correction of Information (Request) is hereby submitted under the Information Quality Act (IQA),¹ Guidelines issued by the Department of the Interior (DOI)² and the Office of Management and Budget (OMB) and is consistent with the requirements of the United States Geological Survey (USGS) guidelines under the IQA.³ The OMB

¹ Section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001 (Pub. L. No. 106-554; H.R. 5658) provides in full the following:

(a) IN GENERAL.—The Director of the Office of Management and Budget shall, by not later than September 20, 2001, AND WITH PURBLIC AND Federal agency involvement issue guidelines under sections 3504(d)(1) and 3516 of title 44, United States Code, that provide policy and procedural guidance to Federal agencies for ensuring and maximizing the quality, objectivity, utility, and integrity of information (including statistical information) disseminated by Federal agencies in fulfillment of the purposes and provisions of chapter 35 of title 44, United States Code, commonly referred to as the Paperwork Reduction Act.

(b) CONTENT OF GUIDELINES.—The guidelines under subsection (a) shall (1) apply to the sharing by Federal agencies of, and access to, information disseminated by Federal agencies; and (2) require that each Federal agency to which the Guidelines apply (A) issue guidelines ensuring and maximizing the quality, objectivity, utility, and integrity of information (including statistical information) disseminated by the agency by not later than 1 year after the date of issuance of the guidelines under subsection (a); (B) establish administrative mechanisms allowing affecte4d persons to see and obtain correction of information maintained and disseminated by the agency that does not comply with the guidelines issued under subsection (a); and (C) report periodically to the Director (i) the number and nature of complaints received by the agency regarding the accuracy of information disseminated by the agency; and (ii) how such complaints were handled.

² 67 Fed. Reg. 36642(May 24, 2002).

³ Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by Federal Agencies, 67 Fed. Reg. 8452(republished Feb. 22, 2002).

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Guidelines provide the blueprint for ensuring the quality of information disseminated by the agencies subject to the IQA mandates, and the DOI has adopted administrative measures that are primarily procedural in nature, but incorporate OMB's substantive requirements as well. Since the DOI has adopted Guidelines of its own which adopt OMB's substantive requirements as a whole, and the USGS references the requirements of those agencies' guidelines in applying its own information quality standards⁴, for the sake of clarity, all references will be made to OMB Guidelines in the discussion below.

The United States Association of Reptile Keepers (USARK) is an affected organization and our members are affected persons within the meaning of the OMB Guidelines.

USARK is a nonprofit, science and education based advocacy for the responsible private ownership of, and trade in reptiles. We endorse caging standards, sound husbandry, escape prevention protocols, and an integrated approach to vital conservation issues. Our goal is to facilitate cooperation between government agencies, the scientific community, and the private sector in order to produce policy proposals that will effectively address important husbandry and conservation issues.

The health of these animals, public safety, and maintaining ecological integrity are the primary concern of our organization. **This letter and the enclosed Detailed Request List constitute a Request that the United States Geological Survey (USGS) correct information included in 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)*. This report is currently being disseminated by the USGS at: <http://pubs.usgs.gov/of/2009/1202/pdf/OF09-1202.pdf>.**

The IQA provides that agencies may not disseminate substantive information that does not meet a basic level of quality. The more important the information, the higher the quality standards to which it must be held. The Constrictor Report is highly influential information as it was written to advise the Congress, States, the Secretary of the Interior, the National Park Service and the United States Fish and Wildlife Service as to the biology, behavior, range and risks associated with the species examined. This report follows on the heels of an earlier paper by the same authors entitled, *What parts of the US mainland are climatically suitable for invasive alien pythons spreading from Everglades National Park?*. The paper was published in Biological Invasions online 27 February 2008 via SpringerLink and was the subject of a separate request for correction under the IQA.

⁴ See http://www.usgs.gov/info_qual/

While the USGS may use existing guidelines to implement the requirements of the IQA, the standards and procedures used by the USGS must ensure that the administrative mechanisms for information resources management and administrative practices satisfy the standards and procedural requirements of the IQA Guidelines. As a practical matter, the USGS has explicitly incorporated the OMB IQA guidelines as part of its own IQA guidelines. The Constrictor Report fails to meet these requirements and requires correction accordingly⁵.

BACKGROUND

This Request first discusses the context in which the Constrictor Report should be evaluated as highly influential information and then reviews the IQA requirements in a general context, and finally provides specific responses to questions posed by the USGS in its instructions for requesting correction of information.

1. The Highly Influential Nature of the information included in the Constrictor Report is evident when considered in the context of Persons Affected, the Economic Costs to persons involved with husbandry of the affected species, Loss of Economic Benefits associated with the species, and the Clear and Substantial Impact on important public policies and important private sector decisions.

The highly influential nature of the information included in the Constrictor Report could result in costs reaching \$500 million and will have a clear and substantial impact on important public policies and important private sector decisions.

Costs

As a result of the regulations contemplated and the significant public policy actions that will result of the information included in the Constrictor Report, USARK, our members and related industries directly and indirectly could lose \$500 million annually. Individual owners of these reptiles will lose the value of breeding animals, and there will be losses related to shipping, export, equipment, feed and sales. The economic losses could exceed \$500 million annually.

Clear And Substantial Impact On Important Public Policies

As a result of the information disseminated in the report, Senator Bill Nelson of Florida and Congressman Kendrick Meek of Florida have each introduced federal legislation seeking to prohibit ownership, commerce and interstate transportation of these snake species. Additionally, the United States Fish and Wildlife Service (FWS) has proposed a regulation which will outlaw the industry that USARK represents.

⁵Specifically 16 U.S.C. §1536(a). 8 70 Fed. Reg. ,*supra*, at p. 2675.

The economic losses are dwarfed by the significant public policy implications of outlawing the presence of a species based on nothing other than pure speculation. The information in this Report represents a departure from standard practices in such a way that the entire exotic pet trade, estimated to be a \$15 billion industry⁶ in the United States alone, could be threatened. The information in the Constrictor Report, to the extent that it supports findings based on unpublished and unreviewed modeling supported by nothing other than assumptions and preferences of the authors untrammelled by the rigor of presence/absence data or empirical testing; represents a significant departure from existing practices which are based on data and empirically established relationships. This in effect is environmental regulation based purely on staff policy preferences, speculation, and inference rather than rigorous data-based science. The Report is a highly influential scientific assessment as the regulations and statutes which reference the Report as the basis for their contents will have a clear and substantial impact on important public policies and important private sector decisions.

Further, the information in the Constrictor Report presents conclusions that are likely to change prevailing practices, and as is noted above are likely to affect policy decisions that have a “significant impact.” The Report is controversial, and precedent-setting, as well as having significant interagency interest as it is used as the basis for the FWS determination with respect to listing the 9 subject species as ‘injurious’ under the Lacey Act. The Report presents conclusions, that if accepted, will result in a change in the prevailing practices and affect policy decisions which affect the entire industry related to the constrictors addressed in the Report. The costs resulting from the prohibition of the commerce of countless reptile breeders and owners as a result of baseless assertions and speculation that these species are on the brink of invading vast portions of the United States could have an impact of upwards to \$500 million or more annually.

2. The OMB Guidelines and Final Bulletin Refine and Add Definition of Terms, which DOI has adopted and to which the USGS must adhere.

As refinements of the IQA, which had little detailed information, OMB’s implementing bulletins contain the necessary definitions to determine what is required of the USGS when disseminating information such as that contained in the Constrictor Report. If the information included in the Constrictor Report is not corrected now, its inaccurate, incomplete, biased and unclear information will

⁶ http://www.hsus.org/wildlife/issues_facing_wildlife/should_wild_animals_be_kept_as_pets/the_whims_and_dangers_of_the_exotic_pets_market.html

influence determinations on regulations of these species and adversely affect USARK, our members and related industries.

Information available on the species, which form the subject of the Constrictor Report, varies by species and much is unknown. However the Report draws conclusions, makes predictions and assesses risk based on speculation and hypothesis rather than data, which is required by USGS policy. Further, the Report contains derogatory remarks, inaccurate information, and is obviously biased in an attempt to advocate a particular public policy and actions. This approach violates the USGS Fundamental Science Practices Foundation Policy, the requirements of the IQA as specifically detailed in the February 22, 2002 OMB Guidelines, the DOI Guidelines and the USGS requirements addressing information quality. Pertinent requirements of the OMB Guidelines, which are fully incorporated into the DOI IQA Guidelines and which are consistent with the USGS standards, are highlighted as follows:

OMB GUIDELINES

SUMMARY: These final guidelines implement section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001 (Public Law 106-554; H.R. 5658). Section 515 directs the Office of Management and Budget (OMB) to issue government-wide guidelines that, “provide policy and procedural guidance to Federal agencies for ensuring and maximizing the quality, objectivity, utility, and integrity of information (including statistical information) disseminated by Federal agencies.” By October 1, 2002, agencies must issue their own implementing guidelines that include “administrative mechanisms allowing affected persons to seek and obtain correction of information maintained and disseminated by the agency”, which does not comply with the OMB guidelines. These guidelines apply to federal agencies subject to the Paperwork Reduction Act (44 U.S.C. §3502(1)). Federal agencies must develop information resources management procedures for reviewing and substantiating the quality (including the objectivity, utility, and integrity) of information before it is disseminated. In addition, agencies must establish administrative mechanisms allowing correction of information disseminated by the agency that does not comply with the OMB or agency guidelines.

The guidelines stress the importance of agencies implementing the standards in a common sense and workable manner. Agencies are required to apply the guidelines in a manner appropriate to the nature and timeliness of the information to be disseminated, and incorporate them into existing agency information resources management and administrative practices. The USGS has done so in citing back to its existing requirements for information quality.

The IQA denotes four substantive terms regarding information disseminated by Federal agencies: **quality**, **utility**, **objectivity**, and **integrity**. The OMB Guidelines provide definitions that are designed to establish a clear meaning so that both the agency and the public can readily judge whether a particular type of information to be disseminated does or does not meet these attributes. In the guidelines, OMB defines “quality” as the encompassing term, of which “utility”, “objectivity”, and “integrity”, are the constituents. “Utility” refers to the usefulness of the information to the intended users. “Objectivity” focuses on whether the disseminated information is being presented in an accurate, clear, complete, and unbiased manner, and as a matter of substance, is accurate, reliable, and unbiased. “Integrity” refers to security the protection of information from unauthorized access or revision, to ensure that the information is not compromised through corruption or falsification. OMB modeled the definitions on the longstanding definitions in OMB Circular A-130, but tailored them to fit into the context of the guidelines.

This Request addresses specific failures of the DOI, through the actions of USGS, to meet the quality requirements of the OMB Guidelines with respect to the accuracy, completeness, clarity, and unbiased representation of the information included in the Constrictor Report.

The Constrictor Report is highly influential information as defined in the Guidelines. Its continued dissemination without correction has adversely affected members of USARK and will result in costs upwards of \$500 million, as well as have a clear and substantial impact on important public policies and the private sector. The statements presented below and the enclosed document entitled Detailed Request List present USARK’s additional specific comments with respect to the statements contained in this letter.

SPECIFIC RESPONSES TO REQUEST FOR CORRECTION PROCEDURES

The DOI’s version of the IQA Guidelines advises specific information be provided as part of the request for correction. The following is a list of the specific information requirements and our responses.

Specific reference to the information being challenged.

This request challenges the USGS 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)*. This report is currently being disseminated by the USGS at: <http://pubs.usgs.gov/of/2009/1202/pdf/OF09-1202.pdf>. (Constrictor Report).

1. *A statement specifying why the complainant believes the information fails to satisfy the standards in the Departmental or OMB guidelines.*

The report is inaccurate, incomplete, biased and unclear. A detailed list of requested corrections is attached to this letter and is hereby incorporated.

2. *How a complainant is affected by the challenged information. The complainant may include suggestions for correcting the challenged information, but that is not mandatory.*

USARK members and affected industries will suffer immediate direct and indirect economic harm, and longer term harm due to the replacement of the use of rigorous scientific data and analysis with ad hoc internal agency science based on arbitrary assumptions, speculation, and hypothesis driven by what can only be described as policy advocacy.

3. *The name and address of response of the person filing the complaint. This information is used at the complainant's request for the purpose of responding to the challenge initiated by the individual.*

All questions related to this request may be directed to:

Andrew Wyatt, President,
United States Association of Reptile Keepers
P.O. Box 279
Grandy, NC 27939-0279
(252) 207-1041
president@usark.org

4. *An explanation of how the information does not comply with DOI or OMB guidelines and, if possible, a recommendation of corrective action.*

The IQA requires that federal agencies ensure the quality, objectivity, utility and integrity of information (including statistical information) disseminated by the agency. The guidelines promulgated as a result of the IQA by OMB and the DOI define 'quality' as being a combination of utility, objectivity, and integrity. The DOI definition of objectivity states:⁷

⁷ <http://www.fws.gov/informationquality/topics/IQAguidelines-final82307.pdf>

***Objectivity** includes whether disseminated information is being presented in an accurate, clear, complete, and unbiased manner. This involves whether the information is presented within a proper context. Sometimes, in disseminating certain types of information to the public, other information must also be disseminated in order to ensure an accurate, clear, complete, and unbiased presentation.*

The Constrictor Report provides information that fails to meet the quality and integrity standards included in the DOI and OMB Guidelines for Information Quality. Further, the Report fails to meet the USGS standards identified in Manual 502.4 - Fundamental Science Practices: Review, Approval, and Release of Information Products.

The information presented in the Constrictor Report is biased, inaccurate, and incomplete. The conclusions and statements included in the 2009 Constrictor Report fail to meet the standards for highly influential information under the DOI and OMB IQA Guidelines. Generally, the 2009 Constrictor Report has the following failings:

- the Report is based on **speculation and not data**, as required by the USGS Fundamental science practices;
- there has been **no peer review** as required under OMB's December 16, 2004 "Final Information Quality Bulletin for Peer Review";
- the Report is **not transparent** as insufficient information regarding data and methods is provided to enable a qualified third part to substantially reproduce the climate matching which forms the basis of the risk assessment which is also no 'substantially reproducible';
- the Report is **biased** as it includes derogatory statements, clearly advocates for regulatory action, and inaccurately and incompletely identifies risks and the certainty of their occurrence;
- the Report is **biased, inaccurate and incomplete** as it fails to use the best available science, ignoring published, peer reviewed models using instead an unpublished, and unreviewed model, without providing sufficient transparency to allow substantial reproduction by a third party.

A detailed list of the specific failures summarized above, as well as requested corrections entitled, 'Requested Corrections to Constrictor Report', is attached to this letter and is incorporated by reference. This attachment includes the specific and detailed requests for correction of statements in the 2009 Constrictor Report, with supporting documentation.

CONCLUSION

For the reasons stated above and in the attachment, USARK strongly urges the USGS to adhere to the legal requirements of the IQA in evaluating this Request for Correction of Information. As required specifically in the Guidelines, please notify us within 10 business days of your receipt of this letter. Thank you for your attention to this matter.

Sincerely,

A handwritten signature in black ink, appearing to read 'Andrew Wyatt', is written over a horizontal line that extends across the page.

Andrew Wyatt
President
United States Association of Reptile Keepers

Enclosure: Consolidated IQA Detailed Request List

cc: Hon. Nancy Sutley, Chairman, Council on Environmental Quality
Hon. Ken Salazar, Secretary, Department of the Interior
Hon. Cass Sunstein, Administrator, Office of Information and Regulatory Affairs
Hon. James Inhofe, Senator, Senate Committee on Environment and Public Works
Hon. Doc Hastings, Member of Congress, House Committee on Natural Resources
Susan Walthall, Acting Chief Counsel for Advocacy, Small Business Administration
Dr. Marcia McNutt, Director, United States Geological Survey
Dr. Rowan Gould, Acting Director, United States Fish and Wildlife Service



DETAILED REQUEST FOR CORRECTIONS

In 2009 the USGS disseminated the Constrictor Report, “Giant Constrictors: Biological and Management Profiles and an Establishment Risk Assessment for Nine Large Species of Pythons, Anacondas, and the Boa Constrictor” (the Constrictor Report).¹ The Constrictor Report is a compilation of, “summaries of the biology of nine very large constrictor species” and considers, “what effects these species may have on ecology, economy, and domestic tranquility of the United States were such snakes to become established.” The Constrictor Report then identifies a ‘perfect storm’ of consequences and risks, all predicated on supposition, assumption and inference, and very few if any predicated on data.

Importantly, the underlying premise to the entire paper is that despite the fact that “...The factors likely to limit this spread [of Burmese Python] are unknown...” they presume that climate is the only factor necessary to consider in their risk analysis.

The Constrictor Report notes that:

“Common sense dictates that the caliber of a risk assessment is related to the quality of data available about the organism and the ecosystem that will be invaded. Those organisms for which copious amounts of high quality research have been conducted are the most easily assessed”. “The basic natural history of the giant constrictors is largely unknown; our risk assessment reflects this uncertainty.”

Nevertheless, the Constrictor Report identifies the probability of organism establishment for nine constrictor species: “Very Certain” to “Reasonably or Moderately Certain” for

¹ 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 constrictor: U.S. Geological Survey Open-File Constrictor Report 2009-1202, 302 p.

the four factors being used to determine the probability of establishment. There are no uncertainties listed. There is no indication that the risk assessment identified any uncertainty at all. This appropriate identification of uncertainty is key to producing useful risk assessments. The Constrictor Report's failure to identify risk accurately is underscored by the fact that empirical evidence does not support the identified risks as assessed. Specifically, two of the nine snakes the Constrictor Report identified as certain to expand their range are already established (boa constrictor since the early 1970s and the Burmese python since 1996). To date, there is little indication of these species spreading beyond their current range and there is evidence that even in their current range, climate extremes are limiting the population. There has been sufficient time to properly assess the effect of these two already established populations on domestic tranquility and economic impact, specifically with respect to the likelihood of their spread to other parts of the continental United States in the years since establishment (40 for the boa constrictor and nearly 15 for the Burmese python. Yet, no data substantiating the predictions of the Constrictor Report are identified.

This Constrictor Report is being disseminated by the United States Geological Survey (USGS) and is referenced as the basis for Congressional Legislation and a proposed rule published by the U.S. Fish and Wildlife Service² (FWS) which contemplates banning the trade in these 9 species as injurious under the Lacy Act. As such, the Constrictor Report becomes a highly influential scientific assessment with attendant requirements for quality under the Information Quality Act³ (IQA).

In addition to the IQA, the contents of the Constrictor Report must comply with the USGS Fundamental Science Practices Foundation Policy (Science Practices Policy). Of

² 75 Fed Reg (Friday, March 12, 2010) 11808-11829

³ OMB's December 16, 2004 "Final Information Quality Bulletin for Peer Review" defines 'highly influential scientific assessment: "*A scientific assessment is considered "highly influential" if the agency or the OIRA Administrator determines that the dissemination could have a potential impact of more than \$500 million in any one year on either the public or private sector or that the dissemination is novel, controversial, or precedent-setting, or has significant interagency interest*".

particular importance are the following requirements of that policy each of which is violated multiple times in the Constrictor Report:

- Interpretations are presented as honestly and straightforwardly as possible, are without apparent bias, and contain no derogatory remarks or adverse criticism.
- The conclusions are based on the best available **data** interpreted with sound scientific reasoning that **avoids speculation** [emphasis added].
- Information products should not recommend or appear to advocate or prescribe a particular public policy or course of action.⁴

At the direction of Congress, the Office of Management and Budget (OMB) promulgated Guidance for federal agencies implementing the IQA. In addition, Congress required federal agencies to adopt guidelines to ensure the quality of the information they disseminate. The OMB has specific requirements that address highly influential scientific assessments. One requirement is that such assessments must be peer reviewed using standards published by the National Academy of Sciences (NAS). In addition, all information in highly influential scientific assessments must be accurate, complete, clear and unbiased.

This Constrictor Report contains highly speculative and inaccurate information that is biased, unclear, inaccurate, incomplete and as a result is misleading and clearly advocates for regulatory control of these species.

CORRECTION REQUEST #1

Request correction of the Constrictor Report to comply with the OMB Final Bulletin for Peer Review for highly influential scientific assessments

- 1. by using only reviewers who meet the NAS Policy for evaluating conflicts;***
- 2. by requiring the scope of the review instructions given to peer reviewers to be consistent with that required under the OMB Final Bulletin.***

⁴ From U.S. Geological Survey Manual 502.4 - Fundamental Science Practices: Review, Approval, and Release of Information Products

The USGS must seek an independent peer review of the Constrictor Report as the document is a highly influential scientific assessment. As the OMB has observed, “[p]eer review is one of the important procedures used to ensure that the quality of published information meets the standards of the scientific and technical community”⁵. However, for a peer review to serve its intended purpose, it must be designed and implemented with certain considerations in mind, including the selection of the reviewers and scope of the review.

As a matter of law, all federal agencies – including the USGS – must comply with the Final Bulletin. The Final Bulletin establishes mandatory peer review standards, a transparent process for public disclosure, and opportunities for public input. In selecting its reviewers, the applicable federal agency must consider conflict of interest, independence, expertise, and balance. If peer reviewers are not federal employees, the agency must adopt or adapt the National Academy of Sciences Policy on Committee Composition and Balance and Conflict of Interest (NAS Policy)⁶ with respect to evaluating the potential for conflicts. Panel members should not be placed in a situation where others could reasonably question, and perhaps discount or dismiss, the work of the peer review panel simply because of the existence of such conflicting interests.

The OMB Bulletin requires that the agency consider barring participation by scientists with an interest that could be directly affected by the work of the panel. A reviewer should not have a personal stake in the outcome of the review in terms of career advancement, or personal or professional relationships⁷. Further, agencies must make a special effort to examine prospective reviewers’ work as an expert witness, consulting arrangements, scientific and technical advisory board memberships, honoraria and sources of grants and contracts.

The Final Bulletin also requires that reviewers be independent and not have participated in the development of the work product⁸. Significant consulting and contractual relationships with the agency sponsoring peer review may raise questions regarding

⁵ 70 Fed. Reg. (Jan. 14, 2005).at 2664, 2665

⁶ http://www.nationalacademies.org/coi/bi-coi_form-0.pdf

⁷ Gary K. Meffe et al, *Independent Scientific Review in Natural Resource Management*,

12 CONSERVATION BIOLOGY 268 (1998).

⁸ 70 Fed. Reg. (Jan. 14, 2005). at 2675-2676

independence. Likewise, when the agency and a researcher work together (e.g., through a cooperative agreement) to design or implement a study, there is less independence from the agency. Additionally, agencies must rotate peer review responsibilities across the available pool of qualified reviewers.

The Final Bulletin provides that “the intensity of peer review should be commensurate with the significance of the information being disseminated and the likely implications for policy decisions”⁹. The Final Bulletin emphasizes “the need for rigorous peer review is greater when the information ... presents conclusions that are likely to change prevailing practices, or is likely to affect policy decisions that have a significant impact.” Specifically, the language included identifies highly influential scientific assessments as requiring the most rigorous peer review available. The Constrictor Report is controversial, and precedent setting, as well as having significant interagency interest as it is used as the basis for the FWS determination with respect to listing the 9 subject species as ‘injurious’ under the Lacey Act as well as influencing Congressional legislation. The Constrictor Report presents conclusions, which if accepted, will result in a change in the prevailing practices and affect policy decisions that will affect the entire industry related to the constrictors addressed in the Constrictor Report. The costs resulting from the prohibition of the commerce of countless reptile breeders and owners as a result of baseless assertions and speculation that these species are on the brink of invading vast portions of the United States could have a cumulative impact of \$500 million or more annually.

Additionally, the Final Bulletin directs agencies “to strive to ensure that their peer review practices are characterized by...scientific integrity” which includes “the identification of the scientific issues and clarity of the charge to the panel [and] the quality, focus and depth of the discussion of the issues by the panel....” Further, “the charge should ask that peer reviewers ensure that scientific uncertainties are clearly identified and characterized...; ensure that the potential implications of the uncertainties for the technical conclusions drawn are clear...and that they consider value-of-information analyses that identify whether more research is likely to decrease key uncertainties.” The USGS clearly failed in this, as there is no evidence that the reviewers were asked whether there was data to support the speculation included in the Constrictor Report, despite the

⁹ 70 Fed. Reg. at 2668

fact that the USGS Science Practices Policy requires that publications be based on such data.

In a letter to the Senate Committee on Environment and Public Works, 10 research scientists familiar with both publishing in peer-reviewed journals and providing expert reviews of papers, stated that it would be a misrepresentation to call the Constrictor Report “scientific”. They point out that the Constrictor Report lacks an external peer review. They note that only part of the Constrictor Report is fact-driven and that as a result of the authors’ methods the Constrictor Report contains information that is unsubstantiated and, in some cases, contradicts sound existing data. They conclude that, as written, the Constrictor Report is not based on best science practices.

A brief examination of the 20 reviewers identified in the Acknowledgments for the Constrictor Report identified that at least six are government biologists (three work for the USGS and six have either co-authored articles on the “dangers” or “problems” of Burmese pythons in the Everglades, or have been featured in popular media making such statements as have both Reed and Rodda). At least 5 are currently working in South Florida on Burmese python management and eradication.

CORRECTION REQUEST #2

Request that the Constrictor Report be corrected to provide transparency including sufficient data and information on methods that would allow a qualified third party to reproduce the results of the Tables 10-1 through 10.7 of Chapter 10, Risk Assessment.

The Constrictor Report states that the 11 referenced hypotheses are taken from a table in a recently published paper of one of the authors (see Rodda and Tyrrell, 2008) and that only four of the 11 can be applied. No information is supplied to indicate whether these hypotheses were tested and what data was used to test them. Further, no data is provided to support the determinations found in tables 10.1 through 10.4. Nevertheless, the authors proceed to make determinations based on no data whatsoever, and their confidence in the outcome is inexplicably high.

The table outlining what is known about the reproduction of the nine species of great constrictors is notable for the paucity of data. It appears that little is known about most of the species and nothing is known about the Beni Anaconda or the DeSchaunsee’s Anaconda, as they have not been in captivity in decades. The other species have shown

little capacity for extended sperm storage. Inter-clutch interval is a year or longer in all the seven species that have been bred in captivity.

The tables illustrating the results of all the risk analyses show likelihood of establishment as high, medium, or low. No species has a risk rated as “Low” --- about half are high and half are medium in each of the tables. To state that a Green Anaconda has roughly the same high probability to establish as, say, a small anoline lizard without any supporting data is clear evidence of bias and of the overall unrealistic assumptions and conclusions made in the Constrictor Report. Further, there is no evidence that data was used to create an assessment of the probability of establishment across the full range of climate maps. It would be reasonable for it to vary from North to South and East to West but this appears to have been ignored.

We request the USGS provide the required **transparency** with respect to providing sufficient data and information on methods used to allow a qualified third party to substantially reproduce the results shown in Tables 10.1 through 10.3 as well as the high and moderate risk determinations and the certainty level associated with those determinations shown in Table 10.4.

CORRECTION REQUEST #3

Request that the Constrictor Report be corrected to:

- ***Identify the basis for failure to use the results of published peer reviewed scientific models for potential expansion;***
- ***Provide sufficient transparency regarding data and methods to allow a qualified third party to reproduce the climate matching which is the basis of the report ;***
- ***Acknowledge and apply the findings of the multiple studies and empirical information, which indicate that Burmese pythons are less cold tolerant than the Constrictor Report asserts;***
- ***Include data where available, that demonstrate species do not survive in areas in the United States which the model identifies as suitable for habitation;***
- ***Remove all statements that pythons and boas hibernate, or provide data which supports the statements.***

Published Peer Reviewed Scientific Model

The Constrictor Report fails to acknowledge the findings of Pyron et. al. 2008, a peer reviewed, published study which directly contradicts the Constrictor Report's findings regarding the potential for expansion of the subject snake species¹⁰. The Constrictor Report mentions Pyron et al on page 19 and the authors state their belief that the model under-predicts areas of the United States that can be invaded by *Python molurus*. However, the study never rebuts the results of the work. This is the only place in the Constrictor Report where this paper is mentioned. While the OMB Guidelines state that the adequacy of the result of published and peer reviewed work is a rebuttable presumption; the Constrictor Report fails to rebut the findings in Pyron and inadequately explains the basis of the decision to use its modeling approach over that used by Pyron et al. Instead, while acknowledging that multiple factors influence the distribution of an animal, the Constrictor Report relies on only a single factor, climate, to predict the invasiveness of the large constrictors. In addition, the Constrictor Report spends an inordinate amount of time discussing all the possible failings of the ecological niche model which is the basis for the Pyron conclusions without demonstrating that these failings actually exist in the published paper.

The Constrictor Report is **inaccurate** and **biased** in that it ignores superior data and analysis, and instead sensationalizes the real problem of the established population of non-native snakes in southern Florida. The Constrictor Report speculatively expands the threat existing from *Python molurus* in the relatively remote and sparsely populated Everglades in South Florida into the backyards of a significant proportion of the southern to central United States. This is accomplished by limiting the Constrictor Report's habitat suitability model variables to mean monthly temperature and mean monthly precipitation. The model the Constrictor Report relies upon does not include many variables known to influence species distribution, including climatic extremes, vegetative assemblages, predator and prey abundance, impacts or highways, impacts due to agriculture, and impacts due to urbanization. This deliberately naïve approach results in a gross overestimate of potential habitat for these snake species.

While the model developed by Pyron and colleagues is not perfect, it does use a greater complexity of environmental characteristics. As a result, the model more accurately

¹⁰ Pyron RA, Burbrink FT, Guther TJ (2008) Claims of Potential Expansion throughout the U.S. by Invasive Python Species Are Contradicted by Ecological Niche Models. PLoS ONE 3(8): e2931. doi:10.1371/journal.pone.0002931

predicts the actual incidence of feral populations of these snakes. The Pyron model limits the suitable habitat for the Burmese python within the continental United States to the extreme tip of Texas and southern Florida. Noteworthy, despite its extremely limited prediction of suitable habitat, the model does include the Everglades, the lone location of an established population in the United States.

Data Contradicts Model Results

Pythons are kept as pets throughout the United States, yet the only known feral breeding population in the United States is in the Everglades. The Constrictor Reports states that “all of the species under consideration can probably move large distances in short time periods when so inclined.” But the Report provides no explanation for the failure of already established populations to expand. This failure to expand suggests that factors beyond those considered in the USGS model are critical to limiting the suitability of habitat for pythons. The Constrictor Report is **biased, incomplete and inaccurate** as it fails to acknowledge this existing data and instead substitutes hypothetical model outputs and speculation.

The USGS Constrictor Report predicts clearly unsuitable habitats to be suitable habitat for both Burmese pythons and boa constrictors. For example, the oversimplified USGS model predicts portions of the deserts of the American Southwest are suitable habitat for both Burmese pythons and boa constrictors. While snakes are quite adept at going long periods without eating, the large size of the subject snakes requires a reasonable presence of suitable medium and large prey species. Such prey resources do not exist in challenging environments such as the deserts of the American Southwest (most native desert snakes species are typically well under one meter). Nevertheless, the Constrictor Report asserts that portions of these deserts are suitable habitat for both Burmese pythons and boa constrictors. The assertion also ignores the fact that Boa constrictors are native to Mexico but their northern distribution abruptly ends where the tropical deciduous forest and tropical thorn scrub give way to Sonoran Desert, providing evidence of a weather or geographic barrier that commences with the desert. Nevertheless, the Constrictor Report asserts the validity of its predictions despite clear evidence that boa constrictors do not tolerate southwestern deserts. The Constrictor Report’s suitability map for this species inaccurately includes wide expanses of Chihuahuan Desert and Upland Arizona habitat within the Sonoran Desert.

Another example of the inadequacies of the model supporting the Constrictor Report is that it predicts extreme South Texas to be suitable climate and habitat. While this is plausible in theory and based solely on climate, review of the environmental conditions quickly demonstrate its improbability. There are major differences between South Florida, where only one of the 9 species has become established, and the Rio Grande Valley in the southernmost tip of Texas. First, there are no extensive wild areas similar to the Everglades National Park that serves as a 1.5- million acre, swampy refugium. More than 95% of the original Tamaulipan thorn scrub habitat found in this part of Texas is gone. It has been replaced with fields of onions, carrots and other produce such as sugar cane. The sugar cane fields are surrounded and burned from all sides simultaneously either annually or biannually, killing all wildlife hidden in the thick vegetation. There is heavy traffic on most roads day and night, and mechanized agriculture would affect the snake's survival ability. Boa Constrictors naturally occur in Tamaulipas, Mexico, 120 miles from the southern tip of Texas, but show no evidence of extending their range northward. There is no data or empirical evidence to support a conclusion that these snakes are likely to expand into southern Texas, rather much information and data demonstrates they have not.

We request that the USGS correct the **inaccurate, incomplete, and biased** information provided in the report that asserts the subject snakes can expand into these habitats, by including complete information regarding the environmental needs of the species beyond that of climate.

Python Cold Tolerance

The Constrictor Report further is **biased, incomplete and inaccurate** in that it ignores documented sensitivity to cold in predicting suitable habitats. The Constrictor Report states that the Burmese python is exceptional among the giant snakes in its ability to tolerate cold weather. The relative nature of this statement has been demonstrated by the recent cold weather event that hit the southeastern United States. While the cold was atypical it was not unheard of for the region, and its impact on Burmese pythons is worthy of mention. After the cold weather event, about 50% of the pythons found in southern Florida were dead and 5 OF 9 pythons housed in outdoor enclosure with heating pads provided at a research facility in northern Florida died, 2 became ill and were brought inside, and 2 survived using provided heating pads. The sensitivity of the species to this extreme weather event in Florida questions the likelihood of persistent python

populations in areas of the United States included in the Constrictor Report as suitable habitat where such weather events are much more frequent and much more extreme. Again, real data is available but hypothetical speculation is used.

The USGS received information that pythons and tropical boas do not appear to make the distinction between fatally cold and uncomfortably cold. Pythons are descended from tropical populations of animals where freezing weather is unknown. The ability to shelter from fatally cold temperatures is unnecessary in their native ranges where fatal cold extremes are unknown.

Transparency of Data and Methods

The USGS model grossly overestimates the potential habitat for these snake species. No introduced reptile maintains such a wide distribution in the United States, with the most widely distributed species being the Mediterranean gecko, a species that mostly inhabits human dwellings rather than the natural habitat across its distribution. People throughout the United States have kept the snake species, which are the subject of the Constrictor Report, as pets for decades. Yet the only known feral breeding populations in the United States are in the Everglades. Such a wide distribution of potential sources of invasion, but only a localized invasive event, leads one to the conclusion that factors beyond those used in the USGS model are critical to limiting the suitability of habitat for pythons.

The USGS, instead of using an available, published, peer reviewed model, used a simple climate based model as the basis of the Constrictor Report. Our review indicates that the map forming the basis for all USGS's climate-space estimates of these pythons is incorrect. The depiction of the distribution is simplistic and overestimates the presence of these species at high elevations -- across the northern limit of the species from Nepal to Fujian, China.

We request that all records with monthly mean temperatures of 10 degrees or less be removed from the data set, unless the locality is exactly matched to an actual published locality and similar elevation for a python. There is no data supporting an assertion that pythons can survive mean temperatures of 10 degrees C. The data forming the basis of all the analyses includes localities of the weather reporting stations that are at excessively high elevations. There is no data that supports any assertion that these species are commonly present at elevations exceeding 1000m. However, in the report, 12% of the

reporting weather stations are located at elevations that exceed 1000m and several exceed 2000 m. We request that all records exceeding 1000m be removed from the data set, unless locality is exactly matched to an actual published locality with a similar elevation for a python.

The model assumes that these snakes hibernate. In comparing the climate-space data derived from the weather-reporting stations reports to USA climate data, the authors performed two separate climate-matches; one climate-match assumes a 3-month period of hibernation (Clim3) and the second assumes a four-month period of hibernation (Clim4). This assumption appears to be based on one report from 1912, and is otherwise unsubstantiated.

Of the 43 records for weather stations in China, 25 records are located outside of the natural distribution of Burmese pythons, due either to erroneous assumptions made for the geographic distribution or unfounded assumptions about the elevational distribution of the species in China. This amounts to more than 25% of the total records for Burmese pythons on which the report is based as being erroneous.

The Constrictor Report, states that, when possible, the localities of the weather stations used in all analyses are matched closely to the exact localities of the pythons. In fact, the data set incorporates only four records based on actual topographic locations of python specimens out of a total of 149 records. The remaining 145 records are apparently chosen at random around the periphery of the distribution of the two species. In some cases the weather stations are near the published general locations of pythons specimens, this is not so for the majority of the records. For this reason alone—the near complete absence of actual locality records of the species being studied—it is not possible to rely on any of the estimates, analyses, and predictions based on this data without more detail as to methods and data.

The exact means by which the climate space generated for each species in the report was matched to the climate of the USA is not **transparent**. The methods are not described in detail, nor are any data for the USA localities included in the Report or otherwise made available. The IQA requires sufficient transparency as to data and methods to allow a qualified third party to substantially reproduce the result.

The methods and data used to produce the results of climate matching, which forms the basis of the report, are **not transparent**. The information provided is **not sufficient to allow substantial reproduction of the results by a third party**. The information that is available supports a conclusion that **significant errors** are embedded in the analysis and that the results are **neither reliable nor reproducible**.

We request that the report be corrected to provide sufficient **transparency** to allow a qualified third party to substantially reproduce the results in the Constrictor Report.

CORRECTION REQUEST #4

Request that the Constrictor Report be corrected to remove the biased and/or speculative statements identified, as well as other equally unsupported statements (not enumerated, but available upon request from the authors of this Request for Correction), and replace them with statements based on data as required by the IQA and USGS Science Practices Policy.

The USGS has built a reputation for scientific excellence. This is in part due to the rigorous standards included in their Science Practices Policy which requires that USGS reports will be based on data. The semantic sleight of hand practiced by the authors of the Constrictor Report relies on the USGS reputation while in fact disseminating information which fails to comply with the requirements of the IQA and the USGS Information Quality policies.

Throughout the Constrictor Report statements are made without supporting data either in the Constrictor Report itself or in citations. There is an inordinate use of qualifying terms necessary to rationalize the Constrictor Report's speculative comments. More than one out of every hundred words in the manuscript is a word that allows unsupported statements to be included without requiring a disclaimer.

Following is a compilation of selected specific examples of bias in the Constrictor Report. This list is not complete, but is designed to highlight some of the more egregious examples. Such bias does not comply with the requirements of the IQA as well as USGS Policy.

- *“The occurrence of these three large constrictors [referring to Burmese Pythons, Northern African Pythons, and Boa Constrictors] in the wild in the same area of Florida may be a coincidence, but southern Florida has a climate that may be suitable for all of the giant constrictors and much of the commercial trade in giant constrictors passes through southern Florida.” (Page 1; paragraph 1)*

This statement is clearly **biased**. No information is provided as to how much of the commercial trade passes through South Florida, nor how those numbers have changed over time. Further, the security of the transportation method used is more indicative of the risk of escape. If the South Florida commercial reptile trade has a higher than normal incidence of escape, that data should be provided to support a finding that there is some elevated risk. Otherwise, the statement is merely pejorative and demonstrates an unfounded bias.

It is more likely that South Florida has the only suitable conditions in the United States for any of the nine species considered in this Constrictor Report. The climate of South Florida is the only subtropical zone in the continental United States. More importantly, the 1.5-million acres of the Everglades National Park provide a unique swampy refugium and no other place in the United States is even remotely similar. Established exotic constrictor populations exist in Florida but there is no data which supports the assertion that that this will expand beyond Florida.

Such bias and advocacy are not consistent with the requirements of the IQA or USGS Policy. Therefore we request correction.

- *“This document addresses primarily the biological impacts associated with potential colonization of the United States by any of the nine giant constrictors. . . .” (Page 2; paragraph 4)”*

The statement is clearly **biased** in that it implies many portions of the United States are in danger of colonization by at least one of the giant constrictors. There is no evidence to support this assessment. In fact, the cold spell of January 2010 and resulting mortality demonstrates that these snakes have little chance to survive in colder climates.

- *“All of the species under consideration can probably move large distances over short periods when so inclined. These two factors combine to make it hard to limit the spread of their colonies.” (Page 6; paragraph 2)*

This statement is **biased, speculative, inaccurate, incomplete,** and misleading. There is no information supporting the statement that any one of these snakes have sufficient mobility in terms of time and space to migrate any substantial distance. There is documentation that Burmese pythons can migrate several miles to return to a preferred location. However, there is no information, citations, studies or empirical data supporting a conclusion that any of the 9 species examined are capable of migrating vast distances across inhospitable terrain to colonize the entire United States, or even the selected portions of the United States identified by the Constrictor Report’s grossly exaggerated definition of available habitat.

In the 30 or so years that boas and Burmese pythons have resided in South Florida, there has been no “spread of their colonies”. The Report states, “all of the species under consideration can probably move large distances in short time periods when so inclined.” However, the Report contains no explanation as to why *Python molurus* failed to expand to reach areas north of the Everglades system since first being found there in 1996? The Report also fails to explain the boa constrictor’s failure to expand. This species has had only a very localized sustained breeding population since first identified in the 1970s. Clear sources of potential invasion, but no expansion, provide evidence that the factors used in the USGS model fail to capture essential characteristics of suitable habitat for these snakes.

We request the USGS correct the Constrictor Report to remove speculative statements regarding the ability to migrate to other parts of the country, and replace the **speculative** statements with statements which are supported by data. This is consistent with the requirements of the IQA and the USGS Science Practices Policy. We request the USGS to correct the Constrictor Report to remove **incomplete** and **inaccurate** information, referring to the ability for these snakes to move large distances over short periods of time, and replace the statement with specific information supported by data.

- *“Knowledge of the biology of these giant constrictors may be scanty, but knowledge of appropriate management tools for these species is almost nonexistent. Thus for the management profiles we relied to varying degrees on*

inference from the management of other snake species, primarily the Brown Treesnake in Guam and the Habu in the Ryukyu Islands. . . . ” (Page 9; paragraph 3)

The Constrictor Report admits there is absolutely no applicable knowledge regarding their management and little regarding their biology. Yet the Constrictor Report goes on to **inaccurately** apply unsuccessful management methods associated with two vastly different and unrelated snake species. No explanation based on similarities or data was made to justify this use of two surrogate species. Accordingly, we request that the Constrictor Report be corrected to provide **complete** information regarding the differences between the surrogate and the 9 species addressed by the Constrictor Report and include biological information that justifies the use of these snakes as surrogates for the nine large constrictors covered by the Constrictor Report.

- *“The presence of a novel predator on rare birds is likely to be detrimental to bird watching tourism if pythons reduce populations and thus reduce sighting rates.” (Page 139; paragraph 3)*

The authors reference the devastation wrought on the native bird populations in Guam as snakes were introduced to an island which formerly had no snakes. This statement is clearly biased in that it implies such devastation should be expected as a result of any or all of the 9 snakes, which are the subject of the Constrictor Report, become established anywhere in the continental United States and particularly in the Everglades system.

The Constrictor Report fails to disclose or acknowledge that, unlike Guam, there are no bird species in the Everglades that are naive to snake predation. Further, it fails to note that no such devastation has occurred in the 15 years Burmese pythons have been established and the roughly 40 years that boa constrictors have been established. The statement is **biased, incomplete and inaccurate** and we request its correction.

CORRECTION REQUEST #5

Request that the Constrictor Report be corrected to;

- ***identify the Burmese python(*P. bivittatus*) and Indian python (*P. molurus*) as a full species;***

- *Assess the invasion risks of the two species separately using data specific to the species addressed.*

The Constrictor Report treats the Burmese python (*P. m. bivittatus*) as distinct subspecies of the Indian Python (*P. molurus*) and combines biological data and abiotic factors affecting the distribution of both despite the inaccuracy and clear bias this presents. *P. m. bivittatus* has a much smaller native range and climate envelope than does *P. m. molurus*. This has already been raised to the attention of the USGS in a previous USGS paper on Burmese python climate matching. *P. m. bivittatus* was originally recognized as a full species by Kuhl in 1820. Jacobs et al. (2009) recently published a paper in the journal *Sauria*¹¹ in which they not only elevate *P. m. bivittatus*, but also reassess *P. m. molurus* and elevate it to a specific rank. The Constrictor Report fails to 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*.

The Constrictor Report also neglects to acknowledge that the Convention on International Trade in Endangered Species of Wild Fauna and Flora (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.

The distinctions between the two species are clear and documented. However, the data set used to create the current version of Chapter 4 combines 50 records for the Indian Python and 88 records for the Burmese python; an additional 11 records are for weather stations near to localities of both species in Bangladesh, Nepal, and northern India. The data for the two species must be separated, and all estimates, predictions and analyses for the two species must be done separately and independently recognizing and accounting for differences in habitat and climate requirements.

Insistence on combining these two species into one demonstrates a clear bias, and is inaccurate, both inconsistent with the provisions of the IQA, and we request correction

¹¹ Jacobs, H. J., M. Auliya, and W. Böhme. 2009. Zur Taxonomie des Dunklen Tigerpythons, *Python molurus bivittatus* KUHL, speziell der Population von Sulawesi. *Sauria* 31(3): 5–16.

accordingly. In fact, lumping together two species, making it one, is directly impacting related rulemaking currently being carried out by the FWS for these same species.

CORRECTION REQUEST #6

Request that the Constrictor Report be corrected to clarify that South African Pythons, Beni Anacondas or DeShaunsee's Anacondas are not known to exist or to have been imported into the United States.

- *“We obtained CITES records of imports to the United States from 1977 through 2007 for the species of interest; results are presented in the Appendix and include records of over 1,100,000 individuals of these species imported to the United States during this period.” (Page 14; paragraph 4)*

The statement is **unclear, inaccurate, biased, and incomplete**. It fails to acknowledge that during the given 30-year period, 618, 872 Boa Constrictors were imported, followed by Burmese Pythons (297,443), Reticulated Pythons (147,485), North African Pythons (32,728), Green Anacondas (13,262), with Yellow Anacondas trailing at 1,968. There is no record of South African Pythons, Beni Anacondas or DeShaunsee's Anacondas being imported. To date, there is no information of any living specimens in the United States at this time. Statements to the contrary are speculative at best. The statement fails to make clear that there is no record of importation of African Pythons, Beni Anacondas or DeShaunsee's Anacondas and instead by lumping all importation numbers together, it implies that those species were among the snakes imported.

There is no basis for finding these two species pose a risk and we request that the Constrictor Report be corrected to acknowledge that no data exists supporting an assertion that they have been imported into the United States, in the 30 years since records have been kept, nor are these species living in the United States at this time.

CORRECTION REQUEST #7

Request that the Constrictor Report be corrected to clarify that the three introduced boa constrictor populations are small and established within the existing geographic range of latitude and longitude.

- *“The Boa Constrictor has established more introduced populations than any other boa or python species of which we are aware, with at least three known populations.” (Page 158; paragraph 5)*
- *“Ninety-six individuals [Boa Constrictors] were captured between 1989 and 2005. . . . However, most (around 70 percent) of the Deering snakes were found in 1996, when at least two females must have given birth in the park. (Page 159; paragraph 1)*
- *“Snow and others . . . suggested that the invasive population at the Deering Estate at Cutler may be limited by climate, and that reproduction may be successful only during years with especially warm winters, such as occurred in 1996; they support this idea by saying that the boas appear to be of northern South American stock and thus unlikely to be adapted to cooler temperatures.” (Page 160; paragraph 6)*

The three introduced Boa populations are found in Aruba, Cozumel (Mexico), and Deering Estate (Florida). Aruba is a narrow tropical island about 21 miles long, located at 12 degrees, 30 minutes, north latitude, situated about 20 miles offshore from the South American mainland and the natural range of boas. Cozumel is a tropical island, 30 miles by about 10 miles, located at 20 degrees, 30 minutes, north latitude, situated about 12 miles east of the Yucatan Peninsula of Mexico and within the natural range of boas.

There is a small population located in South Miami in the Deering Estate, a Miami park. This population is located at about 25 degrees, 30 minutes, north latitude, close to the latitude and longitude that describes their natural range. The Deering Estate is 444 acres in size, but Boa Constrictors are usually observed in a small area within the park. In the nearly 40 years that the snake has been observed, it has not significantly expanded its numbers or territory. The Constrictor Report provides no evidence that the risks identified in the report have actually materialized in the area these snakes occupy. The population of boas at the Deering Estate are not expanding and, ignoring the babies of 1996, an average of less than two boas a year were observed.

The statements in the Constrictor Report noting that boa constrictors has established more introduced populations than any other boa or python species is **biased in that it is not complete or clear**. It implies that boas are likely to easily establish and expand their

populations, more so than other snakes. In fact, the boas have only been established in areas within their normal range and have failed to expand into other areas of South Florida despite being established for at least 40 years.

CORRECTION REQUEST #8

Request that references to reproduction of *Python sebae* be corrected to include data to support the statement and if no data is available, removed.¹²

The statement is **inaccurate, biased, and incomplete**. We are unaware of any data to support speculation that such colonization can or has occurred. In 30 years of monitoring the Burmese python in the Everglades it is hard to imagine that no one has noticed an even larger snake, *Python sebae*.

The range of the Northern African Python is centered on the equator. It is a truly equatorial tropical species that ranges from about 17 degrees north latitude to about 12 degrees south latitude. Based on the available data, all imported specimens since the 1990s have come from West Africa at 7–10 degrees north latitude --- most or all exported from Ghana, Togo and Benin. There is no climate and no ecosystem in the United States that is even remotely similar to the environment in the natural range of the particular *Python sebae* that have been imported into the United States. This is confirmed empirically by the fact that no established population exists in the United States.

We request that the Constrictor Report be corrected to include supporting data for the statement that there is an established population of North African Pythons. If none can be produced, then this statement is biased and inaccurate and it and all references to it should be removed.

CORRECTION REQUEST #9

Request correction of the speculative statements regarding the existence of hybridization between Burmese python and North African python.

The Constrictor Report states:

¹² Page 1

“The fertility and long-term viability of such hybrids [between Burmese Pythons and Northern African Pythons] is unexplored. It is conceivable that introduction of African genes to the Indian Python population could result in increased genetic variability that could allow exploitation of new ecological or physiological niches and/or result in some other type of hybrid vigor. Such a scenario has become more likely in the face of recent evidence for a population of Northern African Pythons along the western edge of Miami, an area within the introduced range of Indian (Burmese) Pythons.” (Page 137; paragraph 2)

This cannot be characterized as anything other than wild speculation. The statement is **biased, inaccurate and incomplete**. There is no data that supports the existence of such hybrids. There is data and information on at least 20 different hybrid crosses of python species that have been bred in captivity. While hybrid pythons have been produced through selective captive breeding, offspring show low viability, low fecundity, and, in some cases, sterility. The problems of some hybrids become more pronounced in successive generations¹³. We request correction as the statements are not based on data and are biased, inaccurate and incomplete.

CORRECTION REQUEST #10

Request correction of the speculative statements regarding hybridization between Yellow Anacondas and Green Anacondas.

“If hybrids are fertile and exhibit characteristics of both species (for example, cold tolerance of Yellow Anacondas but increased size from Green Anaconda genetic contributions), the resulting hybrid might represent higher risk as an introduced species. However, we judge such a scenario to be fairly unlikely.” (Page 211; paragraph 2)

- *“Imports [of anacondas] spiked in 1997 as compared to levels in preceding or ensuing years. It is likely that this spike was related to the 1997 release of the horror movie Anaconda, in which larger than-life anthropophagous anacondas*

¹³ Bull. Chicago Herp. Soc. 45(1):1-, 2010; Review: *Giant Constrictors: Biological and Management Profiles and an Establishment Risk Assessment for Nine Large Species of Pythons, Anacondas, and the Boa Constrictor* by Robert N. Reed and Gordon H. Rodda 2009. U.S. Geological Survey Open-File Constrictor Report 2009-1202, xviii + 302 pp

consumed a variety of B-list movie stars. If the apparent relationship between the movie and import rates is more than a remarkable coincidence, such a spike implies that demand, not availability, drives the import rate of anacondas, and that suppliers can obtain more snakes from wild populations even within a short time period.” (Page 236; paragraph 3)

The statement is **biased, speculative, inaccurate, incomplete** and pure imagination. It is astounding that in a paper representing itself as unbiased and serious, there is even mention of such far-flung imaginations as hybridization between Yellow and Green Anacondas. There are records of captive breeding Green Anacondas to Yellow Anacondas. The data on captive hybrid experiments and the speculation of this occurring in the wild among these species or among any of the python species in the Everglades is not comparable to breeding individual specimens in controlled conditions in a limited space in captivity.

The statement regarding spikes in import rates is incorrect, contradicted by data supplied in the Constrictor Report itself. On page 234, the authors state that from 1989 through 2000 about 1400 Green Anacondas were imported into the United States, averaging about 125 a year. However, CITES records cited in Table A.1 on page 302 indicate 5226 Green Anacondas imported during that period, with the spike occurring in 1996, the year before the release of the movie. In addition, if their speculation that the movie *Anaconda* was valid, then one would expect to see another spike in 2004 with the release of the movie “*Anacondas, The Hunt for the Blood Orchid*,” but no such spike occurred.

We request that all such **speculative** and inflammatory statements be removed unless data is included to support them, as they are **biased, inaccurate, unclear and incomplete**.

CORRECTION REQUEST #11

Request that the following statements related to livestock predation be corrected and clarified to include data to support the amount and type of livestock predation currently occurring:

- *“Direct predation on livestock will occur if any of the giant constrictors become established in the United States. . . . This prediction is very certain because*

livestock losses have been widely documented in Florida (by Burmese Pythons, North African Pythons, and Reticulated Pythons). However, the extent of the damage is much less certain.” (Page 255; paragraph 1)

The authors fail to provide any data or reference to substantiate the referenced “livestock losses” on which they base this charge. The statement is **unclear, biased, and incomplete** as it implies that prize bulls are being attacked and eaten out in the pastures. The authors fail to provide data describing the livestock losses.

We request that the Constrictor Report be corrected to remove statements regarding livestock losses and predation be removed or that data be included that substantiates them.

CORRECTION REQUEST #12

Request correction of reference to boas and pythons as ‘giant’ snakes as the term is scientifically indefensible and biased.

There is a pattern in the Constrictor Report of referring to “giant constrictors” and “giant snakes” instead of pythons and boas. Use of the term is not scientifically justified and is **biased**. Most boas and pythons that are encountered in nature are not of “giant” proportions but are rather small to medium sized snakes. The Constrictor Report recognizes this in the following quotation:

- *“As with most giant constrictors, the maximum size of the Boa Constrictor has been subject to exaggeration, especially in the older literature. Unfortunately, many of these claims of gigantic boas have been perpetuated by more recent authors. . . . Part of the confusion stems from misapplication of the name Boa Constrictor to other giant snakes, including anacondas and even some Old World pythons.” (Page 148; paragraph 3)*
- *“In the public mind, Boa Constrictors are considered a giant snake, but they are not particularly large in comparison to some of the true giants.” (Page 176; paragraph 5)*

While the Constrictor Report recognizes this is a misapplication of term ‘giant’ it nevertheless continues to apply the term inappropriately. We request this be corrected as it is **biased**.

CORRECTION REQUEST #13

Request that biased statements in the Constrictor Report regarding the consequences of establishment of these snakes be removed as they are incomplete and inaccurate.

- *“Predation on pets is likely to be of limited economic importance, but acutely felt by the bereaved pet owner.” (Page 255; paragraph 2)*

The authors fail to provide any data to substantiate the assertion that such predation is likely to occur.

- *“Although it is difficult, or perhaps impossible, to fully quantify perceived impacts that have no overt economic or ecological impacts, it is notable that colonization by giant constrictors would affect human relations to the rural landscape significantly, and not in a good way. Perhaps a mother would no longer allow her children to explore the woods unescorted, or to swim in a creek. Perhaps a child would have fewer opportunities to experience the full range of native wildlife. Loss of these pivotal developmental opportunities comes at a cost that we can appreciate even if we cannot readily measure it.” (Page 257; paragraph 2)*

The statements are **biased, inaccurate, and incomplete**. The Constrictor Report fails to acknowledge that few mothers would encourage their children to swim in creeks and canals in South Florida as most are well aware of the dangers from huge predatory reptiles called alligators already living in essentially all the waterways of Florida, with a concentration in southern Florida. An average alligator weighs more than double what a large great constrictor weighs, and big alligators weigh more than 1000 pounds. Alligators are known to kill and eat pythons and humans. In addition, the largest venomous pit viper in North America, the eastern diamondback rattlesnake, lives along the pathways through the woods of Florida. Cottonmouths, another deadly snake, abound in the swamps. South Florida is a wonderful place because it is not a tame place. It has always been a place to keep the dog on a leash and the children close and in sight. The presence of great constrictors will not affect what have always been considered prudent

and safe actions and activities in South Florida. Yet the authors with **clear bias and advocacy** intimate that freedom of movement in this dangerous environment will be lost as a result of the establishment of these snakes.

- “ . . . giant constrictors are potentially dangerous to hunters, and misidentification of snake species in the southern United States can lead to fatalities.” (Page 30; paragraph 3)

The statement is **biased and unclear**. Does “misidentification” mean that volunteers searching for giant snakes might be confused by venomous cottonmouths and grab them? Or does this mean that volunteers might be fatally grabbed by the giant snakes that they are searching for? Or does it mean that hunters might misidentify native snakes as being pythons or boas and fatally shoot them?

“We are not aware of any documented power line problems from the large population of Burmese Pythons in south Florida, and thus this problem may be no more severe than that already associated with power line movements by rat snakes.” (Page 66; paragraph 4)

“Presence of such species in natural landscapes might also induce employers to institute measures such as are used in bear country, including special training, requirements for safety equipment, and/or requirements to travel in pairs in predator-occupied habitat.” (Page 139; paragraph 4)

We request that these clearly **biased** statements, intended to alarm and advocate for regulation, rather than inform, be removed as they are inconsistent with the requirements of the IQA and USGS Policy.

CORRECTION REQUEST #14

Request that the reference to ‘large’ boa populations in South Florida be supported with data and a definition of the word ‘large’ in this context.

- *“We are not aware of any documented power line problems from the large population of Burmese Pythons in south Florida, and thus this problem may be no more severe than that already associated with power line movements by rat snakes.” (Page 66; paragraph 4)*

The Constrictor Report states that in 14.4 radiotelemetered python-years, there were only four detections [of Burmese Pythons] unaided by use of the radio signal. This was during a period of time when there were visitors and searchers in a position to see pythons in the area every day. Despite this, searchers or the public detected the average python about once per three years. Nevertheless, the Constrictor Report refers to this population as a 'large' population.

We request that the **biased inaccurate and incomplete** references to the generically 'large' python population be replaced with data demonstrating the number of pythons in South Florida and include a frame of reference which allows the reader to gauge the relative importance of the size of the population.

CORRECTION REQUEST #15

Request that the Constrictor Report be corrected to define 'entry potential' as the risk of entry potential into the natural environment.

The Constrictor Report defines the risk of "Entry Potential" as the risk of the species surviving importation to the United States. This definition is **biased, unclear, inaccurate, and incomplete**. By defining Entry Potential in terms of the species surviving importation, the Analysis never assesses the probability of its entry into the natural environment. The Constrictor Report's definition is biased in that it assesses entry potential in a context where care is taken to protect an economic asset. As the Constrictor Report defines it, the Entry Potential assessed has nothing to do with the species likelihood of establishment as an invasive and is thus **inaccurate**. The Entry Potential assessed is also incomplete as it fails to assess the probabilities or risks of actual entry into the environment (through release, escape, or some other means) which is necessary for establishment as an invasive.

The Entry Potential that must be evaluated is potential for entry into the 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. The Constrictor Report fails to perform this risk assessment and as a result produces an assessment that is inaccurate, biased **incomplete and unclear** as it fails to address the risk of these species entering the natural environment. Accordingly, we request that the

Constrictor Report be corrected to address the Entry Potential, not for surviving importation, but for the potential for entry into the environment which is the appropriate risk assessment.

CORRECTION REQUEST #16

Request that the Constrictor Report be corrected to remove derogatory remarks

The Constrictor Report contains the following derogatory remarks:

“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).”¹⁴

“However, southern Florida has an acknowledged reputation for unsavory characters, both reptilian and otherwise.”¹⁵

The remarks are **biased** and inconsistent with the USGS Science Practices Policy and we request that the document be corrected by removing them.

¹⁴ Page 93 (para. 1, line 5),

¹⁵ Page 101 (para. 1)