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Injurious Wildlife Species; Listing Three Anaconda Species and One Python Species as Injurious Reptiles; Final Rule

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 16

RIN 1018–AV68

[Docket No. FWS–R9–FHC–2008–0015; FXFR13360900000–145–FF09F14000]

Injurious Wildlife Species; Listing Three Anaconda Species and One Python Species as Injurious Reptiles

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: The U.S. Fish and Wildlife Service (Service or we) is amending its regulations under the Lacey Act to add reticulated python (*Python reticulatus*), DeSchauensee's anaconda (*Eunectes deschauenseei*), green anaconda (*Eunectes murinus*), and Beni anaconda (*Eunectes beniensis*) to the list of injurious wildlife. By this action, the importation into the United States and interstate transportation between States, the District of Columbia, the Commonwealth of Puerto Rico, or any territory or possession of the United States of any live animal, gamete, viable egg, or hybrid of these four constrictor snakes is prohibited, except by permit for zoological, educational, medical, or scientific purposes (in accordance with permit conditions) or by Federal agencies without a permit solely for their own use. The best available information indicates that this action is necessary to protect the interests of human beings, agriculture, wildlife, and wildlife resources from the purposeful or accidental introduction and subsequent establishment of these large nonnative constrictor snake populations into ecosystems of the United States. We are also withdrawing our proposal to add the boa constrictor (*Boa constrictor*) to the list of injurious wildlife.

DATES: This rule is effective on April 9, 2015.

ADDRESSES: This final rule and the associated final economic analysis, regulatory flexibility analysis, and environmental assessment are available on the Internet at *http://www.regulations.gov* under Docket No. FWS–R9–FHC–2008–0015. Comments and materials received, as well as supporting documentation used in preparing this final rule, are available on the Internet at *http://www.regulations.gov* under Docket No. FWS–R9–FHC–2008–0015; they are also available for public inspection, by appointment, during normal business hours, at the South Florida Ecological Services Office, U.S. Fish and Wildlife Service, 1339 20th Street, Vero Beach, FL 32960–3559; telephone 772–562–3909 ext. 256; facsimile 772–562–4288.

FOR FURTHER INFORMATION CONTACT: Bob Progulske, Everglades Program Supervisor, South Florida Ecological Services Office, U.S. Fish and Wildlife Service, 1339 20th Street, Vero Beach, FL 32960–3559; telephone 772–469–4299. If you use a telecommunications device for the deaf (TDD), please call the Federal Information Relay Service (FIRS) at 800–877–8339.

SUPPLEMENTARY INFORMATION:

Executive Summary

The U.S. Fish and Wildlife Service (Service) is amending its regulations under the Lacey Act to add the reticulated python, DeSchauensee's anaconda, green anaconda, and Beni anaconda to the list of injurious wildlife. The purpose of listing the reticulated python and the three anacondas as injurious wildlife is to prevent the accidental or intentional introduction and subsequent establishment of populations of these snakes in the wild in the United States.

Under the Lacey Act (Act) (18 U.S.C. 42, as amended), the Secretary of the Interior is authorized to list by regulation those wild mammals, wild birds, fish, mollusks, crustaceans, amphibians, reptiles, and the offspring or eggs of any of the foregoing that are injurious to human beings, to the interests of agriculture, horticulture, or forestry, or to the wildlife or wildlife resources of the United States. We have determined that these four species of large constrictor snakes are injurious. This determination was based on an extensive risk and biological assessment by the U.S. Geological Survey (USGS; Reed and Rodda 2009) and on the criteria for injuriousness by the Service. USGS determined that these four species have a risk of invasiveness, and the Service found that the four species are injurious.

On March 12, 2010, we published a proposed rule in the **Federal Register** (75 FR 11808) to list *Python molurus* (which includes Burmese and Indian pythons), reticulated python (*Python reticulatus*), Northern African python (*Python sebae*), Southern African python (*Python natalensis*), boa constrictor (*Boa constrictor*), yellow anaconda (*Eunectes notaeus*), DeSchauensee's anaconda (*Eunectes deschauenseei*), green anaconda (*Eunectes murinus*), and Beni anaconda (*Eunectes beniensis*) as injurious wildlife under the Lacey Act.

On January 23, 2012, we published a final rule in the **Federal Register** (77 FR 3330) to list Burmese (and Indian) pythons, Northern African pythons, Southern African pythons, and yellow anacondas as injurious wildlife under the Lacey Act. The remaining five species (reticulated python, boa constrictor, green anaconda, DeSchauensee's anaconda, and Beni anaconda) were not listed at that time and remained under consideration for listing. With this final rule, we are listing four of those species (reticulated python, green anaconda, DeSchauensee's anaconda, and Beni anaconda) as injurious wildlife under the Lacey Act. We are, however, withdrawing our proposal to list the boa constrictor (*Boa constrictor*) as injurious; we are no longer considering adding that species to the list of injurious wildlife under the Lacey Act. Our rationale for this action is provided under Withdrawal of the Boa Constrictor from Consideration as an Injurious Species in this rule.

By listing the four species, the importation into the United States and transportation between States, the District of Columbia, the Commonwealth of Puerto Rico, or any territory or possession of the United States of any live animal, gamete, viable egg, or hybrid is prohibited, except by permit for zoological, education, medical, or scientific purposes (in accordance with permit conditions) or by Federal agencies without a permit solely for their own use.

The final economic analysis (2015) and environmental assessment (2015) considers four alternatives for the reticulated python, DeSchauensee's anaconda, green anaconda, Beni anaconda, and boa constrictor: Alternative 1 is no action; Alternative 2A would list all five species; Alternative 2B would list four species (not including the boa constrictor); Alternative 3 would list the three species known to be in trade in the United States (boa constrictor, green anaconda, and reticulated python); and Alternative 4 would list the boa constrictor—the only one of the five species with a high organism risk potential (Reed and Rodda 2009). We selected Alternative 2B.

Table ES–1 (from the 2015 final economic analysis) compares the economic output to the constrictor snake industry for listing under the alternatives. The costs for not listing are difficult to quantify, but include the expenditures associated with State and Federal activities that address constrictor snake impacts, amounting to at least $6 million from 2005 to 2014. Other costs for not listing include risk of harm (from predation, competition,

pathogens) to native species, including endangered and threatened species, and the potential for reduced tourism from decreased wildlife viewing opportunities.

TABLE ES–1—ANNUAL DECREASE IN SECONDARY IMPACTS FROM BASELINE CONDITION (ALTERNATIVE 1)

[Dollars in millions]

	Economic output	Jobs	Job income	Tax revenue
Alternative 2A	$26.5–$57.1	236–509	$9.5–$20.5	$3.6–$7.8
Alternative 2B	$5.3–$11.4	49–105	$1.9–$4.1	$0.7–$1.6
Alternative 3	$26.5–$57.1	236–509	$9.5–$20.5	$3.6–$7.8
Alternative 4	$21.1–$45.4	188–405	$7.7–$16.5	$2.9–$6.2

Previous Federal Actions

On June 23, 2006, the Service received a petition from the South Florida Water Management District (District) requesting that Burmese pythons be considered for inclusion in the injurious wildlife regulations under the Lacey Act (18 U.S.C. 42, as amended; the Act). The District was concerned about the number of Burmese pythons (*Python molurus bivittatus*) found in Florida, particularly in Everglades National Park and on the District's widespread property in South Florida.

The Service published a notice of inquiry in the **Federal Register** (73 FR 5784; January 31, 2008) soliciting available biological, economic, and other information and data on the *Python, Boa,* and *Eunectes* genera for possible addition to the list of injurious wildlife under the Act and provided a 90-day public comment period. The Service received 1,528 comments during the public comment period that closed April 30, 2008. We reviewed all comments received for substantive issues and information regarding the injurious nature of species in the *Python, Boa,* and *Eunectes* genera. Of the 1,528 comments, 115 provided economic, ecological, and other data responsive to the 10 specific questions in the notice of inquiry. Most individuals submitting comments responded to the notice of inquiry as though it was a proposed rule to list constrictor snakes in the *Python, Boa,* and *Eunectes* genera as injurious under the Act. As a result, most comments expressed either opposition or support for listing the large constrictor snakes species and did not provide substantive information. We considered all of the information provided, focusing primarily on the 115 applicable comments in the preparation of the draft environmental assessment, draft economic analysis, and the proposed rule.

On March 12, 2010, we published a proposed rule in the **Federal Register** (75 FR 11808) to list Burmese and Indian pythons, reticulated python, Northern African python, Southern African python, boa constrictor, yellow anaconda, DeSchauensee's anaconda, green anaconda, and Beni anaconda as injurious wildlife under the Act. The proposed rule established a 60-day comment period ending on May 11, 2010, and announced the availability of the draft economic analysis and the draft environmental assessment of the proposed rule. At the request of the public, we reopened the comment period for an additional 30 days ending on August 2, 2010 (75 FR 38069; July 1, 2010).

On January 23, 2012, we published a final rule in the **Federal Register** (77 FR 3330) to list Burmese and Indian pythons, Northern African python, Southern African python, and yellow anaconda as injurious wildlife under the Act. The remaining five species (reticulated python, boa constrictor, green anaconda, DeSchauensee's anaconda, and Beni anaconda) were not listed at the time and remained under consideration for listing. With this final rule, we are listing four of those species (reticulated python, green anaconda, DeSchauensee's anaconda, and Beni anaconda). We are also withdrawing our proposal to list the boa constrictor as injurious; we are no longer considering adding that species to the list of injurious wildlife under the Act. Our rationale for this action is provided under Withdrawal of the Boa Constrictor from Consideration as an Injurious Species in this rule.

On June 24, 2014, we reopened the comment period on the 2010 proposed rule for an additional 30 days (79 FR 35719). This comment period was restricted to the five remaining proposed species: The reticulated python, DeSchauensee's anaconda, green anaconda, Beni anaconda, and boa constrictor.

For the injurious wildlife evaluation in this final rule, in addition to information used for the proposed rule, we considered: (1) Comments from the three public comment periods for the proposed rule, (2) comments from five peer reviewers, and (3) new information acquired by the Service by the end of the public comment periods (July 24, 2014). From this information, we determined that four more (hereafter, also may be collectively referred to as ''the second four'') of the nine proposed species warrant listing as injurious at this time, bringing the total number of species of large constrictor snakes listed as injurious to eight with this final rule. We present a summary of the peer review comments and the public comments following the Lacey Act Evaluation Criteria section for the second four of the nine proposed species. The explanations in the sections on biology and evaluation of the second four species will make many of the answers to the comments self-evident.

A major source of biological, management, and invasion risk information that we used for the proposed rule and this final rule was derived from the USGS's ''Giant Constrictors: Biological and Management Profiles and an Establishment Risk Assessment for Nine Large Species of Pythons, Anacondas, and the Boa Constrictor'' (hereafter referred to as ''Reed and Rodda 2009).'' This document was prepared at the request of the Service and the National Park Service; a link to the report can be found at the following Internet sites: *http://www.regulations.gov* under Docket No. FWS–R9–FHC–2008–0015 and *http://www.fort.usgs.gov/Products/Publications/pub_abstract.asp?PubID=22691.*

The Service is completing actions on the proposed rule with publication of this final rule for the second four species (reticulated python and DeSchauensee's, green, and Beni anacondas). The proposal for one additional species (boa constrictor) is being withdrawn; we are no longer considering it for listing under the Act.

Background

Purpose of Listing as Injurious

The purpose of listing the reticulated python and the three anacondas as injurious wildlife is to prevent the accidental or intentional introduction and subsequent establishment of populations of these snakes in the wild in the United States.

Why the Species Were Selected for Consideration as Injurious Species

The Service has had the authority to list species as injurious under the Act since the 1940s. However, we have been criticized for not listing species before they became a problem (Fowler *et al.* 2007). The Burmese python is one example of a species that may not have become so invasive in Florida if it had been listed before it had become established. Two of the largest snakes in the world (with maximum lengths exceeding 7 meters (m) (23 feet (ft)) are the reticulated python and green anaconda, and both are present in U.S. trade. The reticulated python and the green anaconda have been found in the wild in south Florida. With this final rule, we are attempting to prevent any further introduction and subsequent establishment of the reticulated python and green anaconda into vulnerable areas of the United States.

Furthermore, we have the authority under the Act to list certain species as injurious even if they are not currently in trade or known to exist in the United States. Thus, we can be proactive and not wait until a species is already established. As noted in the National Invasive Species Management Plan (National Invasive Species Council 2008), ''prevention is the first line of defense'' and ''can be the most cost-effective approach because once a species becomes widespread, controlling it may require significant and sustained expenditures.'' This is why we are listing two species (DeSchauensee's and Beni anacondas) that are not yet found in the United States but that have the requisite injurious traits.

None of these four species is native to the United States. The Service is striving to prevent the introduction and establishment of all four species into new areas of the United States, due to concerns about the injurious effects of all four species, consistent with 18 U.S.C. 42.

All four species were evaluated and found to be injurious because: There is a suitable climate match in parts of the United States to support them; they are likely to escape captivity; they are likely to prey on and compete with native species (including endangered and threatened species); preventing, eradicating, or reducing large populations would be difficult; and other factors that are explained in the sections Factors That Contribute to Injuriousness for Reticulated Python and for the other three species.

Withdrawal of the Boa Constrictor From Consideration as an Injurious Species

Under 18 U.S.C. 42(a), the Secretary of the Interior ''may prescribe by regulation'' species to be injurious and thus has discretion on whether to list species as injurious. The proposed rule published on March 12, 2010 (75 FR 11808), determined that the boa constrictor possesses the traits of injuriousness and no substantive information to the contrary has been provided in the public or peer review comments or otherwise obtained by the Service. Nonetheless, concurrent with this final rule, we are withdrawing the proposal to list the boa constrictor as an injurious species and hereby remove the species from further consideration. If we decide in the future to consider the boa constrictor for listing as injurious, we will prepare a new proposed rule for notice and comment in the **Federal Register**.

The Service recognizes the harm that the establishment of boa constrictors could pose to wildlife and wildlife resources. We also recognize that, because our regulatory authority is limited to prohibiting importation and interstate transport, we must rely on the States, Territories, and other governmental entities in the United States, including local jurisdictions (hereafter collectively referred to as the States) to regulate possession, release to the wild, sale, intrastate transport, and other activities that may need to be regulated to effectively manage the risk of a species introduction and spread for species that have already been imported into and are present in the United States.

The regulatory prohibitions of the Lacey Act (limited to importation and interstate transport) are less effective when a species is widely held in captivity in the United States in high numbers (both the number of animals and number of people owning the animals) and when significant domestic breeding of such animals is occurring and would likely continue for intrastate trade or export purposes. Domestic breeding, whether for intrastate trade or export, of widely-owned species increases the probability of escape, survival, and establishment of the listed species in the United States. Under these unique circumstances, the benefit of an injurious wildlife listing is likely to be limited without concurrent State regulatory action, particularly in areas of the country where the risk of establishment is the highest.

Thus, for the boa constrictor, we considered whether listing the species under the Lacey Act would be the most effective means of preventing the establishment and spread of populations in the wild. For this decision, the Service assessed information available on the number of boa constrictors already imported into the United States, the number of boa constrictors held in captivity in the United States, the variety of individuals and entities that own boa constrictors and their use of the species, how broadly in geographic terms the species is located in captivity within the United States, the amount of domestic breeding (for export, intrastate trade, and other purposes), the risk of escape and establishment of the species, if and where individual snakes have been recorded or populations have become established in the wild in the United States, and actions States have taken or could take to effectively manage the risk of snake introduction and establishment.

The number of boa constrictors that have been imported and that are currently held in captivity is a significantly larger portion of the current trade than for any of the other eight constrictor species that were proposed for listing. In fact, these numbers are likely higher for the boa constrictor than for all of the eight other species combined. Of the nine species that were included in the proposed rule, the boa constrictor represented 61.7 percent of the imports and domestically bred snakes from 2008 to 2010, whereas the next highest species was the Burmese python at 24.5 percent (Final Economic Analysis 2012). Of the five species not yet listed, the boa constrictor represents 79.2 percent of the imports and domestically bred snakes from 2011 to 2013, whereas the next highest species is the reticulated python at 18.9 percent. Large zoos and small roadside zoos across the country maintain boas for educational displays and live animal programs. Boa constrictors are sold in many pet stores, including large national chains, and are owned as pets by children and adults in all States that allow possession. Boas can grow to 13 feet in length and live for at least 20 years. The likelihood of pet boas being released or escaping is high, because boa constrictors are adept at escaping enclosures and they often outgrow their owner's ability or outlive their owner's interest to care for them.

Boa constrictors have been found on the loose in at least 46 States (HSUS 2014) and are known to be or assumed to be pets that escaped or were released. Boas are already well established in Florida and Puerto Rico. Therefore, the boa constrictor fits the circumstances where regulatory provisions of the Lacey Act are likely to be less effective.

Thus, of the nine large constrictor snakes evaluated by the Service, risk management measures by States are particularly needed for the boa constrictor, especially where the risk of establishment is high. Risk management measures include State regulations and other restrictions on activities with the species, as well as measures to detect and attempt to control any snakes that are found in the wild. For example, the State of Hawaii does not allow the importation or possession of any snakes, and most of the U.S. Territories have some restrictions on the importation of snakes. In comparison, the State of Florida has not listed the boa constrictor as a conditional reptile or placed other restrictions on this species. According to the State of Florida's regulations (FWC 2015), ''[c]onditional nonnative species are considered to be dangerous to the ecology and/or the health and welfare of the people of Florida. These species are not allowed to be personally possessed, although exceptions are made by permit * * *.'' Without any restrictions on possession, intrastate sale, or intrastate domestic production, the benefit of a Federal injurious wildlife listing for the boa constrictor is substantially less than for a species, such as the Burmese python, that is also held broadly in private ownership but is currently regulated through Florida's Conditional Reptile regulations. The lack of restrictions for boa constrictors in States such as Florida that are at great risk perpetuates an unregulated pathway for escape and possible establishment, and severely reduces the effectiveness of a Federal regulatory approach.

In 2010 (75 FR 11808, March 12, 2010; and 75 FR 38069, July 1, 2010) and again in 2014 (79 FR 35719; June 24, 2014), the Service sought and considered public comments submitted on the proposed rule to list the boa constrictor along with other species of large constrictor snakes. The Service received more than 85,000 public comments. Among the substantive comments we received were comments from the Association of Fish and Wildlife Agencies (AFWA) in 2010. Although AFWA did not submit additional comments in 2014, the Service has received no information indicating that AFWA has changed its position from that expressed in its 2010 comment letter.

AFWA represents North America's State, territorial, and provincial fish and wildlife agencies. In their comment letter, AFWA stated that they had solicited comments from their network of State nongame biologists and herpetologists, as well as members of their Amphibian and Reptile Subcommittee and Invasive Species Committee. AFWA stated its position that the Service should not finalize the rule for any of the large constrictor snakes. Specifically, AFWA stated, among other things, that a national rule may not be warranted; that it is the States' responsibility to manage species that occur within their borders, including minimizing impacts to native species; that States have the right to enact and enforce laws and regulations that are more stringent than Federal laws and regulations, as they see fit; that Federal regulations that create undue burdens on State fish and wildlife agencies should be avoided; and that listing the constrictor snakes as injurious might not achieve the desired result due to unintended consequences, such as people releasing the constrictors into the wild. As an alternative, AFWA promoted State action, such as Florida's ''Reptiles of Concern'' regulations, that, in partnership with stakeholders, AFWA believes would both discourage non-serious snake owners from purchasing new reptile pets as well as better regulate the industry. AFWA stated that Florida's regulations could serve as a model for development of industry-wide standards or enforceable best practices.

The Service recognizes that the States can enact their own, more stringent laws and that a Lacey Act listing does not preclude this, although States may have less ability to regulate importation into their States. However, AFWA's position is that it represents the collective interests of the States on this issue; that the Service could allow the States to take action, including regulatory action; that the Federal government could instead focus on financial support for risk analysis combined with early detection and rapid response programs; and that these actions could be more effective at preventing the establishment of constrictor snakes than Federal listing. Given the unique circumstances of the boa constrictor, we believe that, particularly for States where the risk of establishment is high, State action for the boa constrictor that effectively reduces the risk of escape and establishment, such as regulating possession, sale, intrastate transport, or breeding, could provide sufficient and even stronger protection than Federal listing as injurious under the Lacey Act. State laws that prohibit importation prevent the further spread of boa constrictors into States where they do not currently occur and reduce the chances of establishment by limiting additional importations in States where they do already occur. Laws such as Florida's regulations applicable to Conditional Reptiles (such as for Burmese pythons) restrict personal possession, while Hawaii prohibits both possession and importation. The Service agrees, as AFWA suggests, that State regulations, such as Florida's (for Burmese pythons) or Hawaii's, could serve as models for State laws, industry-wide standards, or enforceable best practices.

The Pet Industry Joint Advisory Council (PIJAC) also submitted comments on the proposed rule in both 2010 and 2014, although its 2014 comments were not related to the issues discussed here. PIJAC states that its mission is to promote responsible pet ownership and animal welfare, foster environmental stewardship, and ensure the availability of pets. PIJAC, through their comments, encouraged the Service to explore other alternatives to the proposed listing of the large constrictors. PIJAC stated that, in communications with the Department of the Interior, the Small Business Administration, and State agencies, they believe that opportunities exist for the Federal Government to work with the States and the industry to develop an alternative approach to large constrictor management and that they are prepared to work on this process. The Service has worked with PIJAC on several national campaigns to promote responsible ownership of nondomesticated animals and thus knows that such campaigns can be effective in promoting responsible use of wildlife that could be harmful if they escaped or are released to the wild.

For all of the reasons explained above, the Service has decided to withdraw its March 12, 2010 (75 FR 11808), proposal to list the boa constrictor in favor of a novel and experimental approach. The boa constrictor has already been imported in large numbers into the United States and is owned by hobbyists, commercial breeders, and pet owners in large numbers throughout the United States, except where prohibited by State law. AFWA, representing the State fish and wildlife agencies, has asserted that instead of listing the constrictor snakes as injurious, the Service could allow States to use their regulatory and management authorities to regulate activities with these species.

As the representative for these State fish and wildlife agencies and communicator of this position, presumably AFWA is prepared to work with its member States to do so. For the boa constrictor, a species that has already been imported into the United States in large numbers and is widely held in large numbers by a broad variety of owners for purposes that include breeding and sale, strong State laws are indeed more likely to be effective at preventing the escape or release and establishment of the species in the wild, given that prohibitions under the Lacey Act are limited to importation and interstate transport. This is especially true when combined with efforts by industry groups such as PIJAC, which has committed to work with the Service and the States on programs that would promote responsible holding and use of boa constrictors.

This action gives additional States, such as Florida, the opportunity to demonstrate the efficacy of coordinated, State-based measures to address the invasive nature of boa constrictors, including promulgating their own laws regarding the species. We are also providing the pet trade industry with the opportunity to act voluntarily within its own industry and in cooperation with the States, the Service, and others to address prevention and containment of the boa constrictor as an alternative to Federal Lacey Act restrictions. PIJAC and other industry groups can work with boa constrictor owners to develop practices to prevent escape or release into the environment and options for finding homes for unwanted animals as an alternative to release to the wild.

The Service recognizes that this is an untested approach and will monitor whether States and industry groups put in place effective measures to prevent the escape or release and establishment of boa constrictors. If States and industry groups in regions where the risk of boa constrictor survival and establishment in the wild is high fail to take appropriate actions, or if these State and industry-based measures prove ineffective, we may again evaluate whether listing the boa constrictor as injurious under the Act is appropriate.

Need for the Final Rule

Under the Lacey Act, the Secretary of the Interior is authorized to prescribe by regulation those wild mammals, wild birds, fish, mollusks, crustaceans, amphibians, reptiles, and the offspring or eggs of any of the foregoing that are injurious to human beings, to the interests of agriculture, horticulture, or forestry, or to the wildlife or wildlife resources of the United States. We have determined that the reticulated python, DeSchauensee's anaconda, green anaconda, and Beni anaconda are injurious and should be listed under the Lacey Act.

Reticulated pythons have been found in the wild in Florida and Puerto Rico, as well as several other States. Several green anacondas have also been found in the wild in Florida. These species fit the circumstances where regulatory provisions of the Lacey Act are likely to be effective. The threat posed by the reticulated python and the three anacondas will be explained in detail below under Factors that Contribute to Injuriousness for Reticulated Python and each of the other species.

The USGS risk assessment used a method called ''climate matching'' to estimate those areas of the United States exhibiting climates similar to those experienced by the species in their respective native ranges (Reed and Rodda 2009). Considerable uncertainties exist about the native range limits of many of the giant constrictors, and a myriad of factors other than climate can influence whether a species could establish a population in a particular location. Nonetheless, this method represents the most accurate means to predict and anticipate where a nonnative species may be able to survive and establish populations within the United States (Bomford *et al.* 2009). The authors used the same method to match the climate for all nine species in the proposed rule, because the method is not species-specific and can be used equally as well for pythons, boas, and anacondas.

Some interested parties, including other scientists such as Pyron *et al.* (2008), criticized Reed and Rodda's (2009) climate-matching method. In response, the authors published a clarification of how they used the model (Rodda *et al.* 2011). This paper more clearly explained Reed and Rodda's (2009) method and compared that method to Pyron *et al.*'s (2008) method for analyzing potential invasiveness for the Burmese python. We mention a few of Rodda *et al.*'s (2011) findings here:

- Pyron *et al.* (2008) incorrectly rejected many sites that are suitable for Burmese python invasion because their use of an excessive number of parameters actually ended up acting as filters. Using too many filters means that too many sites that are truly at risk of python establishment get filtered out.
- Additionally, the authors eliminated four data points of blood pythons (*Python brongersmai*) that Pyron *et al.* (2008) used erroneously. This significantly changed the area that Burmese pythons could invade, even using the MaxEnt computer program as Pyron *et al.* (2008) used it.
- Information theory suggests 10 parameters as the appropriate number to use in a study like this; the Pyron *et al.* (2008) model, however, used 60. With this number, the parameters essentially become constraints, skewing the accuracy of the data to the point that the resulting model is not scientifically sound.
- The newer USGS paper highlights the statistical dangers inherent in indiscriminately searching for correlations among a large number of possible parameters.
- Factors other than climate may limit a species' native distribution, including the existence of predators, diseases, and other local factors (such as major terrain barriers), which may not be present when a species is released in a new country. Therefore, the areas at risk of invasion often span a climate range greater than that extracted mechanically from the native range boundaries, as was done by Pyron *et al.* (2008).

Rodda *et al.* (2011) does not change the previous USGS risk assessment, or the Service's interpretation of the USGS risk assessment, that Burmese pythons could find suitable climatic conditions in roughly a third of the United States. The paper also confirms that the climate matches for the four species in this final rule would not change from those described in the March 12, 2010 (75 FR 11808), proposed rule.

While we acknowledge that uncertainty exists, these tools also serve as a useful predictor to identify vulnerable ecosystems at risk from injurious wildlife prior to the species actually becoming established (Lodge *et al.* 2006). Based on climate alone, many species of large constrictors are likely to be limited to the warmest areas of the United States, including parts of Florida, extreme south Texas, Hawaii, and insular territories. For a few species, larger areas of the southern United States appear to have suitable climatic conditions according to Reed and Rodda's (2009) climate-matching method.

The record cold temperatures in south Florida during January of 2010 produced the coldest 12-day period since at least 1940, according to the National Weather Service in Miami (NOAA 2010). A record low was set for 12 consecutive days with the temperature at or below 45 °F (Fahrenheit; 7.2 °C (Celsius)) in West Palm Beach and Naples. Other minimum temperatures for that period were broken in Moorehaven, tied in Fort

Lauderdale, and the coldest in Miami since 1940. Despite the record cold, we know that many pythons survived in Florida. For example, nearly 150 Burmese pythons were removed (captured or found dead) from the population in Everglades National Park and vicinity in 2011; more than 250 were removed in 2012, and more than 200 were removed in 2013 (NPS 2014). The largest Burmese python found in the wild in Florida was found in Everglades National Park in March 2012 (Krysko *et al.* 2012). Large constrictors of several species continue to be present and to breed in south Florida. If thermoregulatory behavior or tolerance to cold is genetically based, we would expect large constrictor snake populations to persist, rebound, and possibly increase their genetic fitness and temperature tolerance as a result of natural selection pressures resulting from cold weather conditions such as those that occurred in south Florida in January 2010 (Dorcas *et al.* 2011).

Two studies by scientists from several research institutions, including the University of Florida, studied the effects of the 2010 winter cold weather on Burmese pythons. These studies are relevant to the four species in this final rule because, like the Burmese python, the four species are poikilothermic (body temperature varies with surrounding temperature, also known as cold-blooded). Snakes typically maintain their body temperatures within thermal tolerance limits (ectothermy) through their behaviors (thermoregulation; Dorcas *et al.* 2011), such as sunning in open areas in cool weather or seeking naturally insulated burrows in cold weather.

Thus, the reptiles seek locations (even small refugia) that can help them maintain a comfortable body temperature. In Mazzotti *et al.* (2010), the authors noted that all populations of large-bodied pythons and boa constrictors inhabiting areas with cool winters, including northern populations of Burmese pythons in their native range, appeared to rely on use of refugia (safe locations) to escape winter temperatures. Pythons and anacondas can seek such refugia as underground burrows, deep water in canals, or similar microhabitats to escape the cold temperatures. Those snakes that survived in Florida were apparently able to maintain body temperatures using microhabitat features of the landscape (Mazzotti *et al.* 2010).

Dorcas *et al.* (2011) reported on the cold tolerance of adult Burmese pythons taken directly from the Everglades and placed in outdoor enclosures in South Carolina just prior to an unseasonably cold winter. Without time to suitably acclimate to a significantly colder climate, all of the snakes in this study died. The artificial refugia may not have been suitable compared to natural refugia (such as gopher tortoise burrows), which were not available in the study. Use of adults, as well as use of individuals that did not come from the colder parts of their native range, may have caused the snakes to not be adaptable to colder temperatures. Dorcas *et al.* (2012) state that their results suggest that Burmese pythons from the population currently established in Florida are capable of withstanding conditions substantially cooler that those typically experienced in southern Florida, but may not be able to survive severe winters in regions as temperate as central South Carolina. They noted that some snakes currently inhabiting Florida could survive typical winters in areas of the southeastern United States more temperate than the region currently inhabited by pythons. The authors also noted that, if thermoregulatory behavior is heritable, selection for appropriate thermoregulatory behavior will be strong as pythons expand their range northward through the Florida peninsula. Consequently, future generations of pythons and anacondas may be better equipped to invade temperate regions than those currently inhabiting southern Florida, particularly given the climate flexibility exhibited by the Burmese python in its native range (as analyzed through USGS' climate-matching predictions in the United States).

A study that used air temperatures to predict that Burmese pythons would not likely expand to or colonize more temperate areas of Florida and adjoining States (Jacobson *et al.* 2012) did not offer any new data, other than summaries of ambient air temperature in Florida and South Carolina. Using the rationale in the study, based on air temperature, we could conclude that even native snakes could not survive in most of the United States, which is not the case. Snakes in the wild use a variety of physiological and behavioral mechanisms, not available to them in the captive studies, to regulate their body temperatures or escape excessive air temperatures.

Another paper that reviewed the effects of cold weather on Burmese pythons does not appear to introduce any new data that can be used to answer questions of temperature tolerances (Engeman *et al.* 2014). Several conclusions drawn are seemingly based on untested hypotheses: (1) Measures of minimum temperature are superior to measures of mean temperature; (2) Indian and Burmese pythons are physiologically and behaviorally different in relation to thermal tolerance; and (3) the incorrect assumption of thermal critical minima structure of the range limits of the snakes that can behaviorally thermoregulate.

The only comparably large native reptile in the southeastern United States, the American alligator (*Alligator mississippiensis*), has been known to survive freezing air temperatures. A study at the Savannah River Ecology Laboratory in South Carolina found that adult alligators could survive freezing temperatures by adjusting their behavior. Adults could break the ice and breathe above the ice, whereas the juveniles could not break the ice and apparently drowned (Brandt and Mazzotti 1990).

The alligator study shows that even individual reptiles of the same species (juveniles compared to adults) may have different abilities to survive. Such reasoning could be applied to large constrictors. In Dorcas *et al.* (2011), 10 wild-captured male Burmese pythons from 2 to 3.5 m (6.5 to 11.5 ft) total length were released into outdoor enclosures in South Carolina. All eventually died ostensibly of cold stress, we surmise that perhaps individuals either larger or smaller could have survived.

Scientists continue to learn more about the adaptability of constrictor snakes. Whereas salinity had been suggested to be a limiting factor in the distribution of reptiles in coastal habitats, such as the Florida Keys (Dunson and Mazzotti 1989), a later study disproved that. Hart *et al.* (2012) found that hatchling Burmese pythons survived in a laboratory setting at full saltwater conditions for at least a month. This further supports our listing of the Burmese python and may be applicable to the species in this final rule because they are closely related.

Another study sought to explain why Burmese pythons became such successful invaders in Florida (Reed *et al.* 2012). With all of the nonnative reptiles that have been introduced into the State, the Burmese python is the only exotic snake (other than the worm-sized Brahminy blindsnake (*Ramphotyphlops braminus*)) to have successfully colonized a large area (greater than 1,000 square kilometers (km^2) (386 square miles (mi^2))) of the United States. Reed *et al.* (2012) concluded that attributes related to body size and generalism (such as general habitat use and general prey) appeared to be particularly applicable to the

Burmese python's ability to spread and impact ecosystems in Florida. The attributes with the greatest scores were high reproductive potential, low vulnerability to predation, large adult body size, large offspring size, and high dietary breadth. All of these attributes are shared with the reticulated python and three anaconda species in this final rule, and all of these attributes contribute to the species' ability to become invasive.

The Service and Everglades National Park asked USGS to assess the risk of invasion of nine species of snakes to assist in the Service's determination of injuriousness. Of the nine large constrictor snakes assessed by Reed and Rodda (2009) (Burmese python (which Reed and Rodda refer to as Indian python), reticulated python, Northern African python, Southern African python, boa constrictor, yellow anaconda, DeSchauensee's anaconda, green anaconda, and Beni anaconda), five were shown to pose a high risk to the health of the ecosystem, including the Burmese python, Northern African python, Southern African python, yellow anaconda, and boa constrictor. The remaining four large constrictors—the reticulated python, green anaconda, Beni anaconda, and DeSchauensee's anaconda—were shown to pose a medium risk. None of the large constrictors that the USGS assessed was classified as low overall risk. A rating of low overall risk is considered as acceptable risk and the organism(s) of little concern (ANSTF 1996). See Lacey Act Evaluation Criteria, below, for an explanation of how USGS assessed risk.

There is a medium risk that the four large constrictors evaluated in this final rule, if they escape or are released into the wild, will establish populations within their respective thermal and precipitation limits due to common life-history traits that make them successful invaders. These traits include being habitat generalists (able to utilize a wide variety of habitats) that are tolerant of urbanization and capacity to hunt and eat a wide range of size-appropriate vertebrates (reptiles, mammals, birds, amphibians, and fish; Reed and Rodda 2009). These large constrictors are highly adaptable to new environments and opportunistic in expanding their geographic range. Furthermore, since they are a novel (new to the system) predator at the top of the food chain, they can threaten the stability of native ecosystems by altering the ecosystem's form, function, and structure.

These four species are cryptically marked and often dwell in trees or submerged in water with only their heads protruding, which makes them difficult to detect in the field, complicating efforts to identify the range of populations or deplete populations through visual searching and removal of individuals. No currently available tools appear adequate for eradication of an established population of giant snakes once they have spread over a large area. Therefore, preventing the introduction into the United States and dispersal to new areas of these invasive species is of critical importance to the health and welfare of native wildlife.

For the purposes of this rule, a hybrid is any progeny from any cross involving parents of one or more species from the four constrictor snakes evaluated in this rule. Such progeny are likely to possess the same biological characteristics of the parent species that, through our analysis, leads us to find that they are injurious to humans and to wildlife and wildlife resources of the United States. Anderson and Stebbins (1954) stated that hybrids may have caused the rapid evolution of plants and animals under domestication, and that, in the presence of new or greatly disturbed habitats, some hybrid derivates would have been at a selective advantage. Facon *et al.* (2005) stated that invasions may bring into contact related taxa that have been isolated for a long time. Facon *et al.* (2005) also stated that hybridization between two invasive taxa has been documented, and that in all these cases, hybrids outcompeted their parental taxa. Ellstrand and Schierenbeck (2000) concluded that dispersal of organisms and habitat disturbance by humans both act to accelerate the process of hybridization and increase the opportunities for hybrid lineages to take hold.

Furthermore, snakes in general have been found to harbor ticks (such as the nonnative African tortoise tick) that cause heartwater disease (from the bacterium *Cowdria ruminantium*). Heartwater disease, although harmless to its reptilian hosts, can be fatal to livestock and related wild hoofed mammals, such as white-tailed deer. According to the U.S. Department of Agriculture (USDA) (March 2000), ''Heartwater disease is an acute, infectious disease of ruminants, including cattle, sheep, goats, white-tailed deer, and antelope. This disease has a 60 percent or greater mortality rate in livestock and a 90 percent or greater mortality rate in white-tailed deer.'' The ticks have been found in Florida. Agricultural agencies are trying to stop the spread of the ticks as a way of stopping the deadly disease. This rule will help to stop the spread into and around the United States of the ticks and other disease vectors that may be carried by these four species of nonnative constrictor snakes.

Listing Process

The regulations contained in 50 CFR part 16 implement the Act. Under the terms of the Act, the Secretary of the Interior is authorized to prescribe by regulation those wild mammals, wild birds, fish, mollusks, crustaceans, amphibians, reptiles, and the offspring or eggs of any of the foregoing that are injurious to human beings, to the interests of agriculture, horticulture, or forestry, or to the wildlife or wildlife resources of the United States. The lists of injurious wildlife species are found at 50 CFR 16.11–16.15.

In this final rule, we evaluated each of the four constrictor snake species individually and determined each to be injurious and appropriate for listing. Therefore, as of the effective date of the listing (see **DATES**, above), their importation into, or transportation between, the States, the District of Columbia, the Commonwealth of Puerto Rico, or any territory or possession of the United States by any means whatsoever is prohibited, except by permit for zoological, educational, medical, or scientific purposes (in accordance with permit regulations at 50 CFR 16.22), or by Federal agencies without a permit solely for their own use, upon filing a written declaration with the District Director of Customs and the U.S. Fish and Wildlife Service Inspector at the port of entry. This rule does not prohibit intrastate (within State boundaries) transport of the listed constrictor snake species. Any regulations pertaining to the transport or use of these species within a particular State will continue to be the responsibility of that State.

We used the Lacey Act Evaluation Criteria as a guide to evaluate whether a species does or does not qualify as injurious under the Act. The analysis developed using the criteria serves as a basis for the Service's regulatory decision regarding injurious wildlife species listings. A species does not have to be established, currently imported, or present in the wild in the United States for the Service to list it as injurious. The objective of such a listing is to prevent that species' importation and likely establishment in the wild, thereby preventing injurious effects consistent with 18 U.S.C. 42.

Introduction Pathways for Large Constrictor Snakes

For the four constrictor snakes analyzed in this final rule, the primary pathway for the entry into the United

States is, or would likely be, the commercial pet trade. In the last few decades, most introductions of large constrictor snakes have been associated with the international trade in reptiles as pets. This trade includes wild-caught snakes, captive-bred, or captive-hatched juveniles from areas within their native countries. In their native ranges, a species may be captured in the wild and directly exported to the United States or other destination country, or wild-caught snakes may be kept in the country of origin to breed for export of subsequent generations. The main ports of entry for constrictor snakes are Miami, Los Angeles, Dallas-Ft. Worth, Baltimore, Detroit, Chicago, San Francisco, and Houston. From there, many of the live snakes are transported to animal dealers, who then transport the snakes to pet retailers. Large constrictor snakes are also bred in the United States and sold within the country.

A typical pathway of a large constrictor snake includes a pet store. Often, a person will purchase a hatchling snake (0.55 m (22 inches (in)) at a pet store or reptile show for as little as $25. The hatchling grows rapidly, even when fed conservatively, so a strong escape-proof enclosure is necessary. All snakes are adept at escaping, and constrictors are especially powerful when it comes to breaking out of cages. In captivity, they are most frequently fed pre-killed mice, rats, rabbits, and chickens. A tub of fresh water is needed for the snake to drink from and soak in. As it outgrows its tub, the snake will need to soak in increasingly larger containers, such as a bathtub. Under captive conditions, pythons and anacondas will grow very fast. After 1 year, a python may be 2 m (7 ft) and after 5 years it could be 7.6 m (25 ft), depending on how often it is fed and other aspects of husbandry. A female reticulated python, for example, can grow to more than 8.7 m (28.5 ft) long, weigh 140 kilograms (kg) (308 pounds (1bs)) or more, live more than 25 years, and must be fed larger prey, such as rabbits. Although the reticulated python is longer, the anaconda is the heaviest snake, with a 4-m (13-ft) green anaconda having bulk comparable to a 7-m (23-ft) reticulated python.

Owning a giant snake is a difficult, long-term, and somewhat expensive responsibility. This is one reason that some snakes are released by their owners into the wild when they can no longer care for them. Other snakes may escape from inadequate enclosures, which is a common pathway for large constrictor snakes to enter the ecosystem (Fujisaki *et al.* 2009). The trade in constrictor snakes is international as well as domestic. From 2004 to 2013, more than 1.2 million live constrictor snakes of 13 species (*Python* spp., *Eunectes* spp., and *Boa* spp.) were imported into the United States (Final Economic Analysis 2015). Besides the species proposed for listing, these included ball python (*Python regius*), a blood python (*P. curtus*), another blood python (*P. brongersmai*), Borneo python (*P. breitensteini*), Timor python (*P. timoriensis*), and Angolan python (*P. anchietae*), none of which has been proposed for listing as injurious. From 2004 to 2013, approximately 26,591 large constrictor snakes of two species listed by this rule were imported into the United States (Final Economic Analysis 2015; two species in this rule were not imported).

Of all the constrictor snake species imported into the United States, the selection of nine constrictor snakes for evaluation as injurious wildlife in the March 12, 2010, proposed rule (75 FR 11808) was based on concern over the giant size of these particular snakes combined with their quantity in international trade or their potential for trade. The world's four largest species of snakes (Burmese python, Northern African python, reticulated python, and green anaconda) were selected, as well as similar and closely related species and the boa constrictor. These large constrictor snakes constitute an elevated risk of injuriousness in relation to those taxa with lower trade volumes; are massive, with maximum lengths exceeding 6 m (20 ft; except for boas up to 4 m (13 ft)); and have a high likelihood of establishment in various habitats of the United States. The DeSchauensee's and Beni anacondas exhibit many of the same biological characteristics associated with a risk of establishment and negative effects in the United States.

The strongest factor influencing the chances of these large constrictors establishing in the wild are the number of release events and the numbers of individuals released (Bomford *et al.* 2009; 2005). A release event occurs when one or more individuals of a nonnative species is either intentionally or unintentionally let loose in the wild. With a sufficient number of either intentional or unintentional release events, these species will likely become established in ecosystems with suitable conditions for survival and reproduction. In most cases, for nonnative species to cause economic or ecological harm, they must first be transported out of their native range and released within a novel locality, establish a self-sustaining population in this new location, and expand their geographical range beyond the point of initial establishment. Releases of large numbers of individuals often enable the incipient (newly forming), nonnative population to withstand the inevitable decreases in survival or reproduction caused by the environment or demographic accidents.

The release of many individuals into one location essentially functions as a source pool of immigrants, thus sustaining an incipient population even if the initial release was of insufficient size (or badly timed) to facilitate long-term establishment. Natural disasters, such as Hurricane Andrew in 1992, may have provided a mechanism for the accidental release of snakes, especially in light of large numbers of juvenile pythons frequently held by breeders and importers prior to sale and distribution (Willson *et al.* 2010).

Large or consistent releases of individuals into one location may enable the incipient population to overcome behavioral limitations or other problems associated with small population sizes. This is likely the case at Everglades National Park, where the core nonnative Burmese python population in Florida is now located.

Because all four snakes in this final rule share traits that foster intentional or unintentional release events, allowing unregulated importation and interstate transport of these nonnative snakes will increase the risk of these species becoming established through increased opportunities for release. The release of large constrictor snakes at different times and locations improves, in turn, the chance of their successful establishment.

As a first step in understanding the ecology of these snakes and their potential impact on the Everglades ecosystem, the National Park Service began tracking Burmese pythons using radio-telemetry in the fall of 2005. The radio-tagged pythons have since demonstrated that female pythons make few long-distance movements throughout the year, while males roam widely in search of females during the breeding season (December–April). These results indicate an ability to move long distances in search of prey and mates. Pythons also have a ''homing'' ability. After being released far from where they were captured, they returned long distances (up to 78 kilometers (km); 48 miles (mi)) in only a few months. These findings suggest that pythons searching for a suitable home range have the potential to colonize areas far from where they were released (Snow 2008; Harvey *et al.* 2008). A related study further supported

that Burmese pythons released in Everglades National Park have navigational senses, which may contribute to the invasion dynamics of Burmese pythons and similar species (Pittman *et al.* 2014). These characteristics of Burmese pythons are likely shared by reticulated pythons and may also be shared by the anaconda species analyzed in this rule.

A second factor that is strongly and consistently associated with a species becoming invasive is a history of the species successfully establishing elsewhere outside its native range. We have no documentation of reticulated pythons or the three anacondas being invasive elsewhere in the world. However, this lack of data could be the result of the lack or low volume of these species being imported into other countries that have similar climatic conditions as the species' native range.

A third factor strongly associated with establishment success is having a good climate or habitat match between where the species naturally occurs and where it is introduced. Exotic (nonnative) reptiles and amphibians have a greater chance of establishing if they are introduced to an area with a climate that closely matches that of their original range. Species that have a large range over several climatic zones are predicted to be strong future invaders. The suitability of a country's climate for the establishment of a species can be quantified on a broad scale by measuring the climate match between that country and the geographic range of a species. Climate matching sets the broad parameters for determining if an area is suitable for a nonnative large constrictor snake to establish.

These three factors have all been consistently demonstrated to increase the chances of establishment by all invasive vertebrate taxa, including the four large constrictor snakes in this final rule (Bomford 2008, 2009). However, as stated above, a species does not have to be established, currently imported, or present in the wild in the United States for the Service to determine that it is injurious. The objective of such a listing is to prevent that species' importation, release into the wild, survival, and likely establishment in the wild, thereby preventing injurious effects consistent with 18 U.S.C. 42.

Species Information

Reticulated Python (Python reticulatus)

Native Range

Although native range boundaries are disputed, reticulated pythons conservatively range across much of Southeast Asia (Reed and Rodda 2009). They are found from sea level up to more than 1,300 m (4,265 ft) and inhabit lowland primary and secondary tropical wet forests, tropical open dry forests, tropical wet montane forests, rocky scrublands, swamps, marshes, plantations and cultivated areas, and suburban and urban areas. Reticulated pythons occur primarily in areas with a wet tropical climate. Although they also occur in areas that are seasonally dry, reticulated pythons do not occur in areas that are continuously dry or very cold at any time (Reed and Rodda 2009).

Biology

Three scientific names are mainly associated with the reticulated python: *Python reticulatus, Broghammerus reticulatus,* and *Malayopython reticulatus.* Please see Reed and Rodda (2009) for a discussion of the taxonomy and nomenclature of the latter two names. Reynolds *et al.* (2014) considers the genus as *Malayopython,* which may have merit. Therefore, we are including this as another synonym, so that if the genus does change, it is clear to which species we are referring.

The reticulated python is most likely the world's longest snake. Adults can grow to a length of more than 8.7 m (28.5 ft) (Reed and Rodda 2009), with a report of one in the Philippines at 10 m (32.8 ft) (Headland and Greene 2011). The maximum reported weight is 150 kg (330 lb) (Reed and Rodda 2009). As with all snakes, pythons can grow throughout their lives (Reed and Rodda 2009).

Like all pythons, the reticulated python is oviparous (lays eggs). The clutch sizes range from 8 to 124, with typical clutches of 20 to 40 eggs. Recently, this species was documented to reproduce by parthenogenesis (egg develops without fertilization by a male) when an 11-year-old female laid a clutch of 61 eggs without a male present for more than 2 years (Booth *et al.* 2014). The reticulated python's life history is fairly representative of large constrictors because juveniles are relatively small when they hatch, but nevertheless are independent from birth, grow rapidly, and mature in a few years. Hatchlings are at least 61 cm (2 ft) in total length (Reed and Rodda 2009). We have no data on life expectancy in the wild, but several captive specimens have lived for nearly 30 years (Reed and Rodda 2009).

Reticulated pythons are extremely capable predators. Like all of the large constrictors, they are cryptically colored. In general, constrictor snakes have especially strong musculature, which enables them to hold onto struggling live prey almost as large as themselves. The giant size of reticulated pythons makes them especially strong, and, combined with their streamlined shape, makes them remarkably adept at climbing, passing through dense brush, and even swimming.

Reticulated pythons are primarily silent hunters that lie in wait along pathways used by their prey and then ambush them; the pythons kill by wrapping their muscular bodies around their victims, squeezing tighter as the prey exhales until the victims suffocate. The methods of predation used by the reticulated python (whether sit-and-wait or actively hunting, or whether diurnal or nocturnal), as well as the other three species of large constrictor snakes in this final rule, work as well in their native ranges as in the United States. The reticulated python is an opportunistic predator capable of preying on a wide range of species, including chickens, rats, monitor lizards, civet cats, bats, an immature cow, various primates, deer, wild boars, goats, cats, dogs, ducks, rabbits, tree shrews, porcupines, frogs, fish, and many species of wild birds (Reed and Rodda 2009). Prey size is roughly correlated with the python's body size, with young or small pythons eating small prey and larger pythons eating larger prey.

Reticulated pythons frequently swim in waterways, where they hunt for aquatic prey. Waterways also facilitate the pythons' dispersal to new areas. Smaller pythons can also climb trees to prey on arboreal animals, avoid predators, and thermoregulate.

A host of internal and external parasites plague wild reticulated pythons (Auliya 2006). The pythons in general are hosts to various protozoans, nematodes, ticks, and lung arthropods (Reed and Rodda 2009). Captive reticulated pythons can carry ticks of agricultural significance (potential threat to domestic livestock) (Burridge *et al.* 2000, 2006; Clark and Doten 1995). Several studies (Burridge *et al.* 2000, Kenny *et al.* 2004, Reeves *et al.* 2006) have shown disease agents in the ticks that travel internationally on reptiles, which may serve in the introduction of disease agents that could impact the health of local wildlife, domestic animals, and humans (Corn *et al.* 2011).

The reticulated python can be an aggressive and dangerous species. Reed and Rodda (2009) cite numerous sources of people being bitten, attacked, and even killed by reticulated pythons in their native range. However, the only occurrences of human fatalities in the United States from reticulated pythons were caused by captive specimens. Outside of the United States, such as in the Philippines, reticulated pythons have been reported to kill and even

consume humans in remote hunter-gatherer cultures (Headland and Greene 2011). In that study, 11 of 19 Filipinos died from attacks by reticulated pythons; no attacks were by captive snakes. Of reticulated pythons that attacked people in the Philippines, the longest was 10 m (32.8 ft) (Headland and Greene 2011).

DeSchauensee's Anaconda (Eunectes deschauenseei)

Native Range

DeSchauensee's anaconda is known from a small number of specimens and has a limited range in northeast South America. As currently understood, the ''yellow anacondas'' comprise two species with entirely disjunct distributions (Reed and Rodda 2009). The northern form, DeSchauensee's anaconda (*Eunectes deschauenseei*), is known from a small number of specimens and has a limited range in northeast South America. The southern form, the yellow anaconda (*Eunectes notaeus*) has a larger distribution in subtropical and temperate areas of South America, and has received more scientific attention. We published a final rule to list the yellow anaconda as injurious on January 23, 2012 (77 FR 3330).

The DeSchauensee's anaconda is largely confined to the Brazilian island of Marajó, nearby areas around the mouth of the Amazon River, and several drainages in French Guiana. Although not well studied, DeSchauensee's anaconda apparently prefers swampy habitats that may be seasonally flooded. DeSchauensee's anaconda is known from only a few localities in northeast South America, and its known climate range is accordingly very small. While the occupied range exhibits moderate variation in precipitation across the year, annual temperatures tend to range between 25 °C (77 °F) and 30 °C (86 °F). We do not know whether the species could tolerate greater climatic variation.

Biology

DeSchauensee's anaconda appears to be the smallest of the anacondas, although the small number of available specimens does not allow unequivocal determination of maximal body sizes. Dirksen and Henderson (2002) record a maximum total length of available specimens as 1.92 m (6.3 (ft)) in males and 3.0 m (9.8 (ft)) in females.

In captivity, a DeSchauensee's anaconda was reported to live for 17 years, 11 months (Snider and Bowler 1992). The DeSchauensee's anaconda is live-bearing. Clutch sizes of DeSchauensee's anacondas ranged from 3 to 27 (mean 10.6 ± 9.6) in a sample of five museum specimens (Pizzatto and Marques 2007), a range far greater than reported in some general works (for example, three to seven offspring; Walls 1998).

DeSchauensee's anaconda is reported to consume mammals, fish, and birds, and its overall diet is assumed to be similar to that of the yellow anaconda (Reed and Rodda 2009). DeSchauensee's anacondas frequently swim in waterways, where they hunt for aquatic prey. Anacondas appear to use rivers to disperse (McCartney-Melstad 2012). Smaller anacondas can also climb trees to prey on arboreal animals, avoid predators, and thermoregulate.

Green Anaconda (Eunectes murinus)

Native Range

The native range of green anaconda includes aquatic habitats in much of South America below 850 m (2,789 ft) elevation plus the insular population on Trinidad, encompassing the Amazon and Orinoco Basins; major Guianan rivers; the San Francisco, Parana, and Paraguay Rivers in Brazil; and extending south as far as the Tropic of Capricorn in northeast Paraguay. The range of green anaconda is largely defined by availability of aquatic habitats. Depending on location within the wide distribution of the species, these appear to include deep, shallow, turbid, and clear waters, and both lacustrine and riverine habitats (Reed and Rodda 2009).

Biology

Reed and Rodda (2009) describe the green anaconda as truly a giant snake, having a very stout body and fairly reliable records of lengths over 7 m (23 ft). The females typically outweigh the males. Very large anacondas are almost certainly the heaviest snakes in the world, ranging up to 200 kg (441 lb) (Bisplinghof and Bellosa 2007), even though reticulated pythons, for example, may attain greater lengths (Reed and Rodda 2009).

The green anaconda bears live young. The maximum recorded litter size is 82, removed from a Brazilian specimen, but the typical range is 28 to 42 young. Neonates (newly born young) are around 70 to 80 centimeters (cm) (27.5 to 31.5 inches (in)) long and receive no parental care. As with all the large constrictor snakes, hatchlings can fall prey to other animals. If they survive, they grow rapidly until they reach sexual maturity in their first few years (Reed and Rodda 2009). While reproduction is typically sexual, Reed and Rodda (2009) report that a female green anaconda that was kept in captivity for 26 years with no access to males gave birth to 23 females. This raises the possibility that green anacondas are facultatively parthenogenetic, and that, theoretically, a single female green anaconda could establish a population.

The green anaconda is considered a top predator in South American ecosystems. Small anacondas appear to primarily consume birds, and as they grow larger, they shift to eating larger mammals and reptiles. The regular inclusion of fish in the diet of all anacondas increases their dietary niche breadth in relation to the other large constrictors, which rarely consume fish. Green anacondas consume a wide variety of endotherms (so-called warm-blooded animals) and ectotherms from higher taxa, including such large prey as deer and crocodilians (alligators are a type of crocodilian). The regular inclusion of fish, turtles, and other aquatic organisms in their diet increases their range of prey even beyond that of reticulated or Burmese pythons. Vertebrate animals that regularly inhabit aquatic habitats are likely to be most commonly consumed by green anacondas (Reed and Rodda 2009). Green anacondas would have a ready food supply anywhere that the climate and habitat matched their native range. Since green anacondas are known to prey upon crocodilians, they could potentially prey on alligators, which are common in the southeastern United States.

Green anacondas frequently swim in waterways, where they hunt for aquatic prey. Anacondas appear to use rivers to disperse (McCartney-Melstad 2012). Smaller anacondas can also climb trees to prey on arboreal animals, avoid predators, and thermoregulate.

Beni Anaconda (Eunectes beniensis)

Native Range

The Beni anaconda is a recently described and poorly known anaconda closely related to the green anaconda (Reed and Rodda 2009). The native range of the Beni anaconda is the Itenez–Guapore River in Bolivia along the border with Brazil, as well as the Baures River drainage in Bolivia. The green and Beni anacondas are similar in size, and the range of the Beni anaconda is within the range of the green anaconda (Bolivia).

Biology

Eunectes beniensis is a recently described species from northern Bolivia, previously considered to be contained within *E. murinus. Eunectes beniensis*

was discovered in the Beni Province of Bolivia—thus the common name of Beni anaconda and another alias of Bolivian anaconda. To an experienced herpetologist, *E. beniensis* is easily recognizable by its brown to olive-brownish ground color in combination with five head stripes and fewer than 100 large, dark, solid dorsal blotches that always lack lighter centers. To a novice, *E. beniensis* and *E. murinus* are similar in appearance. *E. beniensis* is primarily aquatic and eats a wide variety of prey, including fish, birds, mammals, and other reptiles.

Beni anacondas frequently swim in waterways, where they hunt for aquatic prey. Anacondas appear to use rivers to disperse (McCartney-Melstad 2012). Smaller anacondas can also climb trees to prey on arboreal animals, avoid predators, and thermoregulate.

Presence of the Four Constrictor Snakes in the United States

Of the four constrictor snake species that we are listing as injurious in this final rule, two have been reported in the wild in the United States, but none have been confirmed as reproducing in the wild in the United States (see *Current Nonnative Occurrences,* below); two of the four have been imported commercially into the United States during the period 2004 to 2013 (Final Economic Analysis 2015). Species ''reported in the wild'' are ones that have been found in the wild but without proof to date that they have reproduced in the wild. The greatest opportunity for preventing a species from becoming injurious is to stop a species from entering the wild; the second greatest opportunity is before a species becomes established in the wild (reported but not reproducing); and the smallest opportunity is when a species has become established (reproducing in the wild).

TABLE 1—FOUR SPECIES OF LARGE CONSTRICTOR SNAKES AND WHETHER THEY HAVE BEEN REPORTED IN THE WILD IN THE UNITED STATES, ARE KNOWN TO BE REPRODUCING IN THE WILD IN THE UNITED STATES, OR HAVE BEEN IMPORTED FOR TRADE (2004 TO 2013)

Species	Reported in the wild in U.S.?	Reproducing in the wild in U.S.?	Imported into U.S. for trade? *
Reticulated python.	Yes ...	No	Yes.
DeSchauensee's anaconda.	No	No	No.**
Green anaconda	Yes ...	No	Yes.
Beni anaconda ...	No	No	No.**

* Data from Law Enforcement Management Information System (LEMIS; USFWS 2014)

** It is possible that this species has been imported into the United States incorrectly identified as one of the other species listed by this rule or the January 23, 2012, final rule (77 FR 3330); however, none has been reported.

Lacey Act Evaluation Criteria

We use the criteria below to evaluate whether a species does or does not qualify as injurious under the Lacey Act, 18 U.S.C. 42. The analysis that is developed using these criteria serves as a general basis for the Service's decision regarding injuriousness (not just for the four snake species we are listing in this final rule). Biologists within the Service who are knowledgeable about a species being evaluated assess both the factors that contribute to and the factors that reduce the likelihood of injuriousness.

(1) Factors that contribute to being considered injurious:

- The likelihood of release or escape;
- Potential to survive, become established, and spread;
- Impacts on wildlife resources or ecosystems through hybridization and competition for food and habitats, habitat degradation and destruction, predation, and pathogen transfer;
- Impact to endangered and threatened species and their habitats;
- Impacts to human beings, forestry, horticulture, and agriculture; and
- Wildlife or habitat damages that may occur from control measures.

(2) Factors that reduce the likelihood of the species being considered as injurious:

- Ability to prevent escape and establishment;
- Potential to eradicate or manage established populations (for example, making organisms sterile);
- Ability to rehabilitate disturbed ecosystems;
- Ability to prevent or control the spread of pathogens or parasites; and
- Any potential ecological benefits to introduction.

To obtain some of the information for the above criteria, we referred to Reed and Rodda (2009). Reed and Rodda (2009) developed the Organism Risk Potential scores for each species using a widely utilized risk assessment procedure that was published by the Aquatic Nuisance Species Task Force (ANSTF), called ''Generic nonindigenous aquatic organisms risk analysis review process (for estimating risk associated with the introduction of nonindigenous aquatic organisms and how to manage that risk)'' (ANSTF 1996). The ANSTF was created under the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (16 U.S.C. 4701 *et seq.*) to provide a way for government agencies to develop a national program to reduce the risk of unintentional introductions, ensure prompt detection and response, and control established species.

The ANSTF (1996) procedure incorporates four factors associated with probability of establishment and three factors associated with consequences of establishment, with the combination of these factors resulting in an overall Organism Risk Potential (ORP) for each species. For the four constrictor snakes in this final rule, the overall potential risk of establishment was medium.

Certainties were highly variable within each of the seven elements or factors of the risk assessment mentioned above, varying from very uncertain to very certain. In general, the highest certainties are associated with species unequivocally established in new ranges because of enhanced ecological information on these species from studies in both their native range and in Florida. The way in which these subscores are obtained and combined is set forth in an algorithm created by the ANSTF (Table 2).

TABLE 2—THE ALGORITHM THAT THE ANSTF (1996) DEFINED FOR COMBINING THE TWO PRIMARY SUBSCORES (REED AND RODDA 2009)

Probability of establishment	Consequences of establishment	Organism Risk Potential (ORP)
High	High	High.
Medium	High	High.
Low	High	Medium.
High	Medium	High.
Medium	Medium	Medium.
Low	Medium	Medium.
High	Low	Medium.
Medium	Low	Medium.
Low	Low	Low.

Similar algorithms are used for deriving the primary subscores from the secondary subscores. However, the scores are fundamentally qualitative, in the sense that there is no unequivocal threshold that is given in advance to determine when a given risk passes from being low to medium, and so forth. Therefore, we viewed the process as one of providing relative ranks for each species. Thus, a high ORP score indicates that such a species would likely entail greater consequences or greater probability of establishment than would a species whose ORP was medium or low (that is, high > medium > low). Medium-risk species include the four species being designated as injurious by this rulemaking: Reticulated python, DeSchauensee's anaconda, green anaconda, and Beni anaconda. Medium-risk species, if established in this country, would put portions of the U.S. mainland, Hawaii, and insular territories at risk and constitute a great potential ecological threat. As stated above, we use this information in our evaluation to determine if a species meets the criteria of being injurious, but it is not the only information we use. The following sections on ''Factors That Contribute to Injuriousness * * *'' and ''Factors That Reduce or Remove Injuriousness * * *'' explain how we arrived at our determinations of injuriousness for each species.

Factors That Contribute to Injuriousness for Reticulated Python

Current Nonnative Occurrences

In Florida, reticulated pythons have been observed or removed from Bradenton, Clearwater, Miami, Sebastian, and Vero Beach. For example, a 5.5-m (18-ft) reticulated python was struck by a person mowing grass along a canal in Vero Beach in 2007, and a reticulated python was removed along Roseland Road in Sebastian (B. Dangerfield, pers. comm. 2010). In the Commonwealth of Puerto Rico, reticulated pythons have been collected in the western region of the island (Aguadilla and Mayaguez), and the southern region of the island (Guayama), including a 5.5-m (18-ft) long specimen (J. Saliva, pers. comm. 2009).

Media accounts from 1980 to 2014 report that reticulated pythons have escaped captivity or were spotted in the wild in the following States: California, Florida, Illinois, Kansas, Maine, New Jersey, Ohio, Pennsylvania, Washington, and West Virginia (HSUS 2014). This illustrates that the potential for release or escape is not confined to Florida and Puerto Rico but could occur in many States. The States listed were merely the ones for which we have reports. Other occurrences may not have been reported or the species not identified. See *Introduction Pathways for Large Constrictor Snakes,* above, for the explanation of how release events are relevant to the potential establishment of reticulated pythons.

Potential Introduction and Spread

The likelihood that a reticulated python will be released or will escape from captivity is high as evidenced by a number of reports as discussed above in *Current Nonnative Occurrences* and because they possess the physical traits that contribute to release or enable escape. Relatively few private pet owners can maintain such a large species properly throughout its lifetime, leading to intentional release or escape. Once out of captivity, reticulated pythons are highly likely to survive in natural ecosystems (primarily extreme southern habitats) of the United States. Reticulated pythons have a somewhat tropical native distribution, so the area of the mainland United States showing a climate match is exclusively subtropical, and limited to southern Florida and extreme southern Texas. Low- and mid-elevation sites in the United States' tropical territories (Guam, Northern Mariana Islands, American Samoa, Virgin Islands, Puerto Rico) and Hawaii also appear to be climate-matched to the requirements of reticulated pythons. If they escape or are intentionally released, they are likely to survive and become established within their respective thermal and precipitation limits. Reticulated pythons were recently documented to be able to reproduce parthenogenetically, meaning that females do not need males to lay viable eggs (Booth *et al.* 2014). Thus, even just one female python could potentially create a population. Reticulated pythons are highly likely to spread and become established in the wild due to common traits shared by all the large constrictors we are listing as injurious in this rule, including: Rapid growth to a large size with production of many offspring; ability to survive under a range of habitat types and conditions (habitat generalist); ability to adapt to live in urban and suburban areas; ability to disperse long distances; and ability to conceal themselves and ambush a wide variety of prey.

Potential Impacts to Native Species (Including Endangered and Threatened Species)

Reticulated pythons are highly likely to prey on U.S. native species, including endangered and threatened species where present. Their natural diet includes mammals, birds, reptiles, and fish. An adverse effect of reticulated python on endangered and threatened species is likely to be moderate to high.

Native fauna have no experience defending against such a novel, giant predator as the reticulated python. As discussed above under *Biology,* the reticulated python can grow to a length greater than 8.7 m (28.5 ft) and the maximum reported weight is 150 kg (330 lb). This is longer than any native terrestrial predator (including bears) in the United States and its territories, and heavier than most native predators (including black bears and many alligators). In comparison with the reticulated python, the longest snake native to the United States is much smaller. The longest native snake is the indigo snake (*Drymarchon corais*), attaining a maximum length of about 2.5 m (8 ft) (Monroe and Monroe 1968). A subspecies of the indigo snake is the eastern indigo snake (*D. corais couperi*), which grows to the same length as *D. corais.* The eastern indigo snake inhabits Georgia and Florida, and is listed as federally threatened by the Service. The native, endangered Puerto Rican boa's (*Epicrates inornatus*) maximum size is approximately 2 m (6.5 ft) (U.S. Fish and Wildlife Service 1986).

Unlike prey species in the reticulated python's native range, none of our native species has evolved defenses to avoid predation by such a large snake. Thus, native wildlife in the United States where reticulated pythons exist would be very likely to fall prey to the pythons (or any of the other three constrictor snakes we are listing in this rule). At all life stages, reticulated pythons can and will compete for food with native species; in other words, baby pythons will eat small prey, and the size of their prey will increase as the pythons grow. Once reticulated pythons are introduced and established, they may outcompete native predators (such as the federally protected Florida panther, eastern indigo snake, native boas, and hawks), feeding on the same prey and thereby reducing the supply of prey for the native predators.

Reticulated pythons are generalist predators that consume a wide variety of mammal and bird species, as well as reptiles, amphibians, and occasionally fish. This constrictor can easily adapt to prey on novel wildlife (species that they are not familiar with), and they need no special adaptations to hunt, capture, and consume them.

The United States, particularly the Southeast, has a diverse faunal

community that is potentially vulnerable to predation by the reticulated python. Juveniles of these large constrictors will climb trees and rocks to remove prey from bird nests and capture perching or sleeping birds. The southernmost part of the United States has suitable climate and habitat for reticulated pythons. The greatest biological impact of an introduced predator, such as the reticulated python, is the additional stress placed on imperiled native species, which may preclude their recovery. Based on the food habits and habitat preferences of the reticulated python in its native range, the species is likely to invade the habitat, prey on, and further threaten many of the federally endangered or threatened fauna in climate-suitable areas of the United States (Reed and Rodda 2009).

Reticulated pythons are also likely to decrease the populations of numerous potential candidate animals for Federal protection by hunting and eating them. Candidate species are plants and animals for which the Service has sufficient information on their biological status and threats to propose them as endangered or threatened under the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*), but for which development of a proposed listing regulation is precluded by other higher priority listing activities.

The final environmental assessment for the four species in this final rule (Final Environmental Assessment 2015) includes lists of species that are federally or State endangered or threatened in some climate-suitable States and territories: Florida, Hawaii, Guam, Puerto Rico, and the Virgin Islands. Other States have federally or State endangered or threatened species that would be suitable prey for large, nonnative constrictor snakes, including the reticulated python. These lists include only the species of the sizes and types that would be expected to be directly affected by predation by reticulated pythons and the other large, nonnative constrictors. For example, plants and marine species are excluded. In Florida, 13 bird species, 15 mammals, and 2 reptiles that are federally endangered or threatened could be preyed upon by reticulated pythons or be outcompeted by them for prey. Hawaii has 34 bird species and 1 mammal that are federally endangered or threatened that would be at risk of predation. Puerto Rico has 9 bird species and 10 reptile species that are federally endangered or threatened that would be at risk of predation or competition for prey. The Virgin Islands has one bird species and three reptiles that are federally endangered or threatened that would be at risk of predation or competition for prey. Guam has seven bird species and two mammals that are federally endangered or threatened that would be at risk of predation.

According to the climate suitability maps (Reed and Rodda 2009), endangered and threatened species from parts of Florida, southern Texas, Hawaii, and Puerto Rico would be at risk from the establishment of reticulated pythons. In addition, Guam, the U.S. Virgin Islands, and other territories would have suitable habitat and climate to support reticulated pythons, and these also have federally endangered and threatened species that would be at risk if reticulated pythons became established.

Potential Impacts to Humans

Like all pythons, reticulated pythons are nonvenomous. The reticulated python can be an aggressive and dangerous species of giant constrictor to humans. Reed and Rodda (2009) cite numerous sources of people being bitten, attacked, and killed by reticulated pythons in their native range. Headland and Greene (2011) determined that 26 percent of a segment of hunter-gatherer Filipinos had been attacked by reticulated pythons, some fatally. The only human deaths in the United States from reticulated pythons that we are aware of were from captive snakes (in Indiana, Iowa, Kentucky, Louisiana, Nevada, Texas, and Virginia; HSUS 2014). An established population of reticulated pythons would be expected to create the greatest public safety risk of all large constrictor snakes evaluated.

Captive reticulated pythons can carry ticks of agricultural significance (potential threat to domestic livestock) in Florida (Burridge *et al.* 2000, 2006; Clark and Doten 1995), and likely to livestock outside of Florida. African tick species that use pythons as hosts may be vectors of heartwater, and these ticks have been observed to transfer to other hosts, including other giant constrictors, other reptiles, and dogs. Because multiple python species are typically held captive in close proximately to each other in the commercial trade, such proximity provides tick transfer opportunities to occur prior to retail sales (Reed and Rodda 2009).

The introduction or establishment of reticulated pythons would likely have negative impacts on humans primarily from the loss of native wildlife biodiversity and as carriers of livestock diseases, as discussed above. These losses would affect the aesthetic, recreational, and economic values currently provided by native wildlife and healthy ecosystems. Educational values would also be diminished through the loss of biodiversity and ecosystem health.

Factors That Reduce or Remove Injuriousness for Reticulated Python

Control

Eradication, management, or control of the spread of reticulated python will be highly unlikely once the species is established. No effective tools are currently available to detect and remove large, nonnative constrictor populations. Traps with drift fences or barriers are the best option, but their use on a large scale is prohibitively expensive. Additionally, some areas cannot be effectively trapped due to the expanse of the area and type of terrain, the distribution of the target species, and the effects on any nontarget species (that is, trapping native wildlife). While the Department of the Interior, USDA Animal and Plant Health Inspection Service (APHIS), and State of Florida entities have conducted some research on control tools, no currently available tools are adequate for eradication of an established population of large, nonnative constrictor snakes, such as the reticulated python, once they have spread over a large area.

Efforts to eradicate large, nonnative constrictor snakes in Florida have intensified to keep the expansion to a minimum as species are reported in new locations across the State. Natural resource management agencies are expending scarce resources to devise methods to capture or otherwise control any large, nonnative constrictor snake species. These agencies recognize that control of large constrictor snakes (as major predators) on lands that they manage is necessary to prevent the likely adverse impacts to the ecosystems occupied by the invasive snakes.

The final economic analysis was prepared for the four constrictor snakes that are the subjects of this final rule (USFWS 2015) and provides the following information about the expenditures for research and eradication in Florida, primarily for Burmese pythons, which provides some indication of the efforts to date. Control methods used for Burmese pythons may also be applied to other large constrictor snakes. The Service spent more than $600,000 over a 3-year period (2007–2009) on python trap design, deployment, and education in the Florida Keys to prevent the potential extinction of the endangered Key Largo woodrat (*Neotoma floridana smalli*) at

Crocodile Lake National Wildlife Refuge. More recently, the Service and USGS have spent up to $20,000 over the 2012–2013 period on planning efforts to address constrictor snake infestations and expect to spend between $25,000 and $50,000 from 2014 to 2018 (U.S. Fish and Wildlife Service, Rebekah Gibble, personal communication 2014). The South Florida Water Management District spent $334,000 between 2005 and 2009, and anticipates spending an additional $156,600 on research, salaries, and vehicles in the next several years. An additional $300,000 will go for the assistance of USDA Wildlife Services (part of USDA Animal and Plant Health Inspection Service). The USDA Wildlife Research Center (Gainesville (FL) Field Station) spent $15,800 in 2008–2009 on salaries, travel, and supplies. The USGS, in conjunction with the University of Florida, has spent over $1.5 million on research, radio telemetry, and the development, testing, and implementation of constrictor snake traps. Miami-Dade County Parks and Recreation Department, Natural Areas Management and Department of Environmental Resources Management have spent $60,875 annually on constrictor snake issues. The National Park Service has spent an average of $380,000 annually from 2004 to 2014, on various programs related to constrictor snake issues in the Everglades National Park (National Park Service, Carol Mitchell, personal communication 2014). All these expenditures total $6.5 million from 2004 to 2014 (estimated for 2014), or roughly an average of $586,000 per year. Despite this investment, all of these efforts have failed to provide a method for eradicating large, nonnative constrictor snakes in Florida.

Kraus (2009) exhaustively reviewed the literature on invasive herpetofauna. While he found a few examples of local populations of amphibians that had been successfully eradicated, he found no such examples for reptiles. He also states that, ''Should an invasive [nonnative] species be allowed to spread widely, it is usually impossible—or at best very expensive—to eradicate it.'' The reticulated python is unlikely to be one of those species that could be eradicated. Witmer and Fuller (2011) also found no reports of eradications of introduced reptiles in the United States.

Eradication will almost certainly be unachievable for a species that is hard to detect and remove at low densities, which is the case with all of the four large constrictor snakes that are the subjects of this final rule. They are well-camouflaged and stealthy, and, therefore, nearly impossible to see in the wild. Most of the protective measures available to prevent the escape of reticulated pythons are currently (and expected to remain) cost-prohibitive and labor-intensive. Even with protective measures in place, the risks of accidental escape are not likely to be eliminated. Since effective measures to prevent the establishment or eradicate, manage, or control the spread of established populations of the reticulated python are not currently available, the ability to rehabilitate or recover ecosystems disturbed by the species is low.

Potential Ecological Benefits for Introduction

While the introduction of reticulated pythons could potentially provide a food source for some native carnivores, species native to the United States are unlikely to possess the hunting ability for such large, camouflaged snakes and would not likely turn to reticulated pythons as a food source. However, juvenile snakes could fall prey to native wildlife such as alligators, raccoons, coyotes, and birds of prey. In addition, a large constrictor snake could prey on other nonnative species such as green iguanas, feral hogs, and black rats. The risks to native wildlife greatly outweigh these unlikely benefits. There are no other potential ecological benefits from the introduction into the United States or establishment in the United States of reticulated pythons.

Conclusion

The reticulated python can grow to a length of more than 8.7 m (28.5 ft); this is longer than any native, terrestrial animal in the United States and at least as long as any snake species in the world. Native fauna have no experience defending against this type of novel, giant predator. Several captive reticulated pythons have lived for nearly 30 years. The reticulated python can be an aggressive and dangerous species to humans. An established population of reticulated pythons would be expected to create the greatest public safety risk from all large constrictor snakes evaluated. Reticulated pythons can carry ticks of agricultural significance (potential threat to domestic livestock).

Because reticulated pythons are likely to escape from captivity or be released into the wild if imported; are likely to survive, become established, and spread if they escape captivity or are released into areas of the United States that have suitable climate and habitat; are likely to prey on and compete with native species for food and habitat (including endangered and threatened species); are likely to be disease vectors for livestock or native wildlife; cannot be easily eradicated, prevented from establishing, or reduced from large populations or new locations; and are likely to disturb ecosystems beyond the point of recoverability, the Service finds the reticulated python to be injurious to humans, agricultural interests, and wildlife and wildlife resources of the United States.

Factors That Contribute to Injuriousness for DeSchauensee's Anaconda

Current Nonnative Occurrences

We do not know of any occurrences of the DeSchauensee's anaconda in the United States.

Potential Introduction and Spread

DeSchauensee's anacondas share similar traits with the other three species of constrictor snakes, although they are smaller. A smaller-sized constrictor may be more desirable to some potential pet owners who want a constrictor snake but do not want to handle the larger species, and thus DeSchauensee's anacondas may eventually be imported into the United States as an alternative species. Because DeSchauensee's anacondas possess the same traits as other large constrictor snakes, such as powerful musculature, streamlined body, and fast growth rate, this species is likely to escape or be released into the wild if imported into the United States. DeSchauensee's anacondas are highly likely to spread and become established in the wild due to common traits shared by many large constrictors, including: Rapid growth to a large size with production of many offspring; ability to survive under a range of habitat types and conditions (habitat generalist); ability to disperse long distances; and ability to conceal themselves and ambush prey.

Reed and Rodda's (2009) map identified no areas of the continental United States or Hawaii that appear to have precipitation and temperature profiles similar to those observed in the species' native range, although the southern margin of Puerto Rico and its out-islands (for example, Vieques and Culebra) appear suitable. However, we do not know whether the species' native distribution is limited by factors other than climate. Reed and Rodda (2009) extended the climate match globally, meaning they used the climate data from the native range and found that they matched other parts of the Amazon Basin and tropical areas of the world. This leads to the conclusion that climate

is not the limiting factor but instead could be biogeography, competition, or other factors. If the small, native range is attributable to ecological (for example, competition with green anacondas), or anthropogenic (for example, habitat loss) factors, then Reed and Rodda's (2009) qualitative estimate of the climatically suitable areas of the United States would represent an underprediction.

Potential Impacts to Native Species (Including Endangered and Threatened Species)

The DeSchauensee's anaconda would likely have a similar impact as the yellow anaconda, which we listed as injurious in 2012. DeSchauensee's anacondas eat mammals, fish, and birds in their native range and will prey on native species, including select endangered and threatened species if they become established in the United States. Anacondas employ both ''ambush predation'' and ''wide-foraging'' strategies (Reed and Rodda 2009). Endangered and threatened wildlife occupying the DeSchauensee's anaconda's preferred habitats would be at risk.

The DeSchauensee's anaconda is larger (reported to 3 m (9.8 ft)) than the largest snake native to the continental United States. See *Potential Impacts to Native Species (Including Endangered and Threatened Species)* for the reticulated python for comparison to native predators.

Please also see *Potential Impacts to Native Species (Including Endangered and Threatened Species)* under Factors that Contribute to Injuriousness for Reticulated Python for a description of the impacts that DeSchauensee's anacondas would have on native species. These impacts are applicable to DeSchauensee's anacondas by comparing their prey type with the suitable climate areas and the listed species found in those areas.

According to the climate suitability maps (Reed and Rodda 2009; Final Environmental Assessment 2015), endangered and threatened species from part of Puerto Rico would be at risk from the establishment of DeSchauensee's anacondas. In addition, the global climate match produced by Reed and Rodda (2009) showed a broader tropical range than that of the native range, and that other tropical areas of the world appear to be climatically similar. Because Guam, the U.S. Virgin Islands, and other U.S. territories are tropical, the climate may be suitable. Puerto Rico has 9 bird species and 10 reptile species that are federally endangered or threatened species that would be at risk if DeSchauensee's anacondas became established. Guam has seven bird species and two mammal species that are endangered or threatened that could be at risk of predation. The Virgin Islands has one bird species and three reptile species that are endangered or threatened that could be at risk of predation.

Potential Impacts to Humans

The introduction or establishment of DeSchauensee's anacondas would likely have negative impacts on humans primarily from the loss of native wildlife biodiversity, as discussed above in the discussion for the reticulated python. These losses would affect the aesthetic, recreational, and economic values currently provided by native wildlife and healthy ecosystems. Educational values would also be diminished through the loss of biodiversity and ecosystem health. Agricultural interests may be negatively affected by imported anacondas carrying ticks that transfer harmful pathogens to livestock.

Factors That Reduce or Remove Injuriousness for DeSchauensee's Anaconda

Control

Prevention, eradication, management, or control of the spread of DeSchauensee's anacondas will be highly unlikely. Please see the ''*Control*'' section for the reticulated python for reasons why DeSchauensee's anacondas would be difficult to control, all of which apply to this large constrictor.

Potential Ecological Benefits for Introduction

While the introduction of DeSchauensee's anacondas could potentially provide a food source for some native carnivores, species native to the United States are unlikely to possess the hunting ability for such large, camouflaged snakes and would not likely turn to DeSchauensee's anacondas as a food source. However, juvenile snakes could fall prey to native wildlife such as alligators, raccoons, coyotes, and birds of prey. In addition, a large constrictor snake could prey on other nonnative species such as green iguanas, feral hogs, and black rats. The risks to native wildlife greatly outweigh this unlikely benefit. There are no other potential ecological benefits from the introduction into the United States or establishment in the United States of DeSchauensee's anacondas.

Conclusion

DeSchauensee's anacondas are likely to establish and spread to suitable permanent surface-water areas because of their large size, high reproductive potential, early maturation, rapid growth, longevity, and generalist surprise-attack predation. DeSchauensee's anacondas are highly likely to survive in natural ecosystems of a small but vulnerable region of the United States, including the southern margin of Puerto Rico and its out-islands, U.S. Virgin Islands, Guam, and other U.S. islands.

Because DeSchauensee's anacondas are likely to escape captivity or be released into the wild if imported into the United States; are likely to survive, become established, and spread if they escape captivity or are released; are likely to prey on and compete with native species for food and habitat (including endangered and threatened species); cannot be easily eradicated, prevented from establishing, or reduced from large populations or new locations; and are likely to disturb ecosystems beyond the point of recoverability, the Service finds the DeSchauensee's anaconda to be injurious to humans and to the wildlife and wildlife resources of the United States.

Factors That Contribute to Injuriousness for Green Anaconda

Current Nonnative Occurrences

An individual green anaconda (approximately 2.5 m (8.2 ft) total length) was found dead on U.S. 41 in the vicinity of Fakahatchee Strand Preserve State Park in Florida in December 2004 (Reed and Rodda 2009). Two medium-sized adults and a juvenile green anaconda were observed but not collected in this general area. A 3.65-m (12-ft) green anaconda was removed from East Lake Fish Camp in northern Osceola County, Florida, on January 13, 2010. This was the first live green anaconda to be caught in the wild in Florida (Florida Fish and Wildlife Conservation Commission 2010).

Potential Introduction and Spread

Green anacondas have escaped captivity or been released into the wild in Florida. They are likely to escape or be released because they can grow in captivity to enormous sizes (which makes them exceedingly powerful) and they must be fed a diet that could be prohibitively expensive. Green anacondas are likely to survive in the appropriate natural ecosystems of the United States. Much of peninsular Florida (roughly south of Gainesville) and extreme south Texas exhibit

climatic conditions similar to those experienced by green anacondas in their large South American native range, but the rest of the continent appears to be too cool or arid. Lower elevations in Hawaii and all of Puerto Rico have apparently suitable climates. Within the climate-matched area, anacondas are likely to establish in sites containing surface water. The primarily nocturnal anaconda species tends to spend most of its life in or around water. Green anacondas are highly likely to spread and become established in the wild due to their propensity for rapid growth to a large size and high reproductive rate; are capable of surviving under a range of habitat types and conditions (habitat generalist); have behaviors that allow them to escape freezing temperatures; can live in urban and suburban areas; can disperse long distances; and are well-concealed ambush predators. There is evidence that green anacondas are facultatively parthenogenetic and could therefore reproduce even if a single female is released or escapes.

Potential Impacts to Native Species (Including Endangered and Threatened Species)

Green anacondas will prey on native species, including endangered and threatened species, if they become established in the United States. They are primarily aquatic and eat a wide variety of prey, including fish, birds, mammals, and other reptiles. The size of the prey also varies, depending on the age of the snake, with baby anacondas able to eat small prey, and large anacondas able to eat larger prey, such as tapirs, peccaries, deer, sheep, and caimans (Reed and Rodda 2009).

The green anaconda is generally considered the heaviest snake in the world (reported to 200 kg (441 lb)), with lengths over 7 m (23 ft) (Reed and Rodda 2009), much larger than the largest snake native to the continental United States. See *Potential Impacts to Native Species (Including Endangered and Threatened Species)* for the reticulated python for comparison to native predators and anticipated effects on native wildlife from green anacondas. Moreover, the green anaconda is a novel predator against which native species would not have evolved defenses.

According to the climate suitability maps (Reed and Rodda 2009; Final Environmental Assessment 2015), endangered and threatened species from parts of Florida, Hawaii, and most of Puerto Rico would be at risk from the establishment of green anacondas. Florida has 13 bird species, 15 mammals, and 2 reptiles that are federally endangered or threatened that could be preyed upon by green anacondas or be outcompeted by them for prey. Hawaii has 34 bird species and 1 mammal that are endangered or threatened that would be at risk of predation. Puerto Rico has 9 bird species and 10 reptiles that are federally endangered or threatened that would be at risk if green anacondas became established. Because Guam, the U.S. Virgin Islands, and other U.S. territories are tropical, the climate there also may be suitable. Guam has seven bird species and two mammal species that are endangered or threatened that would be at risk of predation. The Virgin Islands has one bird species and three reptile species that are endangered or threatened that would be at risk of predation.

Potential Impacts to Humans

The introduction or establishment of green anacondas would likely have negative impacts on humans primarily from the loss of native wildlife biodiversity, as discussed above in the discussion for the reticulated python. These losses would affect the aesthetic, recreational, and economic values currently provided by native wildlife and healthy ecosystems. Educational values would also be diminished through the loss of biodiversity and ecosystem health. Agricultural interests may be negatively affected by imported anacondas carrying ticks that transfer harmful pathogens to livestock.

Factors That Reduce or Remove Injuriousness for Green Anaconda

Control

Prevention, eradication, management, or control of the spread of green anacondas once established in the United States will be highly unlikely. Please see the ''*Control*'' section for the reticulated python for reasons why green anacondas will be difficult to control, all of which apply to this large constrictor.

Potential Ecological Benefits for Introduction

While the introduction of green anacondas could potentially provide a food source for some native carnivores, species native to the United States are unlikely to possess the hunting ability for such large, camouflaged snakes and would not likely turn to green anacondas as a food source. However, juvenile snakes could fall prey to native wildlife such as alligators, raccoons, coyotes, and birds of prey. In addition, a large green anaconda could prey on other nonnative species, such as green iguanas, feral hogs, and black rats. The risks to native wildlife greatly outweigh these unlikely benefits. There are no other potential ecological benefits from the introduction into the United States or establishment in the United States of green anacondas.

Conclusion

The green anaconda is the world's heaviest snake. Large adults are heavier than almost all native, terrestrial predators in the United States, even many bears, and longer than all native wildlife. Native fauna have no experience defending themselves against this type of novel, giant predator. The range of the green anaconda is largely defined by the availability of aquatic habitats. These include deep and shallow, turbid and clear, and lacustrine and riverine systems. Most of these habitats are found in Florida, including the Everglades, which is suitable climate for the species, as well at Texas, Hawaii, and Puerto Rico. Green anacondas are top predators in South America, consuming birds, mammals, fish, and reptiles; prey size includes deer and crocodilians. This diet is even broader than the diet of Burmese and reticulated pythons. Evidence exists that female green anacondas may be facultatively parthenogenetic and could therefore reproduce even if a single female is released or escapes into the wild.

Because green anacondas are likely to escape or be released into the wild if imported into the United States (note that the green anaconda has already been found in the wild in Florida); are likely to survive, become established, and spread if they escape captivity or are released; are likely to prey on and compete with native species for food and habitat (including endangered and threatened species); cannot be easily eradicated, prevented from establishing, or reduced from large populations or new locations; and are likely to disturb ecosystems beyond the point of recoverability, the Service finds the green anaconda to be injurious to humans and to wildlife and wildlife resources of the United States.

Factors That Contribute to Injuriousness for Beni Anaconda

Current Nonnative Occurrences

We do not know of any occurrences of the Beni anaconda in the United States.

Potential Introduction and Spread

Beni anacondas are closely related to green anacondas. Because Beni anacondas share similar traits with

other constrictor snakes, individuals are likely to escape because of their large size, powerful musculature, and streamlined shape. Pet anacondas are also likely to be released into the wild, in part because of their growth to a large size (which pet owners may not able to deal with) and because of the difficulty in finding suitable food. Because Beni anacondas are difficult for a novice to distinguish from green anacondas, Beni anacondas may appear in the pet trade in place of green anacondas. Beni anacondas are highly likely to survive in the appropriate natural ecosystems of the United States.

The Beni anaconda is known from few specimens in a small part of Bolivia, and Reed and Rodda (2009) judged the number of available localities to be insufficient for an attempt to delineate its climate space or extrapolate this space to the United States. Beni anacondas are known from sites with low seasonality (mean monthly temperatures in a narrow range of approximately 22.5 to 27.5 °C (72 to 77 °F), and mean monthly precipitation about 5 to 30 cm (2 to 12 in). Whether the species' native distribution is limited by factors other than climate is unknown as well as whether the small native range is attributable to ecological (for example, competition with green anacondas), or anthropogenic (for example, habitat loss) factors. If the native distribution is not limited by climate, then Reed and Rodda's (2009) qualitative estimate of the climatically suitable areas of the United States would represent an underprediction. As a component of the risk assessment, the Beni anaconda's colonization potential is described by Reed and Rodda (2009) as capable of survival in small portions of the mainland or on the United States' tropical islands (Hawaii, Puerto Rico, American Samoa, Guam, Northern Mariana Islands, Virgin Islands).

The Beni anaconda is highly likely to spread and become established in the wild due to its rapid growth to a large size, early maturation and high reproductive potential, a sit-and-wait style of predation, ability to survive under a range of habitat types and conditions (habitat generalist), behavior that allows it to escape freezing temperatures, adaptability to living in urban and suburban areas, ability to disperse long distances, and cryptic concealment.

Potential Impacts to Native Species (Including Endangered and Threatened Species)

Beni anacondas will prey on native species, including endangered and threatened species if they become established in the United States. They are primarily aquatic and eat a wide variety of prey, including fish, birds, mammals, and other reptiles. The size of the prey also varies, depending on the age of the snake, with baby anacondas able to eat small prey, and large anacondas able to eat very large prey. Anacondas employ both ''ambush predation'' and ''wide-foraging'' strategies (Reed and Rodda 2009). Endangered and threatened wildlife occupying the Beni anaconda's preferred habitats would be at risk.

The Beni anaconda is similar in size to the green anaconda, which is generally considered the heaviest snake in the world (Reed and Rodda 2009), much larger than the largest snake native to the continental United States. See *Potential Impacts to Native Species (Including Endangered and Threatened Species)* for the reticulated python for comparison to native predators and anticipated effects on native wildlife from Beni anacondas. Moreover, the Beni anaconda is a novel predator against which native species would not have evolved defenses.

Florida has 13 bird species, 15 mammals, and 2 reptiles that are federally endangered or threatened that could be preyed upon by Beni anacondas or be outcompeted by them for prey; many of those protected species live in the warmest part of the State. Hawaii has 34 bird species, and 1 mammal that are endangered or threatened that would be at risk of predation. Puerto Rico has 9 bird species and 10 reptile species that are federally endangered or threatened species that would be at risk if Beni anacondas became established. Guam has seven bird species and two mammal species that are endangered or threatened that would be at risk of predation. The Virgin Islands has one bird species and three reptile species that are endangered or threatened that would be at risk of predation.

Potential Impacts to Humans

The introduction or establishment of Beni anacondas would likely have negative impacts on humans primarily from the loss of native wildlife biodiversity, as discussed above in the discussion for the reticulated python. These losses would affect the aesthetic, recreational, and economic values currently provided by native wildlife and healthy ecosystems. Educational values would also be diminished through the loss of biodiversity and ecosystem health. Agricultural interests may be negatively affected by imported anacondas carrying ticks that transfer harmful pathogens to livestock.

Factors That Reduce or Remove Injuriousness for Beni Anaconda

Control

Prevention, eradication, management, or control of the spread of Beni anacondas once established in the United States will be highly unlikely. Please see the ''*Control*'' section for the reticulated python for reasons why Beni anacondas would be difficult to control, all of which apply to this large constrictor.

Potential Ecological Benefits for Introduction

While the introduction of Beni anacondas could potentially provide a food source for some native carnivores, species native to the United States are unlikely to possess the hunting ability for such large, camouflaged snakes and would not likely turn to Beni anacondas as a food source. However, juvenile snakes could fall prey to native wildlife such as alligators, raccoons, coyotes, and birds of prey. In addition, Beni anacondas could prey on other nonnative species such as green iguanas, feral hogs, and black rats. The risks to native wildlife greatly outweigh these unlikely benefits. There are no other potential ecological benefits from the introduction into the United States or establishment in the United States of Beni anacondas.

Conclusion

Large Beni anaconda adults are heavier than almost all native, terrestrial predators in the United States, even many bears. Native fauna have no experience defending themselves against this type of novel, giant predator. The range of the Beni anaconda is largely defined by the availability of aquatic habitats. Beni anacondas are top predators in South America, consuming birds, mammals, fish, and reptiles; prey size includes deer and crocodilians. This diet is even broader than the diet of Burmese and reticulated pythons.

Because Beni anaconda specimens are likely to escape captivity or be released into the wild if the species is imported into the United States; are likely to survive, become established, and spread if they escape captivity or are released; are likely to prey on and compete with native species for food and habitat (including endangered and threatened species); cannot be easily eradicated, prevented from establishing, or reduced from large populations or new locations; and are likely to disturb ecosystems beyond the point of recoverability, the Service finds the Beni anaconda to be

injurious to humans and to wildlife and wildlife resources of the United States.

Summary of Injurious Evaluations

Based on the Service's evaluation of the criteria for injuriousness, substantive information we received during the public comment periods and from the peer reviewers, along with other information regarding the large constrictor snakes (in Florida, Puerto Rico, and elsewhere), the Service concludes that the four constrictor species should be added to the list of injurious reptiles under the Lacey Act.

Comments Received on the Proposed Rule

During the two public comment periods for the proposed rule for the nine species (75 FR 11808, March 12, 2010; and 75 FR 38069, July 1, 2010) and one comment period for the five species (79 FR 35719, June 24, 2014), we received more than 85,000 comments, including form letters, petitions, and postcards. We received comments from Federal agencies, State agencies, local governments, commercial and trade organizations, conservation organizations, nongovernmental organizations, and private citizens; all were in English with the exception of a few in Dutch, French, German, and Italian. The comments provided a range of views on the proposed listings as follows: (1) Unequivocal support for the listings with no additional information included; (2) unequivocal support for the listings with additional information provided; (3) equivocal support for the listings with or without additional information included; (4) unequivocal opposition to the listings with no additional information included; and (5) unequivocal opposition to the listings with additional information included.

To accurately review and incorporate the publicly provided comments in our final determination, we worked with researchers in the Qualitative Data Analysis Program at the University of Massachusetts Amherst and the University of Pittsburgh—developers of the *Public Comment Analysis Toolkit* (*PCAT*) and the successor DiscoverText analytical platform. The PCAT and DiscoverText enhanced our ability to review large numbers of comments, including large numbers of similar comments on our proposed listings, allowing us to identify similar comments as well as individual ideas, data, recommendations, or suggestions on the proposed listings. We are also responding to some comments that are out of the purview of this rule in a concerted effort to explain our rationale to the public.

Peer Review of the Proposed Rule

In accordance with peer review guidance of the Office of Management and Budget ''Final Information Quality Bulletin for Peer Review,'' released December 16, 2004, and Service guidance, we solicited expert opinion on information contained in the March 12, 2010, proposed rule (for nine species) from five knowledgeable individuals selected from specialists in the relevant taxonomic group and ecologists with scientific expertise that includes familiarity with alien herpetological introductions and invasions, predictive tools for risk assessment, and invasion biology. In 2010, we posted our peer review plan on the Service's Region 4 Web site (*http://www.fws.gov/southeast/informationquality*), explaining the peer review process and providing the public with an opportunity to comment on the peer review plan. No comments were received regarding the peer review plan. The Service solicited independent scientific reviewers who submitted individual comments in written form. We avoided using individuals who had already expressed strong support for or opposition to the petition and individuals who were likely to experience personal gain or loss (financial, prestige, etc.) as a result of the Service's decision. Department of the Interior employees were not used as peer reviewers.

We received responses from five peer reviewers. Two peer reviewers found that, in general, the proposed rule represented a comprehensive and up-to-date compilation of the best scientific information known about the nine constrictor snake species and that conclusions drawn from both published and unpublished sources were scientifically robust, and justified the proposed rule. Two peer reviewers expressed concern with the climate-matching methods and assumptions.

In addition, all peer reviewers stated that the background material on the biology, invasive potential, and potential tools for control of each snake species represented a solid compilation of available information. They further stated that the information as presented justified the conclusion that the snake species should be listed as injurious. All five peer reviewers concluded that the data and analyses we used in the proposed rule were appropriate and the conclusions we drew were logical and reasonable. Several peer reviewers provided additional insights to clarify points in the proposed rule, or references to recently published studies that update material in the rule.

Peer Review Comments

We reviewed all comments we received from peer reviewers for substantive issues and new information regarding the proposed rule. We consolidate the comments and responses into key issues in this section. We refer to them as PR (Peer Reviewer) 1 through 5. We revised the final rule to reflect peer reviewer comments, where appropriate, and the most current scientific information, including the results of the newer USGS climate match publication (Rodda *et al.* 2011), plus a number of new peer-reviewed journal articles. We have taken our best effort to identify the limitations and uncertainties of the climate-matching models and their projections used in the March 12, 2010, proposed rule. We have also taken our best effort to correct any grammatical or biological errors and clarify certain ambiguous statements. Because some of the comments referred only to those constrictor snake species we listed on January 23, 2012 (77 FR 3330), we omit those comments from this final rule; we summarize and respond to them in the January 23, 2012, final rule to list the Burmese python and three other species.

Comment PR1: In regard to the USGS publication ''Giant Constrictors: Biological and Management Profiles and an Establishment Risk Assessment for Nine Large Species of Pythons, Anacondas, and the Boa Constrictor,'' which includes management profiles discussing colonization potentials with climate-matching maps, very few details or data are presented that would allow an independent test of the model, predictions, or assumptions. At a minimum, the threshold values that were used in the climate space model should be explicitly stated for each species. This would allow reviewers to evaluate the data and the assumptions used in the construction of the model.

Response PR1: This general critique is incorrect; all of the species-specific information used to assess risks is presented in the document mentioned. That this procedure cannot be reduced to mathematical certainty is the reason a risk assessment (rather than a calculation) was conducted. This specific critique is also incorrect. The requested threshold values are provided graphically for each of the species in Reed and Rodda (2009). For example, the *Python reticulatus* values are in Figure 5.3 (page 84) (heavy and dashed black lines), the *Eunectes murinus* and *Eunectes beniensis* values are in Figure 9.3 (page 224) (heavy black lines), and so forth.

For readers who want to duplicate the climate match results, the USGS has published a data series report with data used for modeling and the equations corresponding to these lines (*http://pubs.usgs.gov/ds/579/*) (Jarnevich *et al.* 2011), but the graphical representations in Reed and Rodda (2009) provide the same information with the precision that is appropriate for the use of these values. Use of these values with greater precision would not be appropriate given the conceptual and scientific uncertainties that attend state-of-the-art implementation of climate matching.

Comment PR2: The data used for the risk assessment seems fair. This reviewer, however, was not convinced that the assignment of low, medium, and high establishment and consequence scores was sufficiently objective or transparent. The process appears to involve high levels of uncertainty (pp. 253, 259: Reed and Rodda 2009). Though there is not really an alternative with the amount of data available, the approach would be more acceptable if it was transparent (what constitutes each level of certainty and how one decides on high, medium, or low for each contributing factor).

Response PR2: The risk assessment process allows for analyzing, identifying, and estimating the dimension, characteristics, and type of risk. By applying analytical methods while acknowledging the assumptions and uncertainties involved, the process allows the assessors to utilize qualitative and quantitative data in a systematic and consistent fashion. The assessment strives for theoretical accuracy while remaining comprehensible and manageable, and the scientific and other data compiled for each snake species in the bio-profiles is organized and recorded in a formal and systematic manner. The assessment provides a reasonable estimation of the overall risk. The authors were careful to ensure that the process clearly explained the uncertainties inherent in the process and to avoid design and implementation of a process that reflected a predetermined result. Quantitative and qualitative risk assessments should always be buffered with careful professional judgment. If every statement was certain, we would not need a risk assessment. The need to balance risks with uncertainty can lead assessors to concentrate more on the uncertainty than on known facts that may affect impact potential. Risks identified for nonnative, invasive, large constrictor species (and other nonnative, invasive species besides large constrictors) in other regions often provide the justification in applying management measures to reduce risks in regions where the species have not yet been introduced. Thus, risk assessments should concentrate on evaluating potential risk.

Uncertainty, as it relates to the individual risk assessment, can be divided into three distinct types: (a) Uncertainty of the process (method); (b) uncertainty of the assessor(s) (human error); and (c) uncertainty about the organism (biological and environmental unknowns). All three types of uncertainty will continue to exist regardless of future developments. The inferential estimation of organism risk can be rated using high, medium, or low. The biological and other information assembled under each element will drive the process, forcing the assessor to use the biological information as the basis for his or her decision. Thus, the process remains transparent for peer review. The high, medium, and low ratings of the individual elements contributing to the probability of organism establishment (such as organism with pathway, entry potential, colonization potential, and spread potential) cannot be defined or measured: The assessor has to use professional judgment because the values of the elements contained under ''Probability of Establishment'' are not independent of the rating of the ''Consequences of Establishment.''

Specific traits or biological characteristics were assessed for each snake species to arrive at each high, medium, or low rating. The strength of the analysis is not in the element-rating but in the detailed biological and other relevant information that supports the rating. Reed and Rodda (2009) followed the ANSTF 1996 (see Lacey Act Evaluation Criteria section, above, for explanation of this method) guidelines for combining scores and noting that certainty levels for each component of the process were followed by the risk assessors. The logic that was applied to develop every step of the risk assessment analysis can be found in Chapter Ten of Reed and Rodda (2009).

Comment PR3: [Refers to previously listed species; see 77 FR 3330, January 23, 2012]

Comment PR4: [Refers to previously listed species; see 77 FR 3330, January 23, 2012]

Comment PR5: The term ''zoological'' is ambiguous and could lead to a potential loophole for those activities for which permitted importation could be allowed; hence, any activity pertaining to these snakes could be claimed to be ''zoological.''

Response PR5: This rulemaking addresses whether the identified species of large constrictor snakes qualify as injurious and, therefore, should be added to the list of injurious reptiles. The rule does not address under what circumstances a person may qualify for exception to the importation or interstate transportation prohibitions under the zoological purposes provisions. Therefore, this comment is outside of the scope of this rulemaking.

Public Comments

We reviewed all comments we received from the public, particularly for substantive issues and new information regarding the March 12, 2010, proposed rule to list the nine large constrictor snakes. Therefore, the public comments generally refer to the nine species in the proposed rule, unless otherwise stated, and we respond for all nine species, unless otherwise stated. Because some of the comments referred only to those constrictor snake species we listed on January 23, 2012 (77 FR 3330), we omit those comments from this final rule; we summarize and respond to them in the January 23, 2012, final rule to list the Burmese python and three other species. We consolidated the following comments and our responses into key issues that are not in any particular order.

Health and Welfare of Human Beings

(1) *Comment:* Some people have been killed and more have been injured in the United States by nonnative large constrictor snakes that were kept as pets.

Our Response: The Humane Society of the United States submitted a list of 577 reports that included accounts of human injuries and fatalities from nonnative constrictor snakes, nonnative constrictor snakes that escaped or were spotted in the wild, and nonnative constrictor snakes kept in inhumane conditions that were reported in the media that occurred in the United States between 1978 and mid-2014. The accounts included reports of Burmese pythons, African (rock) pythons, reticulated pythons, boa constrictors, green anacondas, and yellow anacondas, and unidentified large constrictor snakes. The list contains accounts from 46 States, including Alaska and Hawaii. The reports included dozens of attacks on people, 14 of which resulted in human fatalities. Burmese python attacks reportedly resulted in five deaths. African (rock) pythons (not distinguished by species) reportedly attacked one person fatally. Reticulated python attacks reportedly resulted in the deaths of seven people. A 25-pound red-tailed boa constrictor killed a 34-year-old man.

USARK's Web site posts this statement under their ''Best Management Practices'' Web page (USARK 2014): ''We understand that there are occupational hazards involved in the captive husbandry of the largest examples of five large snake species, and venomous reptiles. It is the position of USARK that only experienced and serious keepers should work with these animals.''

We acknowledge reports of deaths and injury due to encounters with nonnative large constrictor snakes, but the accounts identified by the commenter involved snakes held in captivity. Human fatalities from nonvenomous snakes in the wild are rare (Reed and Rodda 2009). An indirect risk is that large snakes may stretch across roads to obtain heat from the pavement on cool days, posing a hazard to motorists who swerve to avoid hitting them (Snow *et al.* 2007; Harvey *et al.* 2008). Please see ''*Potential Impacts to Humans''* in the ''Factors That Contribute to Injuriousness * * *'' section for each species, above, for further information.

(2) *Comment:* The actual physical danger that large constrictors pose to humans and public safety has been grossly overstated, and only 12 human fatalities have been attributed to these snakes since 1980, an average of 0.4 deaths per year. Those fatalities are usually a direct result of either improper care and handling of the animal, or feeding-related errors on the part of the keeper or pet owner. Another commenter stated 10 human fatalities occurred from 1990 to 2012, or 0.43 per year, by captive constrictors.

Our Response: We agree that, while 13 human deaths that we know of have occurred since 1980, this number is small relative to other causes of death. We agree that the preeminent issue is not one of public safety, because we know of few large constrictor snake attacks in the United States from free-ranging snakes. A study in Everglades National Park (Reed and Snow 2014) summarized occurrences of apparently unprovoked strikes to humans by large constrictors and the circumstances surrounding each of the five reported incidents, which occurred between 2006 and 2012. All strikes were from Burmese pythons and directed toward biologists moving through flooded wetlands; two strikes resulted in minor injury and three in no injury. No strikes are known to have been directed at park visitors. The study concludes that, while risks to humans should not be completely discounted, the relative risk of a human being killed by a python in Everglades National Park appears to be extremely low. We also note that, in their native ranges, reports of large constrictor snake attacks on humans in the wild are rare, although they have occurred (Reed and Rodda 2009). However, the remoteness of the native ranges of any of the species may preclude deaths from being reported. A study of a small tribe of hunter-gathers (the Agta) in the Philippines summarized attacks by reticulated pythons (Headland and Greene 2011). Of 19 rural men and women attacked, 11 died. While Reed and Rodda (2009) also state that virtually all known human fatalities are associated with pet manipulation, Snow *et al.* (2007) and Harvey *et al.* (2008) noted that large constrictors crossing roads could cause traffic accidents. In general, we agree that the risk to human safety is not in itself a substantial factor in listing any of these species as injurious. See also our response to Comment 1.

(3) *Comment:* Boa constrictors should be removed from the rule. These snakes have never killed their keepers, nor have they killed anyone else. There has never been a documented human death by a boa constrictor.

Our Response: For reasons discussed above in the section Withdrawal of the Boa Constrictor from Consideration as an Injurious Species, we are withdrawing our proposal to list the boa constrictor as an injurious reptile (75 FR 11808; March 12, 2010).

Large Constrictor Snakes as Pets and Hobby

(4) *Comment:* Most people in the reptile hobby who choose to own these larger species are very responsible and do well in keeping their pets and investments healthy and safe, and this includes preventing their escape. It does not stand to reason that the actions of this very limited amount of negligent owners should affect millions of responsible pet owners.

Our Response: While we do not dispute that most constrictor snake owners try to be responsible, the volume of imports and domestically bred snakes is large enough (averaging 29,520 annually (for 2011 to 2013) for the four species that are being listed in this final rule and the boa constrictor; of that, 6,135 for the four species that are being listed this final rule; Final Economic Analysis 2015, Table 8) that accidents do happen, resulting in snakes escaping or snakes being intentionally released. Shipping containers may be damaged—and live snakes able to escape—anywhere between the port of import and the destination of the pet owner's home. In that case, the problem could arise before the pet owners acquire the animals.

Another consideration is the risk involved with transporting large, powerful snakes. While keeping a snake in a sedentary home cage may not in itself be a difficult task, the situation may change when a 20-ft (6-m) snake weighing 200 pounds (91 kg) is transported in a car to a veterinarian. Unless the snake is transported in an escape-proof cage from the house to the automobile to the veterinarian, snakes may find more opportunities for escape. Conversely, small snakes may escape more easily than large ones because they are more likely to be transported casually, such as carried for show. For example, a boa constrictor that was transported around on its owner's neck on a Boston subway escaped and survived for a month on the heated train in January 2011 before being captured (Associated Press 2011).

We have based our determination on our evaluation of injuriousness to wildlife and wildlife resources and the likelihood that any of the four large constrictor snakes could escape, become established, and cause harm.

(5) *Comment:* These snakes are not injurious wild animals. They are domesticated pets.

Our Response: We recognize that many snakes are kept in captivity with no negative incidences and that they seem tame. However, the fact that various species of wildlife may be kept as pets does not remove these species from the scope of U.S. wildlife laws. Under the injurious wildlife provisions of the Lacey Act (18 U.S.C. 42), all four of these species are wild. Therefore, we have the authority to list all of the four species of constrictor snakes once we determine that they are injurious. We base our determination as injurious on their effect on any one of the following: the interests of human beings, agriculture, horticulture, forestry, wildlife, or wildlife resources of the United States.

(6) *Comment:* I have kept more of these animals than anyone you will ever meet, and I can assure you, they are not injurious in any way.

Our Response: We recognize that there are various meanings of ''injurious.'' However, under the Service's authority, the Lacey Act (18 U.S.C. 42), and for the purpose of this rule, injurious wildlife are wild mammals, wild birds, amphibians, reptiles, fish, crustaceans, mollusks, and their offspring or gametes that are injurious to the interests of human beings, agriculture, horticulture, forestry, wildlife, or wildlife resources of the United States. A wildlife species

does not need to be injurious to all of the above interests to be listed. If a species is injurious to wildlife or wildlife resources of the United States (including its territories and insular possessions), we have the authority to list that species.

(7) *Comment:* We agree that ownership of certain animals should be restricted; however, we feel that banning the species *Boa constrictor* fails to address current concerns, is unnecessarily restrictive, and counterproductive. This species also represents the largest portion of the nine species proposed for listing as injurious.

Our Response: For reasons discussed above in the section Withdrawal of the Boa Constrictor from Consideration as an Injurious Species, we are withdrawing our proposal to list the boa constrictor as an injurious reptile (75 FR 11808; March 12, 2010).

(8) *Comment:* This rule will destroy the ability of animal hobbyists, who are our future biologists and conservationists, to explore and learn about these specific animals, thus limiting exposure to the natural world at large.

Our Response: The commenters did not explain how the rule will destroy the ability of animal hobbyists to learn about these animals. Hobbyists will still be allowed to keep their snakes and offspring, and to acquire additional ones within their State (and consistent with their State's own laws). The long lives of these species improve the chances that the hobbyists will have their pets for one or more decades, generally much longer than amphibian and tropical fish hobbyists. Hobbyists still have many other species of snakes and other reptiles to choose from that are not listed as injurious. We hope that, with this rule, future biologists and conservationists will learn about the ecological role of these species in their native lands and in lands where they become invasive.

(9) *Comment:* A number of commenters in active duty in the military and who live off base stated that their snakes help them to cope with stress from traumatic events. If they get transferred, they will not be able to bring their pet snakes.

Our Response: The commenters are correct that, if they are transferred, they could not transport their pet snakes, unless the transfer is to a location in the same State.

Unprecedented Regulation

(10a) *Comment:* A ban placed by the government on a group of animals that is so prevalent in the pet industry and kept by so many hobbyists would be unprecedented.

(10b) *Comment:* Other widely held pets have been banned by the Federal Government. For example, in 1975, the Food and Drug Administration (FDA) banned the sale or distribution of turtles with shells that measure less than 4 inches in length in response to findings that pet turtles were responsible for a substantial number of *Salmonella* infections nationwide. These were primarily the baby red-eared sliders (*Trachemys scripta*) that were commonly sold in pet stores in the 1950s, '60s, and '70s, and even given away for free.

Our Response: The Lacey Act does not preclude listing a species that is prevalent in the pet industry, provided that the species meets the criteria for injuriousness. In addition, this regulation is not a ban on possessing or selling any of the species. Other animals in the pet trade have been banned by the Federal Government. For example, with the Wild Bird Conservation Act of 1992 (16 U.S.C. 4901 *et seq.*), Congress banned imports of many exotic bird species that were common in the pet trade to ensure that their native populations are not harmed by international trade. Another example is the Food and Drug Administration banning small turtles common in the pet trade (see Comment 10b). States may also have their own restrictions, and these restrictions may be more stringent than this Federal rule. For example, individual States may ban possession of any of these snake species. This final rule only establishes a prohibition against importation and interstate transportation of listed species without a permit. Furthermore, only one of the species that we are listing (reticulated python) is regularly in the reptile trade, although infrequently; the other three constrictor species are rarely or not traded. Lastly, the establishment of the Burmese python (listed as injurious in a final rule we published on January 23, 2012, at 77 FR 3330) in South Florida is unprecedented anywhere in the United States for a large predator from the pet trade and demonstrates what could happen if other large constrictors have the opportunity to establish. Oftentimes, such new situations call for more stringent solutions than previously adopted.

Other Animals More Injurious

(11) *Comment:* A better argument based on safety and health statistics could be made to ban horses or dogs, as the average American is more likely to be injured or killed by either of those animals than any reptile. Certainly there are other species, such as feral cats, dogs, rats, pigeons, starlings, and pigs, that each cause more damage to the environment of South Florida.

Our Response: As the commenter correctly points out, many species of feral domesticated animals are considered invasive and have caused harm to humans and natural resources in south Florida and other parts of the United States. However, under the Lacey Act, the Service has the authority only to list ''wild'' birds and ''wild'' mammals as injurious wildlife; under 18 U.S.C. 42(a)(2), the term ''wild'' is specific to any animals that, whether or not raised in captivity, are normally found in a wild state. Dogs, cats, and horses are considered domesticated animals under our regulations at 50 CFR 14.4 and, therefore, cannot be listed as injurious wildlife.

Based on the best available information, we have found that the four species covered by this final rule are injurious to human beings, to the interests of agriculture, or to the wildlife or wildlife resources of the United States. This does not mean that we believe these snakes to be the most injurious of all wild animals.

Effort To Ban Pets

(12) *Comment:* This snake ban opens the door to many other animals being banned. If this rule is passed, then next it will be foreign reptiles all together, followed closely by a different ban, followed by an eventual ban on reptiles, period. Next it will be cats, dogs, fish, and birds.

Our Response: This rule does not ban possession of any species. As stated above in the **SUMMARY** and elsewhere in this rule, this rule prohibits only the importation into the United States and interstate transportation of reticulated python, DeSchauensee's anaconda, green anaconda, and Beni anaconda. Prohibiting importation and interstate transportation is the only authority provided to the Secretary of the Interior by Congress under the injurious wildlife provisions of the Lacey Act (18 U.S.C. 42). Two of the four species of large constrictor snakes in this final rule are already in captivity in the United States and are available for acquisition within each State (unless otherwise regulated by your State's laws). In addition, any species under consideration for listing as injurious is evaluated on a case-by-case basis, using all available information relevant to whether it is or is not injurious. Therefore, this rule does not set up a trend to regulate any particular species or groups of species. Second, the Lacey Act does not provide the authority to list domesticated

mammals and birds as injurious; see our response to Comment 11 for more information. However, any reptile can be considered for injurious wildlife listing if it meets the listing criteria (see Lacey Act Evaluation Criteria, above, for explanation).

Effect of Rule on Welfare of Large Constrictor Snakes

(13) *Comment:* This rule change basically represents a death sentence for millions of reptiles in the United States. Many of these snakes will be abandoned and set free where they will surely suffer and die.

Our Response: We disagree that this rulemaking will result in the death of millions of reptiles currently being held in captivity. We have been clear that all owners of any of the snakes listed as injurious will be allowed to keep them under this rule. For animals already in the United States, this rule only restricts transport between States. We emphasize that it will be lawful for pet owners to keep their pets (if allowed by State law). Therefore, we have no reason to believe that responsible, caring owners will kill or release them into the wild. Breeders may still be able to export through a port in their own State (see response to Comment 68 for exporting explanation). For breeders who can no longer export, they may find buyers in their own State. For information on how to find a home for a snake that a person can no longer keep, we posted some suggestions on *http://www.regulations.gov* at the time the proposed rule was published on March 12, 2010 (separate file ''Questions and Answers''). We explained:

''If you are in a position where you must give up your pet [large constrictor snake], and zoos and humane societies have declined your efforts to donate the animal, you should contact either your State fish and wildlife agency or your local U.S. Fish and Wildlife Service office. These two government agencies are the legal authorities that co-manage fish and wildlife in this country, and they can help you to resolve this issue. The U.S. Fish and Wildlife Service is working with States around the country and the pet and aquarium industry through a campaign called Habitattitude™ to help pet owners adopt environmentally responsible actions for surrendering their pets, such as:

- Contacting the retailer for proper handling advice or for possible return;
- Giving or trading with another pet owner;
- Donating to a zoo, humane society, nature center, school, or pet retailer; and
- Contacting a veterinarian or pet retailer for guidance on humane disposal of animals.''

For those pet owners who move to another State, we also suggest contacting a local herpetology club or a national reptile organization with local members to find someone to adopt those constrictor snakes. And finally, if you live in Florida, ''Anyone who possesses a conditional snake or lizard but cannot keep it can surrender the animal to a licensed recipient (adopter) at any time with no penalties'' (FWC 2014).

(14) *Comment:* What would happen to the businesses operated by thousands of families in the industry with this rule? It is doubtful that those animals would be humanely euthanized (due to finances and ethical objections), so those animals would either be subjected to inhumane practices or become liabilities to those persons who have them. It would be a cruel irony that the animal rights agenda of eliminating these animals from the pet trade would result in the destruction of millions of animals that have proven to be nondangerous.

Our Response: Family businesses will still be able to operate, provided they either sell within their State or have a port of export directly from their State (see response to Comment 68 for exporting explanation). Businesses may switch to other species of snakes that are not listed. Please see our response to Comment 13 on alternatives for disposing of animals that you can no longer keep. Owners are encouraged to find legal alternatives, such as trading species with someone in their own State who has a species that is not listed and who is able to keep a listed species in that State. We emphasize that it will be lawful for pet owners to keep their pets (if allowed by State law) but unlawful to transport them across State lines. With the removal of the boa constrictor from consideration for listing, the effect to businesses is greatly reduced.

Regarding the statement that these snakes are nondangerous, we emphasize that we distinguish between ''nondangerous,'' which we assume the commenter means ''does not harm people,'' and ''injurious,'' which has a different meaning under the Lacey Act. We agree that these four species of snakes pose only a small risk of harm to people; however, we are listing them for their injuriousness.

(15) *Comment:* Thousands of snakes' lives will be spared because the majority of reptiles die during capture from the wild or subsequent transport or within the first year of captivity. Banning the importation of these species will ensure that many snakes will not fall victim to the harsh conditions of being shipped overseas. Snakes are often marketed as low-maintenance pets, and the families who take them home can become overwhelmed at the level of care required.

Our Response: From the Service's Law Enforcement Management Information System (LEMIS) data, we estimate that approximately 26,591 snakes of the four species we are listing in this rule were imported from 2004 to 2013. Some were probably captured from the wild. Imported snakes are then usually sent to animal dealers before being shipped to pet retailers. Finally, the snakes are typically acquired at a pet retailer and transported to a home or other location. Large constrictor snakes may become ill, injured, or die during transport. Since this listing will place prohibitions on importation and interstate movement of the four species, it is reasonable to assume that fewer animals will therefore die from importation and interstate transport. Although animal welfare is regulated by the Federal Government for some taxa (that is, primarily warm-blooded species) under such laws as the Animal Welfare Act (7 U.S.C. 2131 *et seq.*), this was not a factor considered in our injurious wildlife evaluation and did not influence our final determination.

Benefits of Having Large Constrictor Snakes in the United States

(16) *Comment:* While Burmese pythons do consume native species such as wading birds, waterfowl, muskrats, rabbits, opossum, raccoons, and even bobcats and white-tailed deer, they are probably just as likely to prey upon the more common exotic species, such as feral cats and dogs, nonnative rats and mice, starlings, pigeons, collared doves, spiny-tailed iguanas, green iguanas, cattle egrets, and muscovy ducks.

Our Response: We agree that large constrictor snakes can potentially prey on other nonnative species, and that this could be beneficial to native wildlife. Snow *et al.* (2007) reported that domestic cats, Old World rats, domestic chickens, and domestic geese have been found in Burmese python digestive systems in Florida. However, of greater conservation and management concern are the effects that invasive species pose to native populations of wildlife and wildlife resources—in particular, those that are endangered or threatened or otherwise at risk of extinction (Clavero and Garcia-Berthou 2005). Reed and Rodda (2009) listed a total of 64 State-listed endangered or threatened species at risk from pythons or other large constrictors in Florida alone. This

includes the highly endangered Key Largo wood rat, which has been found in the stomachs of Burmese pythons, and whose population may number only in the hundreds. As demonstrated in our injurious wildlife evaluation, we believe that the risks posed by large constrictor snakes to native wildlife and wildlife resources far outweigh the possible benefits they may have as predators of nonnative wildlife in the United States. We do not have information on what the other feral constrictor snakes have eaten, but we assume there would be similar effects from these four species due to the traits they share with the Burmese python. The negative effect of predation on rare native species is greater than the effect on exotic species because any decrease in populations of rare species makes it less likely for those populations to rebound.

(17) *Comment:* Some commenters own boa constrictors from regions of Brazil that no longer have boa constrictors due to deforestation. Many of the reptiles present in captive collections are representative of vanishing bloodlines of wild populations of these species. They are conserving wild species.

Our Response: Listing the four species in this final rule as injurious will not impact legitimate conservation efforts that U.S. breeders can carry out for species that may be negatively impacted by natural and manmade events within their native range. In general, the Service supports ex-situ conservation efforts, such as captive breeding, when done in a scientific manner for the conservation of a species within its native range. The Act also still allows export of listed species that could be used in reintroduction activities or other in-situ conservation efforts. The Act allows for the issuance of permits authorizing interstate movement or imports for scientific or zoological purposes, including conservation breeding operations. For reasons discussed above in the section Withdrawal of the Boa Constrictor from Consideration as an Injurious Species, we are withdrawing our proposal to list the boa constrictor as an injurious reptile (75 FR 11808; March 12, 2010).

(18) *Comment:* Many keepers I know are concerned about the worldwide decline of species, and a distributed network of determined keepers may prove the only hope for the survival of several of the species addressed. For example, the natural population of the Burmese python has been on a steady decline due to habitat loss.

Our Response: The Service strongly supports ex-situ conservation programs that are scientifically designed to provide conservation benefits to species in their native range. The listing of these species as injurious will not prevent conservation breeding programs run by dedicated herpetologists and hobbyists from providing a conservation benefit to any of these species (see our response to Comment 17).

State Issue (Not Federal Government)

(19) *Comment:* The constrictor snakes should be listed by individual States, not by the Federal Government.

Our Response: Many commenters suggested that we should not list any of these species and we should allow the States to regulate these species as they see fit. The Service is responsible for implementing and enforcing laws such as the Lacey Act, under which authority we are listing these species. We believe implementation of the injurious wildlife provisions reflects the shared State-Federal governance of invasive species challenges facing the United States as originally intended by Congress. Since these snakes have been found to be injurious to human beings and to wildlife and wildlife resources, we believe federally regulating movements of these four species of constrictors into the United States and between States and territories is an important step in limiting their effects. The States and other jurisdictions within the United States retain the ability to regulate these species as they determine appropriate within their boundaries. For reasons discussed above in the section Withdrawal of the Boa Constrictor from Consideration as an Injurious Species, we are giving the States and other areas under U.S. jurisdiction the opportunity to demonstrate the efficacy of State-based measures to address the potential invasive nature of boa constrictors, including, if appropriate, promulgating their own regulations regarding the boa constrictor.

(20) *Comment:* Mere presence of a species does not equate the threat of harm, especially when individuals are sighted in environments in which they cannot establish. If this is solid justification for listing a species as injurious, the Service will need to list every organism that has ever—and is ever—spotted outside of captivity in the United States.

Our Response: The Service undergoes a rigorous evaluation before determining that any species is injurious. Mere presence does not qualify a species as injurious. The Service evaluates each species based on numerous criteria (see Lacey Act Evaluation Criteria, above). We also consider the potential to survive, become established, and spread; likelihood of release or escape; impact to endangered and threatened species and their habitats; and so on. We have determined that the four species of large constrictor snakes that are the subjects of this rule are injurious and should be listed.

Rule Will Not Be Effective

(21) *Comment:* This regulation change will not make the established population of Burmese pythons in Florida disappear.

Our Response: [Refers to previously listed species; see 77 FR 3330, January 23, 2012]

(22) *Comment:* Such a rule change disallowing the interstate trade of these species is counterintuitive and a non sequitur to ban trade between every other State in the Union.

Our Response: From our evaluation of each species (under the section ''Factors That Contribute to Injuriousness * * *'' for each species), we find that prohibiting the interstate trade of these species, along with prohibiting importation of them, will reduce the risk of these species becoming more widespread to new areas of the United States, including the territories and insular possessions. Please also see Need for the Final Rule, above.

(23) *Comment:* The Lacey Act has never stopped the introduction or eradicated the feral populations of any invasive species, which makes it wholly ineffective in this case.

Our Response: The commenter is correct that no eradication of established feral populations has been accomplished merely by the listing of a species as injurious, but we did not expect that result. Merely preventing introductions of new individuals will not result in the eradication of existing populations. The most likely way for the injurious listing provisions to be successful is if they are applied before a species is present in the United States or in vulnerable parts of the United States. The Beni and DeSchauensee's anacondas that we are listing as injurious in this final rule may be prevented from becoming established in Florida, as well as other vulnerable areas of the country. Furthermore, the purpose of listing the reticulated python and green anaconda in all areas of the country is to prevent any areas of the country that do not currently have those species (see *Potential Introduction and Spread* sections for each species, above) from becoming invaded. Fowler *et al.* (2007) discuss the effectiveness of the Lacey Act listings by looking at all of the species that are currently listed as injurious. They state that, ''None (0%) of the 7 species that were absent from

the country at the time of listing have subsequently established populations, and two of the taxa that were present only in captivity (raccoon dog and brushtail possum) did not establish wild populations. [T]wo taxa that were established outside captivity at the time of the listing (European rabbit and Java sparrow) have not spread between [S]tates since listing.'' In general, if the rule can prevent introductions to vulnerable parts of the country, it will be effective.

Educational and Zoological Use Curtailed

(24) *Comment:* The rule will impact educational outreach at zoos. Educators travel to neighboring States. Burmese pythons are a flagship species for these outreach education activities. The Act as currently written requires strict and uninterrupted double containment for injurious species. The inclusion of these four taxa of snakes on the list of injurious wildlife will make the use of any of these species in interstate education programs virtually impossible.

Our Response: Zoos around the country commonly use live animals for education at the zoo and offsite. The listing of species as injurious will not prevent the continued use of these species, such as reticulated pythons, for education, although some restrictions or permitting may be required. Provided the animal has never been permitted under the Act (either the species was not listed under the Act and, therefore, authorization was previously not required for the animal to move in interstate transport, or the species was listed under the Act after the animal arrived in the State and never left), there would be no restrictions for using the animal for educational programs within the State where the zoo is located. The restrictions under the Act, such as double escape-proof containment, only apply once an animal has been ''permitted.'' If the zoo never takes the animal out of the State, no permits or authorization is required. However, if zoo personnel want to travel across State lines with one of the listed species, the Act would come into effect. The Act requires that the zoo obtain a permit to carry out any interstate movement of a listed species and the specimens being moved would need to be in double-escape-proof containment. Permit applications to carry out interstate movement of listed species for educational purposes can be submitted to the Service. This is a similar procedure used by zoological and educational institutions to obtain permits for endangered and threatened species, so the institutions may already be familiar with the process. As of this final rule, the Service has already issued such permits for the four previously listed constrictor snakes (77 FR 3330, January 23, 2012).

The commenter is correct that the double-escape-proof containment is a requirement for listed specimens that have been permitted. Moreover, as stated above, this requirement applies not only when the snake is being transported outside the zoo, but applies within the zoo as well. However, we have found that most zoos already contain their reptiles in double-escape-proof containment (such as a display case within a building). As such, they are already meeting this requirement or could meet it with a minimal extra cost over the standard housing requirements for the species. However, the containment of any injurious species is consistent with the preventative measures of the injurious wildlife provisions of the Lacey Act.

(25) *Comment:* The cost of specimen replacement to zoos will increase dramatically.

Our Response: The Service has no reason to believe that the cost of replacement would significantly increase beyond the cost of applying for any required permits or authorization, nor did the commenter provide any evidence of costs increasing. One of the species we are listing (reticulated python) is currently available from breeders in many States and can be obtained within a State without a permit once the listing goes into effect. Two others (DeSchauensee's and Beni anacondas) have not been imported into the United States, and one (green anaconda) is not readily available due to limited captive breeding. If importation is required to acquire new animals, zoos would need to apply for an importation permit. The cost of a permit is $100 for importation or to acquire the species for the first time from outside the State where the zoo is located, which covers the whole shipment, even for multiple species and individuals. The cost is $25 for a permit to transport or move animals from one exhibit to another within a permitted institution or between institutions that are already permitted to maintain the same injurious species. The commenter did not explain how often zoos replace specimens, so we do not know how much the cost will increase. Since most of these species have lifespans in captivity of 20 to 30 years (see *Biology* section for each species), we expect this need will not be frequent. As for the cost of the snakes, the commenter provided no information that this cost will increase, nor do we know whether the price of these species on the market will increase, decrease, or remain unchanged. Furthermore, zoos may become a primary beneficiary of constrictor snakes from owners who decide to give up their pets because they are moving out-of-State or for another reason.

(26) *Comment:* The rule will impact our non-outreach collection; the permit preparation time, administrative costs, permit fees, and time delays will be a major hindrance to continuing the management of these species as part of the broader zoo network within the Association of Zoos and Aquariums (AZA). Replacing specimens in a timely fashion will be extremely difficult for our zoo and others. Ultimately, these species may have to be eliminated from our collections.

Our Response: As stated earlier, the rule does not affect intrastate movement of these species nor does it restrict ownership or even captive breeding. It is anticipated that most zoos that already have these species have the capacity either to breed animals already held at the zoo or obtain additional specimens within their State. Zoos may become a primary beneficiary of constrictor snakes from owners who decide to give up their pets because they are moving out-of-State or for other reasons. If this is not sufficient, the Act does have provisions for obtaining specimens from other States or even from foreign sources. The Service recognizes that the permitting process imposes some increased administrative costs and is committed to exercising available flexibilities under its Lacey Act permitting authority to minimize permit application preparation and processing times and to reduce administrative costs. As the AZA pointed out in their comment (''We commend FWS for working with AZA staff * * *''), we are issuing permits that authorize multiple interstate movements for educational purposes over extended periods. The Service is committed to finding ways to minimize the time it takes for facilities to obtain authorization for interstate transport or importation so that zoos can continue their active management of these species. We do not believe that this listing or the January 23, 2012, listing will result in any zoo having to eliminate these species from their collections.

(27) *Comment:* With my collection, I do school and library visits to give kids who generally do not get the chance to see these animals up close the experience to see them. In my mind this is one step needed in educating people

on wildlife conservation as well as responsible pet keeping. I take large snakes and lizards from all over the world to kids who would normally never be able to see them. If you ban these reptiles, my life dream will be ruined, and I will not be able to continue my life mission to show people these amazing creatures up close.

Our Response: We recognize that many people present large and small live animal programs in communities all over the country. We agree that such programs are important to teach conservation and the value of wildlife. However, this new rule will not prevent these programs from occurring. Providing no State lines are crossed, you can continue your educational programs without the need for a permit from the Service. Furthermore, educators may apply to the Service for a permit to transport these species across State lines for educational purposes, and we have already issued such permits for the four previously listed constrictor snakes (see 77 FR 3330, January 23, 2012). Lastly, educators can also teach conservation principles by using snake skins, photos, and other tools to teach people about the problems of releasing nonnative species in the United States. We believe conservation can be taught without the exact live specimens of every animal being discussed.

(28) *Comment:* This rule will eliminate a reptile culture for sharing by future generations.

Our Response: The commenter did not explain how the reptile culture would be eliminated. This rule will not result in the elimination of reptile ownership or interest in reptiles. The listing does not prohibit ownership of these species or any other reptile species. While the listing will probably result in fewer specimens of these species being available commercially because the listing may reduce the economic incentive for some current breeders from continuing to breed the species, we do not believe that all captive breeding would stop. An unfortunate aspect of the need to protect our native wildlife and ecosystems by listing these species as injurious is that some people or organizations that currently possess these species will be affected.

(29) *Comment:* If the additional species under consideration are listed, there will be no alternative giant snakes, and all institutions wishing to exhibit or breed large constrictors will have to undertake the regulatory burden that comes with the listing.

Our Response: The commenter is correct that, with the listing of these four species, the number of alternative ''giant'' snakes that could be imported or moved across State lines would be reduced. However, there are more than 25 other species of constrictor snakes in the pet trade that are not regulated as injurious wildlife and would not require a Federal permit. For example, the amethystine python (*Morelia amethistina*) and scrub python (*Morelia kinghorni*) are giant constrictors and are not listed as injurious. While some of the species in trade may not be considered giant, they are nevertheless very large. Furthermore, zoological institutions that wish to display the listed species may continue to display ones currently in their possession or obtained within the State without obtaining a permit or they could request a permit to obtain snakes from outside their State. To date, the Service has not denied any applications submitted by a zoological institution that meets the issuance criteria under the Act.

Violations and Penalties

(30) *Comment:* If enacted, this rulemaking would have the unprecedented effect of putting as many as a million American citizens in possession of injurious wildlife and subject to potential felony prosecution under the Lacey Act. It could effectively create a new class of criminal out of law-abiding American citizens. This regulation would turn hobbyists' current activities into a Federal crime.

Our Response: These listings under the Lacey Act will have no effect on the majority of owners of these four species (two of which are likely not in U.S. trade or ownership). Pet owners who keep their snakes within their own State will not be affected. Examples of owners who will be affected are: (a) People who wish to take their pets to a veterinarian in another State; (b) people who wish to transport their pets across a State line for another reason, such as if the owners are moving; and (c) people who keep large constrictor snakes as a business and sell to other States. However, many States have laws against possessing wild animals, and these snakes may not be allowed into those States by State law anyway. Examples are Hawaii (all snakes), Florida (for reticulated python, green anaconda, and other species), Iowa (reticulated and other pythons and all *Eunectes* spp.), Louisiana (reticulated and other pythons and all *Eunectes* spp.), New York (reticulated and other pythons and green anaconda), and Texas (reticulated and other pythons and green anaconda) (see our Final Environmental Assessment 2015). State laws may be more stringent than Federal laws and should not be confused with Federal laws. Our response to (a) above is that pet owners are free to locate a veterinarian in their own State, and veterinarians may make house calls in another State if licensed in that State. The pet industry and veterinary organizations could work together to help the owners of the listed species to locate willing veterinarians within a reasonable driving distance. Our response to (b) above is that people who are moving should seek alternatives such as those suggested in our response to Comment 13.

The subject of violations under the Lacey Act has frequently been misunderstood and caused undue consternation among animal owners. We will explain here how the Lacey Act will address the new injurious listings. A person would violate the injurious wildlife provisions of the Lacey Act (18 U.S.C. 42, also known as title 18) if he or she did one of the following with any one of the constrictor species listed as injurious: (a) Transported between the States, the District of Columbia, Hawaii, the Commonwealth of Puerto Rico, or any territory or possession of the United States by any means whatsoever; or (b) imported into the United States from another country. In either case, notwithstanding there may be other laws being broken by the action that we are not considering here, these violations are considered misdemeanors and carry penalties of up to 6 months in prison and a $5,000 fine for an individual or a $10,000 fine for an organization under 18 U.S.C. 42. If, however, another law was also broken, the violation could become a felony under 16 U.S.C. 3372 (also known as title 16, which is the wildlife trafficking provisions of the Lacey Act), which carries higher penalties. For example, if the owner of a reticulated python in Florida did not have a permit as required by Florida State law, and that person transported the snake to another State, then the fact that the State law was broken and the snake was transported across State lines makes that action a title 16 violation. Therefore, while the listing of the species as injurious may put ''as many as a million American citizens'' in possession of injurious wildlife, no one will be in violation of the Lacey Act automatically, because possession is not prohibited. Furthermore, unless these people break laws under title 16, they would not be subject to potential felony prosecution under the Lacey Act. Hobbyists' current activities would not become crimes provided their snakes stayed in-State or were exported directly out of the

country from a designated port within their State's borders.

(31) *Comment:* The illegal snake industry thrives in Hawaii. The proposed ban will not stop the pet industry in utilizing smuggling as a means of selling illegal species. However, Lacey Act violations are serious and can result in steep penalties for offenders. Eliminating the legal source of snake imports and increasing the risks to black marketers will certainly lower the odds that a male and female of any particular species would escape together to initiate a naturalized invasive population.

Our Response: We agree that the injurious wildlife provisions of the Lacey Act serve an important role in invasive species management, and we hope that the rule reduces the risk of smuggling and the opportunity for these four invasive snake species to establish in the wild.

Unintended Consequences

(32) *Comment:* Pet owners will release their snakes and the problem will be worse. The Lacey Act will do nothing to help the problem; if anything, it would have an adverse effect on the environment. Snake breeders who had been fully responsible beforehand may release their now worthless investments into the wild in retaliation of the rule change. Caring snake owners that cannot move across State lines with their beloved pets may instead release them as a means of avoiding forced euthanasia. The trust of responsible snake owners would be debilitated, and a large portion of snake owners deliberately becoming irresponsible poses a much larger risk than a few isolated irresponsible owners.

Our Response: Many commenters stated that responsible owners would release or euthanize their snakes if this rule is finalized. We do not believe that this would be the case since pet owners will still be allowed to keep their snakes and sell or give them away within their State. Many States, including Florida (FWC 2014), have laws making it illegal to release nonnative animals into the wild. We posted some suggestions on *http://www.regulations.gov* at the time the proposed rule was published on March 12, 2010 (see separate file ''Questions and Answers''), for how to find a home for a snake that a person can no longer keep; see our response to Comment 13, where they are repeated.

With social networking so available on the Internet, a person moving to another State could possibly find a reptile enthusiast in their current State to adopt the pet. When the person moved to the new State, the person could contact reptile enthusiasts in the new State to see if any snakes were available for adopting. While that is not the same as keeping the same snake, it does present a responsible alternative.

We believe that most people will choose to keep their snakes and also, of those owners who cannot because they are moving to another State or similar situation, they have options as presented above in this response and our response to Comment 13. While some misinformed pet owners or breeders might release their snakes, we do not believe that this activity will be widespread. The Service believes that the potential illegal conduct of a few irresponsible pet owners should not cause us to refrain from listing species that we have determined to be injurious.

(33*) Comment:* This rule will create a lucrative black market in the trade of these nine species that will cost billions in tax dollars to enforce. Ultimately, the animals will suffer. There will always be unscrupulous dealers who will take advantage of prohibition.

Our Response: The commenter provides no supporting evidence that a black market will be created for any of the nine species in the March 12, 2010, proposed rule. Therefore, we assume that the commenter is basing the statement on historical events with other species. We do not know if a black market will be created, although we acknowledge that some unscrupulous dealers may take advantage of people. However, we believe that the pet owners prefer to be law-abiding citizens and would find legal ways of dealing with new situations.

(34) *Comment:* This rule will cause airlines to embargo snakes. They will refuse to transport them.

Our Response: We hope that this rule does not influence airlines to implement an unnecessary embargo on transporting snakes within the injurious wildlife provisions of the Lacey Act (that is, intrastate or with a permit). It is our understanding that, unrelated to this rule or any injurious wildlife listing, some carriers have declined to transport live animals or specific dangerous animals. Shippers with the appropriate Federal permits, specifying how the animals should be transported in escape-proof containers, should be able to find a carrier.

Environmental Threat

(35) *Comment:* The peer-reviewed research (''Giant Constrictors: Biological and Management Profiles and an Establishment Risk Assessment for Nine Large Species of Pythons, Anacondas, and the Boa Constrictor'') quantified the ecological risk that nine species of large constrictor snakes pose to the United States, looking at both the probability that the snakes would become established and the resulting consequences. Burmese pythons will eat a wide variety of reptiles, birds, and mammals of all sizes, and can deplete vulnerable species.

Our Response: We agree that there is an environmental threat to native species in the United States, similar to that posed by the Burmese python, from the four species we are listing in this rule. We have explained this threat in our Environmental Assessment and in the sections ''*Potential Impacts to Native Species (Including Endangered and Threatened Species*'') for each species above. We concur that this threat is part of the justification for listing the four species as injurious.

(36) *Comment:* The Burmese python invasion is an ecological calamity in progress. It is directly undermining the multibillion-dollar, nationally supported Everglades restoration project because the monitoring and success of that project are tied to measures of native wildlife ''indicator'' populations, which are now being consumed and reduced by these human-introduced predators. Had the Service considered the risk of the Burmese python under its Lacey Act listing authority 20 years ago, the agency might have prevented this invasion.

Our Response: The South Florida Water Management District petitioned us to list the Burmese python in 2006, because the species was undermining their Everglades restoration effort, and we finalized the listing of that species as injurious on January 23, 2012 (77 FR 3330). The four species we are listing in this rule share many of the traits of the Burmese python that create the risk of injuriousness. We agree that, if we had listed the species 20 years ago, the current problem might have been averted. This evidence gives further support for our listing of the four species of large constrictor snakes in this final rule before this situation happens with these species.

(37) *Comment:* One recent paper linked declines up to 99 percent of small- and medium-sized mammals in Everglades National Park with the increased occurrence of Burmese pythons.

Our Response: The study referred to correlated a decline of raccoons (99.3 percent), opossums (98.9 percent), rabbits (possibly 100 percent), foxes (possibly 100 percent), and bobcats (87.5 percent) with the timing and geographic spread of the presence of Burmese pythons (Dorcas *et al.* 2012). Although the study is based on Burmese

pythons in Everglades National Park, we believe that the constrictor species in this final rule could have a similar devastating effect on small- and medium-sized mammals wherever the snakes are found because all species in this final rule prey on similar animal types.

(38) *Comment:* Another paper describes the establishment of boa constrictors in Puerto Rico that could severely impact native species, especially endangered and threatened species.

Our Response: The commenter refers to Reynolds et al. (2012), which documents an established population of boa constrictors in Puerto Rico. We recognize that there is an established population of boas in Puerto Rico. For reasons discussed above in the section Withdrawal of the Boa Constrictor from Consideration as an Injurious Species, we are withdrawing our proposal to list the boa constrictor as an injurious reptile (75 FR 11808; March 12, 2010).

(39) *Comment:* A study published in 2012 in *Wildlife Research* found that the danger of establishment of reptiles after introduction is actually much higher than previously thought—above 40 percent. Reptile establishment success was 43 percent in North America, with an astounding 72 percent for islands. The report concluded, ''[t]his suggests that we should focus management on reducing the number of herptile species introduced because both reptiles and amphibians have a high likelihood of establishing.'' Compounding the dire results of this study is the fact that once established, not a single invasive reptile species has ever been eradicated through management efforts.'' Thus, it is imperative that the Service take aggressive action to curtail the importation and interstate trade in injurious species.

Our Response: Conventional perception has been that, of all the animals introduced into an area, only a small percent (around 10 percent) survive, and of those survivors, only a small percent (around 10 percent) reproduce and establish populations. The study referred to by the commenter (Ferreira *et al.* 2012) found that this small percentage of establishment underestimated reptiles. As the comment states, reptile establishment was 43 percent on the North American continent and 72 percent on islands. These results underscore how important it is to keep reptiles from being introduced into new areas.

(40) *Comment:* ''Boa constrictors are an injurious species and must be listed under the Lacey Act. Of the nine snake species originally proposed to be banned, the boa constrictor * * * has * * * established more introduced populations than any other boa or python species, clearly posing a threat to public safety and ''the interests of agriculture, horticulture, forestry, [and] wildlife'' * * *. Boa constrictors are already established in Florida and Puerto Rico, continue to threaten other areas such as Hawaii, where loose boa constrictors are being found with greater frequency; and are established and have negatively affected the native species in Cozumel and Aruba, providing a frightening predictor of the damaging impact they will have on U.S. States and Territories if they remain in the pet trade and import of such species is not prohibited.

Our Response: For reasons discussed above in the section Withdrawal of the Boa Constrictor from Consideration as an Injurious Species, we are withdrawing our proposal to list the boa constrictor as an injurious reptile (75 FR 11808; March 12, 2010).

(41) *Comment:* The Florida Fish and Wildlife Conservation Commission (FWC) is committed to preventing the introduction of high-risk nonnative species, while assessing and managing the risks of species in trade, including large constrictors. Appropriate regulatory measures, along with outreach and education, are a key part of preventing the establishment of invasive exotic wildlife. FWC supports the efforts of the Service to reduce the potential of large constrictor snakes becoming established invasive species. FWC looks forward to partnering with the Service to prevent future invasions of high-risk nonnative species.

Our Response: The Service appreciates the support by FWC. FWC sponsors Pet Amnesty Days, and FWS assists with those, so potential for release of snakes should be minimal. Because the listing as injurious does not prohibit ownership and because pet owners have alternatives to releasing their snakes, we believe there will be few cases where people would feel the need to release their snakes and that these few cases do not justify not listing them. We applaud FWC for being committed to preventing introduction of high-risk nonnative species.

Comments From Organizations, Political Leaders, and Academia From Hawaii

(42) *Comment:* Several endemic species that evolved on the islands are declining, already extinct, or at a high risk of extinction due to other introduced invasive species. On Guam, six endemic bird species were either extirpated or went extinct due to the brown tree snake (*Boiga irregularis*) invasion (Smithsonian National Zoological Park). On Kauai, all the remaining endemic forest birds that have not gone extinct are endangered. They would not likely survive treetop predators such as boas.

Our Response: We understand Hawaii's and the other islands' sensitive position. In this rule, we are adding reticulated python, DeSchauensee's anaconda, green anaconda, and Beni anaconda to the list of injurious wildlife. For reasons discussed above in the section Withdrawal of the Boa Constrictor from Consideration as an Injurious Species, we are withdrawing our proposal to list the boa constrictor as an injurious reptile (75 FR 11808; March 12, 2010).

(43) *Comment:* The pet industry disregards the real danger posed by importing exotic animals around the globe, but the proof of the trade's risk is all around us. On Kauai, this includes a growing population of rose-billed parakeets threatening agriculture and spreading invasive seeds long distances throughout the forest. These were released pets. On the Big Island, escaped Jackson Chameleons established breeding populations and are consuming native insects and snails.

Our Response: We understand Hawaii's and the other islands' ecologically sensitive positions. In this rule, we are adding reticulated python, DeSchauensee's anaconda, green anaconda, and Beni anaconda to the list of injurious wildlife. For reasons discussed above in the section Withdrawal of the Boa Constrictor from Consideration as an Injurious Species, we are withdrawing our proposal to list the boa constrictor as an injurious reptile (75 FR 11808; March 12, 2010).

(44) *Comment:* In a letter to Secretary Jewell in March 2014, the Governor of Hawaii explained the importance of biosecurity to Hawaii and that this importance is recognized by The Republic of Palau, Federated States of Micronesia, and Republic of the Marshall Islands. The letter lists four resolutions that the State adopted to coordinate the State's position on Federal invasive issues. One resolution (13–3) supports amendments to adding reticulated python, DeSchauensee's anaconda, green anaconda, Beni anaconda, and boa constrictor to the list of injurious wildlife under the Lacey Act.

Our Response: We understand Hawaii's and the other islands' ecologically sensitive positions. In this rule, we are adding reticulated python, DeSchauensee's anaconda, green anaconda, and Beni anaconda to the list

of injurious wildlife. For reasons discussed above in the section Withdrawal of the Boa Constrictor from Consideration as an Injurious Species, we are withdrawing our proposal to list the boa constrictor as an injurious reptile (75 FR 11808; March 12, 2010).

(45) *Comment:* One of the greatest tourist attractions of Hawaii is that it is a snake-free tropical ecosystem. If the perception that Hawaii is a safe place to hike in the jungle is lost, it will cost the State significant economic activity. In 2013, tourism represented 21 percent of the GPD (gross domestic product) and was the largest single contributor to the State's economy.

Our Response: We understand Hawaii's and the other islands' ecologically sensitive positions. In this rule, we are adding reticulated python, DeSchauensee's anaconda, green anaconda, and Beni anaconda to the list of injurious wildlife. For reasons discussed above in the section Withdrawal of the Boa Constrictor from Consideration as an Injurious Species, we are withdrawing our proposal to list the boa constrictor as an injurious reptile (75 FR 11808; March 12, 2010).

(46) *Comment:* A group coordinating Hawaii's alien pest control efforts supports adding reticulated python, DeSchauensee's anaconda, green anaconda, Beni anaconda, and boa constrictor to the list of injurious wildlife. The comment notes how many snakes are still being reported on the islands despite a State prohibition on possession of snakes. The comment explains that any snake can threaten unique island species. The comment adds, ''Some may view Hawaii as relatively unimportant to the continental [United States], but invasion by snakes is a serious threat to military operations, the visitor industry, and the trans-Pacific trade routes.''

Our Response: In this rule, we are adding reticulated python, DeSchauensee's anaconda, green anaconda, and Beni anaconda to the list of injurious wildlife. For reasons discussed above in the section Withdrawal of the Boa Constrictor from Consideration as an Injurious Species, we are withdrawing our proposal to list the boa constrictor as an injurious reptile (75 FR 11808; March 12, 2010).

(47) *Comment:* The commenter supports adding reticulated python, DeSchauensee's anaconda, green anaconda, Beni anaconda, and boa constrictor to the list of injurious wildlife. The comment refers to the brown tree snake (*Boiga irregularis*) and the economic potential toll it could take ($593 million to $2.14 billion annually) if the brown tree snake got into the Hawaiian Islands. The comment compares boas to brown tree snakes, because both are arboreal, produce the same number of offspring, and feed on the same prey.

Our Response: In this rule, we are adding reticulated python, DeSchauensee's anaconda, green anaconda, and Beni anaconda to the list of injurious wildlife. For reasons discussed above in the section Withdrawal of the Boa Constrictor from Consideration as an Injurious Species, we are withdrawing our proposal to list the boa constrictor as an injurious reptile (75 FR 11808; March 12, 2010).

Political Pressure

(48) *Comment:* Politics are running the process. This entire movement is driven by animal rights extremists with deep pockets and a political agenda, and not science and reason. It is designed to end the trade in nonnative wildlife.

Our Response: We received a petition from the South Florida Water Management District in 2006 to list the Burmese python. They were concerned about the ecological danger posed by Burmese pythons to the health of the Everglades. In our effort to address this petition, we realized that other species of large constrictors were becoming increasingly commonly found in Florida, and, therefore, we expanded our evaluation to include other species. The Service has been criticized in the past for being too late in listing species as injurious. We took a proactive approach to prevent future problems.

The regulatory process to list the four species that are the subjects of this final rule was guided by biologists. We received peer-reviewed scientific documentation (the risk assessment) from a separate bureau (see our responses to Comments 49 and 99 on the USGS risk assessment). We also received comments from five independent peer reviewers on the proposed rule and supporting documents. This rule is an action to regulate the importation and interstate transport of four species of large constrictor snakes that have been found to be injurious. Much of the trade in these species of snakes can continue legally (except where States have their own prohibiting laws). We received tens of thousands of comments from both animal rights supporters and pet trade supporters. We considered the comments of all submitters equally.

(49) *Comment:* It is not hard to understand why the USGS and biologists would be strongly interested in seeing more species added to the Injurious Wildlife List. They have decades of experience getting funding for injurious snake research; they are expert at it. Because of this history and the fiscal incentives involved, a tangible potential exists for bias, impropriety, and a lack of impartiality. Due to the obvious possibility of conflict of interest and bias, the USGS should have recused itself from the contract and funding to create this report. So far, the USGS ''report'' provides the only scientific evidence (if one can actually call it scientific) that would justify any Federal regulatory action regarding these nine tropical snake species.

Our Response: The Service, the National Park Service, and the USGS carefully segregated their roles in this rulemaking process so that policy objectives did not bias scientific results. USGS does not undertake any regulatory efforts associated with injurious wildlife so that it may concentrate specifically on the science of the issues. The Service and the National Park Service contracted with USGS to prepare the report on risk assessment because of USGS's extensive expertise on the subject. Part of this expertise comes from their similar work on brown tree snakes, which were added to the list of injurious reptiles in 1990 (55 FR 17439, April 25, 1990). The risk assessment on the constrictor snakes provided an extensive review of the literature of the species, and while this information was used by the risk assessment's authors to provide measures of risk on each species, the extensive literature review was also used separately by the Service biologists who wrote this rule. Therefore, this rule and the risk assessment were developed from independent scientific papers from authors all around the world.

In addition, the peer reviewers of the March 12, 2010, proposed rule (75 FR 11808) and supporting documents state that the listing of all nine large constrictor snakes is scientifically justified and an appropriate step to protect native wildlife in the United States from the risks posed by the nine species. The 2011 USGS document entitled ''Challenges in Identifying Sites Climatically Matched to the Native Ranges of Animal Invaders'' also underwent peer review before it was published. Please see also our response to Comment 99 for more information on the USGS peer review process.

(50) *Comment:* The rule was steered by the USGS.

Our Response: The USGS's role was to prepare one of the supporting documents (''Giant Constrictors: Biological and Management Profiles and an Establishment Risk Assessment for Nine Large Species of Pythons, Anacondas, and the Boa Constrictor'').

This rule was written by the Service, using the risk assessment document for its excellent summaries of the biology of the four species, as well as for its assessment of the risks. However, the Service has used the criteria set forth by the Aquatic Nuisance Species Task Force (ANSTF 1996) to determine risks and its own injurious wildlife evaluation criteria to determine which species should be listed. The Service thoroughly considered each species, using biological information compiled by the USGS risk assessment authors and other available information. Because the risk assessment authors did such a thorough job of comprehensively compiling literature (more than 600 references) on the nine species that were the subjects of the March 12, 2010 proposed rule (75 FR 11808), we were able to utilize the report extensively for our own injurious wildlife evaluation of the four species that are the subjects of this rule. This compilation of references in one location greatly facilitated our evaluations, but it should not be construed that USGS directed our determinations.

Misinterpretation of the Rule

(51) *Comment:* The government does not have the right to ban animals that are so widely kept as pets. It is unconstitutional. It is my constitutional right to be able to express myself and I do that through reptiles.

Our Response: Many commenters believe that the rule will ban possession of the four species of constrictor snakes we are listing as injurious in the rule. This is not true. An injurious wildlife designation prohibits importation into the United States and transport across State lines (including the District of Columbia and U.S. Territories and possessions). Pet owners will be allowed to keep their pets, sell them, or give them away within their own State, if allowed by State law. There is no Constitutional right to unregulated importation and interstate transportation of wildlife found to be injurious.

Confusion With S 373 (Senate Bill 373) and HR 996 (House of Representatives Bill 996)

(52) *Comment:* S 373 or HR 996 should (or should not) be enacted.

Our Response: Many commenters cited S 373 as the action on which they were commenting. We assume the commenters were referring to Senate Bill 373, which was introduced in February 2009. The bill was not passed into law. The bill was a separate but parallel action to the Service's rule to list the constrictor snakes. Similarly, HR 996, introduced in 2013, addresses a broader suite of invasive wildlife issues by Congress. We can only address comments regarding our specific rule. To ensure their comments on any Congressional bill are heard, the public should submit those comments to their members of Congress.

More Burdens on Service

(53) *Comment:* This proposal will most likely create more burdens on the already taxed Office [Division] of Management Authority and enforcement sections of the Service.

Our Response: Both the Division of Management Authority and the Office of Law Enforcement are fully prepared to handle any increase in work that may result from this rule. We anticipate that the rule will not generate a significantly large increase in permit applications being submitted or increase in inspections at the ports. The Division of Management Authority receives more than 7,000 applications and issues more than 20,000 permits annually. Based on other listing activities involving species that are traded more frequently than the listed constrictors, the Division of Management Authority anticipates an increase of no more than 1 or 2 percent annually.

While the listing of species as injurious that are already widely kept and sold as pets will present unique law enforcement challenges with respect to interstate transport, the interception of injurious wildlife to prevent both entry into the United States and spread of such species once they are in the country constitutes an investigative priority for Service Law Enforcement when such transport represents a threat to U.S. wildlife resources and habitat. The fact that the listing of these constrictor snakes will create additional work for enforcement officers does not outweigh the ecological importance of addressing the problems created by the import and interstate transport of these snakes.

(54) *Comment:* Will the Department of the Interior properly fund this rule change when more pressing and immediate crises to the environment are happening?

Our Response: This comment is outside of the scope of the rule. The funding to support this rule change after it takes effect will be in the form of law enforcement (such as port inspections) and permit processing as needed to administer the regulation. Please see our response to Comment 53, which addresses those subjects.

(55) *Comment:* At our zoological institutions, we are concerned that the permit process will be affected because of a backlog of permit applications.

Our Response: While processing time for any application can vary due to completeness of the application or current workload being handled by the Division of Management Authority, the Division is committed to processing any injurious wildlife application in the most timely and efficient manner possible. Based on the number of applications that we received since 2012, when the first four constrictors were listed, we anticipate receiving fewer than 25 applications requesting authorization to conduct activities with all listed constrictors, and applications will typically be completed within 30 days. Since any permit issued for interstate transport of a listed species is valid for 1 year or more and covers a specific geographic range where activities could occur, we do not anticipate that a 30-day processing time will result in any significant impacts to a zoo's ability to carry out educational work outside their State of operation.

Predecisional Proposed Rule

(56) *Comment:* The proposed rule is predecisional. It is prejudicially constructed and telegraphs a predetermined end.

Our Response: By the nature of a proposed rule (in general for all agencies), the agency publishes what it is proposing to be the regulation, including any findings that support the proposal. Therefore, all proposed rules indicate the agency's position on a particular situation. A final rule may differ from what an agency proposes, but it may be exactly the same as the proposed rule. The purpose of a proposed rule is to obtain additional information, give the public notice of the proposal, and give the public the opportunity for comment. We review all the comments for new information and evaluation of our proposal, as we did for this rule. We clearly stated in our proposed rule that ''We are evaluating each of the nine species of constrictor snakes individually and will list only those species that we determine to be injurious.'' Thus, we made it clear that we left it open for us to list fewer than nine species, or none at all, if none was determined to be injurious based on new information. In fact, we listed four species in 2012 (77 FR 3330, January 23, 2012), we are listing four more in this final rule, and we are withdrawing our proposal to list one other species (boa constrictor).

If an agency feels that it could benefit from additional information before proposing a rule, it may publish an advance notice of proposed rulemaking

(or a notice of inquiry; NOI) to gather more information. The new information is used to develop a proposed rule. We published such a notice on January 31, 2008 (73 FR 5784), from which we received more information to apply to the proposed rule.

(57) *Comment:* The Service failed to make a good faith effort to gather new information.

Our Response: The Service provided ample notice and opportunity to comment on the proposed action. Here are examples of the opportunities provided by the Service to the public and stakeholders:

• The Service published a notice of inquiry in the **Federal Register** on January 31, 2008 (73 FR 5784), as an advance notice of proposed rulemaking. It explained why we were considering listing the genera *Python, Boa,* and *Eunectes* (which included more species than the four that we are listing in this final rule), what information we needed, and how the public could submit information to us. We provided a 90-day period to submit relevant information (ending April 30, 2008), which is a standard length of time.

• On February 29, 2008, we participated in a panel discussion arranged by the pet industry. Representatives of the Pet Industry Joint Advisory Council (PIJAC) were present. Our representative opened the discussion by stating: ''This notice of inquiry is an information gathering process. I really want to stress that this is not a proposed rule or action. As part of processing the petition we received to list Burmese pythons as injurious, we opened up this comment period to gather information on especially which species, particularly snakes such as the Burmese python, within these three genera might be a threat to native wildlife and wildlife resources. If there is a snake that has not yet been imported into the United States that might pose a threat to native wildlife, this information would be very useful. By the way, we worked with PIJAC in addressing some of the concerns, and we answered a short set of Q&As [questions and answers] with Reptiles Magazine.''

• We participated in several chatrooms with stakeholders on *http://www.pethobbyist.com* in February or March 2008.

• The Service was interviewed by PIJAC about the NOI, and the interview was posted by ReptileChannel.com in 2008. The Service explained why we were considering action, what information we were seeking, and how the public could provide their information. When we were asked why we were also requesting economic information, we answered, ''We currently have little information about the value of domestic trade in these species, and it is our responsibility as part of this process to gather a range of information on the species of interest. This includes economic data.''

• The Service was interviewed for a story on the constrictor snake NOI, and the story published in REPTILES magazine (Vol. 16, No. 5; May 2008).

• On March 12, 2010, we published in the **Federal Register** (75 FR 11808) the proposed rule to list nine species of large constrictor snakes, all of which were included in the genera from the NOI, and for which we asked for new information. We provided a 60-day comment period for the public (ending on May 11, 2010), also a standard length of time. We provided the proposed rule, draft economic analysis, draft environmental assessment, and risk assessment to the public on *http://www.regulations.gov*.

• The Service met with the Small Business Administration (SBA) on April 20, 2010, to discuss what information the SBA needed and what we needed. This meeting was within the public comment period for the proposed rule.

• The Service met with SBA on April 21, 2010, for a roundtable meeting with pet industry, zoo, and medical research representatives. This meeting was within the public comment period for the proposed rule.

• Because of several requests for an extension of the comment period, we added another 30-day public comment period from July 1 to August 2, 2010 (75 FR 38069; July 1, 2010).

• We met with the SBA again on January 13, 2011, to discuss issues raised by SBA during the public comment periods.

• We opened another 30-day public comment period on the 2010 proposed rule on June 24, 2014 (79 FR 35719). Please note that this occurred after we listed four of the constrictor snakes (Burmese (and Indian) python, Northern African python, Southern African python, and yellow anaconda) on January 23, 2012 (77 FR 3330).

In summary, the public has known since January of 2008 that we were considering listing these three genera, or species from them, as injurious. We provided a total of 210 days for receiving public information and comments, and we participated in several meetings with stakeholders. We believe that we have made a good faith effort to gather information from the public.

Inconsistent Use of Injurious Wildlife Listings

(58) *Comment:* The manner in which the Service has handled invasive species has been inconsistent. For example, in Western Colorado, feral ''wild'' horses and ring-necked pheasants are afforded wildlife protection status. Both are nonindigenous, introduced, or invasive species that compete with endemic species.

Our Response: It is correct that some nonnative species, such as feral (wild) horses and ring-necked pheasants may receive protection under other laws. The protection for wild horses comes from the Wild Free-Roaming Horses and Burros Act of 1971 (16 U.S.C. 1331 *et seq.*). Congress gave responsibility to the Secretary of the Interior under this public law to manage and protect wild horses on lands managed by the Bureau of Land Management and the Secretary of Agriculture for Forest Service lands. As for the pheasants, we agree that pheasants may compete with native species. However, it is not correct that the Service affords them protection. In fact, the ring-necked pheasant is specifically not protected under the Migratory Bird Treaty Act (16 U.S.C. 703 *et seq.*) and is also exempt from the Wild Bird Conservation Act (16 U.S.C. 4901 *et seq.*). Individual States, however, such as Colorado, may provide their own protections under State laws.

Regional Listing

(59) *Comment:* The regulation of these animals cannot be addressed at a State level only. Without restriction on importation, these animals will continue to be imported into other U.S. States, including those States that are directly adjacent to States that are vulnerable.

Our Response: We agree that in most situations it is important to prohibit importation into the United States and interstate transportation of injurious species. There may be unique situations, however, where another course of action may be more effective in preventing the spread of an injurious species that has already been imported into the United States and, among other things, is widely located in many States. See the section Withdrawal of the Boa Constrictor from Consideration as an Injurious Species. We would expect such situations to be rare.

(60) *Comment:* The alternative of cherry picking only those States with suitable habitat, but then applying the listing to all States, is legally suspect, particularly because the Service has never initiated public notice and

comment rulemaking on the Lacey Act Evaluation Criteria.

Our Response: The listing is based on many factors, but habitat suitability is only one of them. The factors that we used were explained in the proposed rule (75 FR 11808; March 12, 2010), which was open to public comment.

(61) *Comment:* No potential risk of establishment in or ecological harm to areas within Hawaii, Puerto Rico, or the insular territories can be used to justify listing these snake species. Each of these jurisdictions already prohibits importation and possession of these animals. Their laws are enforceable through other provisions of the Lacey Act, which carry far greater criminal and civil penalties.

Our Response: Hawaii and Puerto Rico prohibit the importation of these snakes, but the import regulations for the insular territories vary. The other provisions of the Lacey Act that we assume the commenter refers to is title 16 (16 U.S.C. 3371–3378), which pertains to trafficking of wildlife and plants. However, the comment is not correct that those jurisdictions' laws are simply enforceable under title 16. For a title 16 violation to occur, two acts must occur, both of which must be included in the required elements of the law. An example of a violation would be transport of wildlife in interstate commerce that is possessed in violation of a State law. By the Service listing the reticulated python and the three other species in this rule, title 16 becomes applicable but it will not address every violation of State law.

(62) *Comment:* By its plain terms, the Lacey Act's prohibitions extend to importation and ''shipment'' *between* the continental States as a single entity and other listed jurisdictions, such as Hawaii and Puerto Rico. The Service lacks the authority to restrict interstate transportation and commerce of a listed species between and among continental States.

Our Response: The Service interprets the Lacey Act as giving us the authority to restrict transportation between any of the States, territories, and other jurisdictions (the District of Columbia) of the United States. We believe that this interpretation is consistent with the language and intent of the statute.

(63) *Comment:* The proposal to list the remaining five species is arbitrary and capricious because it is based on improper speculation about the impacts of the species. The most notable omission is vehicular mortality, which reduces population size and fragments habitat and which occurs more frequently in the United States than in the native range of the five constrictor species because of higher road densities here. The Service has not properly accounted for other threats in urban areas, including persecution from humans, pollution, and paucity of natural refugia and other biophysical features needed for snakes to survive and reproduce. Instead, the Service relies almost exclusively on a climate envelope match that vastly overestimates the amount of suitable habitat for constrictors.

Our Response: We believe that other considerations in and around developed areas may act in favor of constrictor survival, such as the lack of natural controls, the abundance of small prey (such as rats, pigeons, pets, farm animals), and refugia (such as houses, barns, and other buildings). The estimate of the potential range of the constrictor species uses climate match as a guide. As we state above in Need for the Final Rule, factors other than climate may limit the native range of a species beyond its historic range. Other factors, such as microhabitats, may provide small but significant areas that can support tropical species. For example, the State of Idaho supported our listing of pythons and anacondas in 2012, because Idaho has an abundance of geothermal waters that could support feral populations of the large, semi-aquatic snakes (Idaho 2012).

(64) *Comment:* A nationwide listing is arbitrary and capricious and flawed policy, and less drastic alternatives should be seriously analyzed and adopted.

Our Response: We interpret the intent of Congress under the Lacey Act's injurious provisions to be national in scope. For example, some of the species listed by Congress, such as the fruit bats (*Pteropus* spp.), inhabit only the tropics and subtropics.

(65) *Comment:* If the Service insists on applying an injurious listing nationwide, then the risk analysis for invasiveness must also be nationwide. That is, the ANSTF algorithm for organism risk potential must consider the ''probability of establishment'' and ''consequences of establishment'' for a species throughout the entire United States, not only in the areas that Reed and Rodda (2009) identify as having suitable habitat.

Our Response: The Service has considered the risks and consequences of establishment nationwide, because the risk assessment, including the climate matching, looked at the entire United States, as did the ANSTF organism risk potential. The justification for listing is found above in Factors That Contribute to Injuriousness for Reticulated Python and the corresponding sections for the three other species.

Permitting

(66) *Comment:* The Service should support a law for reptiles modeled after the Wild Bird Conservation Act of 1992. Such a law would limit the importation of wild reptiles into the United States while allowing captive breeding of species currently in the United States, and allowing the interstate and international transportation of captive-bred animals.

Our Response: The comment is referring to the Wild Bird Conservation Act of 1992 (16 U.S.C. 4901–4916) (WBCA), which allows for obtaining a permit for personal pets. The WBCA was enacted on October 23, 1992, to ensure that native populations of exotic bird species are not negatively impacted by international trade to the United States. Under the WBCA, the Service may issue permits to allow import of listed birds for scientific research, zoological breeding or display, cooperative breeding programs, or personal pet purposes when the applicant meets certain criteria (such as a personally owned pet of an individual who is returning to the United States after being continuously out of the country for a minimum of 1 year, except that an individual may not import more than two exotic birds under this regulation in any year). The Service was not given the authority by Congress to issue permits for all the same purposes under the Lacey Act (18 U.S.C. 42). If, by the words ''support a law,'' the commenter is asking us to write a final rule that includes a permit process for pets, we cannot do that under our current authority. By statute, we can grant permits only for zoological, educational, medical, or scientific purposes.

(67) *Comment:* If the permitting process is not made considerably more efficient and flexible, individuals and institutions engaging in these purposes are likely to be negatively impacted.

Our Response: We agree that the permitting process must be an efficient and effective process to ensure that activities that are allowable under the Act are authorized in a timely manner. The Division of Management Authority, which is responsible for the permitting process under the Act, has recently undergone a significant restructuring and reorganization. We do not anticipate that the number of permit applications that will be generated due to this listing will be significant. However, we believe that the restructuring of the Division will allow for a more efficient and effective

permitting process for all permit applications received by the Division.

Economic Effect

(68) *Comment:* Families dependent on reptile breeding businesses will lose their businesses.

Our Response: Most commenters who asserted an expected loss of business did not explain why this would occur, but some did explain that they sell one or more of the nine species that were the subjects of the March 12, 2010, proposed rule mainly or entirely out-of-State or out of the country. Some stated which species they sell, and some did not specify. We agree that breeders who specialize in breeding only the species we are listing in this rule as injurious and who sell mainly or entirely out-of-State or out of the country will be greatly affected. However, those breeders who live in the States with designated ports (Alaska, California, Florida, Georgia, Hawaii, Illinois, Kentucky, Louisiana, Maryland, Massachusetts, New Jersey, New York, Oregon, Tennessee, Texas, and Washington) may continue to export from the United States through the designated port in their State (if allowed under State law), although they may not continue to ship to other States. For those breeders of other reptiles, this rule will not affect them. Those breeders who supply skins of the listed species for the designer clothing industry, such as for boots and belts, will still be able to ship skins across State lines, export them, and import them, consistent with other applicable laws.

(69) *Comment:* The rule will ruin a $3 billion industry.

Our Response: This comment was based on the proposed rule, and nine species were included in the economic calculations. The commenters did not explain how they arrived at the $3 billion figure. While the Service is not sure of the basis of this dollar amount, this figure was used by the United States Association of Reptile Keepers in a report to the Office of Management and Budget on March 1, 2010: ''The trade in high quality captive-bred reptiles is a $3 billion dollar [*sic*] annual industry. The animals potentially addressed by rule change make up approximately 1/3 of the total dollar value trade annually.'' Another significant dollar figure was identified in an article in ''The Economist'' (February 11, 2010): ''Revenue from the sale of boas and pythons amounts to around $1.6 billion–1.8 billion each year.''

We point out that the category of the ''sale of boas and pythons'' did not specify what species were included, but most likely would include ball pythons, which make up by far the largest segment of three genera of constrictor snakes that are imported into the United States (78.6 percent from 2008 to 2010, and 88.1 percent from 2011 to 2013) and that we analyzed in our economic analysis (see Final Economic Analysis 2012, 2015); ball pythons are a large segment of the domestic reptile trade. However, the same article in ''The Economist'' states, ''The recession, however, has hurt what used to be a lucrative hobby. Fewer people want to splurge on snakes that cost thousands, if not tens of thousands, of dollars. According to Brian Barczyk, a snake-breeder, demand for ''pet-grade'' snakes, which cost under $50, has sunk even more than demand for ''investment-grade'' ones, because the average person is hesitant to buy a new pet.'' We also note that part of the snake breeding industry is for the sale of snake skins, and this part of the industry should not be affected (dead snakes or parts thereof are not listed as injurious).

In addition, the Georgetown Economic Services report (GES; Collis and Fenili 2011) states that 18 percent of households (846,000) that own a reptile own a snake. Although the report does not say which species are the most commonly owned, based on observations, kingsnakes, corn snakes, garter snakes, and ball pythons are more commonly owned than any of the species in our March 12, 2010, proposed rule (75 FR 11808). Ball pythons comprised 64 percent of imports and domestic breeding of the three genera we reported on before our first final rule took effect on March 23, 2012 (Final Economic Analysis 2012; the nine species comprised 32 percent). Therefore, only a small percentage of households would be expected to own any of the species in this rule or the January 23, 2012, final rule (77 FR 3330).

We agree that our rule will negatively affect some aspects of the reptile industry, but we have no evidence to suggest that the prohibition on importation and interstate transportation of four species of snakes will cause the ruin of a $3 billion industry or even to the extent of $1.6 billion. On the contrary, our final economic analysis shows the estimated potential annual retail value losses associated with all four species we are listing in this final rule is $1.9 to 4.1 million (Final Economic Analysis 2015), plus $3.7 to 7.6 million for the four species listed in 2012 (Final Economic Analysis 2012), and a total annual decrease in economic output is $10.7 to 21.8 million and $5.3 to 11.4 million for 2012 and 2014, respectively. While this is not insignificant, it is a small fraction of the $3 billion quoted above.

In addition, we note that the importation of constrictor snakes of the genera *Python, Boa,* and *Eunectes* declined from the peak in 2002 (the three genera = 233,705 snakes; Final Economic Analysis 2012) to 2013 (the three genera =110,070 snakes; Final Economic Analysis 2015). The decline in imports started well before we received the petition in 2006 that initiated our regulatory process. The ball python declined from 154,505 in 2002, to 95,225 in 2013 (Final Economic Analysis 2012, 2015). The reduced imports were not likely due to our impending rule. The decline in imports could be due to decreased availability of captive-bred or wild-caught snakes in the export countries, the decreased demand in the United States, or the availability of domestically bred species. Furthermore, Collis and Fenili (2011) showed that lizard importation declined from 764,431 in 2006, to 231,241 in 2010, a 70 percent drop. Another study showed that imports of all reptiles and amphibians decreased from 7.57 million in 2001, to 3.55 million in 2009 (Herrel and van der Meijden 2014). Thus, the existing decline in constrictor snake importation seems to be unrelated to our regulatory process, and future declines should not necessarily be attributed to the listing of the four species in this final rule or to the 2012 listing of the other four species (77 FR 3330).

(70) *Comment:* It is arbitrary and capricious to exclude boa constrictors from the injurious listing simply because of the reptile industry's wildly exaggerated claims of economic hardship.

Our Response: We are withdrawing our proposal to list the boa constrictor for the reasons discussed above in the section Withdrawal of the Boa Constrictor from Consideration as an Injurious Species.

(71) *Comment:* As a matter of law and policy, listing species that have long been extant throughout the United States and subject to pet ownership and interstate commerce for several decades, as have the boa constrictor and reticulated python, comes with a higher burden to show injury to the interests the Lacey Act protects.

Our Response: The Lacey Act does not make a distinction that the Service has a higher burden to show injury for species that have long been extant in the United States and subject to pet ownership.

(72) *Comment:* Listing of constrictor snakes also inhibits efforts to eradicate

remnants of the species proposed for listing as injurious from the Everglades National Park and other locations in south Florida where they have been found. The Burmese python example shows that many of the most knowledgeable and effective herpetological experts will either limit or cease this activity if required to euthanize the captured snakes or forbidden from bringing the animals to a more suitable location out of State.

Our Response: The commenter did not provide documentation that this situation has occurred for the Burmese python. The Service has no reason to believe that listing the reticulated python, DeSchauensee's anaconda, green anaconda, and Beni anaconda will inhibit efforts to eradicate them, especially because two of these species are not yet found in the country and none is established in any State.

(73) *Comment:* State-level laws and regulations calibrated to the perceived threat and State and Federal partnerships in ''early detection and response'' programs are more effective means of addressing the issue. Federal regulations place a burden on State conservation resources and are unneeded and unnecessary in 47 States.

Our Response: The Service greatly values early detection and rapid response programs, and the regulations promulgated in this rule should not place any burdens on them. The Service recognizes that there may be certain limited situations where State laws and related control measures may be as or more effective than listing under the Lacey Act. See our reasons for not listing the boa constrictor under the Lacey Act in the section Withdrawal of the Boa Constrictor from Consideration as an Injurious Species. But, in the case of the reticulated python, DeSchauensee's anaconda, green anaconda, and Beni anaconda, the Service has concluded that listing is necessary to protect the interests of human beings, agriculture, wildlife, and wildlife resources from the purposeful or accidental introduction and subsequent establishment of these snakes into ecosystems of the United States.

(74) *Comment:* Economic, cost-benefit considerations cannot lawfully determine the Secretary's decisions under the Lacey Act criteria in 18 U.S.C. 42(a).

Our Response: The Service does not use cost-benefit considerations when making listing decisions under the Lacey Act. The Service applies the standards and procedures under the Lacey Act and the Administrative Procedure Act (5 U.S.C. 500 *et. seq*) in promulgating its rules, but must also comply with the various other Acts and Executive Orders that govern Federal agency rulemaking, including, but not limited to, Executive Orders 12866, 12988, 12603, 13211, and 13132, and the Regulatory Flexibility Act, Small Business Regulatory Enforcement Fairness Act, and National Environmental Policy Act. We completed the analysis and findings required under these statutes and Executive Orders; please see the Required Determinations section of this rule.

(75) *Comment:* The ''Broken Screens'' report published by the Defenders of Wildlife (2007) documented that, from 2000 to 2004, at least 710 different fully-identified species of reptiles and at least 47 additional reptile species without full species identification were imported into the United States. In sum, at least 757 reptile species were in trade at the time of publication. Adding the reticulated python, DeSchauensee's anaconda, green anaconda, Beni anaconda, and boa constrictor to the four species that were listed as injurious on January 23, 2012, represents a mere 1.2 percent of the types of imported reptiles.

Our Response: The comment accurately reflects the Defenders' ''Broken Screens'' data summary. The 1.2 percent derived from a comparison to the data apparently includes three species not yet in trade, so the six species in trade from 2000 to 2004 would represent less than 0.8 percent of the taxa of imported reptiles.

Economic Analysis

(76) *Comment:* The rule will have a detrimental economic impact on breeders and hobbyists, food producers, and caging and accessories producers.

Our Response: The Service recognizes that the rule will curtail imports and interstate trade in the two snake species currently in trade in the United States (reticulated python and green anaconda); the listing of Beni and DeSchauensee's anacondas should not have any economic effect on U.S. trade. The supporting documentation accompanying this rule—the final Economic Analysis and the Final Regulatory Flexibility Analysis—estimates the impacts on small businesses, as required by the Small Business Regulatory Enforcement Fairness Act (SBREFA), and the benefits and costs of the rule, as required by Executive Order (E.O.) 12866. This analysis uses a regional input–output model to determine the impacts on supporting industries, such as snake-related care and food suppliers.

(77) *Comment:* The Service does not possess the information needed to do a credible benefit-cost or regulatory flexibility analysis on rules regarding constrictor snakes.

Our Response: The data needs for conducting a comprehensive analysis of any industry are very intense. Commenters agreed with our conclusion that there is very little reliable public information available about the snake industry, but we have utilized information that was available to us through the end of the public comment period for the proposed rule. Executive Order 12866 states that ''Each agency shall base its decisions on the best reasonably obtainable scientific, technical, economic, and other information concerning the need for, and consequences of, the intended regulation'' (Section 1.b.7). The Regulatory Flexibility Act allows that the initial and final regulatory flexibility analyses may contain ''more general descriptive statements if quantification is not practicable or reliable'' (5 U.S.C. 607). We received information during the public comment period that we used to prepare the final economic analysis. While we received other information, it tended to be anecdotal, describing impacts to a specific firm or individual, which is insufficient to describe industry-wide impacts. However, we used some anecdotal information to better describe how some firms or individuals will be impacted. The Service believes the analysis is based on the best reasonably obtainable information.

(78) *Comment:* The Service ignored information submitted by industry participants and trade associations in response to its 2008 notice of inquiry. In addition, the Service misused the information it was provided by respondents to the notice.

Our Response: Industry responses to the 2008 notice of inquiry (73 FR 5784; January 31, 2008) were a primary source of information for the economic analysis. Trade association data were the only source for most of the sales and price information in the economic analysis, and the associations are cited repeatedly in the report. The Service sought clarification of the data provided by a trade association with a representative of the association and the consultant who prepared the submission. The additional information obtained from the conversations was applied in the draft economic analysis.

Many industry participants provided anecdotal information about their situations or made quantitative assertions. While informative, we cannot extrapolate anecdotal data about

individuals or businesses to describe the industry as a whole. However, in the final economic analysis, some anecdotal information from the public comments is used to better depict potential impacts.

(79) *Comment:* The Service employs baseless assumptions to estimate the information it lacks.

Our Response: Using informed assumptions for reasonable ranges to fill data gaps is a well-recognized economic technique. By applying a range of prices and quantities, the economic analysis derives the approximate scale of retail sales from the partial information available. The analysis is transparent and the assumptions can be easily replaced with more reliable information when it becomes available. Additional information, such as interstate sales from Florida, was received during the second comment period. This information was used to revise the draft economic analysis to more accurately depict the impact to industry. Industry profiles were not submitted during public comment and are not publicly available. Therefore, some assumptions are still necessary in the economic analysis.

(80) *Comment:* The economic analysis ignores wholesalers, transporters, and vendors of food and ancillary equipment.

Our Response: The economic analysis includes an input–output analysis that takes into account all of the industries that contribute to delivering the product to the consumer. Wholesalers and equipment used in the production of snakes for sale are included in the input–output analysis based on retail sales. Shipping cost information on individual sales has been obtained since we made the draft economic analysis available (March 12, 2010; 75 FR 11808). This information was used to revise the economic analysis.

(81) *Comment:* The Service also ignores pricing premiums for snakes, particularly for color morphs, dwarfs, etc.

Our Response: The aggregate information available and provided by the trade associations was insufficient to segment the market for different classes of snake for the draft economic analysis. The knowledge that ''pricing premiums reach up to 60 times the price of a 'normal' snake'' (PIJAC, August 2, 2010, FWS–R9–FHC–2008–0015–4531.1, p. 4) suggests that there are at least two market segments for a species—one for 'normal' snakes and one for high-end collectible snakes. We received additional pricing information during the 2010 public comment periods that more accurately depicts pricing premiums, and we used it in the revised economic analysis.

(82) *Comment:* The initial regulatory flexibility analysis (IRFA) underestimates the economic impact on small entities.

Our Response: We revised the IRFA to incorporate new information submitted during the course of the public comment periods.

(83) *Comment:* The IRFA does not discuss significant alternatives.

Our Response: The subject of the proposed rule was amending the regulations at 50 CFR 16.15 to add nine species of constrictor snakes to the list of injurious species under the Lacey Act. Management of feral snake populations is a much broader topic that the Service is vigorously pursuing but that is not within the purview of this rulemaking. Therefore, the alternatives considered in the environmental assessment are the only relevant choices.

(84) *Comment:* The draft economic analysis fails to quantify the benefits of the proposed rule.

Our Response: The benefits of the rule include both avoided costs of extirpating feral snake populations and maintained ecological services from areas that might have been harmed by released snakes. Little information is available about either of these sources that would allow the quantification of benefits. OMB Circular A–4, guidance for implementing E.O. 12866, recognizes that benefits are rarely fully quantified and recommends a qualitative discussion of the sources of benefits. We added this discussion to the final economic analysis (2012, 2015).

(85) *Comment:* The draft economic analysis lacks clarity in its exposition.

Our Response: The Service sought public comments on the draft economic analysis made available with the proposed rule published in the **Federal Register** (75 FR 11808; March 12, 2010). Per public comments received, the Service added additional clarification to the final economic analysis (2015) for this final rule. Please refer to the full revised final economic analysis and regulatory flexibility analysis, which are available in the docket for this rule (at *http://www.regulations.gov* under Docket No. FWS–R9–FHC–2008–0015).

(86) *Comment:* A recent economic report conducted by a third-party economics firm, Blue Sky Consulting Group, shows that the listing of the reticulated python, DeSchauensee's anaconda, green anaconda, Beni anaconda, and boa constrictor would not have a drastic effect on small businesses that deal in the sale of reptiles, concluding that listing would result in little or no net change in economic activity, consumer spending, or employment. Any decline in consumer spending and economic activity related to these five snakes would be offset by increased spending and economic activity in other sub-sectors of the reptile trade and in other sectors of the economy, with little or no net change in overall economic activity or employment. In addition, to the extent that Lacey Act listing reduces the likelihood of these species becoming established as invasive species, Federal, State, and local agencies will experience reduced costs for habitat restoration and invasive species control. The Blue Sky report also found that the Service's economic analysis did not assess the extent to which reductions in employment in the snake trade (for listed species) would be offset by gains in other areas of the economy as consumers reallocate spending away from listed species to unlisted species, to other reptile pets, or to other goods and services. This may have created a mistaken impression that listing constrictor snake species under the Lacey Act would result in a net reduction in consumer spending, employment, and economic activity.

Our Response: The Service agrees with this comment. As we stated in our 2012 final economic analysis, ''Impacts also are dependent upon whether or not consumers would substitute the purchase of an animal that is not listed, which would thereby reduce economic impacts described in this economic analysis. There are no marketing data that estimate how consumer preference may change due to the listing thus changing the types of snakes that businesses sell. This analysis does not account for this type of substitution effect.'' In other words, we did not make assumptions for which we had no specific information, even though such substitutions would likely occur. This makes our estimate more of a worst-case scenario.

(87) *Comment:* An economic assessment of the reptile industry commissioned by the U.S. Association of Reptile Keepers (USARK) and prepared by Georgetown Economic Services (GES), a subsidiary of USARK's lobbying firm, failed to take into account that a restriction on one particular consumer spending option usually has an approximate zero net effect on employment or macroeconomic activity. Consumers will simply replace the product with another similar product. For example, in 1975, the Food and Drug Administration (FDA) banned the sale or distribution of turtles with shells that measure less

than 4 inches in length in response to findings that pet turtles were responsible for a substantial number of *Salmonella* infections nationwide. The industry claimed economic risk in response to the ban. However, the ban on small turtle sales resulted in an increase in the number of other reptiles, such as iguanas, sold as pets. The trade will invariably shift to these other species if the selling of the large snakes is curtailed.

Our Response: Please see our response to Comment 86.

(88) *Comment:* The Small Business Administration (SBA) suggested that, at a minimum, the Service publish a supplemental initial regulatory flexibility analysis that fully addresses the issues in the 2010 IRFA.

Our Response: The service believes that SBA's concerns were adequately addressed in the 2012 final regulatory flexibility analysis (FRFA) on which the 2015 FRFA is based, and that a supplemental IRFA is not needed.

(89) *Comment:* According to the GES report, listing the 10 [*sic*] constrictor snakes on the injurious wildlife list would cost small businesses as much as $104 million in the first year and as much as $1.2 billion over 10 years.

Our Response: The GES report concluded that the economic costs to the industry over the first 10 years of lost revenues to be between $505 million and $1.2 billion. However, that figure is based on a discount rate of 3.25 percent and an annual growth rate of 7 percent (Collis and Fenili 2011), whereas the Office of Management and Budget (Circular A–94, October 29, 1992) states that Federal agencies use a discount rate of 7 percent. Additionally, it is not clear that an assumption of a 7 percent annual growth rate over a period of 10 years in the future is justified. Using a 7 percent discount rate without the assumption of a 7 percent annual growth rate (zero growth rate), the range would be $568 million to $779 million, which is within the GES estimate of $372 million to $900.9 million, using a discount rate of 3.25 percent and a zero annual growth rate.

(90) *Comment:* Referring to the GES report, an economist stated that the analysis has serious flaws because of these reasons: (a) Ignores likely substitution effects on the part of both the reptile industry and reptile owners, which leads to a likely large upward bias in the resulting estimates of negative economic impacts from the proposed rule. (b) Focuses only on the negative impacts on one small segment of the reptile industry (that is, breeders and importers of these nine large constrictor snakes) and snake owners that may result from the implementation of the proposed rule, while completely ignoring the positive impacts the rule would have in terms of benefits for native wildlife, including endangered and threatened species, avoided control and eradication expenditures by government agencies, and human safety. (c) Uses an inappropriate discount rate that by itself leads to a substantial (close to 20 percent) overstating of the projected future costs of the rule. (d) Incorrectly applies the term ''economic losses'' when referring to what in fact are reductions in revenues for this small segment of the reptile industry.

Our Response: In general, the Service concurs with these statements; using the OMB discount rate of 7 percent results in a 16 percent decrease in the 10-year aggregate cost compared with using a 3.25 discount rate with an assumption of zero annual growth.

Biological

(91) *Comment:* With the exception of predation by a *Python molurus bivittatus* on endangered Key Largo woodrats (*Neotoma floridana smalli*), there is no evidence of significant adverse environmental, human health, or economic impacts by these feral populations.

Our Response: Based upon what we know of the diet of Burmese pythons (77 FR 3330; January 23, 2012) in their native ranges and in Florida, and the four large constrictor snakes that are the subjects of this rule (snakes that share the same traits), we find that federally protected species, such as the endangered Cape Sable seaside sparrow (*Ammodramus maritimus mirabilis*), the endangered Florida panther (*Puma* (=*Felis*) *concolor coryi*), and the endangered American crocodile (*Crocodylus acutus*), are at risk of predation by these constrictors if they become feral. Reed and Rodda (2009) list a total of 64 federally and State-listed endangered or threatened species at risk from giant constrictors in Florida alone. As discussed earlier, additional Federal and State-listed species are at risk in Hawaii, Puerto Rico, Texas, and other areas of the United States from the reticulated python, DeSchauensee's anaconda, green anaconda, and Beni anaconda. Please see our response to Comment 37 regarding the Burmese pythons linked to declines of up to 99 percent of populations of small- and medium-sized mammals as prey in Everglades National Park.

(92) *Comment:* The majority of these species have never been documented as being introduced into new environments. Despite having been detected in the vicinity of the Everglades since the 1970s, Burmese pythons are still limited to that general area.

Our Response: Of the four species we are listing in this rule, two are not yet in trade, another is involved in trade in minor amounts, and one is somewhat common in trade. Thus, their listing is intended to prevent their establishment in the wild through escapes or releases. The Burmese python illustrates the need to be proactive; although individual pythons had been regularly observed in the Everglades region since the mid-1990s, it was not until 2006 that a reproducing population was documented to be present there. By that time, the population was well established over a sizable area.

(93) *Comment:* The Burmese python population in south Florida was significantly reduced by the 2009–2010 winter cold weather.

Our Response: This comment refers to the previously listed Burmese python (77 FR 3330; January 23, 2012). Many Burmese pythons died during the record cold 2009–2010 winter, but many survived to reproduce and expand their range in south Florida (see the Final Environmental Assessment 2015).

(94) *Comment:* There is no scientific information indicating that large body size increases the likelihood that a species will become invasive. In fact, the opposite is likely the case since large-bodied animals are more readily evident and thus more likely to be removed from the environment before they can establish a viable population.

Our Response: The list of traits shared by the giant constrictors includes many of the traits that either increase the severity of their probable ecological impacts or exacerbate the challenge of controlling or eradicating them. The cryptic coloration of these snakes is a common form of camouflage where the snakes are similar to their surroundings, making them very difficult to detect and be removed from the environment. Burmese pythons have established viable populations partly because they are hard to detect, have high reproductivity, and occupy a variety of habitat types, and the four species listed in this final rule have the same traits. Thus, in comparison to potential invaders lacking these traits, this group of snakes constitutes a particularly high risk. A large body size would be a disadvantage for an animal whose size sets it off from its surrounding environment, such as a bear, which stands 1–1.2 m (3–4 ft) above ground level. However, even the largest pythons and anacondas extend only a foot above ground level, and are easily concealed by ground vegetation or water. A large

body size would also be a disadvantage for predators that hunt actively on a regular basis, because they would stand out more. Neither of these situations is true for the large constrictors, which are primarily sit-and-wait predators and which move along very low to the ground. These attributes, combined with the fact that these snakes have no similar ecological equivalents in the United States with respect to size of prey items they can consume, make them a successful predator on naïve wildlife that may otherwise not even have native predators (such as Florida panthers), thus increasing the likelihood that they will successfully invade areas of the United States that have suitable climate. In a study to determine why so few invasive reptiles in Florida succeeded as well as the Burmese python, Reed *et al.* (2012) found that the snake's giant size was one of the highest correlated factors.

(95) *Comment:* Which of the nine species of constrictor snakes are definitely reproducing in the wild in the United States?

Our Response: Of the four large constrictor snakes we are listing in this final rule, none is currently confirmed breeding in the wild in the United States. The purpose of this final rule is to prevent these species from establishing populations in the wild.

(96) *Comment:* Neither the State nor the Federal Government has made substantial investments in strategic programs for the eradication or control of Burmese python on the lands they manage. In South Florida, the cost of eradication of the Burmese python has been relatively small.

Our Response: [Refers to previously listed species; see 77 FR 3330, January 23, 2012]

(97) *Comment:* The most effective and least costly methods would focus on preventing establishment of any potentially invasive species and would include early detection and rapid response (EDRR). Eradication of established populations is very rarely effective and always costly.

Our Response: We agree. We also agree that EDRR programs can be of benefit once prevention options have been exhausted or proven to be ineffective. Sometimes considered the ''second line of defense'' after prevention, EDRR is a critical component of any effective invasive species management program. When new invasive species infestations are detected, a prompt and coordinated containment and eradication response can reduce environmental and economic impacts. This action results in lower cost and less resource damage than implementing a long-term control program after the species is established. Early detection of new infestations requires vigilance and regular monitoring of the managed area and surrounding ecosystem. An EDRR system will provide an important second line of defense against invasive animals that will work in concert with a first line of defense—that is, Federal regulations to prevent unwanted introductions by listing as injurious wildlife. Prevention is why we are listing the four large constrictor snakes that are the subjects of this final rule, which are either not yet found in the United States or not yet found to be reproducing in the United States.

(98) *Comment:* Two papers published in the journal *Biological Invasions,* one by USDA wildlife researchers and another authored by scientists at several research institutions including the University of Florida, have concluded that Burmese pythons cannot survive for any length of time outside south Florida unless they have the ability to find appropriate burrows or cavities to allow hibernation for several months during the winter. Given that this snake is primarily a tropical and subtropical species, it may not have evolved the behavior or physiology to successfully hibernate. Another paper (Jacobson *et al.* 2012) calls into question the fundamental premise of the USGS climate work that pythons can migrate north out of south Florida and across the southern third of the United States. Although this study specifically addresses Burmese pythons, it has clear implications for the reticulated python, DeSchauensee's anaconda, green anaconda, Beni anaconda, and boa constrictor.

Our Response: This comment refers specifically to a previously listed species (see 77 FR 3330, January 23, 2012) but the relevant science also applies conceptually to the reticulated python, DeSchauensee's anaconda, green anaconda, and Beni anaconda, because they share with the Burmese python such traits as how they regulate their body temperature.

The winter of January 2010 was one of the coldest on record in southern Florida. Burmese pythons were documented to tolerate these conditions. In the USDA study (Avery *et al.* 2010), two of nine (22 percent) of the Burmese pythons survived the cold spell. This study was conducted in Gainesville, Florida, 400 km (248.5 mi) north of the known range where they are currently reproducing; this region of Florida also experienced record cold weather. The Mazzotti *et al.* (2010) study, which was conducted within the Everglades region, found that 1 of 10 telemetered Burmese pythons survived (10 percent) and 59 of 99 (60 percent) of nontelemetered pythons survived. Subsequently there have been sightings and recent removals of Burmese pythons and Northern African pythons in south Florida, including a mating aggregation of Burmese pythons with one gravid female and four males (Snow 2010). Therefore, despite the coldest winter on record since at least the 1940s (NOAA 2010), south Florida still has reproducing populations of nonnative large constrictor snakes. While the abundance of pythons clearly declined during this record cold winter, the population has recovered rapidly in south Florida, where the average female reaches reproductive maturity within 3 years and can subsequently produce more than 30 (but up to 107) eggs per clutch annually or biennially (Harvey *et al.* 2008).

Dorcas *et al.* (2011) published another study in *Biological Invasions.* They relocated 10 Burmese pythons from the Everglades to an outdoor research setting in South Carolina. The following January, they all died. However, they had not had a chance to acclimate to a milder winter before getting hit with record cold. Dorcas *et al.* (2011) concluded: ''Some pythons in our study were able to withstand long periods of considerably colder weather than is typical for South Florida, suggesting that some snakes currently inhabiting Florida could survive typical winters in areas of the southeastern United States more temperate than the region currently inhabited by pythons. Moreover, our results are specific to translocated pythons from southern Florida. Burmese pythons originating from more temperate localities within their native range may be more tolerant of cold temperatures and would presumably be more likely to successfully become established in temperate areas of North America. The susceptibility to cold we observed may reflect a tropical origin of the Florida pythons or acclimatization of snakes to warm southern Florida winters early in life.'' If the snakes in any of the research studies had been provided such refugia as gopher tortoise burrows, they may have shown that they could survive even lower temperatures without hibernating. Given the climate flexibility exhibited by the Burmese python in its native range (as analyzed through USGS' climate-matching predictions in the United States), we would expect new generations within the leading edge of the population's nonnative range to become increasingly

adaptable and able to expand to colder climates. Likewise, we would also expect the reticulated python, DeSchauensee's anaconda, green anaconda, and Beni anaconda to have the same climate flexibility, and new generations along the leading edge may become increasingly adaptable and able to expand to colder climates.

A subsequent paper (Jacobson *et al.* 2012) concluded that it would be unlikely that Burmese pythons will be able to expand to or colonize more temperate areas of Florida and adjoining States due to their lack of behavioral and physiological traits to seek refuge from cold temperatures. However, there is nothing in the paper that undermines the original approaches or conclusions of Rodda *et al.* (2009). Many factors, including temperature, may limit the distribution of pythons in the United States, but Jacobson *et al.* (2012) give no insight to what those limitations might be. Based on the rationale described in the paper, most of the continental United States is unsuitable even for native snakes, and that is not the case.

(99) *Comment:* The ''Reed and Rodda Report'' was only subject to an internal review process. Any policy changes or legislation that will have an effect on the freedoms of American citizens should be based on sound scientific evidence as well as the merit of a true scientific peer review process.

Our Response: Dr. Susan Haseltine, Associate Director for Biology, USGS, responded on January 23, 2010, to a press release issued by a reptile-trade organization and an accompanying letter by a group of veterinarians and other scientists regarding the USGS peer review process. She said, ''The USGS provides unbiased, objective scientific information upon which other entities may base judgments. To ensure objectivity, independent scientific review is required of every USGS publication. Standards require a minimum of two reviews, and adequacy of the author's responses to reviews is assessed by both research managers and independent scientists within the USGS. USGS went well beyond the requirements by soliciting reviews from 20 reviewers (18 of them external to the USGS). Reviewers comprised a large portion of the global expertise on both the biology of giant constrictor snakes and the management of invasive snakes.''

The USGS follows mandatory fundamental science practices for peer review, which can be read at the following Internet site: *http://www.usgs.gov/usgs-manual/500/502-3.html.* This policy establishes the requirements for peer review of USGS information products and applies to all USGS scientific and technical information, whether it is published by the USGS or an outside entity.

(100) *Comment:* For the 2012 final rule, the Service neglected relevant information and scientific reports brought to its attention during the comment period or published shortly thereafter. The Service also neglected information in reports contrary to conclusions they drew. Some studies were selectively quoted, giving misleading impressions about their findings. These legal errors cannot be repeated as the Service makes a determination regarding reticulated python, DeSchauensee's anaconda, green anaconda, Beni anaconda, and boa constrictor.

Our Response: For the final rule published on January 23, 2012 (77 FR 3330), the Service reviewed all documents that were provided to us prior to the final determinations being made. We used information that we found to be relevant, including citing papers that we found not defensible, for which we explained why (see Need for the Final Rule above). For this final rule, we reopened the comment period on the proposed rule for an additional 30 days (see 79 FR 35719, June 24, 2014), and we considered all relevant information, including information that we had received after the decisions for the first four species of constrictor snakes had been made, along with other available information concerning the reticulated python, DeSchauensee's anaconda, green anaconda, Beni anaconda, and boa constrictor.

(101) *Comment:* The National Park Service (NPS) described where boa constrictors, reticulated pythons, and two of the anacondas have been captured outside of captivity in Florida and other States. NPS also comments that the potential range for the boa constrictor includes NPS units such as Cumberland Island and Gulf Coast national seashores, Cape Canaveral, Virgin Islands National Park, and other sites in Puerto Rico, the Florida Keys, and elsewhere. The reticulated python has been found on the loose in Florida, California, Colorado, Hawaii, and Massachusetts. The potential range for the three the anacondas includes Florida, Puerto Rico, and the Virgin Islands.

Our Response: We considered the information submitted by NPS and have incorporated that information into our analysis where appropriate. In this rule, we are adding reticulated python, DeSchauensee's anaconda, green anaconda, and Beni anaconda to the list of injurious wildlife. For reasons discussed above in the section Withdrawal of the Boa Constrictor from Consideration as an Injurious Species, we are withdrawing our proposal to list the boa constrictor as an injurious reptile (75 FR 11808; March 12, 2010).

(102) *Comment:* NPS's review of biological studies shows that: (a) The probability of detection of Burmese pythons in the environment is extremely low because they are highly cryptic in a variety of native and nonnative habitats. The reticulated python, DeSchauensee's anaconda, green anaconda, Beni anaconda, and boa constrictor are also highly cryptic and thus difficult to detect. Similar to the Burmese python, they would likely be present, breeding, and causing impacts to the environment long before an invasion is fully recognized. By the time there is sufficient evidence gathered to determine that an invasion has occurred, a population will likely have expanded beyond the stage of eradication or containment. (b) Peer-review science confirms the serious environmental impact of Burmese pythons on wildlife in the Everglades. The green anaconda is the largest and heaviest of the constrictor snakes and has a prey base that includes aquatic species in larger proportion than the Burmese python. The boa constrictor is the most arboreal of the constrictor species addressed in this rulemaking process and is known to take birds from all forest strata in addition to preying on mammals. The reticulated python is noted as a good swimmer, is tolerant of salt water, and is likely able to colonize coastal islands from mainland shores. Such traits suggest potential to cause as much or greater damage to wildlife than the Burmese python has, particularly when cumulative impacts are considered. (c) Because an invasion of cryptic constrictor snakes, such as the reticulated python, DeSchauensee's anaconda, green anaconda, Beni anaconda, and boa constrictor, can only be determined after a large number are present in the environment, control and management after they become established in the wild is costly and both time and labor intensive. Further, eradication may never be possible. Current control and management tools for the Burmese python are extremely limited in their success, in spite of nearly 10 years of research and management efforts. If we use the several decades of information on the effort to contain brown tree snakes in Guam as a guide, efforts to develop landscape-scale control tools for constrictor snakes in south Florida is likely to require tens of millions of

dollars and several decades. The most effective and affordable means of control for invasions by large constrictor species is prevention from introduction, whether accidental or intentional. (d) Trade and transportation have been cited as the ultimate drivers of invasive species introductions, including those on NPS lands. Personal ownership via the pet trade is the principal pathway by which large constrictor species have been introduced into the environment in south Florida. Efforts in education and outreach are extensive but are not able to prevent all intentional or accidental releases of captive snakes into the wild. For the six large constrictor species that have been found outside of captivity in Florida, personal ownership in the pet trade was demonstrated as the principal pathway that has resulted in their presence in the environment. (e) New information on Burmese pythons has documented unprovoked attacks by wild pythons on humans in Everglades National Park. Attacks by reticulated pythons on humans in their native range are documented and include multiple fatalities. NPS is concerned about impacts to human health and safety as well as impacts to native wildlife and habitats on NPS lands.

Our Response: The Service concurs with these comments. In this rule, we are adding the reticulated python, DeSchauensee's anaconda, green anaconda, and Beni anaconda to the list of injurious wildlife. For reasons discussed above in the section Withdrawal of the Boa Constrictor from Consideration as an Injurious Species, we are withdrawing our proposal to list the boa constrictor as an injurious reptile (75 FR 11808; March 12, 2010).

(103) *Comment:* An authority on the physiology and biology of pythons and boas makes these two conclusions: (a) These snakes are unable to expand their populations beyond southern Florida and will undoubtedly experience periodic population die-offs resulting from episodes of freezing temperatures. (b) It is doubtful that these species present a risk to natural populations of vertebrates because the amount of food that they eat is trivial compared to the yearly intake of a similar size carnivore (such as feral cats). (c) Finally, these snakes are valuable for scientific and biomedical research.

Our Response: We believe the species can potentially spread, but we will likely not know for certain until it is too late to act. Some individual snakes may die from cold weather, but some Burmese pythons, which are closely related, have already survived record cold temperatures in Florida. For the second statement, we believe that many large constrictors will attain much larger sizes than feral cats and that they will, therefore, consume each more than the 5 kilograms per year that the commenter estimates in his public comment. If these prey items are declining species, the snake predation will pose a risk to natural populations of vertebrates. Finally, scientific and biomedical researchers will still be able to obtain permits for importation and interstate transportation.

(104) *Comment:* The subspecies *Boa constrictor imperator* is indigenous to the Sonoran Desert of northern Mexico but has never naturally expanded its range to include the United States.

Our Response: For reasons discussed above in the section Withdrawal of the Boa Constrictor from Consideration as an Injurious Species, we are withdrawing our proposal to list the boa constrictor as an injurious reptile (75 FR 11808; March 12, 2010).

(105) *Comment:* In 2013, the Florida Fish and Wildlife Conservation Commission launched ''The Python Challenge,'' a legal hunt designed to highlight the problem of these invasive predators. This hunt attracted roughly 1,600 hunters, yet only 68 snakes were captured.

Our Response: [Refers to a previously listed species; 77 FR 3330, January 23, 2012.] This hunt was organized to heighten public awareness of the invasive species problem. The hunt confirmed how difficult it is even for dedicated hunters to locate the cryptic animals. The reticulated python, DeSchauensee's anaconda, green anaconda, and Beni anaconda are just as cryptically colored and just as difficult to locate in the field.

Other

(106) *Comment:* The Service has not thoroughly considered the full implications of the rule regarding effects on the pet industry.

Our Response: We understand that the implications of this rule are complex. We have endeavored to consider all aspects of listing the reticulated python, DeSchauensee's anaconda, green anaconda, and Beni anaconda as injurious, including alternatives, using the best available information. Please see Alternatives to Listing, below, for an explanation of the alternatives that we considered. We have also made every effort to consider all of the indirect and cumulative effects. For reasons discussed above in the section Withdrawal of the Boa Constrictor from Consideration as an Injurious Species, we are withdrawing our proposal to list the boa constrictor as an injurious reptile (75 FR 11808; March 12, 2010), thus decreasing the effects on the pet industry.

(107) *Comment:* Because the addition of any species to the lists of injurious species under the Lacey Act results in the nationwide ban of that species, a nationwide impact study should be performed.

Our Response: The commenter did not explain what type of nationwide impact study should be performed. We did, in fact, develop two nationwide impact studies, an economic analysis and an environmental assessment, drafts of which we posted on *http://www.regulations.gov* on March 12, 2010, with the proposed rule, and final versions of which are also available at *http://www.regulations.gov* under Docket No. FWS–R9–FHC–2008–0015 for the species listed in 2012 and the species we are listing in this final rule. We used the best available information, and we believe these impact studies are sufficient. We also believe we made a good-faith effort to locate information (see also response to Comment 57).

(108) *Comment:* We request an extension of the comment period for the proposed rule to provide our members much needed time to provide comments, data, and analysis that will be instrumental to the Service's final decision.

Our Response: We received requests for an extension of the public comment period for up to 90 days. We granted two additional 30-day comment periods to the original 60 days, for a total of 120 days for the proposed rule's comment period. We believe that amount of time was sufficient, even for a complex rule, considering we were seeking similar information to that for the 2008 notice of inquiry (73 FR 5784; January 31, 2008).

(109) *Comment:* One commenter referred to a memo written in 2007 by a former Service Assistant Director and Chief of Law Enforcement. The comment quoted the memo, ''The injurious species provisions of the Lacey Act were clearly not designed to deal with a species that is already a significant part of the pet trade in the United States'' and ''It could, however, make a felon out of a reptile enthusiast in Wisconsin who sells one python to an individual in Minnesota.'' The commenter stated that the Service has not made a case for the rule.

Our Response: The memo that the commenter referred to was an information memorandum to the Service's Director regarding the petition to list the Burmese python from the South Florida Water Management District in 2006. The memo described

various options that the Service and others could consider. The statements quoted by the commenter are verbatim. However, at the time the memo was written, the USGS risk assessment (Reed and Rodda 2009) had not yet been completed. No decision had been made by the Service at the time of the memo. The Service's memo acknowledges, ''We expect to have the risk assessment—an essential first step in any evaluation for injurious designation—completed in approximately one year.'' That was, however, an underestimation of the time it would take to prepare such a thorough document and have it extensively peer-reviewed. Once that risk assessment was completed, it became clear that all nine species included in our March 12, 2010, proposed rule (75 FR 11808) should be evaluated by the Service for possible listing as injurious.

The memo's statement, ''The injurious species provisions of the Lacey Act were clearly not designed to deal with a species that is already a significant part of the pet trade in the United States'' is true in that the pet trade was not established to the degree it is today when the Lacey Act was passed by Congress in 1900. That does not, however, mean that the injurious species provisions cannot be an effective tool in invasive species management. The reason that we are listing the reticulated python, DeSchauensee's anaconda, green anaconda, and Beni anaconda as injurious is that the listings may prevent their establishment in vulnerable parts of the country. In addition, two of the species are not currently part of the constrictor pet trade, and the reticulated python and green anaconda comprise less than 1 percent each of total constrictor snake imports (for the genera *Python, Boa,* and *Eunectes*) for 2008 to 2010. Therefore, taking the proactive step to list them as injurious species now will reduce the likelihood that their numbers will increase in the United States and pose a risk to native wildlife in the future. The Service has determined, however, that the boa constrictor should not be listed as an injurious species under the Lacey Act for the reasons explained in the section Withdrawal of the Boa Constrictor from Consideration as an Injurious Species, including, in part, that the species is widely held in captivity in the United States in high numbers, often as pets.

As for the comment from the memo, ''It could, however, make a felon out of a reptile enthusiast in Wisconsin who sells one python to an individual in Minnesota,'' that statement was also quoted correctly and is correct under certain situations. However, those situations are more representative of worst-case scenarios. A variety of other laws are often violated when people engage in illegal wildlife trafficking, some of which are Federal felonies. However, a stand-alone violation of the interstate transport or import prohibitions under 18 U.S.C. 42 is a misdemeanor, not a felony. Please also see our response to Comment 30 for an explanation of the misdemeanor and felony violations.

Alternatives to Listing

(110) *Comment:* This is a summary of the alternatives suggested through the public comment process. Where noted, they are explained further in the text of the preamble above.

(a) List some or all of the nine species, but:

- Exempt color and pattern genetic mutations of these snakes from the listing as albinos, leucistics, etc.

Our Response: The commenter explains that albinos and leucistic (having reduced pigmentation) snakes have a far lesser chance of survival in any wild environment. Not listing these color and pattern mutations would have a smaller financial impact on the industry and no financial impact on the government. The commenter may be correct that such color variations may have a lesser chance of survival in the wild. However, the survival differential is unknown, so we have assumed that all color variations still pose a substantial risk to the welfare of wildlife or wildlife resources of the United States. Furthermore, if snakes escape to the wild, their offspring may not have the same obvious color pattern and may perpetuate normally patterned populations given gene dominance, expression, mutation, and natural selection.

- Exempt hybrids.

Our Response: We realize that hybrids often are worth significantly more money than the parent species separately. Allowing hybrids would preserve more of the income of some breeders. However, we have determined that hybrids are at least the same risk as the parent species are to the welfare of wildlife or wildlife resources of the United States. The Wildlife Society commented, ''Hybrids between two invasive species are also invasive themselves and must be listed as injurious along with the exotic parental species. Hybrids maintain many of the characteristics of the parent species; this means that hybrids will retain an ability to reach the large sizes and continue the voracious dietary habits of the parental species, and they will cause as much damage to native threatened and endangered species and the environment as pure species ancestors. Many closely related constrictor species are known to hybridize, and it is likely that many of the invasive constrictors noted in the proposed rule have this same ability. Some hybrid combinations may result in sterile offspring, however, some do remain fertile. Furthermore, each individual snake still has the capability of causing extensive damage within its lifetime.''

- Do not list the species *Boa constrictor.*

Our Response: For reasons discussed above in the section Withdrawal of the Boa Constrictor from Consideration as an Injurious Species, we are withdrawing our proposal to list the boa constrictor as an injurious reptile (75 FR 11808; March 12, 2010).

- List regionally only where there is a climate match.

Our Response: Creating this type of geographical restriction or exemption (or both) under the Lacey Act would make enforcement of the regulations by the Federal Government, in cooperation with the affected States, virtually impossible. Furthermore, the authority to list regionally is unclear and untested.

- Allow for the interstate travel for captive-bred animals.

Our Response: Please see our response to Comment 66.

- Remove the status of the Port of Miami as an agricultural port and a port of entry. Move the port of entry north, maybe to one of the New England ports where the weather will eradicate anything that would be lost or illegally released.

Our Response: This alternative is beyond the scope of this rulemaking. In addition, it is highly impractical. While Miami is the port with the most imports of the reticulated python, green anaconda, and boa constrictor (94.2 percent from 2011 to 2013; Final Economic Analysis 2015), two other warm-weather southern ports (Los Angeles and Dallas-Fort Worth) also received imports of thousands of the species identified in the March 12, 2010, proposed rule. These three ports account for 99 percent of all imports of the reticulated python, green anaconda, and boa constrictor.

- The Service should consider paying restitution to or compensating these people for their losses, by buying the animals and the businesses that will no longer exist, suddenly made worthless, at fair market value, and then debating the question on how to dispose of those animals.

Our Response: This rule does not affect people's ability to own, possess,

or transport snakes within States, if allowed by State law. In addition, neither the Service nor the Department of the Interior has programs or authorities to compensate people for losses that may be related to this injurious wildlife listing. The Service can work with the affected States and industry, and offer technical assistance to provide environmentally risk-free approaches to disposing of constrictor snakes that businesses or pet owners no longer want to keep. Please also see our response to Comment 13 where we provide options for people to dispose of snakes responsibly.

(b) Do not list any of the species. Instead:

• Let the States regulate their own captive wildlife, such as following FWC's comprehensive approach in Florida.

Our Response: Please see our response to Comment 19.

• Allow the industry to self-regulate and educate with the Internet, etc.; United States Association of Reptile Keepers best management practices; State and local risk assessment industry best management practices (BMPs) as suggested by Dr. Frank Mazzotti; and Habitattitude™.

Our Response: We fully support all of these suggestions and look forward to working with all entities that endorse them. However, they are voluntary actions, with no guarantee that organizations or their members will cooperate. Of note is that these opportunities have been available for many years, but, for example, USARK has not published large constrictor snake best management practices to protect the environment (such as asking the public not to release nonnative species into the wild) on their Web site as of this date. We believe that both voluntary and regulatory actions are necessary to safeguard our ecosystems with more assurance.

• Issue permits and registrations, require microchipping, apply severe fines and criminal charges, etc., for the miskeeping or release of these animals in any State.

Our Response: These alternatives do have potential for preventing accidental and intentional escapes. However, the Service does not have the authority to issue permits for pets or for any use of injurious species other than for medical, zoological, educational, or scientific purposes.

(c) PIJAC offered to discuss options with the Service in detail including developing a comprehensive, State-led prevention and early detection and rapid response program.

Our Response: Industry and State partnerships are very important to the Service and Department of the Interior in our efforts to manage invasive species. As examples, the Department signed a memorandum of understanding with PIJAC in 2009, to create public awareness—through such public campaigns as Habitattitude™—about the threat of invasive species and to promote responsible pet ownership practices to prevent the accidental or intentional release of invasive species by pet owners. The Service also partners with States to develop a national aquatic invasive species program, and we support many State management actions through cost-share grants for implementation of State Aquatic Nuisance Species Management Plans. These partnerships with industry and States are essential aspects of managing the invasive species problem facing the nation and have been found to be particularly important in developing the most effective means for controlling the further establishment, spread, and damage from boa constrictors, as explained in the section Withdrawal of the Boa Constrictor from Consideration as an Injurious Species. Also important, however, is the Federal Government's authority to regulate importation and interstate transport of species found to be injurious wildlife under 18 U.S.C. 42 when appropriate. This authority is one important aspect of an overall national strategy to reduce the risks from introduction and spread of harmful nonnative species.

(d) AZA offered an alternative to adopting the proposal by supporting a coordinated regional response to Florida's pythons, and invasive species in general, through a multipronged approach:

• A national educational program should be developed to bring the risks of invasive species to a broad audience and emphasize responsible pet ownership and gardening practices.

Our Response: The Service is working with stakeholders on Habitattitude™ and Stop Aquatic Hitchhikers! National campaigns. The Service also worked on the development of ANSTF's Water Gardening Guidelines, which became available to the public in 2014.

• Increased support and coordination is needed for State and local early detection, rapid response, and eradication efforts, including organized volunteer invasive species corps to help protect local ecosystems.

Our Response: The most effective and least costly methods should focus on preventing establishment of potentially invasive species (see our response to Comment 97), which is the intent of this rule.

• Guidelines should be developed to help States evaluate and manage the particular invasion risks in their region, including improved data collection and record-keeping, containment facility standards, and legitimate methods for unwanted pet disposition.

Our Response: We are unclear if this recommendation is directed toward the Service. We suggest that it is more appropriate for AFWA to address this recommendation.

Required Determinations

Regulatory Planning and Review

The Office of Management and Budget (OMB) has determined that this rule is significant under Executive Order (E.O.) 12866. OMB bases its determination upon the following four criteria:

(1) Whether the rule will have an annual effect of $100 million or more on the economy or adversely affect an economic sector, productivity, jobs, the environment, or other units of the government.

(2) Whether the rule will create inconsistencies with other Federal agencies' actions.

(3) Whether the rule will materially affect entitlements, grants, user fees, loan programs, or the rights and obligations of their recipients.

(4) Whether the rule raises novel legal or policy issues.

Executive Order 12866 Regulatory Planning and Review (U.S. Office of Management and Budget 1993) and a subsequent document, Economic Analysis of Federal Regulations under Executive Order 12866 (U.S. Office of Management and Budget 1996), identify guidelines or ''best practices'' for the economic analysis of Federal regulations. With respect to the regulation under consideration, an analysis that comports with the Circular A–4 would include a full description and estimation of the economic benefits and costs associated with implementation of the regulation. These benefits and costs would be measured by the net change in consumer and producer surplus due to the regulation. Both producer and consumer surplus reflect opportunity cost as they measure what people would be willing to forgo (pay) in order to obtain a particular good or service. ''Producers' surplus is the difference between the amount a producer is paid for a unit of good and the minimum amount the producer would accept to supply that unit. Consumers' surplus is the difference between what a consumer pays for a unit of a good and the maximum

amount the consumer would be willing to pay for that unit (U.S. Office of Management and Budget 1996, section C–1).''

Large constrictor snakes are commonly kept as pets in U.S. households, displayed by zoological institutions, used for science and research, and used as educational tools. Because none of the four species we are listing in this rule is native to the United States, the species are obtained by importing or breeding in captivity. We provided a draft economic analysis to the public at the time the March 12, 2010, proposed rule (75 FR 11808) was published (on *http://www.regulations.gov* at Docket No. FWS–R9–FHC–2008–0015) and offered two public comment periods totaling 90 days. Using the comments we received on the draft economic analysis and new information we acquired, we revised the economic analysis and provided the final version on *http://www.regulations.gov* at Docket No. FWS–R9–FHC–2008–0015 for the four species we listed as injurious in 2012 (see 77 FR 3330, January 23, 2012). We opened another 30-day public comment period on June 24, 2014 (79 FR 35719) on the five remaining species in the proposed rule, for a total of 120 public comment days. We prepared another economic analysis for the four species that are the subjects of this final rule (reticulated python, DeSchauensee's anaconda, green anaconda, and Beni anaconda) using the same protocols as in 2012. We provide a summary here of the part of the final economic analysis (2015) relevant to those four species.

In the context of the regulation under consideration, the economic effects to three groups would be addressed: (1) Producers; (2) consumers; and (3) society. With the prohibition of imports and interstate transport, producers, breeders, and suppliers would be affected in several ways. Depending on the characteristics of a given business (such as what portion of their sales depends on out-of-State sales or imports), sales revenue would be reduced or eliminated, thus decreasing total producer surplus compared to the situation without the regulation. Consumers (pet owners or potential pet owners) would be affected by having a more limited choice of constrictor snakes or, in cases where species were not available within their State, no choice at all if out-of-State sales are prohibited. Consequently, total consumer surplus would decrease compared to no injurious listing. Certain segments of society may value knowing that the risk to natural areas and other potential impacts from constrictor snake populations is reduced by implementing this rule. In this case, consumer surplus would increase compared to no injurious listing. If comprehensive information were available on these different types of producer and consumer surpluses, a comparison of benefits and costs would be relatively straightforward. However, information is not currently available on these values, so a quantitative comparison of benefits and costs is not possible.

The data currently available are limited to the number of constrictor snake imports each year, the estimated number of constrictor snakes bred in the United States, and a range of retail prices for each constrictor snake species. Using data for the three genera *Python, Boa,* and *Eunectes,* we provide the value of the reticulated python, DeSchauensee's anaconda, green anaconda, Beni anaconda, and boa constrictor sold as a rough approximation for the social cost of this final rulemaking and alternatives considered. We provide qualitative discussion on the potential benefits of this rulemaking. In addition, we used an input–output model in an attempt to estimate the secondary or multiplier effects of this rulemaking—job impacts, job income impacts, and tax revenue impacts (discussed below).

With this rule, the importation and interstate transport of four species of large constrictor snakes (reticulated python, DeSchauensee's anaconda, green anaconda, and Beni anaconda) will be prohibited, except as specifically permitted. The annual retail value losses as a result of this rule are estimated to range from $1.9 million to $4.1 million (Final Economic Analysis 2015).

The broad indicator of the economic impacts of the alternatives, economic output or aggregate sales, includes three types of effects: Direct, indirect, and induced. The direct effects are the changes in annual retail value due to the implementation of a given alternative. ''Indirect effects result from changes in sales for suppliers to the directly affected businesses (including trade and services at the retail, wholesale and producer levels). Induced effects are associated with further shifts in spending on food, clothing, shelter and other consumer goods and services, as a consequence of the change in workers and payroll of directly and indirectly affected businesses'' (Weisbrod and Weisbrod 1997). The indirect and induced effects represent any multiplier effects due to the loss of revenue. These cost estimates include the various potential scenarios we considered.

Businesses or individuals importing or transporting listed species across State lines could face penalties for Lacey Act violations. The penalty for a Lacey Act violation is not more than 6 months in prison and not more than a $5,000 fine for an individual, and not more than a $10,000 fine for an organization.

Under this final rule, the probability of the four species of large constrictor snakes establishing populations within the United States should decrease compared to the ''no action'' alternative. The change in probability is unknown.

Alternatives Considered

The draft economic analysis (2010) considered two other alternatives, in addition to listing all (Alternative 2) or none (Alternative 1) of the nine species under consideration. Alternative 3 would list the seven species known to be in trade in the United States (that is, all but the Beni and DeSchauensee's anacondas). Alternative 4 would list the five species judged to have a high ''overall risk potential'' in the USGS evaluation (Reed and Rodda 2009), while excluding the four species judged to have a medium overall risk potential (that is, the two nontraded species, plus the green anaconda and reticulated python).

For the final economic analysis for this final rule (2015), our alternatives changed because we had already listed four species as injurious (see 77 FR 3330, January 23, 2012). Therefore, Alternative 2A would list the five species remaining from the proposed rule (reticulated python, DeSchauensee's anaconda, green anaconda, Beni anaconda, and boa constrictor); Alternative 2B would list the four species we are listing in this final rule (reticulated python, DeSchauensee's anaconda, green anaconda, and Beni anaconda); Alternative 3 would list the three species that are currently in trade (reticulated python, green anaconda, and boa constrictor); and Alternative 4 would list only the boa constrictor, which is the only species of the five remaining ones that Reed and Rodda (2009) determined to have a high risk potential (all nine species, however, are injurious).

Compared to the alternative of listing all five species (2A), Alternative 2B would have less effect on current sales revenues or indirect economic impacts from the loss of such revenues, because there are currently no sales revenues from two of these species and the rule does not include the boa constrictor, the one remaining species with the highest overall risk potential (Reed and Rodda

2009). Only the reticulated python is the subject of noticeable trade, and that is less than 4 percent of imported constrictor snakes of the genera *Python, Boa,* and *Eunectes* (Final Economic Analysis 2015). Alternative 2A would have the same economic impacts as Alternative 3, because the two species that are not in Alternative 3 are not in trade.

Alternative 3 would, however, allow consumers to substitute the two species not in trade (in addition to the many other substitute species already available) for the purchase of the prohibited species, thus reducing economic impacts to the degree that there would be substitute purchases of these two species. However, the possibility of substitute purchases is itself a potential problem in that the two currently nontraded species are so similar in appearance to the green and yellow anacondas that it would be difficult for enforcement officials to distinguish green or yellow anacondas that were mislabeled as Beni or DeSchauensee's anacondas. In addition, acting to prevent the importation of these two species before trade in them emerges means that environmental injury from them can be prevented, which is far more effective than waiting until after injury has already occurred to act to limit it.

Alternative 4 (listing only the one species determined to have a high ''overall risk potential'' in Reed and Rodda (2009)) would limit the rule to the species with the greatest potential for environmental injury. Of the four species that would not be listed under this alternative, two anacondas are not currently in trade in the United States, and one (the green anaconda) is in very limited trade (less than half a percent of imported constrictor snakes of the genera *Python, Boa,* and *Eunectes*). The economic impact of the one-species alternative (Alternative 4) would be slightly less than the five-species alternative (Alternative 2A) and the three-species alternative (Alternative 3) because the boa is the primary species in trade of the five species, but greater than the four-species alternative, which does not include the boa (Alternative 2B).

The relative level of risk associated with each species is determined by the criteria specified in the section Lacey Act Evaluation Criteria. Even in the case of those species with medium risk, the particular areas where the climate match occurs are notable for the number of endangered species found there (such as Hawaii, southern Florida, and Puerto Rico). That fact, the potential that yellow anacondas would be difficult for enforcement officials to distinguish if mislabeled as DeSchauensee's anacondas and green anacondas would be difficult for enforcement officials to distinguish if mislabeled as Beni anacondas, and the fact that the opportunity to act preventively before most of these species became established would be lost under this alternative all argued in favor of Alternatives 2A, 2B, and 3.

Regulatory Flexibility Act

Under the Regulatory Flexibility Act (as amended by the Small Business Regulatory Enforcement Fairness Act [SBREFA] of 1996) (5 U.S.C. 601 *et seq.*), whenever a Federal agency is required to publish a notice of rulemaking for any proposed or final rule, it must prepare and make available for public comment a regulatory flexibility analysis that describes the effect of the rule on small entities (that is, small businesses, small organizations, and small government jurisdictions). However, no regulatory flexibility analysis is required if the head of an agency certifies that the rule would not have a significant economic impact on a substantial number of small entities. Thus, for a regulatory flexibility analysis to be required, impacts must exceed a threshold for ''significant impact'' and a threshold for a ''substantial number of small entities.'' See 5 U.S.C. 605(b). SBREFA amended the Regulatory Flexibility Act to require Federal agencies to provide a statement of the factual basis for certifying that a rule would not have a significant economic impact on a substantial number of small entities. A final regulatory flexibility analysis was prepared for the four species listed in 2012 (see 77 FR 3330, January 23, 2012) and another was prepared for the four species in this final rule in 2015, which we briefly summarize below. See **ADDRESSES** or *http://www.regulations.gov* under Docket No. FWS–R9–FHC–2008–0015 for the complete documents.

This rule lists four constrictor snake species (reticulated python, DeSchauensee's anaconda, green anaconda, and Beni anaconda) as injurious species under the Lacey Act. Entities impacted by the listing include: (1) Companies importing live snakes, gametes, viable eggs, and hybrids; (2) companies (breeders and wholesalers) with interstate sales of live snakes, gametes, viable eggs, and hybrids; (3) entities selling reptile-related products and services (pet stores, veterinarians, and shipping companies); and (4) research organizations, zoos, and educational operations. Importation of the four constrictor snakes will be prohibited, except as specifically authorized. Impacts to entities breeding or selling these snakes domestically will depend on the amount of interstate sales within the constrictor snake market. Impacts also are dependent upon whether or not consumers substitute the purchase of an animal that is not listed, which would thereby reduce economic impacts.

For businesses importing any of the four large constrictor snakes we are listing in this final rule, the maximum impact of this rulemaking will result in 20 to 28 small businesses (39 percent) having a reduction in their retail sales of 1 percent.

In addition to companies that import snakes, entities that breed and sell large constrictor snakes will also be impacted. These entities include distributors, retailers, breeders and hobbyists, and exhibitors and trade shows. We do not know the total number of businesses, large or small, that sell or breed the two species we are listing in this rule that are currently in trade domestically. However, we know approximately the number of businesses that sell or breed large constrictor snake species of the genera *Python, Boa,* and *Eunectes* and that, overall, the reticulated python, DeSchauensee's anaconda, green anaconda, Beni anaconda, and boa constrictor represent 39 percent of all U.S.-bred large constrictor snake sales of those three genera. Because we do not know exactly how many businesses sell those five species, we extrapolated the percentage of sales to determine the number of affected businesses. Thus, we assume that 8 percent of businesses sell or breed the reticulated python and green anaconda (the two snake species in U.S. trade in this final rule) and that approximately 60 to 85 percent of these entities would qualify as small businesses. Therefore, approximately 490 to 1,281 small businesses will be affected. Impacts to this group of businesses as a whole could represent an 8 percent reduction in retail value.

In addition to snake sales, ancillary and support services comprise part of the snake industry. Four major categories include: (1) Food suppliers (such as for frozen or live rats and mice), (2) equipment suppliers (such as for cages, containers, lights, and other nonfood items), (3) veterinary care and other health-related items, and (4) shipping companies. The decrease in constrictor-snake-industry economic output and related employment from baseline conditions is $5.3 to 11.4 million for the reticulated python and green anaconda. This estimate includes impacts to the support service businesses. The number of businesses

that provide these services to the large constrictor snake market is unreported. Thus, we do not know the impact to these types of individual businesses.

Under the final rule, the interstate transport of the reticulated python and green anaconda (the two constrictor snakes currently in U.S. trade in this final rule) will be discontinued, except as specifically permitted. Thus, any revenue that would be potentially earned from this portion of the business will be eliminated. The amount of sales impacted is completely dependent on the percentage of interstate transport. That is, the impact depends on where businesses are located and where their customers are located.

This final rule may have a significant economic effect on a small number of small entities as defined under the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*).

Small Business Regulatory Enforcement Fairness Act

This rule is not a major rule under 5 U.S.C. 804(2), the Small Business Regulatory Enforcement Fairness Act. This rule:

a. Will not have an annual effect on the economy of $100 million or more. According to the final economic analysis (USFWS 2015), the annual retail value losses for the four constrictor snake species we are listing in this final rule are estimated to range from $1.9 million to $4.1 million. In addition, businesses would also face the risk of fines if caught importing or transporting these constrictor snakes, gametes, viable eggs, or hybrids across State lines. The penalty for a Lacey Act violation under the injurious wildlife provisions is not more than 6 months in prison and not more than a $5,000 fine for an individual and not more than a $10,000 fine for an organization.

b. Will not cause a major increase in costs or prices for consumers; individual industries; Federal, State, or local government agencies; or geographic regions. Businesses breeding or selling the listed snakes will be able to substitute other species and maintain business by seeking unusual morphologic forms in other snakes. Some businesses, however, may close. We do not have data for the potential substitutions, and, therefore, we do not know the number of businesses that may close.

c. Will not have significant adverse effects on competition, employment, investment, productivity, innovation, or the ability of United States-based enterprises to compete with foreign-based enterprises.

Unfunded Mandates Reform Act (2 U.S.C. 1501 et seq.)

This final rule will not impose an unfunded mandate on State, local, or tribal governments or the private sector of more than $100 million per year. This final rule will not have a significant or unique effect on State, local, or tribal governments or the private sector. A statement containing the information required by the Unfunded Mandates Reform Act (2 U.S.C. 1501 *et seq.*) is not required.

Takings

In accordance with E.O. 12630 (Government Actions and Interference with Constitutionally Protected Private Property Rights), the rule does not have significant takings implications. A takings implication assessment is not required. This rule will not impose significant requirements or limitations on private property use. Any person who possesses one or more snakes of the four species we are listing in this rule can continue to possess, sell, or transport them within their State boundaries.

Federalism

In accordance with E.O. 13132 (Federalism), this rule does not have federalism implications. This rule will not have substantial direct effects on States, on the relationship between the Federal Government and the States, or on the distribution of power and responsibilities among the various levels of government. The rule does not have substantial direct effects on States because it: (1) Imposes no affirmative obligations on any State, (2) preempts no State law, (3) does not limit the policymaking discretion of the States, (4) requires no State to expend any funds, and (5) imposes no compliance costs on any State. Executive Order 13132 requires Federal agencies to proceed cautiously when there are ''uncertainties regarding the constitutional or statutory authority of the national government,'' but there are no such uncertainties here. The statutory authority of the U.S. Fish and Wildlife Service to designate injurious species pursuant to the Lacey Act is clear. The Executive Order also encourages early consultation with State and local officials, which the Service has done. Therefore, in accordance with Executive Order 13132, we determine that this rule does not have federalism implications or preempt State law, and therefore a federalism summary impact statement is not required.

Civil Justice Reform

In accordance with Executive Order 12988, the Office of the Solicitor has determined that the rule does not unduly burden the judicial system and meets the requirements of sections 3(a) and 3(b)(2) of the Executive Order. The rule has been reviewed to eliminate drafting errors and ambiguity, was written to minimize litigation, provides a clear legal standard for affected conduct rather than a general standard, and promotes simplification and burden reduction.

Paperwork Reduction Act of 1995

This rule does not contain any new collections of information that require approval by OMB under the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 *et seq.*). This rule will not impose new recordkeeping or reporting requirements on State or local governments, individuals, businesses, or organizations. OMB has approved the information collection requirements associated with the required permits and assigned OMB Control No. 1018–0093, which expires May 31, 2017. An agency may not conduct or sponsor and a person is not required to respond to a collection of information unless it displays a currently valid OMB control number.

National Environmental Policy Act

We have reviewed this rule in accordance with the criteria of the National Environmental Policy Act (NEPA; 42 U.S.C. 4321 *et seq.*), Department of the Interior NEPA regulations (43 CFR part 46), and the Departmental Manual in 516 DM 8. This action is being taken to protect the natural resources of the United States. A final environmental assessment and a finding of no significant impact (FONSI) have been prepared and are available for review by written request (see **ADDRESSES**) or at *http://www.regulations.gov* under Docket No. FWS–R9–FHC–2008–0015. The final environmental assessment was based on the proposed listing of the reticulated python, DeSchauensee's anaconda, green anaconda, Beni anaconda, and boa constrictor as injurious and was revised based on comments from peer reviewers and the public. By adding reticulated python and DeSchauensee's, green, and Beni anacondas to the list of injurious wildlife, we intend to prevent their new introduction, further introduction, and establishment into natural areas of the United States to protect native wildlife species, the survival and welfare of wildlife and wildlife resources, and the health and welfare of human beings. If

we did not list these constrictor snakes as injurious, the species are more likely to expand in captivity in States where they are not already found in the wild; this would increase the risk of their escape or intentional release and subsequent establishment in new areas, which would likely negatively affect native fish and wildlife, and humans. Releases of the four constrictor snakes into natural areas of the United States are likely to occur, and the species are likely to become established in additional U.S. natural areas such as national wildlife refuges and parks, negatively affecting native fish and wildlife populations and ecosystem form, function, and structure. For reasons discussed above in the section Withdrawal of the Boa Constrictor from Consideration as an Injurious Species, we are withdrawing our proposal to list the boa constrictor as an injurious reptile (75 FR 11808; March 12, 2010).

Government-to-Government Relationship With Tribes

In accordance with the President's memorandum of April 29, 1994, Government-to-Government Relations with Native American Tribal Governments and the Department of the Interior's manual at 512 DM 2, we readily acknowledge our responsibility to communicate meaningfully with recognized Federal tribes on a government-to-government basis. In accordance with Secretarial Order 3206 of June 5, 1997 (American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act), we readily acknowledge our responsibilities to work directly with tribes in developing programs for healthy ecosystems, to acknowledge that tribal lands are not subject to the same controls as Federal public lands, to remain sensitive to Indian culture, and to make information available to tribes. We have evaluated potential effects on federally recognized Indian tribes and have determined that there are no potential effects. This rule involves the importation and interstate movement of three live anaconda species and one live python species, gametes, viable eggs, or hybrids that are not native to the United States. We are unaware of trade in these species by tribes.

Effects on Energy

On May 18, 2001, the President issued Executive Order 13211 on regulations that significantly affect energy supply, distribution, and use. Executive Order 13211 requires agencies to prepare Statements of Energy Effects when undertaking certain actions. This rule is not expected to affect energy supplies, distribution, and use. Therefore, this action is a not a significant energy action, and no Statement of Energy Effects is required.

References Cited

A complete list of all references used in this rulemaking is available on the Internet at *http://www.regulations.gov* under Docket No. FWS–R9–FHC–2008–0015.

Authors

The primary authors of this rule are the staff members of the South Florida Ecological Services Office (see **ADDRESSES**).

List of Subjects in 50 CFR Part 16

Fish, Imports, Reporting and recordkeeping requirements, Transportation, Wildlife.

Regulation Promulgation

For the reasons discussed in the preamble, the U.S. Fish and Wildlife Service amends part 16, subchapter B of chapter I, title 50 of the Code of Federal Regulations, as follows:

PART 16—[AMENDED]

■ 1. The authority citation for part 16 continues to read as follows:

Authority: 18 U.S.C. 42.

■ 2. Amend § 16.15 by revising paragraph (a) to read as follows:

§ 16.15 Importation of live reptiles or their eggs.

(a) The importation, transportation, or acquisition of any live specimen, gamete, viable egg, or hybrid of the species listed in this paragraph is prohibited except as provided under the terms and conditions set forth at § 16.22:

(1) *Boiga irregularis* (brown tree snake).

(2) *Python molurus* (including *P. molurus molurus* (Indian python) and *P. molurus bivittatus* (Burmese python)).

(3) *Python reticulatus, Broghammerus reticulatus,* or *Malayopython reticulatus* (reticulated python).

(4) *Python sebae* (Northern African python or African rock python).

(5) *Python natalensis* (Southern African python or African rock python).

(6) *Eunectes notaeus* (yellow anaconda).

(7) *Eunectes deschauenseei* (DeSchauensee's anaconda).

(8) *Eunectes murinus* (green anaconda).

(9) *Eunectes beniensis* (Beni anaconda).

* * * * *

Dated: February 25, 2015.

Michael J. Bean,

Principal Deputy Assistant Secretary for Fish and Wildlife and Parks.

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