PETITION TO LIST THE
Flat-tailed Tortoise (*Pyxis planicauda)*
UNDER THE ENDANGERED SPECIES ACT

Photograph by: Nick Garbutt © NHPA/Photoshot

Petition Submitted to the U.S. Secretary of Interior
Acting through the U.S. Fish and Wildlife Service

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Petitioners

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INTRODUCTION

Friends of Animals and WildEarth Guardians request the Secretary of Interior, ("Secretary") acting through her delegate the U.S. Fish and Wildlife Service, to list the flat-tailed tortoise (*Pyxis planicauda*) as "threatened" or "endangered" under the Endangered Species Act ("ESA") (16 U.S.C. §§ 1531-1544). The flat-tailed tortoise is a small, attractive tortoise endemic to Madagascar. It is a long-lived species with a low reproductive potential that makes adapting to increasing threats difficult.

The primary threats to the flat-tailed tortoise are habitat loss and exploitation through the pet trade, but the species faces threats due to all five factors identified in the ESA. First, the species' habitat is damaged by burning and clearing for agricultural lands, cattle grazing, highway development, mining, and petroleum exploration. Second, the species faces severe threats from human utilization, specifically harvesting for the international pet trade. Third, predation from the introduction of new species in its habitat threatens the flat-tailed tortoise, and fatal diseases such as intestinal and blood parasites have been observed in captive and wild populations. Fourth, existing regulatory mechanisms are inadequate to manage the threats to the flat-tailed tortoise. Finally, other natural and manmade factors threaten the tortoise's continued existence, including: low reproductive rate, small population size, and rapid human population growth in its range. Thus, it is vital to the survival of this species that it be federally protected through the ESA.

The International Union for Conservation of Nature ("IUCN")[1] agrees and listed the flat-tailed tortoise as endangered in 1996 and updated its categorization of the species to "critically endangered" in 2008 (Leuteritz, Randriamahazo, and Lewis 2). The flat-tailed tortoise is also listed in Appendix I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora ("CITES")[2]; in 2003 it was uplisted from Appendix II to Appendix I to reflect that it is threatened with extinction. These listings indicate the serious threat of extinction that the flat-tailed tortoise faces, and the need for listing under the ESA to ensure its survival.[3]

PETITIONERS

Friends of Animals. Friends of Animals ("Friends") is a nonprofit, international animal advocacy organization incorporated in the state of New York in 1957. Friends seeks to free animals from cruelty and exploitation around the world, and to promote a respectful view of non-

[1] The IUCN is the world's largest and oldest global environmental network. It is a democratic membership union with more than 1,200 government and non-governmental organization (NGO) members, and almost 11,000 volunteer scientists in some 160 countries. Its work is supported by over 1,000 professional staff in 45 offices and hundreds of partners around the world. *See* www.iucn.org/about/.

[2] CITES is an international agreement with member countries that voluntarily adhere to it. Although it binds members to implement the Convention, it does not take the place of national laws. Rather it provides a framework to be respected by each Party, which has to adopt its own domestic legislation to ensure that CITES is implemented at the national level. Available at http://www.cites.org/eng/disc/what.php.

[3] Friends of Animals and WildEarth Guardians hereby incorporate all citations and references contained in the IUCN's Species Report and CITES reports for the flat-tailed tortoise into this petition by reference. If the Secretary does not have access to any of the incorporated citations or references, please contact us and we will provide copies.

human, free-living and domestic animals. Friends engages in a variety of advocacy programs in support of these goals. Friends informs its members about animal advocacy issues as well as the organization's progress in addressing these issues through its magazine called Act'ionLine, its website, and other reports. Friends has published articles and information advocating for the protection of endangered species so that they can live unfettered in their natural habitats. Friends in particular has a long-standing commitment to protecting animals imperiled due to poaching to fuel the pet trade, sport-hunting, and other animal-exploitation markets. Friends has a long history in Africa, and is extremely active in protecting African-native species subject to human exploitation. Friends and its members have a substantial interest in the conservation of the flat-tailed tortoise and will be adversely affected if the Secretary declines to protect this species and its habitat under the ESA.

WildEarth Guardians. WildEarth Guardians ("Guardians") is a nonprofit environmental advocacy organization that works to protect wildlife, wild places, and wild waters in the United States and beyond. Guardians maintains offices in Denver, Santa Fe, Missoula, and satellites in Eugene, Laramie, Portland, San Diego, and Tuscon, and has more than 100,000 members and e-activists nationwide. WildEarth Guardians has an active endangered species program that works to protect imperiled species and their habitat.

ENDANGERED SPECIES ACT AND IMPLEMENTING REGULATIONS

The ESA, 16 U.S.C. §§ 1531 *et seq*., was enacted in 1973 "to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, [and] to provide a program for the conservation of such endangered species and threatened species." 16 U.S.C. § 1531(b). The protections of the ESA only apply to species that have been listed as endangered or threatened according to the provisions of the statute. The ESA delegates authority to determine whether a species should be listed as endangered or threatened to the Secretary of Interior, who has in turn delegated authority to the Director of the U.S. Fish & Wildlife Service. As defined in the ESA, an "endangered" species is one that is "in danger of extinction throughout all or a significant portion of its range." 16 U.S.C. § 1532(6); see also 16 U.S.C. § 1533(a)(1). A "threatened species" is one that "is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." 16 U.S.C. § 1532(20). The Service must evaluate whether a species is threatened or endangered as a result of any of the five listing factors set forth in 16 U.S.C. § 1533(a)(1):

> A. The present or threatened destruction, modification, or curtailment of its habitat or range;
> B. Overutilization for commercial, recreational, scientific, or educational purposes;
> C. Disease or predation;
> D. The inadequacy of existing regulatory mechanisms; or
> E. Other natural or manmade factors affecting its continued existence.

A taxon need only meet one of the listing criteria outlined in the ESA to qualify for federal listing. 50 C.F.R. § 424.11.

FWS is required to make these listing determinations "solely on the basis of the best scientific and commercial data available to [it] after conducting a review of the status of the species and after taking into account" existing efforts to protect the species. 16 U.S.C. § 1533(b)(1)(A); *see also* 50 C.F.R. §§ 424.11(b), (f). In making a listing determination, the Secretary must give consideration to species which have been "identified as in danger of extinction, or likely to become so within the foreseeable future, by any State agency or by any agency of a foreign nation that is responsible for the conservation of fish or wildlife or plants." 16 U.S.C. § 1533(b)(1)(B)(ii). *See also* 50 C.F.R. § 424.11(e) (stating that the fact that a species has been identified by any State agency as being in danger of extinction may constitute evidence that the species is endangered or threatened). Listing may be done at the initiative of the Secretary or in response to a petition. 16 U.S.C. § 1533(b)(3)(A).

After receiving a petition to list a species, the Secretary is required to determine "whether the petition presents substantial scientific or commercial information indicating that the petitioned action may be warranted." 16 U.S.C. § 1533(b)(3)(A). Such a finding is termed a "90-day finding." A "positive" 90-day finding leads to a status review and a determination whether the species will be listed, to be completed within twelve months. 16 U.S.C. §1533(b)(3)(B). A "negative" initial finding ends the listing process, and the ESA authorizes judicial review of such a finding. 16 U.S.C. § 1533(b)(3)(C)(ii).

The applicable regulations define "substantial information," for purposes of consideration of petitions, as "that amount of information that would lead a reasonable person to believe that the measure proposed in the petition may be warranted." 50 C.F.R. § 424.14(b)(1). The regulations further specify four factors to guide the Service's consideration on whether a particular listing petition provides "substantial" information:

i. Clearly indicates the administrative measure recommended and gives the scientific and any common name of the species involved;
ii. Contains detailed narrative justification for the recommended measure; describing, based on available information, past and present numbers and distribution of the species involved and any threats faced by the species;
iii. Provides information regarding the status of the species over all or significant portion of its range; and
iv. Is accompanied by appropriate supporting documentation in the form of bibliographic references, reprints of pertinent publications, copies of reports or letters from authorities, and maps

50 C.F.R. § 424.14(b)(2)(i)-(iv).

Both the language of the regulation itself (by setting the "reasonable person" standard for substantial information) and the relevant case law underscore the point that the ESA does not require "conclusive evidence of a high probability of species extinction" in order to support a positive 90-day finding. *Ctr. for Biological Diversity v. Morgenweck*, 351 F.Supp.2d 1137, 1140. *See also Moden v. U.S. Fish & Wildlife Serv.*, 281 F.Supp.2d 1193, 1203 (D.Or. 2003) (holding that the substantial information standard is defined in "non-stringent terms"). Rather, the courts have held that the ESA contemplates a "lesser standard by which a petitioner must simply show

that the substantial information in the Petition demonstrates that listing of the species *may* be warranted" (emphasis added). *Morgenweck*, 351 F.Supp.2d at 1141 (quoting 16 U.S.C. § 1533(b)(3)(A)). *See also Ctr. for Biological Diversity v. Kempthorne*, No. C 06-04186 WHA, 2007 WL 163244, at *3 (holding that in issuing negative 90-day findings for two species of salamander, FWS "once again" erroneously applied "a more stringent standard" than that of the reasonable person).

CLASSIFICATION AND NOMENCLATURE

Common Name. *Pyxis planicauda* is commonly referred to as flat-tailed tortoise, Madagascar flat-shelled tortoise, flat-backed spider tortoise, flat-shelled spider tortoise, and locally as kapidolo. This petition refers to the species as "flat-tailed tortoise" or "tortoise."

Taxonomy. The petitioned species is *Pyxis planicauda* Grandidier 1867. The taxonomic classification of *Pyxis planicauda* is shown in Table 1.

Table 1. Taxonomy of *Pyxis planicauda* [4]

Kingdom	Animalia – animals
Phylum	Chordata – chordates
Subphylum	Vertebrata – vertebrates
Class	Reptilia Laurenti – reptiles
Order	Testudines Linnaeus – turtles
Family	Testudinidae Batsch – tortoises
Genus	Pyxis Bell – spider tortoises
Species	*Pyxis planicauda* (Grandidier 1867) – flat-shelled spider tortoise

Physical Description. As indicated by the various English common names for this small tortoise, it has a noticeably flattened oblong upper shell (carapace) and flattened dorso-ventral tail (CITES "Proposal" 2). The carapace is distinctively patterned, with each scute (section of carapace) having a light brown to yellow center surrounded by a wide, dark brown to black border (Figure 1). In older tortoises, an additional yellow border may surround this dark border. The flat-tailed tortoise has no anterior plastral hinge. Its head ranges in color from dark brown to black and features yellow marks of various shapes. Its legs range in color from yellow to brown, and each leg has five toes. Large yellow scales cover its hind legs (CITES "Proposal" 2). The cervical scute is short and broad, in contrast to the similar spider tortoise's cervical scute, which is long and narrow (McCloud 14-15).

[4] ITIS Report, available at http://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=551955 [Accessed September 2013]. The Integrated Taxonomic Information System (ITIS) is a coalition of federal agencies formed to create scientifically credible taxonomic information for scientific use and the American public.

Figure 1. Flat-tailed tortoise. Photo © A. Abate 2003
Available at: http://www.fws.gov/lab/idnotes/starpatterntortoise.pdf

The males weigh approximately 300 to 400 grams and the females 475 to 670 grams (CITES "Implementation" 130). The carapace can attain a length of 13.4 cm. Sexual dimorphism is visible after the age of 10 or 12. The female's tail is thinner and shorter than the male's (CITES "Proposal" 2).

Habitat and Range. The flat-tailed tortoise is endemic to western Madagascar, and exclusively associated with closed-canopy dry forest. It is mainly found in the region of Menabe between the Morondava and Tsiribihina Rivers (Leuteritz, Randriamahazo, and Lewis 2). There is also a small isolated population to the north of the Tsiribihina river (CITES "Proposal" 2).

The dry forests of the Menabe region are primarily on sandy and lateritic soils and are characterized by the presence of baobab trees. The climate in this area consists of two major seasons: a dry season from April to November, and a wet season from December to March (Young et al. 253).

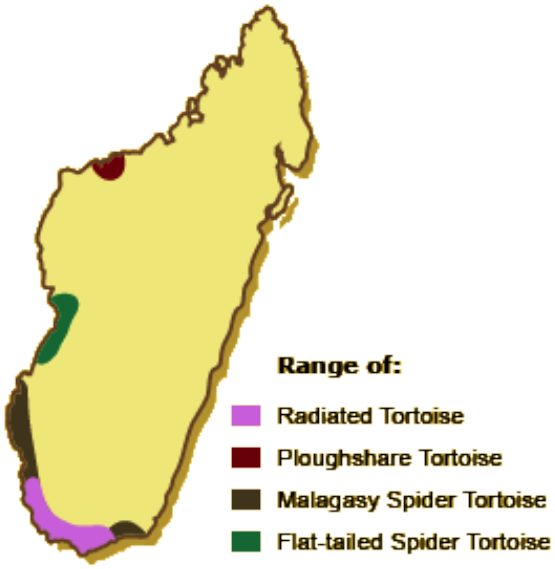

Figure 2. Tortoise habitat in Madagascar. Flat-tailed tortoise habitat is signified by the green color areas. Map by Wildlife Conservation Society.[5]

Behavior. Studies show that actions of the flat-tailed tortoise are closely associated with rainfall, and that individuals reduce their activity during dry periods, and increase activity and breed in the wet season (Young et al. 252). The flat-tailed tortoise primarily eats fruits and foliage from trees and shrubs (Leuteritz, Randriamahazo, and Lewis 3). Details about flat-tailed tortoises behavior are not well known because it is usually camouflaged against leaf litter and often hidden in dense forest understory, making it difficult to detect (Young et al. 252).

Reproduction. The flat-tailed tortoise has a particularly slow reproductive rate. Mating occurs in the first half of the wet season and females produce 1 to 3 single egg clutches in the latter half of the wet season (Leuteritz, Randriamahazo, and Lewis 3). Observation of nests in the wild show incubation periods of 250-340 days (Leuteritz, Randriamahazo, and Lewis 3). Information from the Durrell Wildlife Breeding Center in northwestern Madagascar indicates that females do not reach maturity until ten years of age. At the 2008 Madagascar Tortoise and Freshwater Turtle workshop, generation time was estimated as at least 25 years (Leuteritz, Randriamahazo, and Lewis 3).

Population Estimates and Trends. The IUCN Redlist categorizes the species as "critically endangered," and the population as decreasing, indicating a minimum of 60% population decline in the past two generations, with a further 30% anticipated for the next generation (Leuteritz, Randriamahazo, and Lewis 2). There are three contributing factors making it difficult to determine the overall population: (1) the tortoise stays well camouflaged under leaf litter; (2) low population density; and (3) the tortoise is only active during the wet season (Young et al. 256). Population estimates are summarized in Table 2.

[5] "Poaching Pets for Profit." Wild Explorations Home, *available at*: http://www.wildexplorations.com/madagascar/5-2-poaching.html.

Table 2. Summary of flat-tailed tortoise population estimates. Adapted from Leuteritz, Randriamahazo, and Lewis 2-3.

Date	Location	Area Surveyed	No. of Tortoise Encountered	Calculated Density	Reference
1991	Kirindi	8 km² surveyed	Tortoises encountered on 54 occasions	6.75 per km², but no data on recaptures	Quentin and Hayes (1991).
1996	Kirindi	20 km²/ 20,000 ha surveyed	12 tortoises in 11 days	0.6 per km²- 83% recapture -	Bloxam *et al*. (1996).
2000	Main Forest Block			0.5/ha (50/km²)	Durbin and Randriamanampisoa (2000).
2000	Main Forest Block			2-6/ha (200-600/km²)	Durbin and Randriamanampisoa (2000, as cited in CITES Proposal 12.55)
2001	Main Forest Block			1/ha (100/km²)	Kuchling in litt. 2001, Rakotombololona (2001 cited in Rakotombololona & Durbin in litt. to SSC Wildlife Trade Programme, Nov 2001)

One study estimated a population in the main forest block at nearly 28,000 individuals; however, the study had only 29 observations and noted that a sample size of 60-90 observations was recommended (Young et al. 255-56). That study also concluded that the population remains threatened, that illegal trade persisted even after the species was listed on CITES, and that any take is likely to pose a significant threat to the species (Young et al. 257).

Harvesting for the pet trade likely caused the total elimination of the species from some forest fragments and other populations that have been fragmented might now be virtually extinct (CITES "Proposal" 4). Additionally, harvesting has "visibly eradicated" the tortoise populations from the southwest corner of their range, and has spread to Masoarivo in the northernmost part of the flat-tailed tortoise's range (CITES "Implementation" 132).

The flat-tailed tortoise is recognized as one of the most endangered tortoise species in the world by the IUCN Madagascar and Reptile and Amphibian Specialist Group (Behler 4).

IDENTIFIED THREATS TO THE FLAT-TAILED TORTOISE: CRITERIA FOR LISTING

The flat-tailed tortoise meets all five of the criteria for listing identified in ESA § 4 (16 U.S.C.

§1533(a)(1)):

> A. The present or threatened destruction, modification, or curtailment of its habitat or range;
> B. Overutilization for commercial, recreational, scientific, or educational purposes;
> C. Disease or predation;
> D. The inadequacy of existing regulatory mechanisms; or
> E. Other natural or manmade factors affecting its continued existence.

The present or threatened destruction, modification, or curtailment of habitat or range (Criteria A)

Flat-tailed tortoise habitat in dry forests of western Madagascar has undergone a dramatic decline in extent and become highly fragmented, particularly from burning and clearing for agricultural lands and cattle grazing, highway development, mining, and petroleum exploration (Leuteritz, Randriamahazo, and Lewis 3). According to reports by Tidd et al. (2001), combined forest habitat loss is estimated to be over 70% for the period from 1963-2040 (*cited in* Leuteritz, Randriamahazo, and Lewis 3). Similar deforestation rates were documented by Harper et al. (2007), which reported a 41% loss of dry forest in Madagascar for the period between 1950-2000 (330) (Figure 3).

Analyses of satellite images estimated that the flat-tailed tortoise's primary habitat, dense dry forests, were reduced by 32% between 1963 and 1993 (CITES "Implementation" 131). Additionally, between 1963 and 1993 the area of primary dense forest declined from 162,000 to 133,000 hectares (ha) in the Tsiribihina to Tomitsy area, from 54,000 to 36,000 ha in the Tomitsy to Morondava area, and from 93,000 to 41,000 ha in the Morondava to Maharivo area. The total loss of primary dense forest was 99,000 ha, or 32 % of the 1963 forest (CITES "Implementation" 131). A 50% reduction in the remaining 73,000 ha of habitat in the northern portion of the flat-tailed tortoise's known range may occur by 2040 (CITES "Implementation" 131).

Habitat disturbance and the associated decrease in habitat quality, especially during the flat-tailed tortoise's periods of torpor in the dry season, threaten its ability to survive and could reduce its ability to obtain sufficient nutrition for egg production (CITES "Implementation" 131). According to (Anon 2001), the population is predicted to reduce by 80% during the next three generations (*cited in* CITES "Implementation" 134).

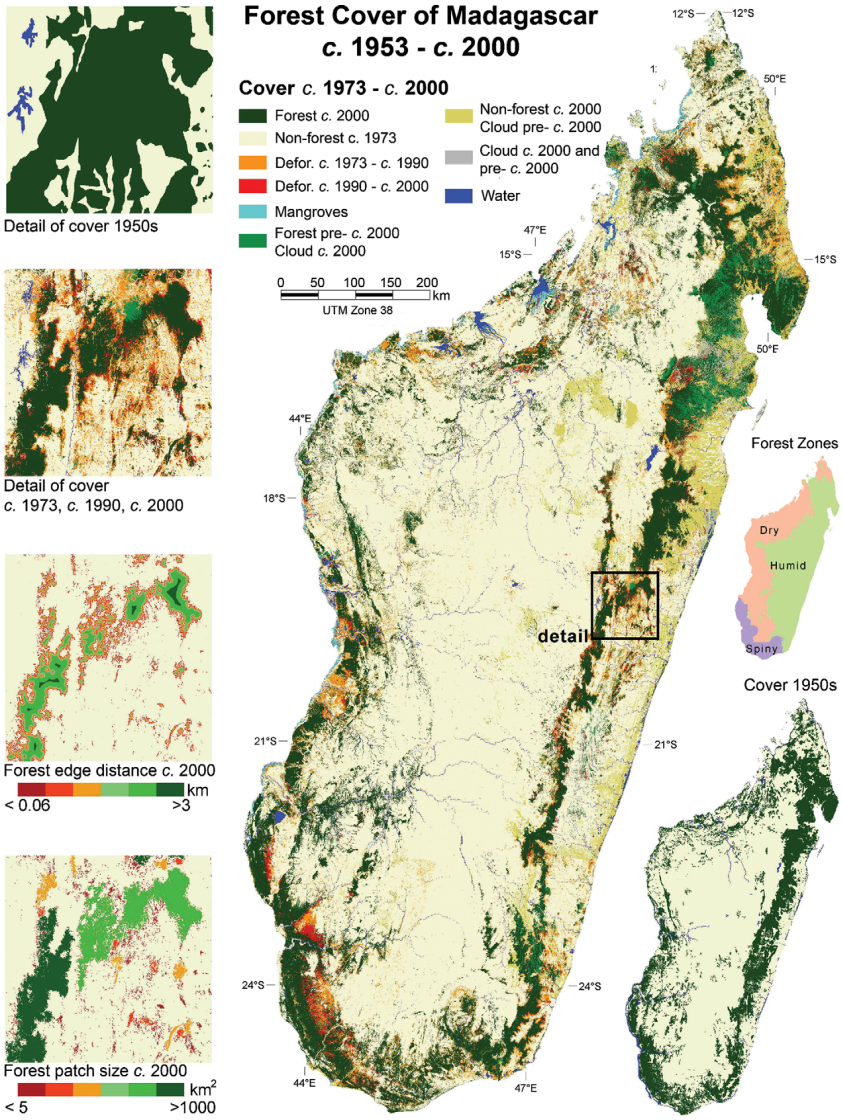

Figure 3. Madagascar forest cover from the 1950s to *c.* 2000. Forest cover changes from the 1970s to *c.* 2000 are shown in the main figure, and forest cover in the 1950s is shown in the lower-right inset (Harper et al. 328).

Overutilization for commercial, recreational, scientific, or educational purposes (Criteria B)

According to Wildlife Conservation Society assessment, illegal trade continues to be the largest single threat for several of the critically endangered tortoise species in Madagascar, and flat-tailed tortoises are particularly coveted by collectors and traded as pets on the international black market (1). Since late 1999, collection of the flat-tailed tortoise from the wild for the pet trade started to reach significant numbers (CITES "Implementation" 131). Most of the trade, at least until 2010, was likely wild adult specimens (age 10 years plus) because captive breeding operations within Madagascar have been in operation only since late 1999 and the species takes at least 10 years to reach sexual maturity (CITES "Implementation" 133). Thus, although sellers

often advertise individuals as "captive bred", it is unlikely that such claims are true (CITES "Proposal" 7).

International demand for the flat-tailed tortoise is very high (Behler 4). Consequently, many villages participate in collecting individuals from the wild. For example, surveys show that in the village of Mangily most villagers participated in harvesting: a collector would arrive and negotiate a price per animal (in 2001, FMG 5,000= USD 1). Then, the collector would return to the village and buy all the tortoises that had been harvested. (CITES "Proposal" 7). This collection has been reported to have effectively extirpated the tortoise population in the southwestern part of its range, and studies suggests that harvest spread to Masoarivo in the northern part of the range in late 2001 (CITES "Implementation" 132).

There have also been anecdotal reports of several thousand flat-tailed tortoise reaching the U.S. in the early 2000's (CITES "Implementation" 133). According to the CITES Consideration of Proposal 12.55, 65 individuals going to the United States were seized in 2001, and the United States Fish and Wildlife Service's personal communication to Pro Wildlife revealed that the United States imported 1,025 wild flat-tailed tortoises directly from Madagascar in the year 2000 alone (6). In March 2001, the export quota was scaled back to zero, but the volume of sales reported in 2000 and 2001 far exceed the official export quotas (CITES "Implementation" 132).

Due to its low reproductive rate and long generation time, this tortoise is especially vulnerable to the taking of sexually mature adults (Young et. al. 257). Participants of the 2001 CAMP workshop considered the species highly unlikely to sustain adult harvest, even at modest levels (CITES "Implementation" 132). According to Behler, collectors are "literally in the process of wiping out the wild stocks" (cited in CITES "Proposal" 7).

Disease and Predation (Criteria C)

Disease. Health problems such as intestinal and blood parasites have been observed in both captive and wild individuals, and have caused numerous mortalities. (CITES "Implementation" 130). Reports show that flat-tailed tortoises can become infected with intranuclear coccidiosis ("IC"), a parasite responsible for significant disease in turtles and tortoises causing high mortality. There was an outbreak of IC in captive individuals kept at Behler Chelonian Center (BCC). A report indicated that the outbreak began in January 2008 causing intermittent fatalities into 2010, and 29 out of 41 flat-tailed tortoises (71%) died over a 2-year period in that zoological collection (Praschag et al. 32-33). Alvarez and others also reported that their laboratory identified the IC parasite in the flat-tailed tortoise (32-33). The presence of disease in the small remaining population of the flat-tailed tortoise poses a significant threat to its continued survival.

Predation. Although natural predators are not considered a threat to the survival of the species, increased numbers of introduced predators such as cats, dogs, mongoose, and pigs could contribute to its extinction. Forest fragmentation and degradation from logging and oil exploration caused a dramatic increase in domestic and feral dogs. The increase of these introduced predators will increase egg, neonate, and possibly adult mortality of the flat-tailed tortoise as the animals will eat the tortoise eggs and young. (CITES "Implementation" 131). The flat-tailed tortoise is particularly vulnerable to predation in the dry season, as they are in a state

of torpor.

The Inadequacy of Existing Regulatory Mechanisms (Criteria D)

In 2003, CITES uplisted the flat-tailed tortoise from Appendix II to Appendix I to reflect that it is threatened with extinction. Additionally, the flat-tailed tortoise is protected in Madagascar under national law, and its range falls within some protected areas (Leuteritz, Randriamahazo, and Lewis 4). Although these designations are important for flagging the extinction risks to this species, they are inadequate to protect the species.

Unfortunately, once an individual purchases one of the tortoises, none of the existing laws make it illegal to possess that tortoise. Although CITES restricts trading the petitioned species, these regulatory mechanisms have not adequately protected the tortoise in the wild. Further, both international and national protections are frequently disregarded and enforcement in Madagascar is ineffective.

Because these regulations are not curtailing the pet trade, current regulatory mechanisms are not adequately protecting the species. Sellers often advertise individuals as "captive bred," but it is unlikely that such claims are true (CITES "Proposal" 7). Thus, many people are in possession of illegally obtained tortoises. Listing the species on the ESA could curtail the pet trade by making it illegal to buy, sell, or *possess* one of the petitioned species in the United States. 16 U.S.C. § 1538(a). Notably, the United States represents one of the largest markets in the world for wild-caught reptiles, which are imported into the U.S. primarily for the pet trade (Schlaepher 257). Additionally, there have been anecdotal reports of several thousand flat-tailed tortoise reaching the US in the early 2000's (CITES "Implementation" 133). Dr. James Deutsch, director for the Wildlife Conservation Society's Africa programs, stated that "Madagascar's ancient tortoises and turtles are marching toward extinction unless an all-out effort is made to protect these living national treasures" (Wildlife Conservation 1). Listing under the ESA could be a crucial part of that effort.

Inadequacies of CITES. CITES was adopted in 1973 and implemented in 1975, and currently 178 countries are parties to CITES. CITES is an international agreement to which member countries voluntarily adhere. CITES aims to protect species from the detrimental effects of international trade by establishing an international legal framework for preventing and controlling trade. Although CITES binds members to implement the Convention, it does not take the place of national laws. Rather it provides a framework to be respected by each Party, which has to adopt its own domestic legislation to ensure that CITES is implemented at the national level.[6]

The species covered by CITES are listed in three Appendices. Appendix I includes species threatened with extinction, and trade in specimens of these species is permitted only in exceptional circumstances. All import, export, or re-export for CITES covered species has to be authorized through a licensing system. Each Party to the Convention must designate one or more Management Authorities in charge of administering that licensing system and one or more Scientific Authorities to advise them on the effects of trade on the status of the species. In theory,

[6] Available at: http://www.cites.org/eng/disc/what.php. [Accessed September 2013].

Management Authorities should only issue an import or export permit if the trade will not be detrimental to the survival of the species.[7]

Although permits are not typically issued for species listed in Appendix I, illegal trapping and trading is rampant (Nijman, Todd, and Shepherd). Attempts made to regulate the take of CITES protected tortoises have not been successful, and as the adult population ages and dies off, the species are heading towards extinction (Nijman, Todd, and Shepherd 391). Despite CITES listing, there is consistent, open, and substantial illegal trade in protected tortoises, and wild-caught individuals are exported under the disguise of being bred in captivity (Nijman, Todd, and Shepherd 392). A study conducted in Thailand from 2006 to 2010 observed 475 CITES Appendix I listed tortoises for sale at markets, including several species endemic to Madagascar (Nijman, Todd, and Shepherd 394-95). Additionally, in January 21, 2004, the Czech Environmental Inspection Service intercepted many reptiles, including three flat-tailed tortoises, from the luggage of a Czech citizen who returned from a "holiday trip" in Indonesia (Theile, Steiner, and Kecse 28). Young et al. reported that in December 2005 a seller contacted local people seeking to purchase flat-tailed tortoises (257). A basic internet search also revealed multiple sites selling flat-tailed tortoises.[8] The observation of large number of CITES Appendix I listed tortoises being captured and shipped in the pet trade indicates that law enforcement in Madagascar, and in the importing countries, is currently ineffective (Nijman, Todd, and Shepherd 401).

Although CITES is undoubtedly a positive force in the fight against the international trade of threatened and endangered tortoises, the current regulations are not effectively controlling the problem. Standing alone, these regulations are not able to ensure that the spider tortoise will not become extinct due to the legal and illegal pet trade. The ESA can curtail the pet trade by making it illegal to buy, sell, or *possess* one of the petitioned species in the United States. 16 U.S.C. § 1538(a).

CITES Designation Supports Listing Under the ESA. The fact that the IUCN considers the flat-tailed tortoise to be "critically endangered" supports a finding of "endangered" or "threatened" under the ESA. The IUCN categorizes a species as "critically endangered" when the best available evidence indicates that it meets specific criteria and is therefore considered to be facing an extremely high risk of extinction in the wild. The factors the IUCN uses to classify the flat-tailed tortoise as "critically endangered" are analogous to the five factors used under the ESA. [9]

The ICUN categorized the flat-tailed tortoise as facing an extremely high risk of extinction and facing a reduction in population size ≥ 80% over any 10 year or three generation period based on the following criteria: (a) direct observation; (c) a decline in area of occupancy, extent of occurrence and/or quality of habitat; and (d) actual or potential levels of exploitation (Leuteritz,

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[7] Available at: http://www.cites.org/eng/disc/how.php. [Accessed September 2013].
[8] *See* http://www.theturtlesource.com/i.asp?id=225689771&p=Madagascar-Flat-Shelled-Flat-tailed-Tortoise (advertising flat-tailed tortoise for $1,295.00- $1,495.00/ ea.) [accessed September 2013]; and http://home.mindspring.com/~fifereptiles/id1.html ($1,200/ea) [accessed September 2013].
[9] *See* IUCN Red-List Assessment Criteria, available at http://www.iucnredlist.org/static/categories_criteria_3_1#categories.

Randriamahazo, and Lewis 1-2). This indicates that the species meets the definition of "endangered" under the ESA, "in danger of extinction through all or a significant portion of its range" 16 U.S.C. § 1532(6), or "threatened," "any species which is likely to become an endangered species within the foreseeable future through all or a significant portion of its range." 16 U.S.C. § 1532(20). Further, the ICUN criteria of decline in area occupancy is analogous to ESA Criteria A (present or threatened destruction modification, or curtailment of its habitat), and ICUN criteria of actual or potential levels of exploitation is analogous to ESA Criteria B (overutilization for commercial, recreational, scientific, or educational purposes). 16 U.S.C. § 1533(a)(1).

Inadequacies of Habitat Conservation. The ICUN lists three sites where the tortoise is protected in its range through reserves. However, many of the areas on one reserve are compromised of degraded zones or include plantations and are crossed by roads built for oil exploration (CITES "Implementation" 131). According to Kuchling's reports, no habitat is really protected (*cited in* CITES "Proposal" 8).

Inadequacies of Malagasy Regulations and Enforcement. Nationally, the flat-tailed tortoise is theoretically protected by Ordinance No. 60-126 (October 3, 1960), which regulates hunting and fishing and provides for the protection of nature. Unfortunately, this regulation is ineffective because it does not state what level of protection it gives the flat-tailed tortoise, nor does it provide for any enforcement (CITES "Implementation" 133).

Since January 2009 Madagascar has been in the throes of a political crisis (World Bank 2013). The instability in Madagascar has left enforcement of national and international laws practically non-existent. CITES is implemented at the national level through national legislation, and parties must have political structure that allows implementation and enforcement of the Convention (Nijman, Todd, and Shepherd 393). The political turmoil in Madagascar has pushed environmental regulations and enforcement to the bottom of the government's priority list. The substantial illegal flow of legally protected CITES-listed species indicates a blatant disregard for law and authorities in Madagascar, as well as in importing countries (Nijman et al. 2007 at 210). Monetary gains to be made from illegal wildlife trade and generally low risks of detection and prosecution promote collecting endangered tortoises for the pet trade (Nijman, Todd, and Shepherd 401). Madagascar has not established national or regional conservation plans for the flat-tailed tortoise (CITES "Implementation" 131).

The current listings have been inadequate to protect the flat-tailed tortoise, which scientists anticipate could face extinction in the near future (Leuteritz, Randriamahazo, and Lewis 2). Listing the flat-tailed tortoise as either "threatened" or "endangered" under the ESA would provide needed regulation to halt further exploitation of this species, particularly in the pet trade sector as the United States is a significant importer of these animals. ESA listing would prohibit the import or export of flat-tailed tortoises to or from the U.S. *See* 16 U.S.C. § 1538(a)(1)(A). In addition, listing would also encourage international efforts to protect the flat-tailed tortoise through financial and technical assistance in developing conservation programs, as well as through law enforcement assistance. S*ee* 16 U.S.C. § 1537.

Other natural or manmade factors affecting continued existence (Criteria E)

Biological Vulnerability. The flat-tailed tortoise's reproductive capacity and recruitment potential are particularly low, even by tortoise standards (Leuteritz, Randriamahazo, and Lewis 4). Females produce only 1-3 eggs a year (Leuteritz, Randriamahazo, and Lewis 3). At the 2008 Madagascar Tortoise and Freshwater Turtle workshop, generation time was estimated as at least 25 years (Leuteritz, Randriamahazo, and Lewis 3). These factors threaten the species survival and ability to recover from takes. In particular, if people collect reproductive adults for the pet trade, the capacity of the population to recover would be severely compromised (Young 257).

The fact that the flat-tailed tortoise has a long life span and produces few offspring makes it more prone to extinction. Lower reproduction rates (which keep the population of a species in equilibrium with its environment) and a greater investment in individual offspring (which reduces the mortality of individual offspring) are more efficient uses of available energy because little is wasted on offspring that are unlikely to live to reproduce and because maintenance of population at capacity prevents habitat degradation while allowing the species to exploit available resources. At the same time, lower reproduction rates make it more difficult both for the species to recover if its population becomes depressed and for it to adapt to a changed environment because fewer offspring contain less genetic variability. Thus, the "fittedness" of a species, such as the flat-tailed tortoise, to a particular environment – which is advantageous during periods of stability – becomes a serious handicap when the habitat changes more rapidly than genes can be substituted in a population – and in species that reproduce slowly, genes are substituted slowly (Goble and Freyfogle 1059-60).

Madagascar's Population Growth. All threats to the flat-tailed tortoise listed above will significantly increase as Madagascar's human population expands. For the period of 2010 to 2015, United Nations Data places Madagascar's average population growth rate at 2.8% per year (United Nations 2013). With the growing population, villages and housing developments are moving farther into the previously pristine nature areas, destroying tortoise habitat. The high value of the flat-tailed tortoise on the pet trade market provides income for flat-tailed tortoise collectors, and the increase in human population will likely lead to an increase in flat-tailed tortoise collections for the pet trade.

REQUESTED DESIGNATION

Petitioners respectfully request the U.S. Fish and Wildlife Service list the flat-tailed tortoise as "endangered" or "threatened" under the ESA. This listing action is warranted, given the imperiled biological status of the flat-tailed tortoise. There have been significant declines in distribution and abundance of the flat-tailed tortoise, and scientists have estimated that if trends continue it will go extinct in the near future. The flat-tailed tortoise is threatened by five of the factors that require the Secretary to list a species as endangered under the ESA. Those five factors are: (1) the present or threatened destruction, modification, or curtailment of habitat or range; (2) the overutilization for commercial, recreational, scientific, or educational purposes; (3) disease and predation; (3) the inadequacy of existing regulatory mechanisms; and (4) other natural or manmade factors affecting continued existence, including the biological vulnerability of the flat-tailed tortoise and human population growth in Madagascar.

As such, petitioners request expeditious listing of the flat-tailed tortoise as a "threatened" or "endangered" species under the ESA. Listing of the flat-tailed tortoise under the ESA will prevent the flat-tailed tortoise from being taken from the wild to be sold in the United States. This will eliminate a large market for smugglers and exporters alike, thus reducing the international pet market's demand for the flat-tailed tortoise. It could also encourage international efforts to protect the flat-tailed tortoise through financial and technical assistance in developing conservation programs, as well as through law enforcement assistance. S*ee* 16 U.S.C. § 1537.

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