

STRATEGIC PLAN FOR AMPHIBIAN AND REPTILE CONSERVATION AND MANAGEMENT ON DEPARTMENT OF DEFENSE LANDS





ENERGY,
INSTALLATIONS
AND ENVIRONMENT

OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE

3400 DEFENSE PENTAGON
WASHINGTON, DC 20301-3400

FEB 19 2015

MEMORANDUM FOR ASSISTANT SECRETARY OF THE ARMY (INSTALLATIONS,
ENERGY AND ENVIRONMENT)
ASSISTANT SECRETARY OF THE NAVY (ENERGY,
INSTALLATIONS AND ENVIRONMENT)
ASSISTANT SECRETARY OF THE AIR FORCE
(INSTALLATIONS, ENVIRONMENT AND ENERGY)
DIRECTOR, DEFENSE LOGISTICS AGENCY

SUBJECT: Strategic Plan for Amphibian and Reptile Conservation and Management on Department
of Defense Lands

The Department of Defense's core responsibility is to defend our Nation and care for our Service personnel and their families. Consistent with this objective, the American public also expects us to protect and conserve the land, sea, and airspace we require for military operations. *The Strategic Plan for Amphibian and Reptile Conservation and Management on Department of Defense Lands* document is intended to help natural resource managers better address the conservation and protection of amphibians and reptiles and their habitats; to help Commanders comply with the Endangered Species Act and the National Environmental Policy Act; and to help both Commanders and resource managers achieve their mission objectives by providing relevant technical guidance on priorities such as:

- implementing proactive, habitat-based management strategies that maintain healthy landscapes and training lands in ways that sustain and enable DoD's mission activities;
- promoting proven conservation partnerships to help leverage financial and human resources to achieve common goals, such as preventing species from becoming listed as threatened or endangered; and
- minimizing environmental encroachment, which continues to impact the military's ability to conduct operations in once-remote areas.

This document provides a framework for our natural resources managers to use as they update, revise, and implement Integrated Natural Resources Management Plans to ensure that we are supporting Commanders by meeting environmental requirements and mission readiness. In updating this Strategic Plan, we worked closely with many of your staff, I appreciate the time and effort they invested, and wholeheartedly support this endeavor. I ask that you join me in its advocacy and distribute this document as widely as possible.

My lead for amphibian and reptile conservation and management activities is Mr. L. Peter Boice, at (571) 372-6905 or by email at lp.boice.civ@mail.mil.

John Conger

Performing the Duties of the Assistant Secretary of Defense
(Energy, Installations and Environment)

Attachment:
As stated

ABOUT THE COVER

The Timber Rattlesnake (*Crotalus horridus*) was chosen to reflect the long-standing relationship DoD and the Military Services have with protecting both our nation and its resources. This species first appeared on military colors on the original Gadsden flag image which served as 'an emblem of vigilance... of magnanimity and true courage.' Ultimately, the use of this species on the cover is meant to represent how DoD protects the natural resources with which it has been entrusted, and how those resources in turn provide for and protect the military's ability to prepare for its warfighting and peacekeeping duties.

ACKNOWLEDGEMENTS

Our thanks to all who contributed to the development and completion of this document. Peter Boice contributed invaluable technical and financial support during all phases of the development of this Plan. Joe Hautzenroder provided the original inertia for the two senior authors to begin developing this Plan formally, as well as funding for the final printing. The National State and Federal Coordinators for Partners in Amphibian and Reptile Conservation, Priya Nanjappa and Ernesto Garcia respectively, were deeply involved for the duration in the planning, drafting, and editing of this Plan. Their expertise and friendly support was an essential element to the success of completing the final Plan. Thanks are also extended to the following representatives from the Military Services who assisted in guiding this Plan through the process to formal endorsement: Dan Cecchini, Tammy Conkle, Sue Goodfellow, Julie Jeter, Junior Kerns, Melissa Mertz, John Mire, Ryan Orndorff, Kevin Porteck, Jay Rubinoff, Steve Sekscienski, Bob Shirley, and Bill Spicer. The following individuals contributed to the text of the Plan during the initial drafting: Jim Asmus, Paul Block, Mike Lannoo, Melissa Mertz, David McNaughton, Kyle Rambo, Jacque Rice, Abigail Rosenberg, Jay Rubinoff, Vanessa Shoblock, Sheridan Stone, Richard Whittle, Todd Wills, and Christy Wolf. Logistical support was provided by Erica Adler, Tasha Foreman, and Maggie Fusari. Anna Banda and John Ouellette provided support for the final formatting and printing. The following individuals also are acknowledged for their support and contribution: Ed Carter, John Hockersmith, Amy Krause, Brian Moyer, Betty Phillips, and Zachary Reichold.



RECOMMENDED CITATION:

LOVICH, R.E., C. PETERSEN, A. DALSIMER. 2015. DEPARTMENT OF DEFENSE NATURAL RESOURCES PROGRAM. STRATEGIC PLAN FOR AMPHIBIAN AND REPTILE CONSERVATION AND MANAGEMENT ON DEPARTMENT OF DEFENSE LANDS. 14 PAGES.



TABLE OF CONTENTS

Acknowledgements	2
Document Purpose	4
Overview	5
Amphibians and Reptiles on Department of Defense Lands.....	6
Objectives	8
Roles and Responsibilities.....	9
Conclusion.....	10
Appendix I: Acronyms and Abbreviations	11
Appendix II: ESA Listed Amphibians and Reptiles that Occur on DoD Lands (FY2013)	12
Appendix III: Resources	13

CREDITS

Front Cover Photo: Timber Rattlesnake (*Crotalus horridus*), Chris Taylor

Back Cover Photo: Common Chameleon (*Chamaeleo chameleon*), Paul Block

Page 2 Photo: Eastern Box Turtle (*Terrapene carolina*), Paul Block

Page 3 Photos: Green Treefrog (*Hyla cinerea*); American Alligator (*Alligator mississippiensis*), Paul Block

DOCUMENT PURPOSE

The purpose of this document is to summarize current reptile and amphibian related challenges and concerns on Department of Defense (DoD) lands, and to highlight reptile and amphibian strategies and priorities that can inform and enhance DoD's natural resource conservation and management activities. Success will be achieved by implementing proactive, habitat-based management strategies that maintain healthy landscapes and training lands in ways that sustain and enable DoD's testing, training, operations, and safety mission.

"A COUNTRY WORTH
DEFENDING IS A COUNTRY
WORTH PRESERVING."

—MAJOR GENERAL MICHAEL R. LEHNERT,
UNITED STATES MARINE CORPS (RET.)

Long-nosed Snake (*Rhinocheilus lecontei*)





Desert Tortoise (*Gopherus agassizii*)

© Tim Burr



Rough Greensnake (*Opheodrys aestivus*)

© Seth Berry



Gila Monster (*Heloderma suspectum*)

© James Alki



Northwestern Salamander (*Ambystoma gracile*)

© Bradford Hollingsworth



Barred Anole (*Anolis stratulus*)

© Paul Block

OVERVIEW

The DoD's primary responsibility is to ensure that our soldiers, sailors, marines, and air personnel have the operational and logistical flexibility they need to test and train to the fullest extent possible. To meet these objectives, the Military Services frequently require the use of large expanses of undeveloped land, much of which contains ecologically significant natural resources. DoD recognizes that protecting and conserving its lands and waters is necessary both to ensure a sustainable training platform and to minimize the potential for regulatory and statutory restrictions. As a result of DoD's environmental protection efforts, some of America's highest-quality wetlands, prairies, forests, and other unique natural areas occur on DoD lands.

Approximately 32 percent of the world's amphibians are known to be threatened or extinct.¹ Reptiles also are in decline, and one in five of the world's reptile species may soon be extinct, including over 40 percent of all turtle species.² In the United States, nearly all native amphibians inhabit only a portion of their historic range. Six of 34 amphibian species³ and 18 of the 40 reptile species⁴ listed by the U.S. Fish and Wildlife Service (USFWS) as threatened or endangered under the Endangered Species Act (ESA) occur on DoD lands, and dozens of amphibian and reptile species managed by DoD are "at-risk" of requiring this protection.⁵

To address these declines, a broad coalition of partners joined together to form the National Partners in Amphibian and Reptile Conservation (PARC) Program.⁶ Formed in 1999, National PARC is an inclusive partnership dedicated to the conservation of herpetofauna – reptiles and amphibians – and their habitats. Federal and state agencies, tribes, non-governmental organizations, and industry groups agreed, by signing the Memorandum of Understanding (MOU) Among Federal Agencies for Achieving Objectives of the PARC, "to conserve amphibians, reptiles, and their habitats as integral parts of our ecosystem and culture through proactive and coordinated public/private partnerships." DoD became a signatory to the PARC MOU in 2007 and signed an updated MOU in 2011. DoD has convened subject matter experts and regional workshops to identify efficiencies and inefficiencies in amphibian and reptile management that have helped inform development of this strategic plan.

¹ The IUCN Red List of Threatened Species (www.iucnredlist.org).

² Turtle Taxonomy Working Group [van Dijk, P.P., Iverson, J.B., Rhodin, A.G.J., Shaffer, H.B., and Bour, R.J. 2014.

³ http://ecos.fws.gov/tess_public/pub/SpeciesReport.do?groups=D&listingType=L&mapstatus=1.

⁴ http://ecos.fws.gov/tess_public/pub/SpeciesReport.do?groups=C&listingType=L&mapstatus=1

⁵ FY2013 DoD annual environmental management review data.

⁶ <http://parcplace.org>.

AMPHIBIANS AND REPTILES ON DEPARTMENT OF DEFENSE LANDS

Although DoD manages only 3 percent of U.S. federal landholdings, it is steward to more rare, threatened, and endangered species per acre than any other federal land managing agency. Amphibians and reptiles are essential components of the habitats they live in, functioning as both predators and prey. They are excellent indicators of environmental health, and when these species are threatened, DoD must – by law – fund recovery efforts that take resources away from other needs. More importantly, DoD can lose its ability to train personnel and test the equipment needed to keep our nation secure.

From 1991-2013, DoD spent more than \$142 million on the conservation and management of listed reptile species and an additional \$17 million on listed amphibian species – expenditures on the desert tortoise alone neared \$110 million. On the benefit side of the equation, by investing funds to manage these species, DoD has been able to maintain much of its training flexibility and capabilities. And, because herpetofauna occupy a wide array of habitats, these expenditures often have benefit to multiple species as well as to personnel who live and recreate on the base. That is, protecting the lands needed to train also creates open and natural areas that personnel can use for game hunting/fishing, wildlife viewing, hiking, etc.



© Richard Whittle

Flat-tailed Horned Lizard (*Phrynosoma mcallii*)

For example, by proactively managing at-risk species and their habitats, DoD can help prevent species from becoming federally listed, as was the case with the Flat-tailed Horned Lizard, which was not listed – in part – as a result of DoD's efforts. Similarly, the Island Night Lizard was delisted from the ESA in May 2014 in large part because of the successful management and recovery efforts on Navy's San Nicolas and San Clemente Islands, while the Arroyo Toad is proposed for down-listing from "Endangered" to "Threatened" status under the ESA, again in large part as a result of the management actions and strategies in place at Marine Corps Base Camp Pendleton, Naval Base Coronado, Naval Weapons Station Seal Beach Detachment Fallbrook, and Fort Hunter Liggett.

To address herpetofauna management and mission-related issues in a coordinated and proactive way, installation natural resources managers work through their Military Service chains of command to communicate about issues related to species conservation, inventories, research, and monitoring, as well as education, outreach, and training. Effectively managing amphibians and reptiles at the installation level via the Integrated Natural Resource Management Plan (INRMP) and beyond the installation fenceline directly enables the Military Services to focus on their primary responsibility of ensuring that DoD has the operational and logistical flexibility necessary for testing and training exercises.



© Rob Lovich

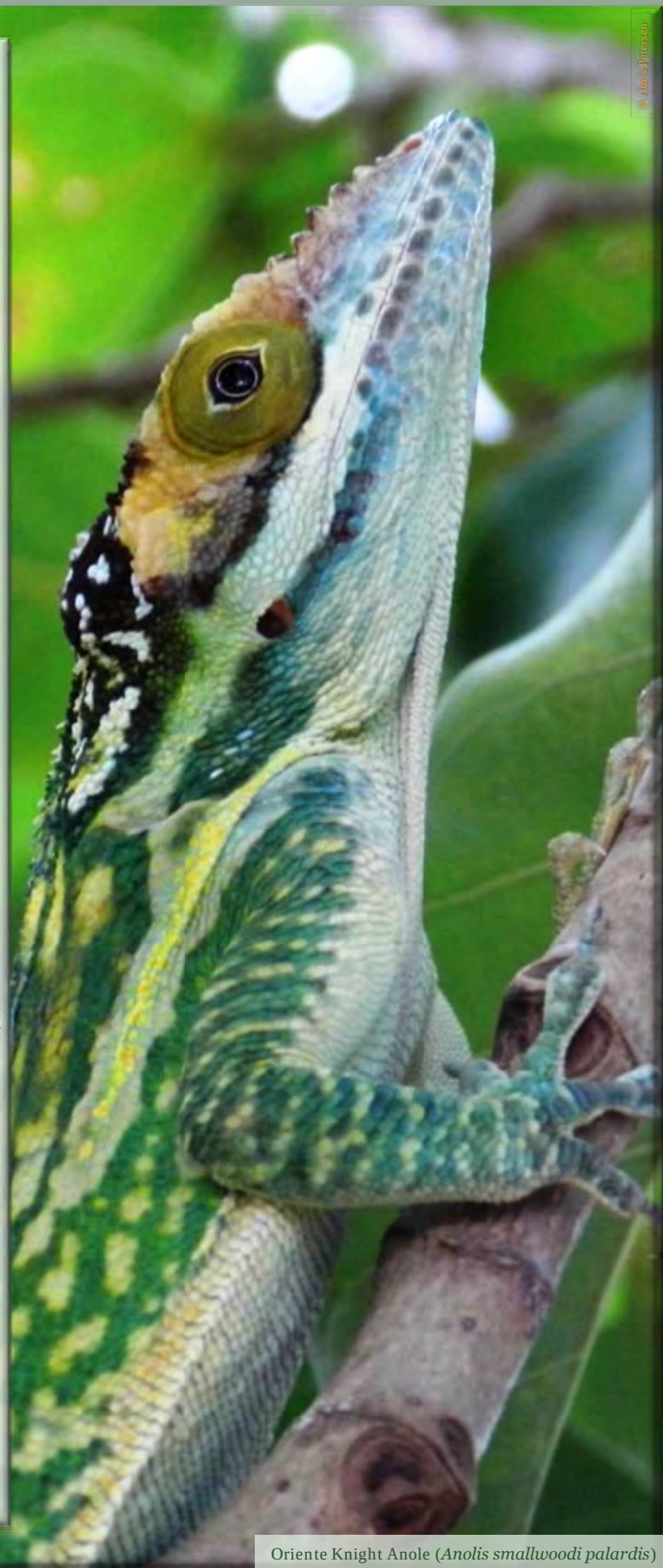
Arroyo Toad (*Anaxyrus californicus*)

THREATS TO AMPHIBIAN AND REPTILE HABITATS AND POPULATIONS

- ◆ **Habitat degradation and loss** are the primary causes of species decline. When the lands and waters amphibians and reptiles need to breed, disperse, migrate, feed, and rest are fragmented (i.e., patchy or disconnected), these animals can experience declines in diversity and increased mortality.
- ◆ **Climate change** has enormous potential to affect amphibians and reptiles. Increasing temperatures mean altered moisture and precipitation, salt water intrusion into fresh water areas, higher intensity coastal storm surges, changing temperature patterns and growing seasons, increased threats from non-native species and diseases, and changes to the quality and temperature of rivers, lakes, ponds, streams, swamps, wetlands, bogs, vernal pools, and other water habitats that are critical to the survival of many herpetofauna species.
- ◆ **Invasive non-native species** may degrade and reduce viable habitat for native species. By definition, invasive non-native species adversely affect habitats and bioregions economically, environmentally, and/or ecologically. When people release non-native species into the environment, they can devastate native wildlife and plants (e.g., Burmese Python in the Everglades, Tamarisk in the American Southwest).
- ◆ **Feral and nuisance animal species**, whether domesticated or wild, can threaten herpetofauna populations via resource competition, predation, and habitat degradation. Feral cats, for example, eat large numbers of native and sometimes endangered wildlife, including those on military installations.
- ◆ **Diseases** that affect amphibians and reptiles are on the rise. In the last decade, the growth and spread of harmful pathogens and diseases has resulted in population reductions, range contractions, regional extirpations, and even extinctions. Some of these diseases are made worse by climate change.⁷
- ◆ **Wildlife Trade/Harvest** is a multibillion-dollar international industry that commonly targets amphibians and reptiles. The persistent lure of profit from trade in exotic species, both legal and illegal, has resulted in very harmful collection practices, especially by the traders who over-collect species and destroy habitats. DoD personnel, especially when deployed overseas, receive training so they do not accidentally purchase items made from CITES-protected species.⁸

⁷ <http://amphibiaweb.org/declines/ClimateChange.html>

⁸ CITES: the Convention on International Trade in Endangered Species (www.cites.org).



Oriente Knight Anole (*Anolis smallwoodi palardis*)

OBJECTIVES

The following strategic objectives serve to guide DoD conservation activities in ways that help ensure compliance with the Sikes Act; support Secretary of Defense and DoD Natural Resource Program priorities; and promote communications, coordination, and other efficiencies when managing DoD's amphibians and reptiles and the resources they need to survive and thrive.

- ◆ Develop and maintain an amphibian and reptile species inventory (e.g., spreadsheets) for DoD installations with an INRMP, based on information requested through the designated Military Service headquarters points of contact with OSD.
- ◆ Maintain and make available up-to-date biological information relevant to the management of listed, at-risk, and common species (e.g., natural history, species' range on and off installation) so installations can determine which amphibian and reptile species have the greatest potential to affect mission activities, and develop strategies and guidance to incorporate into their INRMPs to manage those species.
- ◆ Develop training and education materials specific to DoD, as requested by designated Military Service headquarters points of contact.
- ◆ Identify opportunities and/or partners to promote regional conservation and cost-sharing, for both on- and off-installation efforts.
- ◆ Establish and maintain regular communications with OSD and the Military Services through monthly updates to the Conservation Committee.

© Chris Petersen



Eastern Cottonmouth (*Agkistrodon piscivorus piscivorus*)

ROLES AND RESPONSIBILITIES

The following Roles and Responsibilities will help achieve the objectives outlined above.

Organization	Roles and Responsibilities
OASD (EI&E)	◆ Cooperate and coordinate with other federal agencies to conserve amphibians, reptiles, and their habitats through proactive and coordinated public/private partnerships. ◆ Disseminate and promote the <i>DoD Plan for Amphibian and Reptile Conservation and Management on Department of Defense Lands</i> to designated Military Service headquarters points of contact. ◆ Disseminate and promote the MOU between DoD and other federal agencies regarding the PARC Federal Agencies Steering Committee to designated Military Service headquarters points of contact. ◆ Ensure that the Military Service headquarters points of contact incorporate sound reptile and amphibian management into their conservation programs. ◆ Develop policy and guidance in full cooperation with designated Military Service headquarters points of contact to support the management of amphibians and reptiles on DoD lands, if needed. ◆ Maintain regular communication with the Military Services headquarters points of contact.
Military Service Natural Resources Headquarters Designated Points of Contact	◆ Designate Military Service headquarters points of contact. ◆ Disseminate through their respective chains of command the <i>DoD Plan for Amphibian and Reptile Conservation and Management on Department of Defense Lands</i>. ◆ Disseminate through their respective chains of command the MOU between DoD and other federal agencies regarding the PARC Federal Agencies Steering Committee. ◆ Develop Military Service-specific policy and guidance to support the management of amphibians and reptiles on DoD lands, if needed. ◆ Cooperate and coordinate with other federal agencies to conserve amphibians, reptiles, and their habitats through proactive and coordinated public/private partnerships as appropriate. ◆ Ensure Military Service programs incorporate appropriate reptile and amphibian management into their natural resource programs and Integrated Natural Resources Management Plans with special emphasis on proposed, listed, and candidate species. ◆ Maintain regular communication with OASD (EI&E).

Harlequin Coralsnake (*Micrurus fulvius*)



© J.D. Wilson

Ornate Chorus Frog (*Pseudacris ornate*)





Yellow-backed Spiny Lizard (*Sceloporus uniformis*)

CONCLUSION

Amphibians and reptiles face ever-increasing challenges to their survival. From habitat loss and expanding human populations to rise in disease and impacts from climate change, our Nation's herpetofauna are experiencing unprecedented declines. This plan provides a framework for accomplishing DoD-wide conservation objectives related to the protection of amphibians, reptiles, and their habitats as part of a comprehensive effort to manage natural resources in ways that preclude mission conflicts and loss of training capabilities that can result from conservation-based regulatory restrictions.

Ultimately, the success of DoD's herpetofauna conservation efforts will be measured in terms of their impact to readiness and operational freedom, as well as to reptile and amphibian conservation. DoD is committed to working collaboratively with all stakeholders to achieve the goals and objectives outlined in this plan.

APPENDIX I

ACRONYMS AND ABBREVIATIONS

CITES	Convention on International Trade in Endangered Species
DoD	Department of Defense
ESA	Endangered Species Act
INRMP	Integrated Natural Resources Management Plan
MOU	Memorandum of Understanding
OASD (EI&E)	Office of the Assistant Secretary of Defense (Energy, Installations & Environment)
OSD	Office of the Secretary of Defense
PARC	Partners in Amphibian and Reptile Conservation
POC	Point of Contact
USFWS	U.S. Fish and Wildlife Service

© Ralph Pace



Green Sea Turtle (*Chelonia mydas*)

APPENDIX II

ESA Listed Amphibian and Reptile Species That Occur on DoD Lands (FY2013)⁹

Common Name	Scientific Name	Group
Reticulated Flatwoods Salamander	<i>Ambystoma bishopi</i>	amphibians
California Tiger Salamander	<i>Ambystoma californiense</i>	amphibians
Frosted Flatwoods Salamander	<i>Ambystoma cingulatum</i>	amphibians
Sonoran Tiger Salamander	<i>Ambystoma mavortium stebbinsi</i>	amphibians
Arroyo Toad	<i>Anaxyrus californicus</i>	amphibians
Houston Toad	<i>Anaxyrus houstonensis</i>	amphibians
California Red-legged Frog	<i>Rana draytonii</i>	amphibians
Sierra Nevada Yellow-legged Frog	<i>Rana sierrae</i>	amphibians
American Alligator	<i>Alligator mississippiensis</i>	reptiles
Loggerhead Sea Turtle	<i>Caretta caretta</i>	reptiles
Green Sea Turtle	<i>Chelonia mydas</i>	reptiles
American crocodile	<i>Crocodylus acutus</i>	reptiles
Leatherback Sea Turtle	<i>Dermochelys coriacea</i>	reptiles
Eastern Indigo Snake	<i>Drymarchon couperi</i>	reptiles
Bog Turtle	<i>Glyptemys muhlenbergii</i>	reptiles
Puerto Rican Boa	<i>Epicrates inornatus</i>	reptiles
Hawksbill Sea Turtle	<i>Eretmochelys imbricata</i>	reptiles
Mohave Desert Tortoise	<i>Gopherus agassizii</i>	reptiles
Gopher Tortoise	<i>Gopherus polyphemus</i>	reptiles
Ringed Map Turtle	<i>Graptemys oculifera</i>	reptiles
Kemp's Ridley Sea Turtle	<i>Lepidochelys kempii</i>	reptiles
Olive Ridley Sea Turtle	<i>Lepidochelys olivacea</i>	reptiles
Florida Sand Skink	<i>Plestiodon reynoldsi</i>	reptiles
Giant Garter Snake	<i>Thamnophis gigas</i>	reptiles

⁹ Names based on Crother, B. I. (ed.). 2012. Scientific and Standard English Names of Amphibians and Reptiles of North America North of Mexico, With Comments Regarding Confidence in Our Understanding. SSAR Herpetological Circular 39:1-92.

APPENDIX III

RESOURCES

Amphibian and Reptile Conservancy: www.amphibianandreptileconservancy.org

Amphibian and Reptile Species Database: www.denix.osd.mil/nr/FishandWildlife/TerrestrialAnimals.cfm

Armed Forces Pest Management Board: www.afpmb.org/

Convention on International Trade in Endangered Species (CITES): www.cites.org

Department of Defense Natural Resources Program: www.dodnaturalresources.net

- ◆ DoD Partners in Amphibian and Reptile Conservation (PARC): www.dodnaturalresources.net/DoD-PARC.html
- ◆ DoD PARC Photo Website: <https://dodparcphotolibrary.shutterfly.com/>
- ◆ DoD Partners in Flight: www.DoDPIF.org
- ◆ DoD Legacy Resource Management Program: www.dodlegacy.org/legacy/index.aspx

Endangered Species Act (ESA), Section 1531 of title 16 United States Code: www.fws.gov/laws/lawsdigest/esact.html

Environmental Security Technology Certification Program: www.serdp-estcp.org

Habitat Management Guidelines for Amphibians and Reptiles series: www.parcplace.org/parcplace/publications/habitat-management-guidelines.html

Inventory and Monitoring Guide:
www.parcplace.org/parcplace/publications/inventory-and-monitoring-guide.html

National Environmental Policy Act, Sections 4321 et seq. of title 42 United States Code: www.epa.gov/compliance/nepa

National Military Fish and Wildlife Association: www.nmfwa.net

National Partners in Amphibian and Reptile Conservation: www.parcplace.org

National Reptile & Amphibian Advisory Council, Reptile & Amphibian Law Support Center: <http://nraac.org/laws>

PARC 2014 Year of the Salamander: www.parcplace.org/parcplace/news-a-events/2014-year-of-the-salamander.html

PARC 2013 Year of the Snake: www.parcplace.org/parcplace/news-a-events/2013-year-of-the-snake.html

PARC 2012 Year of the Lizard: www.parcplace.org/parcplace/news-a-events/year-of-the-lizard.html

PARC 2011 Year of the Turtle: www.parcplace.org/parcplace/news-a-events/year-of-the-turtle.html

Priority Amphibian and Reptile Conservation Areas (PARCAS): www.parcplace.org/parcplace/publications/parcas-priority-amphibian-and-reptile-conservation-areas.html

Sikes Act, Sections 670a-670o of Title 16 United States Code, as amended: <http://www.gpo.gov/fdsys/pkg/USCODE-2011-title16/html/USCODE-2011-title16-chap5C.htm>

State Wildlife Action Plans: www.teaming.com/state-wildlife-action-plans-swaps

Strategic Environmental Research and Development Program: www.serdp-estcp.org

USFWS Endangered Species Program: www.fws.gov/endangered/species/us-species.html

USFWS Federally Listed Amphibian and Reptile Species: http://ecos.fws.gov/tess_public/pub/SpeciesReport.do?groups=C&listingType=L&mapstatus=1

© Paul Block



Ensatina (*Ensatina eschscholtzii*)

