



Department of Defense Legacy Resource Management Program

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**Herpetofauna Biodiversity
On
United States Army Installations**

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HERPETOFAUNA BIODIVERSITY ON UNITED STATES ARMY INSTALLATIONS



CHRISTOPHER PETERSEN, ROBERT E. LOVICH, AND SARAH STALLINGS



Photo Credit:

Rainbow Snake (*Farancia erytrogramma*): J.D. Wilson

Granite Night Lizard (*Xantusia henshawi*): Robert Lovich

Long-tailed Salamander (*Eurycea longicauda*): Chris Petersen

Barking Treefrog (*Hyla gratiosa*): Julie Robbins

Abstract

The United States Army occupies approximately 12.2 million acres of land within the United States. To date, no comprehensive inventory and analysis of the amphibian and reptile (herpetofauna) diversity has been conducted on Army properties. This study updated herpetofauna species lists and analyzed data from 152 Army and Army National Guard installations within 46 states of the continental United States.

The findings have revealed that Army installations support a total 355 confirmed species, with an additional 80 species having the potential to be present but are undocumented to date. The number of confirmed herpetofauna species on Army lands is greater than those present on Air Force, Navy or Marine Corps lands. The herpetofauna species confirmed on the 152 Army installations evaluated in this report represent approximately 55 percent of the total biodiversity of all native herpetofauna species documented in the continental United States. In fact, Army lands support approximately 70% of all native frogs/toads and snakes species.

Fort Stewart has the greatest number of confirmed species (100 species). Additional Army installations with high numbers of confirmed herpetofauna species include: Camp Shelby Joint Forces Training Center (86 species); Fort Bragg (81 species); Fort Gordon (76 species); Fort Benning (74 species); McCrady Training Center (72 species); Fort Polk (68 species); Fort Leonard Wood (63 species); and the Tullahoma Training Site (60 species).

Funding Year (FY) 2015 data confirm that Army installations in the continental U.S are home to two federally-endangered species, twelve threatened species, one similarity of appearance-threatened, two candidate species, and 20 species currently under review by the United States Fish and Wildlife Service (USFWS). Fort Stewart has the greatest number of federally-listed (endangered, threatened, and candidate) herpetofauna species confirmed present on its installation (five species) in comparison to all Army installations. Camp Blanding Joint Training Center has the second greatest number of federally-listed species (four species).

Twenty-nine species of amphibians and reptiles are confirmed present on Army installations in states where they are listed as state endangered or threatened. Fort Stewart has the greatest number of state-listed threatened and endangered herpetofauna species (five species). The Texas Horned Lizard (*Phrynosoma cornutum*) is the most common state-listed species confirmed present on Army sites and is found on six installations in Texas.

The FY 2015 data revealed that 36 species/subspecies of reptiles and amphibians confirmed on Army installations have a NatureServe status of G1/T1–G3/T3. Of these, snake species are the most common species at risk on Army lands. Fort Stewart has the greatest number of confirmed NatureServe species (eight species). Fort Hunter Liggett and Camp Benning also have a high number of NatureServe species compared to all Army installations (seven and six species respectively).

Eight non-native amphibian and reptile species are confirmed present on Army installations. The American Bullfrog, the Red-eared Slider, and the Mediterranean Gecko are the most common non-native species on Army installations. Fort Hunter Liggett has the most confirmed non-native species on its property (3 species).

Our analysis has revealed that 22 species of venomous snakes are confirmed on Army installations. Fort Huachuca has the greatest number of confirmed venomous snakes (seven) as compared to all Army and Army National Guard installations. The Copperhead is confirmed present at more Army installations (44) than any other venomous snake species.

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CHAPTER 1

Introduction

1.1 AMPHIBIANS AND REPTILES

Amphibians and reptiles (herpetofauna) account for a considerable portion of contemporary biodiversity and approximately 17,153 species have been described (AmphibiaWeb, 2012; Uetz, 1995a).

Approximately one new species of reptile or amphibian is described by the scientific community every week. Herpetofauna are found in nearly every habitat, occur on every continent except Antarctica (AmphibiaWeb, 2011; Vitt & Caldwell, 2008), and are both ecologically and culturally significant around the globe. Amphibians and reptiles are essential components of the ecosystems they inhabit, maintaining the ecological integrity of their habitats as both predators and prey, often surpassing other vertebrate groups in terms of species abundance or diversity (Ernst & Lovich, 2009; Semlitsch, 2003; Stuart et al., 2008; Klemens, 2000; Vitt & Caldwell, 2008) and serving as indicators of environmental health (Ernst & Lovich, 2009; Hayes et al., 2006; Hayes et al., 2002; Johnson et al., 2007; Pounds et al., 2006).

Herpetofauna are excellent indicator species, meaning populations will start to show signs of distress quickly when their ecosystem is under pressure. This sensitivity to environmental changes has contributed to relatively high extinction rates in herpetofauna. Recent extinction rates of amphibians may be more than 200 times that of historical background rates (McCallum, 2007). There are at least six major causes of recent herpetofauna declines and extinctions: habitat loss and fragmentation; land conversion; collection for commercial trade; introduction of exotic species that prey on, compete with, and parasitize native amphibians; environmental contaminants; climate change; and infectious disease (Collins, 2010; Collins and Crump, 2009; Marks, 2006; Ribeiro et al., 2009).

Management of herpetofauna is necessary not only to protect those species, but also to protect all of the inter-related species in the food web. Managing habitats for herpetofauna can have positive impacts on the entire ecosystem.

1.2 NATURAL RESOURCES MANAGEMENT AND ENDANGERED SPECIES ACT COMPLIANCE ON MILITARY LANDS

The Department of Defense (DoD) manages approximately 25 million acres of land and water, much of which is habitat for a diversity of native flora and fauna (<http://www.dodnaturalresources.net/>). It is also the only United States agency with a comprehensive Strategic Plan for Amphibians and Reptiles (Lovich et al. 2015). The primary tool for implementation of natural resource management at Army and Army National Guard installations is an Integrated Natural Resource Management Plan (INRMP). An INRMP shows the interrelationships of individual components of natural resources management (e.g., fish and wildlife [including herpetofauna], forestry, land management, outdoor recreation) to mission requirements and other land use activities affecting an installation's natural resources. INRMPs ensure natural resources conservation programs and military operations are integrated and consistent with stewardship and legal requirements through cooperation among DoD, USFWS, NOAA Fisheries Service, and State fish and wildlife agencies.

The United States Army occupies approximately 12.2 million acres within the United States, approximately half of all DoD lands. The Army and other DoD Services strive to provide the most realistic training and testing environments possible for troops in order to maintain military readiness. The Army controls entry to its installations as a matter of national security and public safety. As a result, much of the land managed by the Army provides some of the best remaining natural habitat for America's native species, including amphibians and reptiles. In some cases, DoD lands are some of the only large tracts of habitat left in an area for native species (Benton et al., 2008) making those prime locations for herpetofauna conservation and management. In fact, American military lands harbor some of the greatest concentrations of endangered and threatened habitats and species in the United States (Aycrigg et al. 2015, Stein et al. 2008).

As a federal agency, the Army complies with the Endangered Species Act (ESA) to conserve listed species. The Army, and other DoD Services, is in a unique position to secondarily promote and conserve biodiversity while still carrying out its primary mission of training and preparing troops.

1.3 MANAGEMENT OF HERPETOFAUNA ON MILITARY LANDS

The Army takes an ecosystem-based approach to natural resources management—which is implemented at installations using an INRMP. While policies do not specifically address herpetofauna on Army lands, this management approach and the projects and practices implemented through INRMPs benefit these species both directly and indirectly. In addition, the Army has subject matter experts in the fields of wildlife biology and herpetology that conduct inventories; perform research and monitoring; and develop outreach, training, and management plans to meet military mission goals while promoting stewardship and conservation for amphibians and reptiles.

The Department of Defense Partners in Reptile and Amphibian Conservation (DoD PARC) program was formed in 2009 with the mission of sustaining amphibian and reptile populations and habitats through proactive environmental stewardship, conservation, outreach, and partnerships. DoD PARC is a network of experts and professionals within the DoD dedicated to providing a, “framework for the effective management of amphibians and reptiles by the military services and their installations” For more information on the DoD PARC program, please visit <http://www.dodnaturalresources.net/DoD-PARC.html>.

1.4 PURPOSE

The purpose of this project was to update, compile, and analyze herpetofauna species lists for Army installations with in the continental United States. The focus of this project was those installations that have a current INRMP.

The updated species lists can be used by installation biologists to identify data gaps in the herpetofauna biodiversity of a particular site or as a tool to plan for baseline or species-specific surveys. They can also be used by Army leadership to investigate the total herpetofauna biodiversity on their lands and also as a tool to identify which installations have ESA or protected species—particularly when investigating the presence or absence of herpetofauna species as they are under review, proposed or petitioned for listing by the U.S. Fish and Wildlife Service and National Marine Fisheries Service . In addition, this information will facilitate data sharing between Army installations, regions, and state and federal partners and help foster effective, cooperative conservation initiatives and partnerships.

CHAPTER 2

Methods

2.1 DEVELOPING THE NATIONAL AND REGIONAL HERPETOFAUNA INVENTORY

We used multiple sources to update the Army installation herpetofauna species lists used for this study. The following protocol was followed to develop and refine the species lists:

1. A preliminary list of reptile and amphibian species was developed using the Herpetological Database, a Microsoft Access database that produces a county-level species list using data from VertNet (<http://vertnet.org/>), and the National Amphibian Atlas (http://armi.usgs.gov/national_amphibian_atlas.php, amphibian occurrences) for each Army installation that has an INRMP. Scientific and common nomenclature was standardized abiding by the Standard English and Scientific Names Committee standards (http://www.ssarherps.org/pages/comm_names/Index.php) (Crother, 2012).
2. The preliminary species list was then compared to the existing installation INRMP species list (if available) and installation species herpetological surveys or species inventories to identify those species that have been confirmed on the installation.
3. The draft species list was then sent to a state wildlife agency biologist/herpetologist or a regional expert to verify that the species on the list could potentially occur on the installation based upon the known species distribution within the county/ state.
4. The pre-final list was sent to installation's natural resource managers by Army Headquarters for review and validation.

We followed the protocol listed above for each of the Army installations within the continental United States having an INRMP. In some cases, an Army installation has one or several geographically-distinct parcels under its command. These parcels, if included in the INRMP, were considered separately in this analysis and a herpetofauna list was developed for each. Once installation-level lists were complete, they were compiled into a Microsoft Access database and analyzed together.

We updated the species lists to reflect the most recent federal, state, and NatureServe status for each species from August 2016. Additional information, such as if a particular species is not native, was obtained from a spreadsheet managed by the national PARC organization (Nanjappa & Conrad, 2014).

Subspecies designation (if known) was used during the development of the herpetofauna species lists for each Army installation. However, because one goal of this analysis was to investigate species diversity on all Army installations, the analysis was conducted on the species level. Subspecies level is only used in this report if the subspecies has a conservation status designation (federal or state) that differs from the full species level.

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CHAPTER 3

Data Analysis

Upon completion of the individual Army installation herpetofauna species lists, data was analyzed based on species occurrence (number of confirmed or potential species [unconfirmed species]); federal, state, and NatureServe status; and occurrence of non-native and venomous species. In addition, the Army herpetofauna biodiversity was compared to that of all amphibian and reptile species found within the continental United States and to that of the other DoD Services (U.S Navy, U.S. Marine Corps and U.S. Air Force).

3.1 DETERMINATION OF OCCURRENCE ON EACH INSTALLATION

Species are considered confirmed present on an installation when there is literature present endorsing that the species occurs on the installation. Literature is often in the form of site-specific survey data or a report produced by a professional herpetologist or contractor, a museum voucher, HerpMapper (<http://www.herpmapper.org/>) voucher or data presented in the installation's INRMP. Personal observations from a reliable source, such as an installation natural resource manager or field biologist, are also accepted in some cases following a review of the supporting information. Citations are provided in the herpetofauna lists for every confirmed species.

Species are considered potential when the installation property is within the circumscribed natural or introduced range of that species and the species has been documented in the same county as a particular Army installation, but a specimen has not been confirmed within the boundaries of the installation. Thus a potential species is unconfirmed on an installation.

3.2 FEDERAL, STATE, AND NATURESERVE STATUS

3.2.1 Federal Status

Federally-protected species and those currently under review were determined by searching the USFWS Web site (<https://www.fws.gov/endangered/species/us-species.html>).

Species listed under the ESA are assigned to one of six categories. In order of increasing imperilment, these categories are:

1. Petitioned species/Under review—Species that are currently under review by the USFWS and data is being collected to make an informed decision regarding listing. For the purposes of this study, a species was considered under review when the species did not have a federal status rank, but may warrant future consideration.
2. Candidate species—Species for which the USFWS or the NMFS, has sufficient information regarding biological vulnerability and threats to support a proposal to list as endangered or threatened, and in the case of USFWS the listing is also precluded due to lack of funds or other listing actions of higher priority. Candidate species should be considered to be in line for future listing as either threatened or endangered.

3. Proposed species—Candidate species that were found to warrant listing as either threatened or endangered and were officially proposed as such in a Federal Register notice after the completion of a status review and consideration of other protective conservation measures.
4. Similarity of Appearance (Threatened)—ESA regulations allows the designation of a species, which is not Endangered or Threatened but closely resembles an Endangered or Threatened species, as a "de facto" Endangered or Threatened species if the director of the USFWS determines the listing is necessary.
5. Threatened species—A species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. Collection, harassment, hunting, or killing of a threatened species or its parts is prohibited under the ESA and is only permissible under very specific circumstances.
6. Endangered species—A species that is in danger of extinction throughout all or a significant portion of its range (Endangered Species Glossary-Midwest Region, 2013). Collection, harassment, hunting, or killing of an endangered species or its parts is prohibited under the ESA and is only permissible under very specific circumstances.

3.2.2 State Status

State-listed threatened and endangered species were determined and recorded for each Army installation. The legal status of amphibians and reptiles in each state were obtained from the following document: State of the Union: Legal Authority Over the Use of Native Amphibians and Reptiles in the United States (Nanjappa & Conrad, 2014). The management of state listed species is included in their INRMPs. Army National Guard installations may have additional state listed species requirements depending on land ownership and project funding source (state or federal).

3.2.3 NatureServe Status

NatureServe is an international, non-profit conservation organization that collects information on species and ecosystems, and develops conservation tools and services to help meet local, national, and global conservation needs (NatureServe Network, 2013).

The NatureServe ranking of a species is important to installation natural resource managers providing them an understanding of the conservation status of a particular species on a global scale. This information is useful when determining if a species is at risk of becoming listed an endangered or threatened at the state or federal level. This ranking is also useful when planning for future surveys and when developing long-term conservation strategies.

NatureServe assigns a conservation status rank to species by scoring the species in ten categories, weighting the scores and combining them into an overall numeric score, which is then converted into a calculated rank. The conservation status is based on three factors: rarity, threats, and trends (Faber-Langendoen et al., 2012). NatureServe assigns rounded global status ranked on a scale of G5 to G1(T1 to T5 for subspecies), with G5/T5 standing for secure and G1/T1 standing for critically imperiled (table 1). This scale best reflects the global condition of a species without qualifiers or ranges (NatureServe Explorer, 2013). For the purposes of this report, species with a rank of G1/T1–G3/T3 are considered species at risk and are identified in this report.

Table 1. NatureServe Conservation Status Rank Definitions

G1/T1	Critically Imperiled—At very high risk of extinction or elimination due to very restricted range, very few populations or occurrences, very steep declines, very severe threats, or other factors.
G2/T2	Imperiled—At high risk of extinction or elimination due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors.
G3/T3	Vulnerable—At moderate risk of extinction or elimination due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors.
G4/T4	Apparently Secure—At fairly low risk of extinction or elimination due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors.
G5/T5	Secure—At very low risk of extinction or elimination due to a very extensive range, abundant populations or occurrences, and little to no concern from declines or threats.

3.3 NON-NATIVE SPECIES

A species is considered non-native in this analysis when it occurs, or potentially occurs, on an Army installation in a county where it is not native. We considered a non-native species to be both an exotic species (an introduced, alien, or non-indigenous species to the U.S.) and a native transplant (a native U.S. species that has been translated outside its natural range). The species determined non-native for this analysis were determined using the USGS Nonindigenous Aquatic Species website (<http://nas.er.usgs.gov/default.aspx>) and data maintained by members of the PARC organization (Nanjappa & Conrad, 2014). Many species that are non-native become pests because they cause harm to or unbalance the native ecosystems.

3.4 VENOMOUS SPECIES

Venomous species were separately analyzed in this report due to the potential risk of negative human-wildlife interactions and include Rattlesnakes (*Crotalus spp.* and *Sistrurus spp.*), Cottonmouths (*Agkistrodon piscivorus spp.*), Copperheads (*Agkistrodon contortrix spp.*), Coralsnakes (*Micrurus spp.* and *Micruroides spp.*) and the one species of venomous lizard found in the United States, the Gila Monster (*Heloderma suspectum*).

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Chapter 4

Results

4.1 ARMY INSTALLATIONS

The herpetofauna species lists were updated and these data were analyzed for 152 Army installations (157 unique locations including installation detachments; table 2). The installations are located in 46 states within the continental United States (figure 4-1). Only those installations that have a current INRMP were included in the analysis, since these sites would have significant natural resources to support herpetofauna populations.

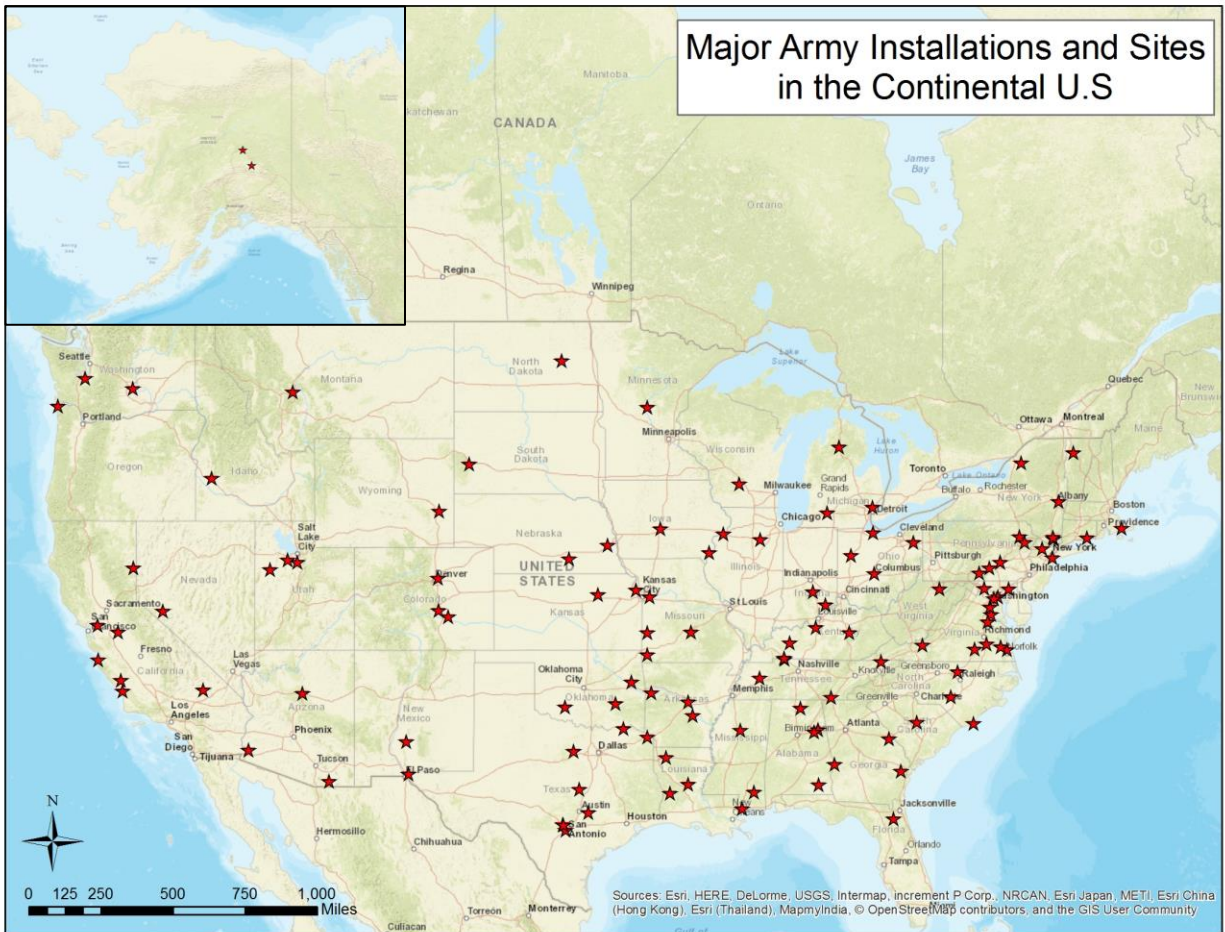


Figure 4-1. Map of Major Army Installations and Sites.

Table 2. Army Installations Included in the 2016 Herpetofauna Inventory Analysis (Sheet 1 of 5)

Installation Name	State
Aberdeen Proving Ground	Maryland
Adelphi Laboratory Center	Maryland
Anniston Army Depot	Alabama
Arden Hills Army Training Site	Minnesota
Auburn Training Site	Maine
Austin Training Area	South Dakota
Bangor Training Site	Maine
Bethany Beach Training Site	Delaware
Biak Training Center	Oregon
Blossom Point Research Facility	Maryland
Blue Grass Army Depot	Kentucky
Bog Brook Training Site	Maine
Bordentown CSMS	New Jersey
Brunswick Training Site	Maine
Buckeye Training Area	Arizona
Camel Tracks Training Site	New Mexico
Camp Ashland	Nebraska
Camp Atterbury Joint Maneuver Training Center	Indiana
Camp Beauregard Training Site	Louisiana
Camp Blanding Joint Training Center	Florida
Camp Bowie	Texas
Camp Butner- including Snow Camp Training Site	North Carolina
Camp Clark Training Site	Missouri
Camp Curtis Guild	Massachusetts
Camp Dawson	West Virginia
Camp Dodge	Iowa
Camp Edwards	Massachusetts
Camp Grafton – including North and South Areas	North Dakota
Camp Grayling Joint Maneuver Center	Michigan
Camp Guernsey Training Site	Wyoming
Camp Mabry	Texas
Camp Maxey	Texas

Table 2. Army Installations Included in
the 2016 Herpetofauna Inventory Analysis (Sheet 2 of 5)

Camp McCain	Mississippi
Camp Minden Training Center	Louisiana
Camp Murray	Washington
Camp Navajo	Arizona
Camp Perry Training Site	Ohio
Camp Ravenna Joint Military Training Center	Ohio
Camp Ripley	Minnesota
Camp Roberts Training Site MTC-H	California
Camp San Luis Obispo	California
Camp Shelby Joint Forces Training Center	Mississippi
Camp Sherman Joint Training Center	Ohio
Camp Smith Training Site	New York
Camp Swift	Texas
Camp Villere	Louisiana
Camp Williams	Utah
Cape May Court House Armory	New Jersey
Carlisle Barracks	Pennsylvania
Caswell Training Site	Maine
Catoosa Training Site	Georgia
Devens Reserve Forces Training Area	Massachusetts
Disney Training Center (Artemus)	Kentucky
Douglas Creek Local Training Area	North Dakota
Dover Armory	New Jersey
Dugway Proving Ground	Utah
Eastern Kentucky Training Site	Kentucky
Florence Military Reservation	Arizona
Floyd Edsall Training Center	Nevada
Fort A.P Hill	Virginia
Fort Belvoir	Virginia
Fort Benning	Alabama/Georgia
Fort Bliss	Texas/New Mexico
Fort Bragg	North Carolina

Table 2. Army Installations Included in
the 2016 Herpetofauna Inventory Analysis (Sheet 3 of 5)

Fort Campbell Military Reservation	Kentucky/Tennessee
Fort Carson- including Pinon Canyon Maneuver Site	Colorado
Fort Chaffee	Arkansas
Fort Custer Training Center	Michigan
Fort Detrick	Maryland
Fort Dix-UTES Facility	New Jersey
Fort Drum	New York
Fort George G. Meade	Maryland
Fort Gordon	Georgia
Fort Greely	Alaska
Camp Gruber Maneuver Training Center	Oklahoma
Fort Hood	Texas
Fort Huachuca	Arizona
Fort Hunter Liggett	California
Fort Indiantown Gap	Pennsylvania
Fort Irwin	California
Fort Jackson	South Carolina
Fort Knox	Kentucky
Fort Leavenworth	Kansas
Fort Lee	Virginia
Fort Leonard Wood	Missouri
Fort McClellan Army National Guard Training Center	Alabama
Fort McCoy	Wisconsin
Fort Polk	Louisiana
Fort Riley	Kansas
Fort Rucker	Alabama
Fort Sill	Oklahoma
Fort Stewart	Georgia
Fort Wainwright	Alaska
Fort Walters	Texas
Fort William H. Harrison	Montana
Franklin Armory	New Jersey
Gardiner Training Site	Maine
Greenlief Training Site	Nebraska
Hawthorne Army Depot	Nevada

Table 2. Army Installations Included in
the 2016 Herpetofauna Inventory Analysis (Sheet 4 of 5)

Hollis Training Site	Maine
Illinois Army National Guard (Sparta Training Area)	Illinois
Iowa Army Ammunition Plant	Iowa
Joint Base Lewis-McCord	Washington
Joint Systems Manufacturing Center -Lima	Ohio
Kansas Army National Guard Training Range Salina	Kansas
Lander Training Area	Wyoming
Letterkenny Army Depot	Pennsylvania
Limestone Hills Training Area	Montana
Lovell Training Area	Wyoming
Maneuver Training Center- Fort Picket	Virginia
Marseilles Training Site	Illinois
McAlester AAP	Oklahoma
McCrary Training Center	South Carolina
Mead Training Site	Nebraska
Milan Army Ammunition Plant	Tennessee
Milan Training Site	Tennessee
Military Ocean Terminal Concord	California
Military Ocean Terminal Sunny Point	North Carolina
Morristown Armory	New Jersey
Muscatatuck Urban Training Center	Indiana
Nevada Army National Guard (Stead Training Site)	Nevada
New Castle River Road Training Site	Delaware
New Hampshire Army National Guard Training Site	New Hampshire
Orchard Training Site	Idaho
Oregon Army National Guard (Camp Adair)	Oregon
Oregon Army National Guard (Camp Rilea)	Oregon
Parks Reserve Force Training Area	California
Pembroke Regional Training Institute	New Hampshire

Table 2. Army Installations Included in
the 2016 Herpetofauna Inventory Analysis (Sheet 5 of 5)

Picatinny Arsenal	New Jersey
Pine Bluff Arsenal	Arkansas
Plymouth Training Site	Maine
Presidio Of Monterey/Fort ORD	California
Pueblo Chemical Depot	Colorado
Radford Army Ammunition Plant- including New River Storage Unit	Virginia
Red River Army Depot	Texas
Redstone Arsenal	Alabama
Robinson Maneuver Training Center	Arkansas
Sea Girt	New Jersey
Sheridan Training Area	Wyoming
Sierra Army Depot	California
Smyrna Training Site	Tennessee
Snake Creek Training Site	Florida
Tarlton Readiness Center	Ohio
Tooele Army Depot - including North and South Area	Utah
Tuckerton Armory	New Jersey
Tullahoma Training Site	Tennessee
Wendell H Ford Regional Training Center	Kentucky
West Camp Rapid Training Area	South Dakota
West Point Military Reservation	New York
White Sands Missile Range	New Mexico
Yakima Training Center	Washington
Yuma Proving Ground	Arizona
Picatinny Arsenal	New Jersey
Pine Bluff Arsenal	Arkansas
Plymouth Training Site	Maine
Presidio Of Monterey/Fort ORD	California
Pueblo Chemical Depot	Colorado

4.2 CONFIRMED AND POTENTIAL SPECIES

Analysis of the herpetofauna inventory data from all 152 installations shows Army installations have 355 confirmed species present and an additional 80 species with the potential to be present (Table 3). There are 143 confirmed amphibian species and 212 confirmed reptile species on the Army installations evaluated in this report. Of the species types, snakes have the greatest number and percentage of confirmed species (113 species/31 percent) whereas salamanders have the largest number of species with the potential to be present (24 species/30 percent; figures 4-2, 4-3).

Table 3. Species Type and Occurance on Army Installations (2016)

Species Type	Number of Species Confirmed	Number of Species Potential	Confirmed and Potential	Percent Confirmed	Percent Potential
Frogs and Toads	73	11	84	86.9%	13.1%
Salamanders	70	24	94	74.5%	25.5%
Lizards	64	19	83	77.1%	22.9%
Snakes	113	15	128	88.3%	11.7%
Turtles	34	11	45	75.6%	24.4%
Crocodiles/ Alligators	1	0	1	100%	-
Total	355	80	435	—	—

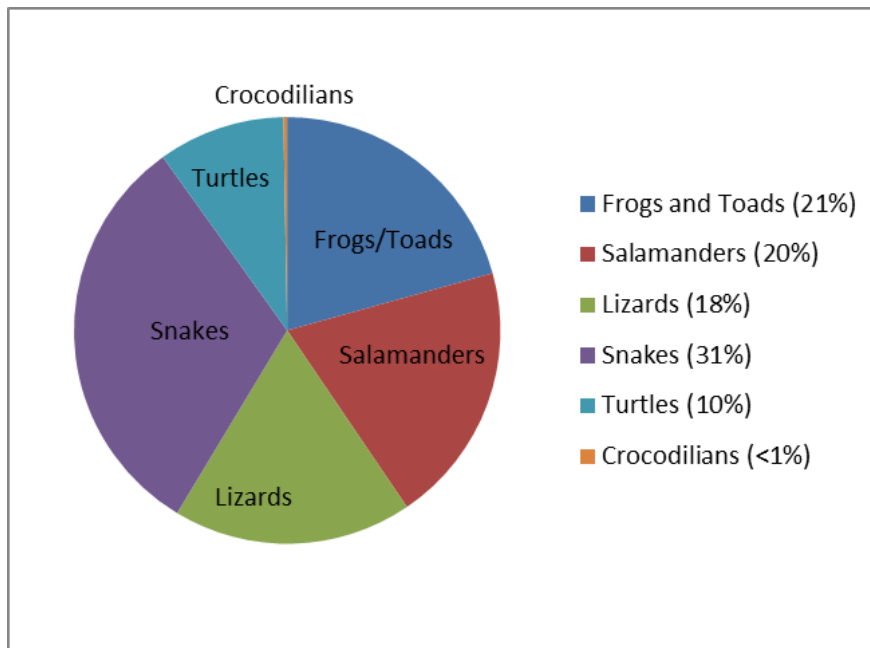


Figure 4-2. Percent of Confirmed Species on Army Installations by Species Type

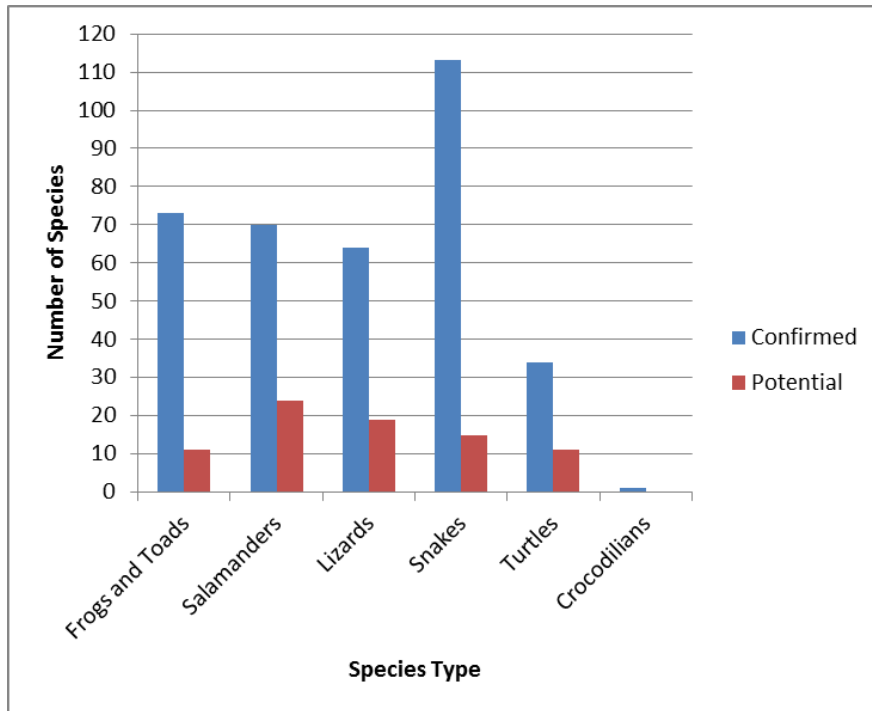


Figure 4-3. Number of Confirmed and Potential Species on Army Installations by Species Type

Comparison of the number of confirmed reptiles and amphibian species on each of the Army installations has revealed that Fort Stewart, located on the coastal plain of Georgia, has the greatest number of confirmed species (100 species). Additional Army installations with high numbers of confirmed herpetofauna species include: Camp Shelby Joint Forces Training Center (86 species); Fort Bragg (81 species); Fort Gordon (76 species); Fort Benning (74 species); McCrady Training Center (72 species); Fort Polk (68 species); Fort Leonard Wood (63 species); and the Tullahoma Training Site (60 species).

4.3 FEDERAL, STATE, AND NATURESERVE STATUS

4.3.1 Confirmed Species—Federally Endangered, Threatened, Candidate, Under Review

Confirmed Species—Federally Endangered

Two species of amphibians confirmed present on Army installations in the continental U.S. are federally listed as endangered by the USFWS (table 4). Of the species types, one is a frog (Arroyo Toad- *Anaxyrus californicus*. Figure 4-4) and one is a salamander subspecies (Sonora Tiger Salamander- *Ambystoma tigrinum stebbinsi*). These species occur at only one installation each.

Table 4. Federally-Listed Endangered Species Confirmed Present on Army Installations in the Continental U.S. (2016). Species Arranged Alphabetically by Common Name.

Common Name	Species Name	Federal Status	Location Confirmed Present
Arroyo Toad	<i>Anaxyrus californicus</i>	Endangered	Fort Hunter Liggett
Sonora Tiger Salamander	<i>Ambystoma tigrinum stebbinsi</i>	Endangered	Fort Huachuca



Figure 4-4. Arroyo Toad

Confirmed Species - Federally Threatened

Twelve species of reptiles and amphibians confirmed present on Army installations in the continental U.S. are federally listed as threatened by the USFWS (table 5, figures 4-5 – 4-8). Of the species types, five are snakes, three are turtles, two are frogs, and two are salamanders.



Figures 4-5. Bog Turtle



Figure 4-6. Eastern Indigo Snake



Figure 4-7. Desert Tortoise



Figure 4-8. Eastern Massasauga

Table 5. Federally-Listed Threatened Species Confirmed Present on Army Installations in the Continental U.S. (2016). Species Arranged Alphabetically by Common Name. See Appendix A for Unconfirmed (Potential) Locations.

Common Name	Species Name	Federal Status	Location Confirmed Present
Black Pinesnake	<i>Pituophis melanoleucus lodingi</i>	Threatened	Camp Shelby Joint Forces Training Center
Bog Turtle	<i>Glyptemys muhlenbergii</i>	Threatened	Carlisle Barracks
California Red-legged Frog	<i>Rana draytonii</i>	Threatened	Camp San Luis Obispo; Military Ocean Terminal Concord; Parks Reserve Force Training Area
California Tiger Salamander	<i>Ambystoma californiense</i>	Endangered and Threatened	Fort Hunter Liggett; Military Ocean Terminal Concord; Parks Reserve Force Training Area
Desert Tortoise	<i>Gopherus agassizii</i>	Threatened	Floyd Edsall Training Center; Fort Irwin
Eastern Indigo Snake	<i>Drymarchon couperi</i>	Threatened	Fort Stewart; Camp Blanding Joint Training Center
Eastern Massasauga	<i>Sistrurus catenatus catenatus</i>	Threatened	Camp Grayling Joint Maneuver Center
Frosted Flatwoods Salamander	<i>Ambystoma cingulatum</i>	Threatened	Fort Stewart
Gopher Tortoise	<i>Gopherus polyphemus</i>	AL, MS, LA–Threatened	Camp Shelby Joint Forces Training Center
Louisiana Pinesnake	<i>Pituophis ruthveni</i>	Proposed Threatened	Fort Polk
Mexican Gartersnake	<i>Thamnophis eques megalops</i>	Threatened	Fort Huachuca
Oregon Spotted Frog	<i>Rana pretiosa</i>	Threatened	Joint Base Lewis-McCord

Confirmed Species – Similarity of Appearance-Threatened

The American Alligator (*Alligator mississippiensis*) is the only species federally listed as Similarity of Appearance-Threatened on Army lands and occurs on fourteen installations (table 6). Although this species was delisted in 1987, it is still protected under the ESA due to their close resemblance to the American Crocodile, which is federally listed as threatened.

Table 6. Similarity of Appearance-Threatened Species Confirmed Present on Army Installations in the Continental U.S. (2016). See Appendix A for Unconfirmed (Potential) Locations.

Common Name	Species Name	Federal Status	Location Confirmed Present
American Alligator	<i>Alligator mississippiensis</i>	Threatened-Similarity of Appearance	Camp Beauregard Training Site; Camp Blanding Joint Training Center; Camp Shelby Joint Forces Training Center; Camp Villere; Fort Benning; Fort Jackson; Fort Polk; Fort Rucker; Fort Stewart; McCrary Training Center; Military Ocean Terminal Sunny Point; Pine Bluff Arsenal; Red River Army Depot; Redstone Arsenal

Confirmed Species – Federal Candidate

Two species of reptiles and amphibians confirmed on Army installations in the continental U.S. are federally listed as candidate species by the USFWS (table 7). Of the species types, one is a turtle and one is a salamander. The eastern population of the Gopher Tortoise (*Gopherus polyphemus*) is the most common candidate species and occurs on five Army installations (Camp Blanding Joint Training Center, Fort Benning, Fort Gordon, Fort Rucker, Fort Stewart; figure 4-9).



Figure 4-9. Gopher Tortoise

Table 7. Federally-Listed Candidate Species Confirmed Present on Army Installations in the Continental U.S. (2016). Species Arranged Alphabetically by Common Name. See Appendix A for Unconfirmed (Potential) Locations.

Common Name	Species Name	Federal Status	Location Confirmed Present
Gopher Tortoise	<i>Gopherus polyphemus</i>	AL, MS, LA– Federally Threatened Elsewhere– Candidate	Camp Blanding Joint Training Center; Fort Benning; Fort Gordon; Fort Rucker; Fort Stewart
Striped Newt	<i>Notophthalmus perstriatus</i>	Candidate	Camp Blanding Joint Training Center; Fort Stewart

Confirmed Species – Under Review

Twenty species of reptiles and amphibians are confirmed present on Army installations that are currently under review by the USFWS (table 8). Of the species types, seven are turtles, five are snakes, four are salamanders and four are frogs/toads. Our data show that the Eastern Ribbonsnake (*Thamnophis sauritus*) and the Wood Turtle (*Glyptemys insculpta*) are confirmed on more Army installations (11) than any other species currently under review (figure 4-11). Fort Benning has the greatest number of species confirmed present that are currently under review by the USFWS (six species).



Figure 4-10. Eastern Ribbonsnake



Figure 4-11. Wood Turtle

Table 8. Species Currently Under Review by the USFWS and Confirmed Present on Army Installations (2016). Species Arranged Alphabetically by Common Name. See Appendix A for Unconfirmed (Potential) Locations.

Common Name	Species Name	Federal Status	Location Confirmed Present
Alligator Snapping Turtle	<i>Macrochelys temminckii</i>	Under Review	Fort Benning; Fort Chaffee; Fort Polk; Red River Army Depot; Robinson Maneuver Training Center
Arizona Toad	<i>Anaxyrus microscaphus</i>	Under Review	Camp Navajo
Barbour's Map Turtle	<i>Graptemys barbouri</i>	Under Review	Fort Benning
Blanding's Turtle	<i>Emydoidea blandingii</i>	Under Review	Arden Hills Army Training Site; Camp Grayling Joint Maneuver Center; Camp Ripley; Devens Reserve Forces Training Area; Fort Custer Training Center; Fort Drum; Fort McCoy
Chamberlain's Dwarf Salamander	<i>Eurycea chamberlaini</i>	Under Review	Fort Bragg
Eastern Diamond-backed Rattlesnake	<i>Crotalus adamanteus</i>	Under Review	Camp Blanding Joint Training Center; Camp Shelby Joint Forces Training Center; Fort Benning; Fort Rucker; Fort Stewart
Eastern Ribbonsnake	<i>Thamnophis sauritus</i>	Under Review	Fort Campbell Military Reservation; Fort Custer Training Center; Fort Drum; Fort Stewart; Hollis Training Site; New Hampshire Army National Guard Training Site; Picatinny Arsenal; Redstone Arsenal; Tullahoma Training Site; West Point Military Reservation; Camp Shelby JFTC

Florida Pinesnake	<i>Pituophis melanoleucus mugitus</i>	Under Review	Camp Blanding Joint Training Center; Fort Benning; Fort Gordon; Fort Rucker
Foothill Yellow-legged Frog	<i>Rana boylei</i>	Under Review	Fort Hunter Liggett
Gopher Frog	<i>Lithobates capito</i>	Under Review	Camp Blanding Joint Training Center; Fort Benning; Fort Bragg; Fort Stewart; McCrary Training Center; Military Ocean Terminal Sunny Point
Green Salamander	<i>Aneides aeneus</i>	Under Review	Redstone Arsenal
Hellbender	<i>Cryptobranchus alleganiensis</i>	Under Review	Fort Campbell Military Reservation; Fort Leonard Wood
Kirtland's Snake	<i>Clonophis kirtlandii</i>	Under Review	Fort Knox
Northern Red-bellied Cooter	<i>Pseudemys rubriventris</i>	Under Review	Aberdeen Proving Ground; Fort A.P Hill; Fort Belvoir; Fort Indiantown Gap; Maneuver Training Center-Fort Picket
Southern Hog-nosed Snake	<i>Heterodon simus</i>	Under Review	Fort Benning; Fort Bragg; Fort Gordon; Fort Stewart; McCrary Training Center
Streamside Salamander	<i>Ambystoma barbouri</i>	Under Review	Blue Grass Army Depot; Fort Knox
Western Chicken Turtle	<i>Deirochelys reticularia miaria</i>	Under Review	Red River Army Depot
Western Pond Turtle	<i>Actinemys marmorata</i>	Under Review	Camp Roberts Training Site MTC-H; Camp San Luis Obispo; Fort Hunter Liggett; Military Ocean Terminal Concord

Western Spadefoot	<i>Spea hammondi</i>	Under Review	Camp Roberts Training Site MTC-H; Fort Huachuca; Fort Hunter Liggett
Wood Turtle	<i>Glyptemys insculpta</i>	Under Review	Camp Grayling Joint Maneuver Center; Devens Reserve Forces Training Area; Fort Belvoir; Fort Drum; Fort Indiantown Gap; Fort McCoy; Franklin Armory; Letterkenny Army Depot; Pembroke Regional Training Institute; Picatinny Arsenal; West Point Military Reservation

4.3.2 Potential Species—Federally Endangered, Threatened and Candidate

Potential Species – Federally Endangered

Five species of amphibians and reptiles with the potential to be present on Army installations in the continental U.S. are federally listed as endangered by the USFWS (table 9). Of the species types, three are sea turtles, one is a frog/toad, and one is a salamander. All three sea turtle species could be potentially present on the Military Ocean Terminal Sunny Point, located in North Carolina. Future surveys may confirm the presence of these species.

Table 9. Federally-Listed Endangered Species with the Potential to be Present on Army Installations in the Continental U.S. (2016). Species Arranged Alphabetically by Common Name.

Common Name	Species Name	Federal Status	Location Potentially Present
Atlantic Hawksbill	<i>Eretmochelys imbricata</i>	Endangered	Military Ocean Terminal Sunny Point
Austin Blind Salamander	<i>Eurycea waterlooensis</i>	Endangered	Camp Mabry
Houston Toad	<i>Anaxyrus houstonensis</i>	Endangered	Camp Swift
Kemp's Ridley Sea Turtle	<i>Lepidochelys kempii</i>	Endangered	Military Ocean Terminal Sunny Point
Leatherback Sea Turtle	<i>Dermochelys coriacea</i>	Endangered	Military Ocean Terminal Sunny Point



Figure 4-12. Kemp's Ridley Sea Turtle

Potential Species – Federally Threatened

Five species of reptiles and amphibians with the potential to be present on Army installations in the continental U.S. are federally listed as threatened by the USFWS (table 10). Of the species types, two are snakes, two are turtles, and one is a frog/toad.

Table 10. Federally-Listed Threatened Species with the Potential to be Present on Army Installations in the Continental U.S. (2016). Species Arranged Alphabetically by Common Name.

Common Name	Species Name	Federal Status	Location Potentially Present
Alameda Striped Racer	<i>Coluber lateralis euryxanthus</i>	Threatened	Parks Reserve Force Training Area
Chiricahua Leopard Frog	<i>Lithobates chiricahuensis</i>	Threatened	Fort Huachuca
Copper-bellied Watersnake	<i>Nerodia erythrogaster neglecta</i>	Threatened	Camp Villere
Green Sea Turtle	<i>Chelonia mydas</i>	Threatened	Military Ocean Terminal Sunny Point
Loggerhead Sea Turtle	<i>Caretta caretta</i>	Threatened	Military Ocean Terminal Sunny Point



Figure 4-13 Green Sea Turtle

Potential Species – Federal Candidate

At this time, there are no species of herpetofauna unconfirmed (potentially present) on Army installations that are listed as candidate species by the USFWS.

4.3.3 State Status

4.3.3.1 Confirmed Species—State Threatened and Endangered

The data show 29 species of amphibians and reptiles are confirmed present on Army installations in states where they are listed as state endangered or threatened (table 11, figure 4-14). Of the species types, 11 are snakes, 10 are turtles, 4 are frogs/toads, 2 are salamanders, 1 is a crocodilian, and 1 is a lizard. Fort Stewart has the greatest number of state-listed threatened and endangered herpetofauna species (five species). The Texas Horned Lizard (*Phrynosoma cornutum*) is the most common state-listed species confirmed present on Army sites and is found on six installations in Texas (Camp Bowie, Camp Mabry, Camp Maxey, Fort Bliss, Fort Hood) where it is listed as state threatened. The Blanding's Turtle (*Emydoidea blandingii*) and Gopher Tortoise (*Gopherus polyphemus*) are also common state-listed species on Army sites and are both confirmed present on five installations each.



Figure 4-14. (Top, left to right) Eastern Hog-nosed Snake, Texas Horned Lizard, Timber Rattlesnake (Bottom, left to right) Wood Turtle, Ornate Box Turtle, Gopher Frog

Table 11. State-Listed Endangered and Threatened Species Confirmed Present on Army Installations (2016). Species Arranged Alphabetically by Common Name. See Appendix A For Specific Locations.

State Status	Species Name
Endangered and Threatened	Alligator Snapping Turtle (<i>Macrochelys temminckii</i>)
	American Alligator (<i>Alligator mississippiensis</i>)
	Barbour's Map Turtle (<i>Graptemys barbouri</i>)
	Black Pinesnake (<i>Pituophis melanoleucus lodingi</i>)
	Blanding's Turtle (<i>Emydoidea blandingii</i>)
	Bog Turtle (<i>Glyptemys muhlenbergii</i>)
	California Tiger Salamander (<i>Ambystoma californiense</i>)
	Eastern Cricket Frog (<i>Acris crepitans</i>)
	Eastern Hog-nosed Snake (<i>Heterodon platirhinus</i>)
	Eastern Indigo Snake (<i>Drymarchon couperi</i>)
	Eastern Spadefoot (<i>Scaphiopus holbrookii</i>)
	Eastern Tiger Salamander (<i>Ambystoma tigrinum</i>)
	Frosted Flatwoods Salamander (<i>Ambystoma cingulatum</i>)
	Gopher Frog (<i>Lithobates capito</i>)
	Gopher Tortoise (<i>Gopherus polyphemus</i>)
	Mohave Desert Tortoise (<i>Gopherus agassizii</i>)
	Mottled Rock Rattlesnake (<i>Crotalus lepidus lepidus</i>)
	Northern Pine Snake (<i>Pituophis melanoleucus melanoleucus</i>)
	Northern Red-bellied Cooter (<i>Pseudemys rubriventris</i>)
	Oregon Spotted Frog (<i>Rana pretiosa</i>)
	Ornate Box Turtle (<i>Terrapene ornate</i>)
	Smooth Greensnake (<i>Opheodrys vernalis</i>)
	Southern Hog-nosed Snake (<i>Heterodon simus</i>)
Spotted Turtle (<i>Clemmys guttata</i>)	

	Striped Newt (<i>Notophthalmus perstriatus</i>) Texas Horned Lizard (<i>Phrynosoma cornutum</i>) Texas Lyresnake (<i>Trimorphodon wilkinsonii</i>) Timber Rattlesnake (<i>Crotalus horridus</i>) Wood Turtle (<i>Glyptemys insculpta</i>)
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4.3.3.2 Potential Species—State Threatened or Endangered

The data show 38 species of amphibians and reptiles have the potential to be present on Army installations in states where they are listed as state endangered or threatened (table 12). Of the species types, 15 are snakes, 8 are turtles, 8 are salamanders, 4 are lizards, and 3 are frogs/toads. Military Ocean Terminal Sunny Point has the greatest number of state-listed species with the potential to be present on its property in comparison to all other Army installations. The following seven state-listed species have the potential to occur at Military Ocean Terminal Sunny Point: Atlantic Hawksbill (*Eretmochelys imbricate*), Eastern Diamond-backed Rattlesnake (*Crotalus adamanteus*, figure 4-15), Green Sea Turtle (*Chelonia mydas*), Harlequin Coralsnake (*Micrurus fulvius*, figure 4-16), Kemp's Ridley Sea Turtle (*Lepidochelys kempii*), Leatherback Sea Turtle (*Dermochelys coriacea*), Loggerhead Sea Turtle (*Caretta caretta*).



Figure 4-15. Eastern Diamond-backed Rattlesnake

Figure 4-16. Harlequin (Eastern) Coralsnake

Table 12. State-Listed Endangered and Threatened Species Potentially Present on Army Installations (2016). Species Arranged Alphabetically by Common Name. See Appendix A for Specific Locations

State Status	Species Name
Endangered and Threatened	Alameda Striped Racer (<i>Coluber lateralis euryxanthus</i>)
	Atlantic Hawksbill (<i>Eretmochelys imbricate</i>)
	Austin Blind Salamander (<i>Eurycea waterlooensis</i>)
	Barking Treefrog (<i>Hyla gratiosa</i>)
	Blue-spotted Salamander (<i>Ambystoma laterale</i>)
	Brazos River Watersnake (<i>Nerodia harteri</i>)
	Diamond-backed Watersnake (<i>Nerodia rhombifer</i>)
	Eastern Diamond-backed Rattlesnake (<i>Crotalus adamanteus</i>)
	Eastern Fence Lizard (<i>Sceloporus undulates</i>)
	False Map Turtle (<i>Graptemys pseudogeographica</i>)
	Four-toed Salamander (<i>Hemidactylium scutatum</i>)
	Gila Monster (<i>Heloderma suspectum</i>)
	Great Plains Toad (<i>Anaxyrus cognatus</i>)
	Greater Short-horned Lizard (<i>Phrynosoma hernandesi</i>)
	Green Sea Turtle (<i>Chelonia mydas</i>)
	Harlequin Coralsnake (<i>Micrurus fulvius</i>)
	Houston Toad (<i>Anaxyrus houstonensis</i>)
	Kemp's Ridley Sea Turtle (<i>Lepidochelys kempii</i>)
	Kirtland's Snake (<i>Clonophis kirtlandii</i>)
	Leatherback Sea Turtle (<i>Dermochelys coriacea</i>)
	Lined Snake (<i>Tropidoclonion lineatum</i>)
	Loggerhead Sea Turtle (<i>Caretta caretta</i>)
	Marbled Salamander (<i>Ambystoma opacum</i>)
	Massasauga (<i>Sistrurus catenatus</i>)
	Mimic Glass Lizard (<i>Ophisaurus mimicus</i>)
	Mud Salamander (<i>Pseudotriton montanus montanus</i>)
	Mudpuppy (<i>Necturus maculosus</i>)
	North American Racer (<i>Coluber constrictor</i>)
	Northern Map Turtle (<i>Graptemys geographica</i>)
	One-toed Amphiuma (<i>Amphiuma pholeter</i>)
	Plain-bellied Watersnake (<i>Nerodia erythrogaster</i>)
	Rainbow Snake (<i>Farancia erytrogramma</i>)
	Rough Greensnake (<i>Opheodrys aestivus</i>)
	Scarletsnake (<i>Cemophora coccinea</i>)
	Smooth Greensnake (<i>Opheodrys vernalis</i>)
	Tennessee Cave Salamander (<i>Gyrinophilus palleucus</i>)
	Western Pond Turtle (<i>Actinemys marmorata</i>)
	Western Wormsnake (<i>Carphophis vermis</i>)

4.3.4 NatureServe Status

4.3.4.1 Confirmed Species—Species at Risk

The data revealed that 36 species/subspecies of reptiles and amphibians confirmed on Army installations have a NatureServe status of G1/T1–G3/T3—9 snakes, 8 salamanders, 7 frogs/toads, 6 lizards, and 6 turtles (table 13). Fort Stewart has the greatest number of confirmed NatureServe species (eight species). Fort Hunter Liggett and Camp Benning also have a high number of NatureServe species compared to all Army installations (seven and six species respectively).

Table 13. NatureServe Species at Risk Confirmed Present on Army Installations (2016).
Species Arranged Alphabetically by Common Name. See Appendix A for Specific Locations.

NatureServe Status	Species Name
G1/T1–Critically Imperiled	Sonora Tiger Salamander (<i>Ambystoma tigrinum stebbinsi</i>)
G2/T2–Imperiled	Arroyo Toad (<i>Anaxyrus californicus</i>) Barbour's Map Turtle (<i>Graptemys barbouri</i>) California Red-legged Frog (<i>Rana draytonii</i>) California Tiger Salamander (<i>Ambystoma californiense</i>) Colorado Checkered Whiptail (<i>Aspidoscelis neotesselata</i>) Frosted Flatwoods Salamander (<i>Ambystoma cingulatum</i>) Kirtland's Snake (<i>Clonophis kirtlandii</i>) Louisiana Pinesnake (<i>Pituophis ruthveni</i>) Oregon Spotted Frog (<i>Rana pretiosa</i>) San Joaquin Coachwhip (<i>Coluber flagellum ruddocki</i>) Southern Hog-nosed Snake (<i>Heterodon simus</i>) Striped Newt (<i>Notophthalmus perstriatus</i>)
G3/T3–Vulnerable	Alligator Snapping Turtle (<i>Macrochelys temminckii</i>) Arizona Toad (<i>Anaxyrus microscaphus</i>) Blainville's Horned Lizard (<i>Phrynosoma [Anota] blainvillii</i>) Bog Turtle (<i>Glyptemys muhlenbergii</i>) California Legless Lizard (<i>Anniella pulchra</i>) Eastern Hellbender (<i>Cryptobranchus alleganiensis alleganiensis</i>) Eastern Indigo Snake (<i>Drymarchon couperi</i>) Eastern Massasauga (<i>Sistrurus catenatus</i>) Florida Pinesnake (<i>Pituophis melanoleucus mugitus</i>) Foothill Yellow-legged Frog (<i>Rana boylei</i>) Gopher Frog (<i>Lithobates capito</i>) Gopher Tortoise (<i>Gopherus polyphemus</i>) Green Salamander (<i>Aneides aeneus</i>) Hellbender (<i>Cryptobranchus alleganiensis</i>) Island Glass Lizard (<i>Ophisaurus compressus</i>) Louisiana Slimy Salamander (<i>Plethodon kisatchie</i>) Mexican Gartersnake (<i>Thamnophis eques megalops</i>) Mimic Glass Lizard (<i>Ophisaurus mimicus</i>) Mohave Fringe-toed Lizard (<i>Uma scoparia</i>) Western Massasauga (<i>Sistrurus catenatus tergeminus</i>)

	Western Pond Turtle (<i>Actinemys marmorata</i>) Western Spadefoot (<i>Spea hammondi</i>) Wood Turtle (<i>Glyptemys insculpta</i>)
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There is only one amphibian subspecies that has a status of G1/T1–Critically Imperiled and is confirmed present on an Army installation. This species is the Sonora Tiger Salamander (*Ambystoma tigrinum stebbinsi*) which is present at Fort Huachuca. Its presence was based on genetic analysis performed in 2014. This species listed as endangered under the ESA.



Figure 4-17. Southern Hog-nosed Snake

There are 12 species/subspecies that have a NatureServe status of G2/T2–Imperiled confirmed present on Army installations. All of the species are protected under the ESA except five: Barbour's Map Turtle (*Graptemys barbouri*), Colorado Checkered Whiptail (*Aspidoscelis neotesselata*), Kirtland's Snake (*Clonophis kirtlandii*), San Joaquin Coachwhip (*Coluber flagellum ruddocki*) and the Southern Hog-nosed Snake (*Heterodon simus*, figure 4-17). However the Barbour's Map Turtle, Colorado Checkered Whiptail, Kirtland's Snake, and Southern Hog-nosed Snake are currently under review by the USFWS.

Lastly, there are 23 species/subspecies that have a status of G3/T3–Vulnerable confirmed on Army installations. Of these species, five are listed as endangered or threatened under the ESA, ten are currently under review by the USFWS, and 8 have no federal legal protection.

4.3.4.2 Potential Species—Species at Risk

In addition to the confirmed NatureServe species at risk listed above, there are 28 species/subspecies with a NatureServe status of G1/T1–G3/T3 that have the potential to occur on Army installations: 12 salamanders, 7 turtles, 4 lizards, 3 frog/toads and 2 snakes (table 14)

Table 14. NatureServe Species at Risk with the Potential to be Present on Army Installations (2016). Species Arranged Alphabetically by Common Name. See Appendix A for Specific Locations.

NatureServe Status	Species Name
G1/T1–Critically Imperiled	Austin Blind Salamander (<i>Eurycea waterlooensis</i>) Houston Toad (<i>Anaxyrus houstonensis</i>) Kemp's Ridley Sea Turtle (<i>Lepidochelys kempii</i>) Lesser Slender Salamander (<i>Batrachoseps minor</i>)
G2/T2–Imperiled	Amargosa Toad (<i>Anaxyrus nelsoni</i>) Brazos River Watersnake (<i>Nerodia harteri</i>) Chiricahua Leopard Frog (<i>Lithobates chiricahuensis</i>) Leatherback Sea Turtle (<i>Dermochelys coriacea</i>) Pascagoula Map Turtle (<i>Graptemys gibbonsi</i>)

	San Simeon Slender Salamander (<i>Batrachoseps incognitus</i>) Santa Lucia Mountains Slender Salamander (<i>Batrachoseps luciae</i>) Savannah Slimy Salamander (<i>Plethodon savannah</i>) Tennessee Cave Salamander (<i>Gyrinophilus palleucus</i>) Alameda Striped Racer (<i>Coluber lateralis euryxanthus</i>)
G3/T3–Vulnerable	Atlantic Hawksbill (<i>Eretmochelys imbricate</i>) Brown-backed Salamander (<i>Eurycea aquatic</i>) Colorado Fringe-toed Lizard (<i>Uma notate</i>) Goode's Horned Lizard (<i>Phrynosoma [Doliosaurus] goodie</i>) Green Sea Turtle (<i>Chelonia mydas</i>) Loggerhead Sea Turtle (<i>Caretta caretta</i>) Neuse River Waterdog (<i>Necturus lewisi</i>) Oklahoma Salamander (<i>Eurycea tynnerensis</i>) One-toed Amphiuma (<i>Amphiuma pholeter</i>) Panamint Alligator Lizard (<i>Elgaria panamintina</i>) Seepage Salamander (<i>Desmognathus aeneus</i>) Spot-tailed Earless Lizard (<i>Holbrookia lacerate</i>) Webster's Salamander (<i>Plethodon websteri</i>) Yuman Fringe-toed Lizard (<i>Uma rufopunctata</i>)



Four of the species at risk that have the potential to be present on Army installations have a NatureServe Status of G1–Critically Imperiled— Houston Toad (*Anaxyrus houstonensis*, figure 4-18), Lesser Slender Salamander, (*Batrachoseps minor*), Austin Blind Salamander (*Eurycea waterlooensis*) Kemp's Ridley Sea Turtle (*Lepidochelys kempii*). All of the species are ESA listed as endangered except the Lesser Slender Salamander, which is currently under review by the USFWS.

Figure 4-18. Houston Toad (Photo by: Rachel Rommel, Houston Zoo)

There are ten species/subspecies that have a NatureServe status of G2/T2–Imperiled that have the potential to occur on Army installations. Three of the species (Chiricahua Leopard Frog [*Lithobates chiricahuensis*], Leatherback Sea Turtle [*Dermochelys coriacea*] and the Alameda Striped Racer [*Coluber lateralis euryxanthus*] are protected under the ESA.

Lastly, there are 14 species/subspecies that have a NatureServe status of G3/T3–Vulnerable that have the potential to occur on Army installations. Of these species, three sea turtles (Atlantic Hawksbill [*Eretmochelys imbricate*], Loggerhead Sea Turtle [*Caretta caretta*] and the Green Sea Turtle [*Chelonia mydas*] are ESA-listed species.

4.3.4.3 Summary of Federal-, State-, and NatureServe-listed Confirmed Species

Fort Stewart has the greatest number of federally-listed (endangered, threatened, and candidate), state-listed Species (endangered and threatened) and NatureServe -species at risk (G1/T1-G3/T3) confirmed present on its installation in comparison to all Army installations. Camp Blanding Joint Training Center has the second greatest number of federally-listed species (four species).

Analysis of federal-, state- and NatureServe-listed confirmed species on Army installations has revealed that snakes have a high proportion of species/subspecies which are federally-, state- or considered at risk by NatureServe (figure 4-19). These results are consistent with the high proportion of snake species found on Army lands (113 species, 31 percent) in comparison to the other species types (figure 4-2). The second greatest species type of federal-, state- and NatureServe-listed confirmed species on Army installations are turtles. These results were surprising to us since turtle species represent only 10 percent (34 species) of the total herpetofauna biodiversity on Army lands. There are no confirmed federally listed lizard species on Army lands.

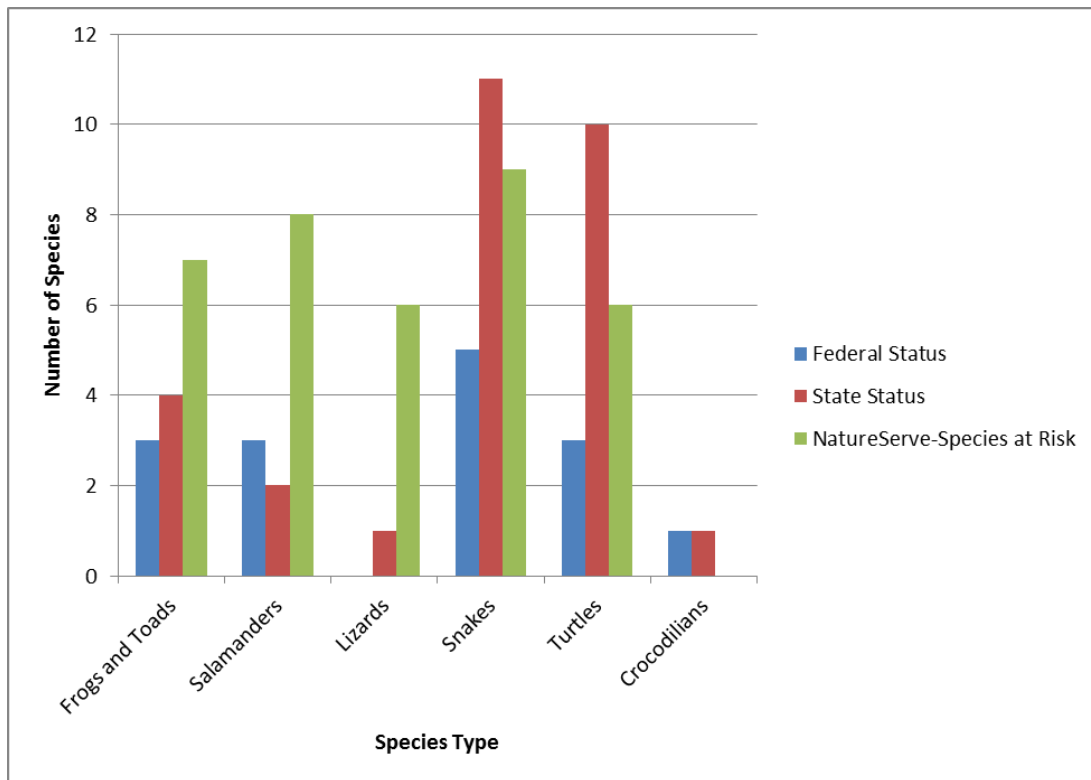


Figure 4-19. Federal-, State- and NatureServe-listed Confirmed Species by Species Type. Does not Include Candidate Species or Species Under Review.

4.3.5 Non-native Species

Our analysis verifies eight non-native amphibian and reptile species confirmed present on Army installations in the continental U.S. (table 15). Five of the species (American Bullfrog [*Lithobates catesbeianus*], Red-Eared Slider [*Trachemys scripta elegans*], Rio Grande Chirping Frog [*Eleutherodactylus cystignathoides*]), Western Tiger Salamander [*Ambystoma mavortium*], and Yellow-

bellied Slider [*Trachemys scripta scripta*] are native to the United States, but have been transported outside their natural range. The remaining three confirmed species (Brown Anole [*Anolis sagrei*], Greenhouse Frog [*Eleutherodactylus planirostris*], and Mediterranean Gecko [*Hemidactylus turcicus*] are not native to the United States and are considered exotic species. The American Bullfrog, Red-eared Slider, and the Mediterranean Gecko are the most common non-native herpetofauna species on Army installations (figure 4-20).

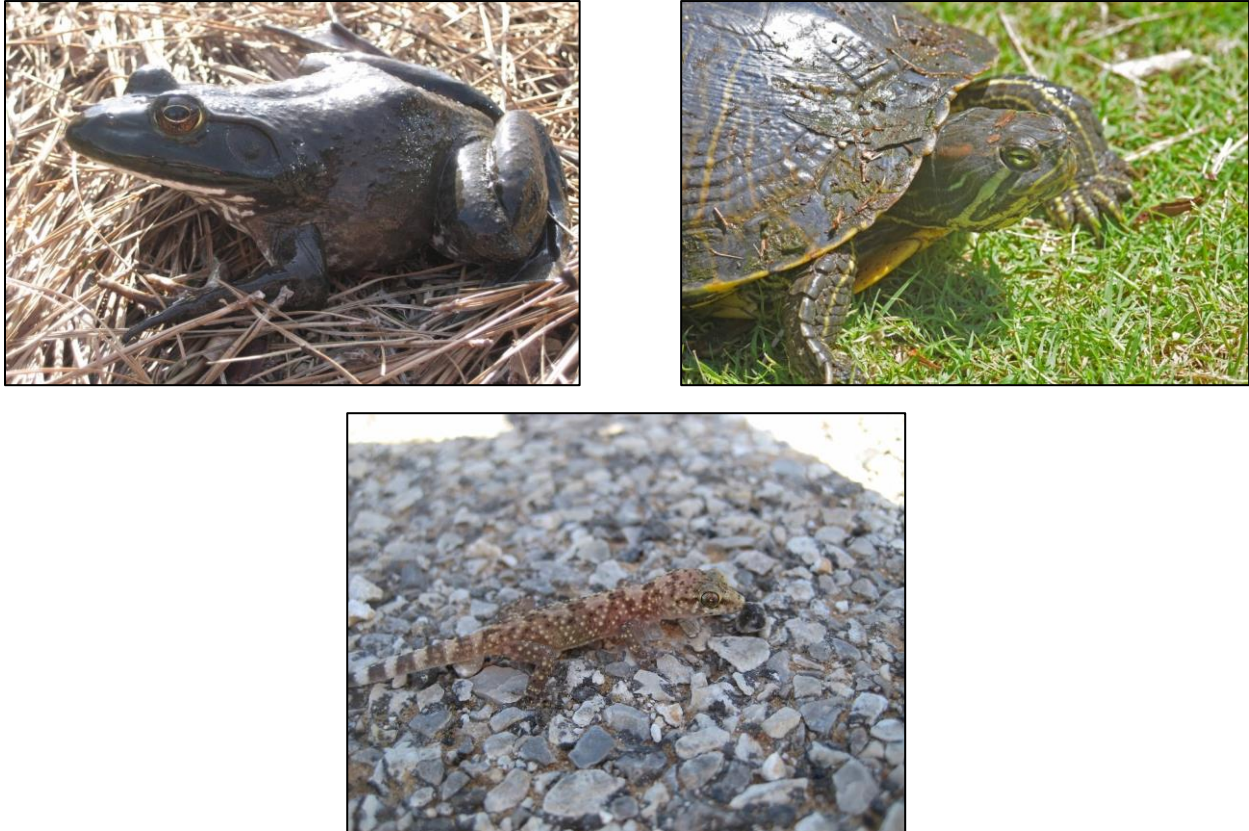


Figure 4-20. (Top, left to right) American Bullfrog and Red-eared Slider; (Bottom) Mediterranean Gecko.

Six additional non-native species have the potential to be present at Army installations. This includes four native transplant species (Mudpuppy [*Necturus maculosus*], Pond Slider [*Trachemys scripta*], Rio Grande Leopard Frog [*Lithobates berlandieri*] and the Snapping Turtle [*Chelydra serpentina*]) and two exotic species (Cuban Treefrog [*Osteopilus septentrionalis*] and Rough-tailed Gecko [*Cyrtopodion scabrum*]).

Table 15. Non-Native Species Confirmed and Potential to Army Installations (2016).
Species Arranged Alphabetically by Common Name.

Species	Confirmed Location/s	Potential Location/s
American Bullfrog (<i>Lithobates catesbeianus</i>)	<ul style="list-style-type: none"> • Camp Guernsey Training Site • Camp Navajo • Camp Roberts Training 	<ul style="list-style-type: none"> • Buckeye Training Area • Camp Murray • Camp Williams • Florence Military

	<p>Site MTC-H</p> <ul style="list-style-type: none"> • Camp San Luis Obispo • Dugway Proving Ground • Fort Carson • Fort Carson - Pinon Canyon Maneuver Site • Fort Huachuca • Fort Hunter Liggett • Joint Base Lewis-McCord • Oregon Army National Guard (Camp Adair) • Oregon Army National Guard (Camp Rilea) • Yakima Training Center 	<p>Reservation</p> <ul style="list-style-type: none"> • Fort Bliss • Hawthorne Army Depot • Military Ocean Terminal Concord • Nevada Army National Guard (Stead Training Site) • Orchard Training Site • Parks Reserve Force Training Area • Presidio Of Monterey/Fort ORD • Pueblo Chemical Depot • Sierra Army Depot • Yuma Proving Ground
<p>Brown Anole <i>(Anolis sagrei)</i></p>	<ul style="list-style-type: none"> • Camp Blanding Joint Training Center • Snake Creek Training Site 	<ul style="list-style-type: none"> • Camp Mabry • Camp Villere • Fort Stewart
<p>Cuban Treefrog <i>(Osteopilus septentrionalis)</i></p>		<ul style="list-style-type: none"> • Camp Blanding Joint Training Center • Fort Stewart
<p>Greenhouse Frog <i>(Eleutherodactylus planirostris)</i></p>	<ul style="list-style-type: none"> • Camp Blanding Joint Training Center 	<ul style="list-style-type: none"> • Camp Villere • Fort Stewart
<p>Mediterranean Gecko <i>(Hemidactylus turcicus)</i></p>	<ul style="list-style-type: none"> • Camp Maxey • Camp Shelby Joint Forces Training Center • Camp Swift • Florence Military Reservation • Fort Hood • Fort Polk • White Sands Missile Range • Yuma Proving Ground 	<ul style="list-style-type: none"> • Buckeye Training Area • Camp Beauregard Training Site • Camp Blanding Joint Training Center • Camp Bowie • Camp Mabry • Floyd Edsall Training Center • Fort Bliss • Fort Stewart • Pine Bluff Arsenal • Red River Army Depot
<p>Mudpuppy <i>(Necturus maculosus)</i></p>		<ul style="list-style-type: none"> • Gardiner Training Site
<p>Pond Slider <i>(Trachemys scripta)</i></p>		<ul style="list-style-type: none"> • Camp Edwards • Camp Murray • Devens Reserve Forces

		<p>Training Area</p> <ul style="list-style-type: none"> • Joint Base Lewis-McCord • Military Ocean Terminal Concord
<p>Red-eared Slider <i>(Trachemys scripta elegans)</i></p>	<ul style="list-style-type: none"> • Aberdeen Proving Ground • Fort Belvoir • Fort Custer Training Center • Fort Hunter Liggett • Fort Indiantown Gap • Fort Lee • Muscatatuck Urban Training Center • West Point Military Reservation 	<ul style="list-style-type: none"> • Adelphi Laboratory Center • Blossom Point Research Facility • Camel Tracks Training Site • Camp Roberts Training Site MTC-H • Camp San Luis Obispo • Camp Smith Training Site • Fort Bliss • Fort Detrick • Fort George G. Meade • Fort Huachuca • Military Ocean Terminal Sunny Point • Parks Reserve Force Training Area • Picatinny Arsenal • Presidio Of Monterey/Fort ORD • Sea Girt
<p>Rio Grande Chirping Frog <i>(Eleutherodactylus cystignathoides)</i></p>	<ul style="list-style-type: none"> • Camp Swift 	<ul style="list-style-type: none"> • Camp Bowie
<p>Rio Grande Leopard Frog <i>(Lithobates berlandieri)</i></p>		<ul style="list-style-type: none"> • Yuma Proving Ground
<p>Rough-tailed Gecko <i>(Cyrtopodion scabrum)</i></p>		<ul style="list-style-type: none"> • Florence Military Reservation
<p>Snapping Turtle <i>(Chelydra serpentine)</i></p>		<ul style="list-style-type: none"> • Camp San Luis Obispo
<p>Western Tiger Salamander <i>(Ambystoma mavortium)</i></p>	<ul style="list-style-type: none"> • Fort Hunter Liggett 	<ul style="list-style-type: none"> • Presidio Of Monterey/Fort ORD
<p>Yellow-bellied Slider <i>(Trachemys scripta scripta)</i></p>	<ul style="list-style-type: none"> • Fort Indiantown Gap 	

4.3.6 Venomous Species

Data show that 21 species of venomous snakes are confirmed on Army installations within the United States: 2 species in the genus *Agkistrodon* (Copperhead and Cottonmouth), 2 species in the genus *Micrurus* (Coralsnake), 1 species in the genus *Micruroides* (Sonoran Coralsnakes), 14 species in the genus *Crotalus*, and 2 in the genus *Sistrurus* (Rattlesnakes). In addition, the venomous Gila monster is also confirmed present on two Army and one Army National Guard installations (table 16).

There is the potential for one additional venomous species to occur on Army lands, the Arizona Black Rattlesnake (*Crotalus cerberus*), which has the potential to occur at Camp Navajo located in Arizona.

Fort Huachuca located in Arizona has the greatest number of confirmed venomous snakes (seven species) as compared to all Army and Army National Guard installations. The Ridge-nosed Rattlesnake (*Crotalus willardi*) and Twin-spotted Rattlesnake (*Crotalus pricei*) confirmed at Fort Huachuca are the only known locations for this two snake species on all DoD lands. Fort Benning and Fort Stewart (both located in the southeastern U.S.), have the second greatest diversity of venomous snakes (six species each). Camp Shelby Joint Forces Training Center, Florence Military Reservation, Fort Bliss, Camp Gruber Maneuver Training Center, Fort Rucker, Yuma Proving Ground, and White Sands Missile Range have high venomous snake diversity with five confirmed venomous snake species each respectively.

The Copperhead (*Agkistrodon contortrix*) is confirmed present at more Army and Army National Guard installations (44) than all other venomous snake species (figure 4-21) The Tiger Rattlesnake (*Crotalus tigris*), Panamint Rattlesnake (*Crotalus stephensi*), Twin-spotted Rattlesnake (*Crotalus pricei*) and the New Mexican Ridge-nosed Rattlesnake (*Crotalus willardi*) are the least common venomous snake species and are only confirmed present at one site each (table 15). Pictures of a portion of the venomous snake species found on Army installations are in figure 4-22.



Figure 4-21. Copperhead

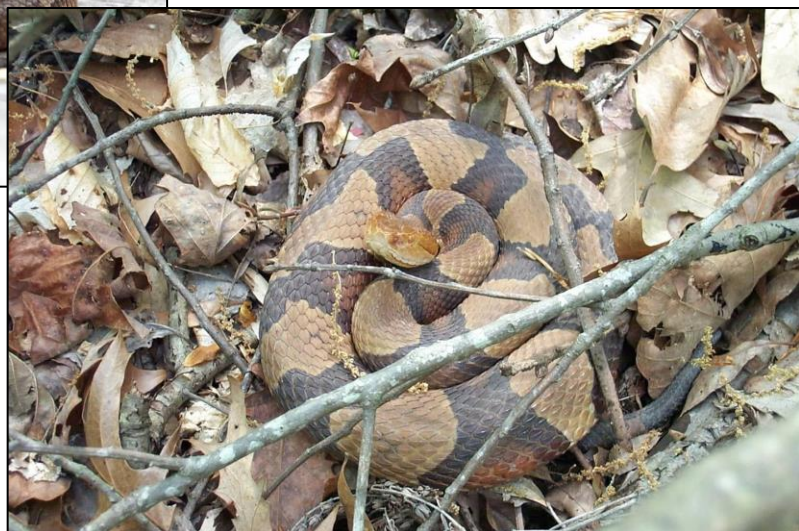




Figure 4-22. Venomous Snakes Confirmed on Army and Army National Guard Installations (Black-tailed Rattlesnake, Cottonmouth, Mohave Rattlesnake, Massasauga, Texas Coralsnake, Sidewinder, Timber Rattlesnake, Western Rattlesnake.

Table 16. Venomous Snake Species Confirmed and Potential on Army Installations (2016).
Species Arranged Alphabetically by Common Name.

Species	Confirmed Location/s	Potential Location/s
Arizona Black Rattlesnake <i>(Crotalus cerberus)</i>		<ul style="list-style-type: none"> • Camp Navajo
Black-tailed Rattlesnake <i>(Crotalus molossus)</i>	<ul style="list-style-type: none"> • Buckeye Training Area • Fort Bliss • Fort Huachuca • White Sands Missile Range 	<ul style="list-style-type: none"> • Camel Tracks Training Site • Camp Navajo • Florence Military Reservation • Yuma Proving Ground
Copperhead <i>(Agkistrodon contortrix)</i>	<ul style="list-style-type: none"> • Aberdeen Proving Ground • Camp Atterbury Joint Maneuver Training Center • Camp Beauregard Training Site • Camp Gruber Maneuver Training Center • Camp Maxey • Camp McCain • Camp Shelby Joint Forces Training Center • Camp Swift • Camp Villere • Catoosa Training Site • Fort A.P Hill • Fort Belvoir • Fort Benning • Fort Bragg • Fort Campbell Military Reservation • Fort Chaffee • Fort Gordon • Fort Hood • Fort Indiantown Gap • Fort Jackson • Fort Knox • Fort Leavenworth • Fort Lee • Fort Leonard Wood • Fort McClellan Army 	<ul style="list-style-type: none"> • Anniston Army Depot • Blossom Point Research Facility • Blue Grass Army Depot • Camp Bowie • Camp Butner • Camp Butner • Camp Clark Training Site • Camp Dawson • Camp Mabry • Camp Minden Training Center • Camp Sherman Joint Training Center • Camp Smith Training Site • Disney Training Center (Artemus) • Eastern Kentucky Training Site • Fort George G. Meade • Iowa Army Ammunition Plant • Military Ocean Terminal Sunny Point • Muscatatuck Urban Training Center • Pine Bluff Arsenal • Redstone Arsenal • Smyrna Training Site

	<p>National Guard Training Center</p> <ul style="list-style-type: none"> • Fort Polk • Fort Riley • Fort Rucker • Fort Sill • Fort Stewart • Fort Walters • Letterkenny Army Depot • McAlester AAP • McCrady Training Center • Milan Army Ammunition Plant • Milan Training Site • Picatinny Arsenal • Radford Army Ammunition Plant (Main Base) • Radford Army Ammunition Plant (New River Storage Unit) • Red River Army Depot • Robinson Maneuver Training Center • Tullahoma Training Site • Wendell H Ford Regional Training Center • West Point Military Reservation 	
<p style="text-align: center;">Cottonmouth <i>(Agkistrodon piscivorus)</i></p>	<ul style="list-style-type: none"> • Camp Beauregard Training Site • Camp Blanding Joint Training Center • Camp Maxey • Camp McCain • Camp Shelby Joint Forces Training Center • Camp Villere • Fort Benning • Fort Bragg • Fort Chaffee • Fort Gordon • Camp Gruber Maneuver Training Center 	<ul style="list-style-type: none"> • Anniston Army Depot • Camp Bowie • Camp Mabry • Camp Minden Training Center • Camp Swift • Milan Training Site • Pine Bluff Arsenal • Redstone Arsenal • Wendell H Ford Regional Training Center

	<ul style="list-style-type: none"> • Fort Jackson • Fort Lee • Fort Leonard Wood • Fort McClellan Army National Guard Training Center • Fort Polk • Fort Rucker • Fort Sill • Fort Stewart • Fort Walters • McAlester AAP • McCrady Training Center • Milan Army Ammunition Plant • Military Ocean Terminal Sunny Point • Red River Army Depot • Robinson Maneuver Training Center 	
<p>Eastern Diamond-backed Rattlesnake <i>(Crotalus adamanteus)</i></p>	<ul style="list-style-type: none"> • Camp Blanding Joint Training Center • Camp Shelby Joint Forces Training Center • Fort Benning • Fort Rucker • Fort Stewart 	<ul style="list-style-type: none"> • Military Ocean Terminal Sunny Point
<p>Gila Monster <i>(Heloderma suspectum cinctum)</i></p>	<ul style="list-style-type: none"> • Florence Military Reservation • Fort Huachuca • Yuma Proving Ground 	<ul style="list-style-type: none"> • Buckeye Training Area • Fort Bliss • Floyd Edsall Training Center
<p>Harlequin (Eastern) Coralsnake <i>(Micrurus fulvius)</i></p>	<ul style="list-style-type: none"> • Camp Blanding Joint Training Center • Camp Shelby Joint Forces Training Center • Fort Benning • Fort Rucker • Fort Stewart 	<ul style="list-style-type: none"> • Anniston Army Depot • Camp Villere • Fort Bragg • Fort Gordon • Fort Jackson • Fort McClellan Army National Guard Training Center • McCrady Training Center • Military Ocean Terminal Sunny Point

<p style="text-align: center;">Massasauga <i>(Sistrurus catenatus)</i></p>	<ul style="list-style-type: none"> • Camp Grayling Joint Maneuver Center • Fort Sill • Kansas Army National Guard Training Range Salina • White Sands Missile Range 	<ul style="list-style-type: none"> • Camp Bowie • Fort Bliss • Fort Carson • Fort Custer Training Center • Fort McCoy • Fort Riley • Fort Walters • Iowa Army Ammunition Plant • Pueblo Chemical Depot
<p style="text-align: center;">Mohave Rattlesnake <i>(Crotalus scutulatus)</i></p>	<ul style="list-style-type: none"> • Florence Military Reservation • Fort Bliss • Fort Huachuca • Fort Irwin • Yuma Proving Ground 	<ul style="list-style-type: none"> • Buckeye Training Area • Floyd Edsall Training Center
<p style="text-align: center;">Panamint Rattlesnake <i>(Crotalus stephensi)</i></p>	<ul style="list-style-type: none"> • Hawthorne Army Depot 	<ul style="list-style-type: none"> • Floyd Edsall Training Center
<p style="text-align: center;">Prairie Rattlesnake <i>(Crotalus viridis)</i></p>	<ul style="list-style-type: none"> • Camp Guernsey Training Site • Fort Bliss • Fort Carson • Fort Carson • Limestone Hills Training Area • Lovell Training Area • Sheridan Training Area • White Sands Missile Range 	<ul style="list-style-type: none"> • Camel Tracks Training Site • Fort William H. Harrison • Lander Training Area • Pueblo Chemical Depot • West Camp Rapid Training Area
<p style="text-align: center;">Pygmy Rattlesnake <i>(Sistrurus miliarius)</i></p>	<ul style="list-style-type: none"> • Camp Blanding Joint Training Center • Camp Shelby Joint Forces Training Center • Camp Villere • Fort Benning • Fort Bragg • Fort Gordon • Camp Gruber Maneuver Training Center • Fort Jackson • Fort Polk • Fort Stewart • McCrady Training 	<ul style="list-style-type: none"> • Anniston Army Depot • Camp Beauregard Training Site • Camp Minden Training Center • Fort Chaffee • Fort McClellan Army National Guard Training Center • Fort Rucker • Iowa Army Ammunition Plant • McAlester AAP • Military Ocean Terminal

	Center	Sunny Point <ul style="list-style-type: none"> • Pine Bluff Arsenal • Redstone Arsenal • Robinson Maneuver Training Center
Ridge-nosed Rattlesnake (<i>Crotalus willardi obscurus</i>)	<ul style="list-style-type: none"> • Fort Huachuca 	
Rock Rattlesnake (<i>Crotalus lepidus</i>)	<ul style="list-style-type: none"> • Fort Bliss • Fort Huachuca • White Sands Missile Range 	
Sidewinder (<i>Crotalus cerastes</i>)	<ul style="list-style-type: none"> • Buckeye Training Area • Florence Military Reservation • Fort Irwin • Yuma Proving Ground 	<ul style="list-style-type: none"> • Floyd Edsall Training Center
Sonoran Coralsnake (<i>Micruroides euryxanthus</i>)	<ul style="list-style-type: none"> • Florence Military Reservation • Fort Huachuca • Yuma Proving Ground 	<ul style="list-style-type: none"> • Buckeye Training Area
Speckled Rattlesnake (<i>Crotalus mitchellii</i>)	<ul style="list-style-type: none"> • Buckeye Training Area • Fort Irwin • Yuma Proving Ground 	<ul style="list-style-type: none"> • Floyd Edsall Training Center • Hawthorne Army Depot
Texas Coralsnake (<i>Micrurus tener</i>)	<ul style="list-style-type: none"> • Camp Beauregard Training Site • Fort Hood • Fort Polk 	<ul style="list-style-type: none"> • Camp Maxey • Camp Minden Training Center • Camp Swift • Fort Walters
Tiger Rattlesnake (<i>Crotalus tigris</i>)	<ul style="list-style-type: none"> • Florence Military Reservation 	<ul style="list-style-type: none"> • Buckeye Training Area
Timber Rattlesnake (<i>Crotalus horridus</i>)	<ul style="list-style-type: none"> • Fort Benning • Fort Bragg • Fort Campbell Military Reservation • Fort Gordon • Camp Gruber Maneuver Training Center • Fort Indiantown Gap • Fort Jackson • Fort Knox • Fort Leavenworth • Fort McClellan Army National Guard Training 	<ul style="list-style-type: none"> • Anniston Army Depot • Camp Beauregard Training Site • Camp Blanding Joint Training Center • Camp Butner • Camp Maxey • Camp McCain • Camp Minden Training Center • Camp Shelby Joint Forces Training Center • Camp Smith Training

	<p>Center</p> <ul style="list-style-type: none"> • Fort Rucker • Fort Stewart • Letterkenny Army Depot • McCrady Training Center • Picatinny Arsenal • West Point Military Reservation 	<p>Site</p> <ul style="list-style-type: none"> • Camp Swift • Fort Chaffee • Fort Dix-UTES Facility • Fort Hood • Fort Leonard Wood • Fort McCoy • Fort Polk • Fort Riley • McAlester AAP • Military Ocean Terminal Sunny Point • Muscatatuck Urban Training Center • Pine Bluff Arsenal • Redstone Arsenal • Robinson Maneuver Training Center • Tuckerton Armory
<p>Twin-spotted Rattlesnake <i>(Crotalus pricei)</i></p>	<ul style="list-style-type: none"> • Fort Huachuca 	
<p>Western Diamond-backed Rattlesnake <i>(Crotalus atrox)</i></p>	<ul style="list-style-type: none"> • Buckeye Training Area • Camp Bowie • Camp Mabry • Camp Swift • Florence Military Reservation • Fort Bliss • Camp Gruber Maneuver Training Center • Fort Hood • Fort Huachuca • Fort Sill • Fort Walters • McAlester AAP • White Sands Missile Range • Yuma Proving Ground 	<ul style="list-style-type: none"> • Camel Tracks Training Site • Fort Chaffee
<p>Western Rattlesnake <i>(Crotalus oreganus)</i></p>	<ul style="list-style-type: none"> • Biak Training Center • Camp Roberts Training Site MTC-H • Camp Williams • Dugway Proving Ground 	<ul style="list-style-type: none"> • Camp San Luis Obispo • Floyd Edsall Training Center • Military Ocean Terminal Concord

	<ul style="list-style-type: none"> • Fort Hunter Liggett • Hawthorne Army Depot • Orchard Training Site • Tooele Army Depot 	<ul style="list-style-type: none"> • Nevada Army National Guard (Stead Training Site) • Parks Reserve Force Training Area • Presidio Of Monterey/Fort ORD • Sierra Army Depot • Yakima Training Center
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4.3.7 Comparison of Native Herpetofauna Biodiversity on Army Installations to Continental United States Biodiversity

The herpetofauna species confirmed on the 152 Army installations evaluated in this report represent 55.1 percent of the total native biodiversity of all herpetofauna species documented in the continental United States (table 17). Of the species types, Army installations have the greatest percentage of frogs and toads (73.5 percent), followed by snakes (70.2 percent), turtles (52.3 percent), lizards (50.8 percent), crocodylians (50 percent) and salamanders (36.6 percent) in comparison to all U.S. native herpetofauna species.

Table 17. Comparison of Army Herpetofauna Biodiversity to U.S. Herpetofauna Biodiversity (2016).

Species Type	Number of Confirmed Native Herpetofauna Species on Army Installations	Number of Native Herpetofauna Species Within the United States (Source SSAR)	Percent of Army Native Herpetofauna Biodiversity to Native U.S Biodiversity
Frogs and Toads	72	98	73.5%
Salamanders	70	191	36.6%
Lizards	62	122	50.8%
Snakes	113	161	70.2%
Turtles	34	65	52.3%
Crocodiles/Alligators	1	2	50.0%
Total	352	639	55.1%

4.3.7 Comparison of Herpetofauna Biodiversity on Army Installations to Air Force, Navy and Marine Corps Installations

The same methodology used in this report was used to analyze herpetofauna data on Navy and Marine Corps installations in 2014 (Legacy Projects: 12-423 and 13-641) and Air Force installations in 2015 (Legacy Project: (13-642). In comparison to these data, Army installations have more confirmed herpetofauna species (355 species) than each of the other DoD Services (Air Force [336 species], Navy [265 species] and Marine Corps [177 species]) (table 17, figure 4-23). However, the Air Force would have the greatest herpetofauna biodiversity of all the DoD Services if all the species with the potential to occur were confirmed present on Air Force lands.

The number of unconfirmed (potential) species varies across the military Services. Both the Air Force and Navy have approximately 100 potential species, the Army has approximately 80 potential species, and the Marine Corps approximately 60 potential species (table 18). A species we list as “potential” could be the result of that species actually not being present on an installation or the species is present but has not yet been documented (confirmed). It is difficult to determine which of these scenarios is true. Only future survey efforts on all military lands will assist with determining if these species are confirmed present or are unlikely to occur.

The greater herpetofauna biodiversity found on Army and Air Force installations is likely the result of the greater number of installations and acres managed by the two Services (approximately 12.2 and 9 million acres respectively) as compared to the Navy and Marine Corps (approximately 2 million acres each). The geographical location of the various military installations also plays a role in the total herpetofauna species diversity found on individual Services’ lands. Army and Air Force installations are more common in the interior of the United States whereas Navy and Marine Corps installations are more common along coastal regions of the United States. As a result, there are more herpetofauna species associated with coastal environments (for example, sea turtle species) on Navy and Marine Corps lands than Army and Air Force lands.

Even though salamander species are the most abundant species type in the U.S. (approximately 200 species), snakes are the most abundant herpetofauna species type confirmed present on Army, Air Force, Navy, and Marine Corps installations. This is likely the result of snake species generally having larger geographical ranges within the U.S. in comparison to salamander species, many of which have small, isolated geographical ranges (particularly in the south eastern Appalachian Mountains).

Table 18. Comparison of the Herpetofauna Biodiversity on Army Installations to Air Force, Navy and Marine Corps Installations (2016).

Species Type	Number of Confirmed Species on Army Installations	Number of Potential Species on Army Installations	Number of Confirmed Species on Air Force Installations	Number of Potential Species on Air Force Installations	Number of Confirmed Species on Navy Installations	Number of Potential Species on Navy Installations	Number of Confirmed Species on Marine Corps Installations	Number of Potential Species on Marine Corps Installations
Frogs and Toads	73	11	69	12	59	15	37	13
Salamanders	70	24	51	23	44	24	29	11
Lizards	64	19	74	27	54	22	35	11
Snakes	113	15	102	34	76	28	54	18
Turtles	34	11	37	10	30	12	21	4
Crocodiles/Alligators	1	0	3	0	2	0	1	0
Total	355	80	336	106	265	101	177	57

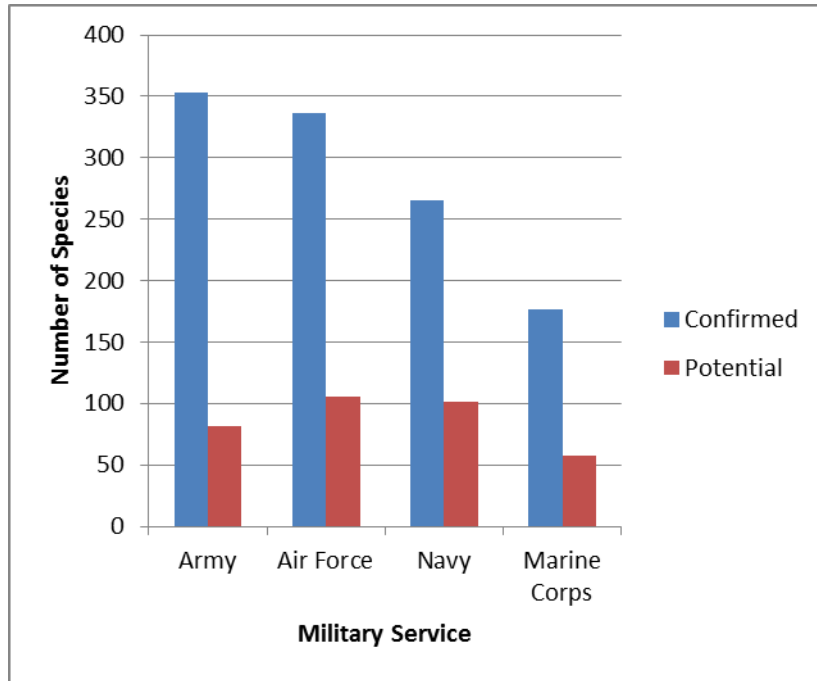


Figure 4-23. Confirmed and Potential Species by Military Service

CHAPTER 5

Summary and Conclusions

5.1 HERPETOFAUNA BIODIVERSITY ON ARMY INSTALLATIONS

This project updated and analyzed the herpetofauna species lists for 152 Army and Army National Guard installations (157 unique locations including installation detachments) located in 46 states within the continental United States. The analysis revealed that the Army has an extensive diversity of amphibian and reptile species on its lands. In total, Army installations support 435 species (355 confirmed species and 80 potential species). The herpetofauna species confirmed on the Army installations evaluated in this report represent approximately 55 percent of the total native biodiversity of all herpetofauna species documented in the continental United States. In comparison to data collected following the same methodology for the Air Force, Navy and Marine Corps, Army installations have more confirmed herpetofauna species (355 species) than all other DoD Services (Air Force [336 species], Navy [265 species] or Marine Corps [177 species]). Those installations with the greatest herpetofauna biodiversity are located in southeastern U.S. (Alabama, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, and Tennessee). Fort Stewart, located in Georgia, has the greatest number of confirmed herpetofauna species (100 species).

Sixteen herpetofauna species listed as federally endangered, threatened, or candidate by the USFWS are confirmed present on Army installations. In addition, there are 20 species confirmed present on Army installations currently under review by the USFWS. The Gopher Tortoise is the most common candidate species confirmed present on Army sites.

Twenty-nine species of amphibians and reptiles are confirmed present on Army installations in states where they are listed as state endangered or threatened. Fort Stewart has the greatest number of state-listed threatened and endangered herpetofauna species (five species). The Texas Horned Lizard (*Phrynosoma cornutum*) is the most common state-listed species confirmed present on Army sites and is found on six installations in Texas.

The data revealed that 36 species/subspecies of reptiles and amphibians confirmed on Army installations have a NatureServe status of G1/T1–G3/T3. Of these species, snakes are the most common species at risk. Fort Stewart has the greatest number of confirmed NatureServe species (eight species).

Non-native (exotic and native transplants) herpetofauna species are not common on Army installations. Eight non-native amphibian and reptile species are confirmed present on Army installations. The American Bullfrog, the Red-eared Slider, and the Mediterranean Gecko are the most common non-native species.

Our analysis has revealed that 22 species of venomous snakes and one species of venomous lizard are confirmed on Army installations. Fort Huachuca has the greatest number of confirmed venomous snakes (seven) as compared to all Army and Army National Guard installations. The Copperhead is confirmed present at more Army installations than any other venomous snake species.

5.2 GENERAL RECOMMENDATIONS FOR ARMY INSTALLATIONS

Overall, the U.S. Army has a great understanding of the herpetofauna present on their properties. The following recommendations are suggested to help enhance the understanding of herpetofauna biodiversity, conservation, and management on Army managed lands. These recommendations are applicable to all Army installations.

1. No data on the presence or absence of herpetofauna was found for the some Army installations. If these data are available Army should update their database as information is collected.
2. Herpetofauna inventories/surveys are recommended at Army installations where the number of potential (unconfirmed) species is greater than 80 percent of the total herpetofauna biodiversity (confirmed and potential). A detailed inventory of the amphibians and reptiles on these installations would improve the overall knowledge of the herpetofauna biodiversity on Army lands.
3. Maintain the herpetofauna species spreadsheet developed for this report up to date. This may be accomplished through annual data calls or by asking for voluntary updates from installation natural resource managers.
4. Conduct general herpetofauna surveys and monitoring every five to seven yearsto document the presence or absence of species and document general population trends.
5. Monitor for the occurrence of invasive herpetofauna species and occurrence of amphibian and reptiles diseases.
6. Those installations with venomous snakes should educate military and civilian personnel of the potential dangers of these species. Educational posters, pamphlets, and brochures are recommended.

CHAPTER 6

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List of Acronyms and Abbreviations

DoD	Department of Defense
ESA	Endangered Species Act
INRMP	Integrated Natural Resource Management Plan
JB	joint base
PARC	Partners in Reptile and Amphibian Conservation
U.S.	United States
USFWS	U.S. Fish and Wildlife Service

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Literature Cited

- AmphibiaWeb. 2016. <http://amphibiaweb.org/>
- Aycrigg, J. L., R. Travis Belote, Matthew S. Dietz, Gregory H. Aplet, & Richard A. Fischer. 2015. Bombing for Biodiversity in the United States: Response to Zentelis & Lindenmayer 2015. *Conservation Letters*, July/August 2015, 8(4), 306–307.
- Benton, N. , J. D. Ripley and F. Powledge (Eds.). 2008. *Conserving Biodiversity on Military Lands: A Guide for Natural Resources Managers* . <http://www.dodbiodiversity.org/>
- Collins, J. P. 2010. Amphibian decline and extinction: what we know and what we need to learn. *Diseases of Aquatic Organisms*. 92:93-99. doi: 10.3354/dao02307
- Collins, J. P., and M.L. Crump. 2009. *Extinction in Our Times. Global Amphibian Decline.*: Oxford University Press.
- 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.
- Endangered Species Glossary-Midwest Region.
2013.<http://www.fws.gov/midwest/endangered/glossary/index.html>
- Ernst, C. H., and J.E. Lovich. 2009. *Turtles of the United States and Canada*: Johns Hopkins University Press.
- Faber-Langendoen, D., J. Nichols, L. Master, K. Snow, A. Tomaino, R. Bittman, and B. Young 2012. NatureServe Conservation Status Assessments: Methodology for Assigning Ranks: Revised ed. Pp. 1-52. Arlington, Virginia: NatureServe.
- Hayes, T. B., P. Case, S. Chui, D. Chung, D., C. Haeffele, K. Hatson, and M. Tsui. 2006. Pesticide mixtures, endocrine disruption, and amphibian declines: Are we underestimating the impact? *Environmental Health Perspectives*, 114:40-50. doi: 10.1289/ehp.8051
- Hayes, T. B., A. Collins, M. Lee, M. Mendoza, N. Noriega, A.A. Stuart, , and A. Vonk. 2002. Hermaphroditic, demasculinized frogs after exposure to the herbicide atrazine at low ecologically relevant doses. *Proceedings of the National Academy of Sciences of the United States of America*, 99(8):5476-5480. doi: 10.1073/pnas.082121499
- Johnson, P. T. J., J.M. Chase, K. Dosch, R.B. Hartson, J.A. Gross, D.J. Larson, and S.R. Carpenter. 2007. Aquatic eutrophication promotes pathogenic infection in amphibians. *Proceedings of the National Academy of Sciences of the United States of America*, 104 40:15781-15786. doi: 10.1073/PNAS.0707763104
- Klemens, M.W (ed.). 2000. *Turtle Conservation*. Washington, DC: Smithsonian Institution Press.

- 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 Defence Lands. 14 Pages.
- Marks, R. 2006. Amphibians and Reptiles: Vol. 35. Natural Resources Conservation Service and Wildlife Habitat Council.
- McCallum, M. L. 2007. Amphibian decline or extinction? Current declines dwarf background extinction rate. *Journal of Herpetology*, 41(3):483-491. doi: <http://dx.doi.org/10.1670/0022-1511>
- Nanjappa, P., and P.M. Conrad. 2014. Conservation and Protection Status by Species. In P. Nanjappa & P. M. Conrad (Eds.), *State of the Union: Legal Authority Over the Use of Native Amphibians and Reptiles in the United States* (1.04 ed., pp. 189-225). Washington, DC: Association of Fish & Wildlife Agencies.
- NatureServe Explorer. 2013. <http://explorer.natureserve.org/ranking.htm#global>
- NatureServe Network. 2016. <http://www.natureserve.org/>
- Pounds, A., M.R. Bustamante, L.A. Coloma, J.A. Conuegra, M.P.L. Fogden, P.N. Foster, and B.E. Young. 2006. Widespread amphibian extinctions from epidemic disease driven by global warming. *Nature*. 439:161-167. doi: 10.1038/nature04246
- Ribeiro, R., X. Santos, N. Sillero, M.A. Carretero, and G.A. Llorente. 2009. Biodiversity and land uses at a regional scale: Is agriculture the biggest threat for reptile assemblages? *Acta Oecologica*. 35(2):327-334. doi: <http://dx.doi.org/10.1016/j.actao.2008.12.003>
- Semitsch, R. D. 2003. Conservation of Pond-Breeding Amphibians. In R. D. Semlitsch (Ed.), *Amphibian Conservation*. Pp. 8-23. Washington, DC: Smithsonian Institution Press.
- Sikes Act, 16 U.S.C. 670a-670f
- Stein, B., C. Scott, and N. Benton. 2008. Federal lands and endangered species: The role of military and other federal lands in sustaining biodiversity. *BioScience*. 58(4):339-347. doi: 10.1641/B580409
- Stuart, S. N., M. Hoffmann, J. S. Chanson, N. A. Cox, R. J. Berridge, P. Ramani, and B. E. Young . 2008. *Threatened Amphibians of the World*. (Eds.). Barcelona, Spain; Gland, Switzerland; Arlington, Virginia: Lynx Edicions; IUCN; Conservation International.
- Uetz, P. (1995a). The Reptile Database. from www.reptile-database.org
- Vitt, L. J., J.P. Caldwell. 2008. *Herpetology, Third Edition: An Introductory Biology of Amphibians and Reptiles* (Third ed.): Academic Press.

Appendix A. Conservation Status Summary (Federal, State and NatureServe [2016]). Arranged by alphabetical order by common name.

Species	Federal Status	State Status where Confirmed or Potential	NatureServe Status	Confirmed Location/s	Potential Location/s
Alligator Snapping Turtle <i>(Macrochelys temminckii)</i>	Under Review	Threatened–GA, TX State Species of Special Concern–FL	G3 -Vulnerable	<ul style="list-style-type: none"> • Fort Benning • Fort Chaffee • Fort Polk • Red River Army Depot • Robinson Maneuver Training Center 	<ul style="list-style-type: none"> • Camp Beauregard Training Site • Camp Gruber Maneuver Training Center • Camp McCain • Camp Minden Training Center • Camp Villere • McAlester AAP • Pine Bluff Arsenal
Alameda Striped Racer <i>(Coluber lateralis euryxanthus)</i>	Threatened	Endangered-CA	T2 - Imperiled		<ul style="list-style-type: none"> • Parks Reserve Force Training Area
Amargosa Toad <i>(Anaxyrus nelson)</i>	None	Not Listed–NV	G2 - Imperiled	<ul style="list-style-type: none"> • Floyd Edsall Training Center 	

Species	Federal Status	State Status where Confirmed or Potential	NatureServe Status	Confirmed Location/s	Potential Location/s
American Alligator <i>(Alligator mississippiensis)</i>	Threatened-Similarity of Appearance	Threatened-AR, NC, SC Federally-designated Threatened due to Similarity of Appearance-FL	G5-Secure	<ul style="list-style-type: none"> • Camp Beauregard Training Site • Camp Blanding Joint Training Center • Camp Shelby Joint Forces Training Center • Camp Villere • Fort Benning • Fort Jackson • Fort Polk • Fort Rucker • Fort Stewart • McCrady Training Center • Military Ocean Terminal Sunny Point • Pine Bluff Arsenal • Red River Army Depot • Redstone Arsenal 	<ul style="list-style-type: none"> • Camp Minden Training Center • Fort Gordon •
Austin Blind Salamander <i>(Eurycea waterlooensis)</i>	Endangered	Endangered-TX	G1-Critically Imperiled	•	• Camp Mabry
Arizona Toad <i>(Anaxyrus microscaphus)</i>	Under Review		G3 - Vulnerable	• Camp Navajo	• Floyd Edsall Training Center
Arizona Treefrog <i>(Hyla wrightorum)</i>	Not Listed		G4 - Apparently Secure	<ul style="list-style-type: none"> • Fort Huachuca • Camp Navajo 	
Arroyo Toad <i>(Anaxyrus californicus)</i>	Endangered		G2 - Imperiled	• Fort Hunter Liggett	• Camp Roberts Training Site MTC-H

Species	Federal Status	State Status where Confirmed or Potential	NatureServe Status	Confirmed Location/s	Potential Location/s
Barbour's Map Turtle (<i>Graptemys barbouri</i>)	Under Review	Threatened-GA	G2 - Imperiled	<ul style="list-style-type: none"> Fort Benning 	
Barking Treefrog (<i>Hyla gratiosa</i>)	Not Listed	Threatened-VA	G5-Secure		<ul style="list-style-type: none"> Fort Lee
Black Pinesnake (<i>Pituophis melanoleucus lodingi</i>)	Threatened	Endangered-MS	G4 - Apparently Secure	<ul style="list-style-type: none"> Camp Shelby Joint Forces Training Center 	
Blanding's Turtle (<i>Emydoidea blandingii</i>)	Under Review	Endangered- IL, IN, ME, MO, NH Threatened- IA, MA, MN, NY, OH, WI	G4-Apparently Secure	<ul style="list-style-type: none"> Arden Hills Army Training Site; Camp Grayling Joint Maneuver Center; Camp Ripley; Devens Reserve Forces Training Area; Fort Custer Training Center; Fort Drum; Fort McCoy 	<ul style="list-style-type: none"> Bog Brook Training Site Camp Curtis Guild Camp Perry Training Site Hollis Training Site Iowa Army Ammunition Plant New Hampshire Army National Guard Training Site Pembroke Regional Training Institute
Blue-spotted Salamander (<i>Ambystoma laterale</i>)	Not Listed	Endangered-NJ	G5-Secure		<ul style="list-style-type: none"> Picatinny Arsenal
Bog Turtle (<i>Glyptemys muhlentexas bergii</i>)	Threatened	Endangered-MD, NJ, NY, PA	G3-Vulnerable	<ul style="list-style-type: none"> Carlisle Barracks 	<ul style="list-style-type: none"> Aberdeen Proving Ground Picatinny Arsenal West Point Military Reservation

Species	Federal Status	State Status where Confirmed or Potential	NatureServe Status	Confirmed Location/s	Potential Location/s
Brazos River Watersnake (<i>Nerodia harteri</i>)	Not Listed	Threatened-TX	G2 - Imperiled		<ul style="list-style-type: none"> Fort Walters
Brown-backed Salamander (<i>Eurycea aquatic</i>)	Not Listed	None	G3–Vulnerable		<ul style="list-style-type: none"> Catoosa Training Site
California Legless Lizard (<i>Anniella pulchra</i>)	Not Listed	Not Listed–CA	G3–Vulnerable	<ul style="list-style-type: none"> Camp Roberts Training Site MTC-H Camp San Luis Obispo 	<ul style="list-style-type: none"> Fort Hunter Liggett Parks Reserve Force Training Area Presidio Of Monterey/Fort ORD
California Red-legged Frog (<i>Rana draytonii</i>)	Threatened	Not Listed–CA	G2–Imperiled	<ul style="list-style-type: none"> Camp San Luis Obispo Military Ocean Terminal Concord Parks Reserve Force Training Area 	<ul style="list-style-type: none"> Camp Roberts Training Site MTC-H Fort Hunter Liggett Presidio Of Monterey/Fort ORD
California Tiger Salamander (<i>Ambystoma californiense</i>)	Threatened/Endangered	Threatened–CA	G2–Imperiled	<ul style="list-style-type: none"> Fort Hunter Liggett Military Ocean Terminal Concord Parks Reserve Force Training Area 	<ul style="list-style-type: none"> Camp Roberts Training Site MTC-H Camp San Luis Obispo Presidio Of Monterey/Fort ORD
Chamberlain's Dwarf Salamander (<i>Eurycea chamberlaini</i>)	Under Review		Not Ranked	<ul style="list-style-type: none"> Fort Bragg 	<ul style="list-style-type: none"> Camp Butner (Main Base and Snow Camp) Fort Benning Fort Gordon Fort Jackson Fort Rucker McCrary Training Center
Chiricahua Leopard Frog (<i>Lithobates chiricahuensis</i>)	Threatened		G2–Imperiled		<ul style="list-style-type: none"> Fort Huachuca

Species	Federal Status	State Status where Confirmed or Potential	NatureServe Status	Confirmed Location/s	Potential Location/s
Copper-bellied Watersnake (<i>Nerodia erythrogaster neglecta</i>)	Threatened (Indiana north of 40 degrees north latitude, Michigan, Ohio)	Endangered-OH	Not Ranked		<ul style="list-style-type: none"> Muscatatuck Urban Training Center
Desert Massasauga (<i>Sistrurus catenatus edwardsii</i>)	Under Review	None	T3-Vulnerable		<ul style="list-style-type: none"> Fort Bliss
Desert Tortoise (<i>Gopherus agassizii</i>)	Threatened	Threatened-CA	G4-Apparently Secure	<ul style="list-style-type: none"> Floyd Edsall Training Center Fort Irwin 	
Diamond-backed Watersnake (<i>Nerodia rhombifer</i>)	Not Listed	Threatened-IA	G5-Secure		<ul style="list-style-type: none"> Iowa Army Ammunition Plant
Eastern Cricket Frog (<i>Acris crepitans</i>)	Not Listed	Endangered-PA, NY	G5 - Secure	<ul style="list-style-type: none"> Letterkenny Army Depot 	<ul style="list-style-type: none"> West Point Military Reservation
Eastern Diamond-backed Rattlesnake (<i>Crotalus adamanteus</i>)	Under Review	Not Listed-AL, FL, GA Endangered-NC	G4-Apparently Secure	<ul style="list-style-type: none"> Camp Blanding Joint Training Center Camp Shelby Joint Forces Training Center Fort Benning Fort Rucker Fort Stewart 	<ul style="list-style-type: none"> Military Ocean Terminal Sunny Point

Species	Federal Status	State Status where Confirmed or Potential	NatureServe Status	Confirmed Location/s	Potential Location/s
Eastern Fence Lizard (<i>Sceloporus undulates</i>)	Not Listed	Threatened-NY	G5 - Secure		<ul style="list-style-type: none"> • Camp Smith Training Site • West Point Military Reservation
Eastern Hog-nosed Snake (<i>Heterodon platirhinos</i>)	Not Listed	Endangered-IA, NH Threatened-SD	G5-Secure	<ul style="list-style-type: none"> • Iowa Army Ammunition Plant • Pembroke Regional Training Institute 	<ul style="list-style-type: none"> • Austin Training Area
Eastern Indigo Snake (<i>Drymarchon couperi</i>)	Threatened	Endangered-MS Threatened-GA Federally-designated Threatened-FL	G3-Vulnerable	<ul style="list-style-type: none"> • Camp Blanding Joint Training Center • Fort Stewart 	<ul style="list-style-type: none"> • Camp Shelby Joint Forces Training Center
Eastern Massasauga (<i>Sistrurus catenatus catenatus</i>)	Threatened	Endangered-IA, WI	G3-Vulnerable	<ul style="list-style-type: none"> • Camp Grayling Joint Maneuver Center 	<ul style="list-style-type: none"> • Fort McCoy • Fort Custer Training Center • Iowa Army Ammunition Plant
Eastern Mud Salamander (<i>Pseudotriton montanus montanus</i>)	Not Listed	Endangered-PA Threatened-NJ, OH	T5-Secure		<ul style="list-style-type: none"> • Letterkenny Army Depot
Eastern Spadefoot (<i>Scaphiopus holbrookii</i>)	Not Listed	Threatened-MA, PA, RI	G5-Secure	<ul style="list-style-type: none"> • Letterkenny Army Depot 	
Eastern Tiger Salamander (<i>Ambystoma tigrinum</i>)	Not Listed	Threatened-NC	G5-Secure	<ul style="list-style-type: none"> • Fort Bragg 	

Species	Federal Status	State Status where Confirmed or Potential	NatureServe Status	Confirmed Location/s	Potential Location/s
False Map Turtle (<i>Graptemys pseudogeographica</i>)	Not Listed	Threatened-SD	G5–Secure		<ul style="list-style-type: none"> • Austin Training Area
Florida Pinesnake (<i>Pituophis melanoleucus mugitus</i>)	Under Review	State Species of Special Concern–FL	T3–Vulnerable	<ul style="list-style-type: none"> • Camp Blanding Joint Training Center • Fort Benning • Fort Gordon • Fort Rucker 	
Foothill Yellow-legged Frog (<i>Rana boylei</i>)	Under Review		G3–Vulnerable	<ul style="list-style-type: none"> • Fort Hunter Liggett 	<ul style="list-style-type: none"> • Camp Roberts Training Site MTC-H • Camp San Luis Obispo • Presidio Of Monterey/Fort ORD
Four-toed Salamander (<i>Hemidactylium scutatum</i>)	Not Listed	Threatened-IL	G5 - Secure		<ul style="list-style-type: none"> • Marseilles Training Site
Frosted Flatwoods Salamander (<i>Ambystoma cingulatum</i>)	Threatened	Threatened–GA	G2–Imperiled	<ul style="list-style-type: none"> • Fort Stewart 	<ul style="list-style-type: none"> • Camp Blanding Joint Training Center
Goode's Horned Lizard (<i>Phrynosoma [Doliosaurus] goodie</i>)	Not Listed	None	G3–Vulnerable		<ul style="list-style-type: none"> • Buckeye Training Area • Florence Military Reservation

Species	Federal Status	State Status where Confirmed or Potential	NatureServe Status	Confirmed Location/s	Potential Location/s
Gopher Frog <i>(Lithobates capito)</i>	Under Review	Endangered–SC Threatened–NC State Species of Special Concern–FL	G3–Vulnerable	<ul style="list-style-type: none"> • Camp Blanding Joint Training Center • Fort Benning • Fort Bragg • Fort Stewart • McCrady Training Center • Military Ocean Terminal Sunny Point • Tullahoma Training Site 	
Gopher Tortoise <i>(Gopherus polyphemus)</i>	AL, MS, LA-Federally Threatened Elsewhere–Candidate	Threatened–GA State-designated Threatened–FL	G3–Vulnerable	<ul style="list-style-type: none"> • Camp Blanding Joint Training Center • Camp Shelby Joint Forces Training Center • Fort Benning • Fort Gordon • Fort Rucker • Fort Stewart 	<ul style="list-style-type: none"> • Camp Villere
Great Plains Toad <i>(Anaxyrus cognatus)</i>	Not Listed	Threatened–NE	G5–Secure		<ul style="list-style-type: none"> • Camp Ashland • Greenlief Training Site
Greater Short-horned Lizard <i>(Phrynosoma hernandesi)</i>	Not Listed	Threatened-TX	G5–Secure		<ul style="list-style-type: none"> • Fort Bliss
Green Salamander <i>(Aneides aeneus)</i>	Under Review		G3–Vulnerable	<ul style="list-style-type: none"> • Redstone Arsenal 	<ul style="list-style-type: none"> • Blue Grass Army Depot • Camp Dawson • Disney Training Center (Artemus)

Species	Federal Status	State Status where Confirmed or Potential	NatureServe Status	Confirmed Location/s	Potential Location/s
Green Sea Turtle (<i>Chelonia mydas</i>)	Endangered in Florida and /Threatened	Endangered–NC	G3–Vulnerable		<ul style="list-style-type: none"> • Military Ocean Terminal Sunny Point
Harlequin Coralsnake (<i>Micrurus fulvius</i>)	Not Listed	Endangered–NC	G5–Secure		<ul style="list-style-type: none"> • Military Ocean Terminal Sunny Point
Hawksbill Sea Turtle (<i>Eretmochelys imbricata</i>)	Endangered	Endangered-NC	G3–Vulnerable		<ul style="list-style-type: none"> • Military Ocean Terminal Sunny Point
Hellbender (<i>Cryptobranchus alleganiensis</i>)	Under Review	Endangered–MO	G3–Vulnerable	<ul style="list-style-type: none"> • Fort Campbell Military Reservation • Fort Leonard Wood 	<ul style="list-style-type: none"> • Blue Grass Army Depot • Fort Knox • Radford Army Ammunition Plant • Radford Army Ammunition Plant • Redstone Arsenal
Houston Toad (<i>Anaxyrus houstonensis</i>)	Endangered	Endangered–TX	G1 - Critically Imperiled		<ul style="list-style-type: none"> • Camp Swift
Island Glass Lizard (<i>Ophisaurus compressus</i>)	Not Listed	Not Listed–NC	G3–Vulnerable	<ul style="list-style-type: none"> • Fort Stewart 	
Kemp’s Ridley Sea Turtle (<i>Lepidochelys kempii</i>)	Endangered	Federally-designated Endangered–NC	G1–Critically Imperiled		<ul style="list-style-type: none"> • Military Ocean Terminal Sunny Point
Kirtland's Snake (<i>Clonophis kirtlandii</i>)	Under Review	Endangered–IN, PA Threatened–OH, IL	G2–Imperiled	<ul style="list-style-type: none"> • Fort Knox 	<ul style="list-style-type: none"> • Camp Atterbury Joint Maneuver Training Center • Fort Custer Training Center • Joint Systems Manufacturing Center - Lima • Muscatatuck Urban Training Center

Species	Federal Status	State Status where Confirmed or Potential	NatureServe Status	Confirmed Location/s	Potential Location/s
Leatherback Sea Turtle (<i>Dermochelys coriacea</i>)	Endangered	Endangered-NC	G2-Imperiled		<ul style="list-style-type: none"> Military Ocean Terminal Sunny Point
Lesser Slender Salamander (<i>Batrachoseps minor</i>)	Under Review	Not Listed-CA	G1-Critically Imperiled		<ul style="list-style-type: none"> Camp San Luis Obispo
Lined Snake (<i>Tropidoclonion lineatum</i>)	Not Listed	Endangered-SD	G5-Secure		<ul style="list-style-type: none"> Austin Training Area
Loggerhead Sea Turtle (<i>Caretta caretta</i>)	Threatened	Threatened-NC	G3-Vulnerable		<ul style="list-style-type: none"> Military Ocean Terminal Sunny Point
Louisiana Pinesnake (<i>Pituophis ruthveni</i>)	Proposed Threatened		G2 - Imperiled	<ul style="list-style-type: none"> Fort Polk 	<ul style="list-style-type: none"> Camp Beauregard Training Site
Louisiana Slimy Salamander (<i>Plethodon kisatchie</i>)	Not Listed	Not Listed -LA	G3-Vulnerable	<ul style="list-style-type: none"> Camp Beauregard Training Site 	
Marbled Salamander (<i>Ambystoma opacum</i>)	Not Listed	Endangered-NH Threatened-MA	G5-Secure	<ul style="list-style-type: none"> Confirmed on many Army installations, however none in states where listed as endangered or threatened 	<ul style="list-style-type: none"> Camp Curtis Guild Camp Edwards Devens Reserve Forces Training Area
Mexican Gartersnake (<i>Thamnophis eques megalops</i>)	Threatened		T3 - Vulnerable	<ul style="list-style-type: none"> Fort Huachuca 	

Species	Federal Status	State Status where Confirmed or Potential	NatureServe Status	Confirmed Location/s	Potential Location/s
Mimic Glass Lizard (<i>Ophisaurus mimicus</i>)	Not Listed	Endangered-MS	G3–Vulnerable	<ul style="list-style-type: none"> Fort Stewart 	<ul style="list-style-type: none"> Camp Shelby Joint Forces Training Center Fort Rucker Military Ocean Terminal Sunny Point
Mohave Fringe-toed Lizard (<i>Uma scoparia</i>)	Not Listed	Not Listed–AZ, CA	G3–Vulnerable	<ul style="list-style-type: none"> Fort Irwin Yuma Proving Ground 	
Mottled Rock Rattlesnake (<i>Crotalus lepidus lepidus</i>)	Not Listed	Threatened-NM	T4 - Apparently Secure	<ul style="list-style-type: none"> White Sands Missile Range Fort Bliss 	
Mudpuppy (<i>Necturus maculosus</i>)	Not Listed	Threatened-IA	G5–Secure		<ul style="list-style-type: none"> Iowa Army Ammunition Plant
Neuse River Waterdog (<i>Necturus lewisi</i>)	Not Listed	None	G3–Vulnerable		<ul style="list-style-type: none"> Camp Butner
North American Racer (<i>Coluber constrictor constrictor</i>)	Not Listed	Endangered-ME Threatened-NH	G5 - Secure		<ul style="list-style-type: none"> Auburn Training Site Bog Brook Training Site Brunswick Training Site Hollis Training Site New Hampshire Army National Guard Training Site Pembroke Regional Training Institute
Northern Map turtle (<i>Graptemys geographica</i>)	Not Listed	Endangered-MD	G5 - Secure		<ul style="list-style-type: none"> Aberdeen Proving Ground
Northern Pinesnake (<i>Pituophis m. melanoleucus</i>)	Not Listed	Threatened–NJ	T4–Apparently Secure	<ul style="list-style-type: none"> Fort Dix-UTES Facility 	<ul style="list-style-type: none"> Tuckerton Armory

Species	Federal Status	State Status where Confirmed or Potential	NatureServe Status	Confirmed Location/s	Potential Location/s
Northern Red-bellied Turtle (<i>Pseudemys rubriventris</i>)	Under Review	Endangered-MA Threatened-PA	G5 - Secure	<ul style="list-style-type: none"> • Aberdeen Proving Ground • Fort A.P Hill • Fort Belvoir • Fort Indiantown Gap • Maneuver Training Center-Fort Picket 	<ul style="list-style-type: none"> • Adelphi Laboratory Center • Blossom Point Research Facility • Fort Detrick • Fort George G. Meade • Fort Lee • Sea Girt
Northern Scarletsnake (<i>Cemophora coccinea copei</i>)	Not Listed	Threatened-TX	T5 - Secure		<ul style="list-style-type: none"> • Camp Maxey
One-toed Amphiuma (<i>Amphiuma pholeter</i>)	Under Review	Endangered-MS	G3– Vulnerable		<ul style="list-style-type: none"> • Camp Shelby Joint Forces Training Center
Oregon Spotted Frog (<i>Rana pretiosa</i>)	Threatened	Endangered–WA	G2 - Imperiled	<ul style="list-style-type: none"> • Joint Base Lewis-McCord 	
Ornate Box Turtle (<i>Terrapene ornate</i>)	Not Listed	Threatened-IA,IL	G5 - Secure	<ul style="list-style-type: none"> • Illinois Army National Guard (Sparta Training Area) 	<ul style="list-style-type: none"> • Iowa Army Ammunition Plant
Panamint Alligator Lizard (<i>Elgaria panamintina</i>)	Under Review	Not Listed–NV	G3–Vulnerable		<ul style="list-style-type: none"> • Floyd Edsall Training Center
Pascagoula Map Turtle (<i>Graptemys gibbonsi</i>)	Under Review	None	G2 - Imperiled		<ul style="list-style-type: none"> • Camp Shelby Joint Forces Training Center
Rainbow Snake (<i>Farancia erytrogramma</i>)	Not Listed	Endangered-MD	G4–Apparently Secure		<ul style="list-style-type: none"> • Blossom Point Research Facility
Reticulated Gila Monster (<i>Heloderma suspectum suspectum</i>)	Not Listed	Endangered-NM	G4–Apparently Secure		<ul style="list-style-type: none"> • Fort Bliss

Species	Federal Status	State Status where Confirmed or Potential	NatureServe Status	Confirmed Location/s	Potential Location/s
Rough Greensnake <i>(Opheodrys aestivus)</i>	Not Listed	Endangered-PA	G5 - Secure		<ul style="list-style-type: none"> Fort Indiantown Gap
San Joaquin Coachwhip <i>(Coluber flagellum ruddocki)</i>	Not Listed	None	T2–Imperiled	<ul style="list-style-type: none"> Camp Roberts Training Site MTC-H Fort Hunter Liggett 	<ul style="list-style-type: none"> Parks Reserve Force Training Area
San Simeon Slender Salamander <i>(Batrachoseps incognitus)</i>	Not Listed	None	G2 - Imperiled		<ul style="list-style-type: none"> Fort Hunter Liggett
Santa Lucia Mountains Slender Salamander <i>(Batrachoseps luciae)</i>	Not Listed	None	G2 - Imperiled		<ul style="list-style-type: none"> Camp Roberts Training Site MTC-H
Savannah Slimy Salamander <i>(Plethodon savannah)</i>	Not Listed	None	G2 - Imperiled		<ul style="list-style-type: none"> Fort Gordon
Smooth Greensnake <i>(Opheodrys vernalis)</i>	Not Listed	Endangered-OH	G5 - Secure	<ul style="list-style-type: none"> Camp Ravenna Joint Military Training Center 	<ul style="list-style-type: none"> Camp Perry Training Site

Species	Federal Status	State Status where Confirmed or Potential	NatureServe Status	Confirmed Location/s	Potential Location/s
Sonora Tiger Salamander <i>(Ambystoma tigrinum stebbinsi)</i>	Endangered		T1 - Critically Imperiled	<ul style="list-style-type: none"> Fort Huachuca 	
Southern Hog-nosed Snake <i>(Heterodon simus)</i>	Under Review	Endangered –MS Threatened–GA, SC Not Listed–FL	G2–Imperiled	<ul style="list-style-type: none"> Fort Benning; Fort Bragg; Fort Gordon; Fort Stewart; McCrary Training Center 	<ul style="list-style-type: none"> Anniston Army Depot Fort Jackson Fort McClellan Army National Guard Training Center Fort Rucker Military Ocean Terminal Sunny Point
Spot-tailed Earless Lizard <i>(Holbrookia lacerata)</i>	Under Review	Not Listed–TX	G3–Vulnerable		<ul style="list-style-type: none"> Camp Bowie Camp Mabry
Spotted Frog <i>(Rana pretiosa)</i>	Threatened	Endangered–WA	G2–Imperiled	<ul style="list-style-type: none"> JB Lewis-McCord 	

Species	Federal Status	State Status where Confirmed or Potential	NatureServe Status	Confirmed Location/s	Potential Location/s
<p align="center">Spotted Turtle <i>(Clemmys guttata)</i></p>	<p align="center">Not Listed</p>	<p align="center">Endangered – IL,IN,VT Threatened–ME, MI, NH, OH, SC Not Listed–NJ</p>	<p align="center">G5–Secure</p>	<ul style="list-style-type: none"> • Aberdeen Proving Ground • Blossom Point Research Facility • Camp Curtis Guild • Devens Reserve Forces Training Area • Fort A.P Hill • Fort Belvoir • Fort Bragg • Fort Drum • Fort Indiantown Gap • Fort Lee • Fort Stewart • Letterkenny Army Depot • Maneuver Training Center-Fort Picket • New Castle River Road Training Site • New Hampshire Army National Guard Training Site • Picatinny Arsenal 	<ul style="list-style-type: none"> • Auburn Training Site • Bangor Training Site • Bog Brook Training Site • Brunswick Training Site • Camp Edwards • Camp Grayling Joint Maneuver Center • Camp Smith Training Site • Carlisle Barracks • Fort Custer Training Center • Fort George G. Meade • Fort Gordon • Fort Jackson • Gardiner Training Site • Hollis Training Site • McCrady Training Center • Military Ocean Terminal Sunny Point • Pembroke Regional Training Institute • Plymouth Training Site
<p align="center">Streamside Salamander <i>(Ambystoma barbouri)</i></p>	<p align="center">Under Review</p>		<p align="center">G4–Apparently</p>	<ul style="list-style-type: none"> • Blue Grass Army Depot • Fort Knox 	<ul style="list-style-type: none"> • Eastern Kentucky Training Site • Muscatatuck Urban Training Center • Smyrna Training Site

Species	Federal Status	State Status where Confirmed or Potential	NatureServe Status	Confirmed Location/s	Potential Location/s
Striped Newt (<i>Notophthalmus perstriatus</i>)	Candidate	Threatened-GA	G2 - Imperiled	<ul style="list-style-type: none"> • Camp Blanding Joint Training Center • Fort Stewart 	
Tennessee Cave Salamander (<i>Gyrinophilus palleucus</i>)	Under Review	Threatened-GA,TN	G2 - Imperiled		<ul style="list-style-type: none"> • Redstone Arsenal • Smyrna Training Site
Texas Horned Lizard (<i>Phrynosoma cornutum</i>)	Not Listed	Threatened-TX	G4-Apparently Secure	<ul style="list-style-type: none"> • Fort Hood • Camp Bowie • Camp Mabry • Camp Maxey • Fort Walters • Fort Bliss 	<ul style="list-style-type: none"> • Camp Swift • Red River Army Depot
Texas Lyresnake (<i>Trimorphodon vilkinsonii</i>)	Not Listed	Threatened-TX	G4-Apparently Secure	<ul style="list-style-type: none"> • Fort Bliss 	
Timber Rattlesnake (<i>Crotalus horridus</i>)	Not Listed	Endangered-IN, NJ, Threatened-NY, TX	G4-Apparently Secure	<ul style="list-style-type: none"> • West Point Military Reservation • Picatinny Arsenal 	<ul style="list-style-type: none"> • Camp Maxey • Camp Smith Training Site • Camp Swift • Fort Dix-UTES Facility • Fort Hood • Muscatatuck Urban Training Center • Tuckerton Armory
Wehrle's Salamander (<i>Plethodon wehrlei</i>)	Not Listed	Threatened-NC	G4-Apparently Secure	<ul style="list-style-type: none"> • Radford Army Ammunition Plant (Main Base) 	<ul style="list-style-type: none"> • Camp Dawson
Western Massasauga (<i>Sistrurus catenatus tergeminus</i>)	Not Listed	Not Listed-OK	T3-Vulnerable	<ul style="list-style-type: none"> • Fort Sill 	

Species	Federal Status	State Status where Confirmed or Potential	NatureServe Status	Confirmed Location/s	Potential Location/s
<p>Western Pond Turtle (<i>Actinemys marmorata</i>)</p>	<p>Under Review</p>	<p>Not Listed–CA Endangered–WA</p>	<p>G3–Vulnerable</p>	<ul style="list-style-type: none"> • Camp Roberts Training Site MTC-H • Camp San Luis Obispo • Fort Hunter Liggett • Military Ocean Terminal Concord 	<ul style="list-style-type: none"> • Camp Murray • Joint Base Lewis-McCord • Oregon Army National Guard (Camp Adair) • Parks Reserve Force Training Area • Presidio Of Monterey/Fort ORD • Sierra Army Depot
<p>Western Spadefoot (<i>Spea hammondi</i>)</p>	<p>Under Review</p>	<p>Not Listed–AZ, CA</p>	<p>G3–Vulnerable</p>	<ul style="list-style-type: none"> • Camp Roberts Training Site MTC-H • Fort Huachuca • Fort Hunter Liggett 	<ul style="list-style-type: none"> • Camp San Luis Obispo • Presidio Of Monterey/Fort ORD

Species	Federal Status	State Status where Confirmed or Potential	NatureServe Status	Confirmed Location/s	Potential Location/s
Western Worm Snake <i>(Carphophis vermis)</i>	Not Listed	Threatened-IA	G5–Secure		<ul style="list-style-type: none"> Iowa Army Ammunition Plant
Wood Turtle <i>(Glyptemys insculpta)</i>	Under Review	Threatened–MN, NJ, TN, VA, WI	G3–Vulnerable	<ul style="list-style-type: none"> Camp Grayling Joint Maneuver Center Devens Reserve Forces Training Area Fort Belvoir Fort Drum Fort Indiantown Gap Fort McCoy Franklin Armory Letterkenny Army Depot Pembroke Regional Training Institute Picatinny Arsenal West Point Military Reservation 	<ul style="list-style-type: none"> Aberdeen Proving Ground Adelphi Laboratory Center Auburn Training Site Bangor Training Site Blossom Point Research Facility Bog Brook Training Site Brunswick Training Site Camp Smith Training Site Carlisle Barracks Caswell Training Site Fort George G. Meade Gardiner Training Site Hollis Training Site New Hampshire Army National Guard Training Site Plymouth Training Site
Yuman Fringe-toed Lizard <i>(Uma rufopunctata)</i>	Not Listed	Not Listed–AZ	G3–Vulnerable		<ul style="list-style-type: none"> Yuma Proving Ground