

Model Criteria and Implementation Guidance for a Priority Amphibian and Reptile Conservation Area (PARCA) System in the U.S.A.



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In collaboration with

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Introduction

Reptiles and amphibians are experiencing exceptional population declines in North America, with habitat loss and fragmentation among the leading threats to both groups. However, important habitats for amphibians and reptiles rarely receive sufficient attention from conservation agencies and nonprofit organizations. In this document, we present a set of model criteria and

implementation guidelines that can be used for designation of Priority Amphibian and Reptile Conservation Areas (PARCAs) in each state. The goal of a PARCA system is to identify valuable habitat for priority herpetofauna (reptiles and amphibians) throughout the U.S., using a system informed by scientific criteria and expert review. Model criteria draw on the scientific concepts of species rarity, richness, and landscape integrity as tools for shaping the boundaries of proposed PARCAs. It is anticipated that each regional Partners in Amphibian and Reptile Conservation (PARC) organization will form a task team to take charge of the PARCA selection process for individual states within their region. By introducing the PARCA concept, model selection criteria, and a proposed organizational structure for implementation, this document is intended to stimulate greater emphasis on priority herpetofauna within state and national landscape conservation efforts.

We believe that successful designation of PARCAs in each state will yield major benefits for the conservation of reptiles and amphibians. First, the PARCA system will help raise the profile of selected high-priority reptile and amphibian species, and herpetofauna generally, thereby serving as place-based opportunities for increasing public awareness of an underappreciated component of our natural heritage. Second, a PARCA system will help address leading threats to US herpetofauna, including habitat loss and habitat fragmentation, invasive species, and climate change, among other factors, by identifying new or expanded areas of the landscape where active land conservation by cooperating landowners, land trusts, municipalities, state agencies, and other partners can help protect some of the best remaining populations of priority reptiles and amphibians nationwide. Notably, PARCAs are a strictly nonregulatory designation whose primary purpose is to raise public awareness and facilitate voluntary conservation of the habitats required by reptiles and amphibians. Furthermore, PARCAs are not designed to compete with existing landscape biodiversity initiatives but rather to complement them – providing an additional spatially explicit layer for conservation consideration.

Following initiation in 2007, the national PARCA Task Team has produced the following model criteria and associated implementation guidance for potential designation of PARCAs in every state, preferably with oversight by each of PARC's five regional chapters. In 2009, the PARCA Task Team solicited reviews from expert herpetologists and biologists across the U.S, incorporating substantive peer reviewed feedback into the current document. While the proposed science-based PARCA selection criteria are intended to provide consistency to the PARCA selection process by providing uniform standards, they are also designed to be flexible at the regional scale so that specific quantitative thresholds associated with any nominating criterion can be modified to better fit inherent zoogeographic variation among the nation's biophysical regions. As such we offer the following PARCA criteria and implementation guidance for application by regional PARC Chapters around the country. Additional improvements and modified guidance are expected and invited as the system matures.

We recognize that mapping important areas for amphibian and reptile conservation may incur some risk of increasing the threat posed to selected local populations of over-exploited species by unscrupulous and/or illegal collectors. However, we also recognize that habitat loss and degradation are still among the leading threats to most herpetofauna, and suggest that in many cases the conservation benefits of public recognition and improved landscape protection and stewardship outweigh potential risks associated with illegal collection. Nonetheless, we have included mechanisms in our guidance for proposed PARCA identification that recognize the importance of protecting sensitive species locations from public scrutiny.

Criteria for PARCA Selection

As public and private conservation resources are sorely limited, it is the intent of the PARCA project to focus more attention on those remaining portions of the landscape that serve a disproportionate role in the conservation of priority reptile and amphibian fauna. It is thus important that PARCAs meet rigorous, transparent, and science-based criteria for eligibility. Specifically, in addition to the first criterion listed below regarding landscape viability, PARCAs should include one or more of the next four criteria relating to species rarity (#2-4), and/or richness (#5). This guidance is designed to ensure that PARCAs represent exceptionally important targets for reptile and amphibian conservation – places with significant populations of rare, diverse, and unique species assemblages embedded in landscapes capable of supporting viable populations.

I. PARCAs should meet the first criterion:

1. Landscape Integrity:

- i. The landscape included within the site boundaries is in a condition currently capable of supporting viable populations of the target species. Expert opinion is appropriate for assessing landscape integrity, with an emphasis on sites that are relatively unfragmented by incompatible land-use and of a size capable of supporting robust populations of priority fauna. By way of guidance only, PARCA sites should generally include more than 50% suitable habitat for target species and be a minimum of 1,500 acres in size (see rationale in next section); **OR**
- ii. Current landscape threats that jeopardize the viability of populations of the target species are deemed by expert opinion to be recoverable to conditions as described above with realistic levels of conservation intervention – e.g., habitat restoration or improved management.

II. PARCAs should also meet one or more of the following four criteria:

2. Presence of Globally or Nationally Vulnerable Species:

- i. Area currently contains one or more species (or subspecies) listed as either: a) Endangered or Threatened or Candidate under the US Endangered Species Act; b) Critically Endangered or Endangered under the IUCN Red List; or c) globally Critically Imperiled (G1), Imperiled (G2) or Vulnerable (G3) by NatureServe; **AND**
- ii. Area hosts at least one confirmable, modern occurrence record for the rare species in question, with modern defined as "less than 20 years old"; **AND**
- iii. Area hosts (according to the best available data and expert opinion) at least a moderately significant population of the target species. A moderately significant population is defined as representing either: a) >10% of the total state population of this species; b) >10% of the total predicted geographic range of the species in the state; or c) one of the 8 most important sites for conservation of the species in the state.
- iv. Regional Examples:

Northeast: Northern Red-bellied Cooter, Bog Turtle, Eastern Massasauga, Green Salamander, Eastern Hellbender.

Southeast: Eastern Indigo Snake, Louisiana Pinesnake, various spp. of Gopher Frog, Gopher Tortoise, Bog Turtle, nesting sea turtles.

Southwest: Dunes Sagebrush Lizard, Mexican Gartersnake, Chiricahua Leopard Frog, Jemez Mountains Salamander.

Midwest: Plain-bellied Watersnake, Kirtland's Snake, Eastern Massasauga, Ozark Hellbender

Northwest: Shasta Salamander, Scott Bar Salamander, Siskiyou Mountains Salamander, Oregon Spotted Frog, Wyoming Toad

3. Presence of State Imperiled Species:

- i. Area currently contains one or more species (or subspecies) listed as either a) State Endangered or State Threatened by the state in question; or b) state Critically Imperiled (S1) or state Imperiled (S2) by NatureServe; **AND**
- ii. Area hosts multiple, confirmable, modern occurrence records for the rare species in question, with modern defined as "less than 20 years old"; **AND**
- iii. Area hosts (according to the best available data and expert opinion) at least a highly significant population of the rare species in question. A highly significant population is defined as representing either: a) >20% of the total state population of this species; or b) >20% of the total predicted geographic range of the species in the state; or c) one of the 5 most important sites for conservation of the species in the state.
- iv. Regional Examples:

Northeast: Blanding's Turtle, Spotted Turtle, Northern Diamond-backed Terrapin, Timber Rattlesnake, Eastern Wormsnake, Copperhead, Five-lined Skink, Marbled Salamander

Southeast: Wood Turtle, Eastern Diamond-backed Rattlesnake, Timber Rattlesnake, Carolina Pygmy Rattlesnake, Southern Hog-nosed Snake, Mimic Glass Lizard, Weller's Salamander

Southwest: Gila Monster, Sevin's Bunchgrass Lizard, Narrow-headed Gartersnake, New Mexico Ridge-nosed Rattlesnake, Lowland Leopard Frog, Sacramento Mountains Salamander.

Midwest: Mississippi Green Watersnake, Green Salamander, Eastern Hellbender, Blanding's Turtle, Wood Turtle

Northwest: Rocky Mountain Tailed Frog, Foothill Yellow-legged Frog, Idaho Giant Salamander, Western Pond Turtle

4. Presence of State Rare Species or Species of High Regional Responsibility:

- i. Area currently contains two or more species (or subspecies) listed as either: a) Special Concern or Vulnerable (or the equivalent) by the state in question; or b) a Species of Greatest Conservation Need (SGCN) in the state's Wildlife Action Plan; **OR**
- ii. Area contains two or more target species (or subspecies) whose global ranges fall disproportionately (>50%) in a single PARC region (Appendix 1; high regional responsibility ¹); **AND**
- iii. Area hosts multiple, confirmable, recent occurrence records for the vulnerable species in question, with recent defined as "less than 10 years old"; **AND**
- iv. Area hosts (according to the best available data and expert opinion) at least an extremely significant population of the rare species in question. An "extremely significant population" is defined as representing either: a) >30% of the total state population of this species; or b) >30% of the total predicted geographic range of the species in the state; or c) one of the 3 most important sites for conservation of the species in the state.
- v. Regional Examples:

Northeast: Wood Turtle, Eastern Box Turtle, Eastern Ribbonsnake, Four-toed Salamander, Blue-spotted Salamander, Northern Spring Salamander.

Southeast: Pine Barrens Treefrog, Ornate Chorus Frog, Eastern Tiger Salamander, Dwarf Waterdog, Four-toed Salamander, Scarlet Kingsnake.

Southwest: Mountain Skink, California Kingsnake, Mottled Rock Rattlesnake, Arizona Toad, Barking Frog.

Midwest: Red-spotted Toad, Milksnake, Glossy Snake, Greater Short-horned Lizard.

Northwest: Coastal Tailed Frog, Western Toad, Northern Red-legged Frog, Cascade Torrent Salamander, Columbia Torrent Salamander, Olympic Torrent Salamander, Southern Torrent Salamander, California Mountain Kingsnake, Sharp-tailed Snake

5. Presence of an Exceptional Diversity of Amphibian and/or Reptile Species:

- i. Area currently contains an exceptionally rich assemblage of reptile and amphibian populations, defined as **EITHER:** a) containing >75% of the total **native** amphibian and reptile fauna expected to occur in the area, based on published records and species lists generated for the site's ecoregion (as defined by USDA Ecoregional Sections of the United States;

¹ For Northeast PARC region see: *NEPARC 2010 Northeast Amphibian and Reptile Species of Regional Responsibility and Conservation Concern. Northeast Partners in Amphibian and Reptile Conservation (NEPARC). Publication 2010-1.*

Appendix 2); **OR** b) containing >90% of the total **native** species of either class of herpetofauna (amphibians or reptiles) expected to occur in the area, based on published records and species lists generated for the site's Ecoregional Section; **AND**

- ii. Area represents one of the 3 most species-rich sites for reptiles and amphibians (or reptiles or amphibians per “b” above) in the ecoregion; **AND**
- iii. Area hosts at least one confirmable, modern occurrence record for each of the species in question, with modern defined as “less than 20 years old”

Criteria Overview and PARCA Scale:

In addition to species-based criteria focused on rarity and richness, it is important to consider landscape condition and context when identifying candidate PARCAs. To this end, the landscape integrity criterion (#1) recommends that a site hosts adequately suitable habitat capable of supporting high value target populations over long periods of time. The specific guidance on recommended thresholds for suitable habitat for target species (>50%) is offered as guidance only and is based on empirical data published for pool-breeding amphibian forest specialists in the Northeast. To our knowledge, little or no other published guidance on landscape habitat thresholds exists for other herpetofauna in North America. Lower thresholds of suitable habitat are acceptable if scientifically defensible for other landscapes and herpetofaunal communities. Furthermore, if strategic habitat restoration or management interventions can realistically improve habitat conditions and thereby rescue a likely non-viable population of a priority species, then such sites can also be included as PARCA's.

The species rarity criteria (#2-4) are set at three nested priority levels: a) globally or nationally vulnerable (e.g. IUCN or Federally-listed), b) state imperiled (e.g. State listed), and c) state rare (e.g. State special concern). The system is structured so that as the implied level of species rarity or conservation significance decreases (from a to c), the requirements for meeting the criteria become increasingly stringent, for example requiring more recent occurrence documentation and higher site population significance. Due to these requirements for prioritizing relative population size and importance, **not every candidate rare species will have sites that qualify for PARCA status in a particular state.** For example, it may be impossible to determine the top three most important sites for a widely-distributed “species of greatest conservation need” (SGCN), and therefore none of the sites containing this species would qualify for PARCA status based on Criterion #4 alone.

Also note that a target species will often meet more than one criterion in a given state (e.g. imperiled at both the state and global levels). Furthermore, within or across regions, the same species may qualify for different levels of rarity criteria in different states. The rarity and diversity criteria were structured so that **some important areas within each state can be identified.** This design ensures that every state has the potential to develop a set of PARCA's, even though jurisdictions differ in the global and national significance of their herpetofauna and the amount and quality of remaining natural habitat.

The species richness/diversity criterion (#5) is intended to capture areas that perhaps lack the rare or endangered species characteristics needed to meet criteria 2-4, but nevertheless host an exceptionally rich and representative fauna of a particular ecoregion. In many cases, the most

diverse sites within a state will also include one or more rare or threatened species. Furthermore, these locales will by definition capture populations of widespread, generalist species. Protecting such areas is an important component of PARC's mission to "keep common species common." Note that species richness is evaluated relative to the overall list of potential species associated with the USDA section level-ecoregion where the area is located (Appendix 2), and not based on statewide or organizational region (e.g. Northeast PARC).

Finally, a few words about PARCA scale are merited; detailed guidance for drawing boundaries of a given site are included separately below. It is anticipated that the proposed size of PARCAs will vary greatly within and across PARC regions, due to differences in landscape biogeography and target species needs. It is recommended that PARCAs be large enough to contain viable populations of priority species but small enough to represent realistic targets for landscape conservation by existing private and public partners. When possible boundaries should be trimmed to the minimum size required to achieve long-term conservation success, or to a scale where limited resources can be marshaled to make tangible progress toward land conservation and restoration over the next 30 years. This approach will likely fall at an intermediate landscape scale – generally above that of individual parcels and below that of most U.S. counties. The guidance provided regarding minimum PARCA size (1500 acres) under the landscape viability criterion is only advisory, though it is based on the relatively advanced landscape planning experience of Massachusetts and Maine in designating strategic conservation areas for priority herpetofauna. Many of the designated focus areas for reptiles and amphibians in these States are much larger, up to 35,000 acres.

Guidelines for Drawing PARCA Boundaries:

The PARCA criteria listed above should be sufficient to identify in general terms the most important sites for amphibian and reptile conservation in each state. However, in many cases the PARCA task teams will need to use professional judgment when drawing the exact boundaries of potentially qualifying sites. Here we provide a set of considerations for delineating PARCA site boundaries in the face of considerable ecological complexity and across states with a wide range of human impacts and conservation concerns.

1. Ideally, site boundaries will reflect the actual known or expected population extent for the species or group of species identified by one of the PARCA criteria listed above.
2. Site boundaries should therefore also be chosen to include an appropriate combination of required habitat types (e.g. both wetlands and uplands for many amphibians) to support all life history stages of target herp species. In some cases, the long-term survival of sensitive herp species may depend on the integrity of large, pristine watersheds (e.g. Hellbenders in mountain streams in the Appalachians). In such cases the PARCA boundaries should cover all or nearly all of the appropriate watershed, with the watershed stream order defined at a scale that is appropriate for the habitat requirements of the species.
3. Site boundaries should generally be drawn such that, if the entire site were to be managed, restored, and/or protected from further habitat degradation, the target herp population(s) will be judged by expert opinion to have an excellent chance of surviving for **at least another 50 years**. In the spirit of PARCA criterion #1, site boundaries for PARCA's should generally be drawn to include as much additional, potentially restorable habitat around core natural areas as needed to ensure

the viability of target populations. In other words, in cases where long-term site viability is unlikely, limited conservation resources are better directed elsewhere in the state.

4. Frequently, data on the actual geographic boundaries of target populations will be lacking, in which case site boundaries might be chosen to reflect the extent of contiguous natural habitat appropriate for the species or groups of species in question. Generally, natural landscape features (watersheds, natural vegetation communities, mountain ranges, etc.) or major anthropogenic features (highways, intensive development, etc.) should be used whenever possible to delineate PARCA boundaries.

5. Similarly, two or more patches of habitat with rare target species may be narrowly separated by gaps of unsuitable habitat or low-intensity human uses such as agriculture or forestry. PARCA site boundaries in such situations might be drawn to include both patches and potential corridors for dispersal between natural habitat patches, especially if it is deemed by expert opinion that the populations would otherwise be in jeopardy of extinction. In cases of broader separation of large blocks of habitat, one or each block may be designated as a separate PARCA, but the overall viability assessment should take into account the distance and probability of genetic exchange between the neighboring blocks.

6. Given the negative impact posed by roads and intensive development on many herp populations, site boundaries should generally be chosen to minimize their inclusion within each site. At the same time, an attempt should be made to make the site boundaries as smooth as possible - minor roads or small pockets of urbanization can be included within the boundaries of a given site if needed to maintain a cohesive shape for the PARCA. The relative amount of allowable development and other non-habitat land uses within a PARCA is expected to vary with conditions in a given state (e.g. New Jersey's standard may be less restrictive than New Mexico's).

7. Site boundaries should generally be chosen carefully to avoid (where possible) singling out the property of any one private landowner. Drawing site boundaries to be intentionally "broad-brush" will help avoid the chance that particular landowners feel targeted by the selection of their properties as PARCAs, although this may not be feasible in areas where the average size of landholdings is quite large (e.g. northern Maine). Whenever feasible it is recommended that efforts be made to notify and consult with landowners included within a PARCA.

8. In regions that contain large contiguous acreages of natural or semi-natural habitat (e.g. National Forests or BLM lands), boundaries for PARCAs can be drawn to reflect the most important regions within the overall habitat matrix. This will allow for better targeting of improved habitat management and protection efforts. In some cases it may not be possible to distinguish what qualifies as the best habitat within a large expanse of protected landscape, and therefore the entire management unit may be selected. For example, certain wide-ranging species (such as Indigo Snakes or Pine Snakes) may need considerable acreage to maintain robust populations. In all cases, the PARCA task team should strive to delineate each site at a scale that will be most beneficial for the conservation of the target species. The team should also attempt to ensure that the site boundaries are drawn primarily with respect to the biological habitat requirements of the target species, avoiding the temptation to use site boundaries defined primarily for other purposes (e.g. ownership boundaries of existing parks).

9. When the possibility exists that public designation of a PARCA site may betray the localities of rare species prized by illegal or unscrupulous collectors, one of three options may be employed. First, the PARCA task team may simply forgo including such sites on the list of PARCAs that are

distributed to the public, and instead prepare a separate listing of sensitive sites only to be shared with professional conservation agencies. For species that are both highly endangered and under serious threat from collectors, this type of confidential listing of important sites is in many cases already well-established, and the task team can simply omit these taxa from consideration for the public PARCA system. Second, under certain circumstances a given site could be safely delineated as a PARCA without specific mention of the particular collection-sensitive species that occur there, especially if there are less-sensitive herp species present that also warrant PARCA status. The third alternative (following guideline #5 above) is to draw the boundaries for the PARCA in a way that provides no practical advantage to potential collectors. For example, one could identify a 100-square mile region in the Appalachian Mountains where several key bog turtle populations are known to occur, without identifying exact locations of specific wetlands that contain the turtles. In these cases, PARCA task teams should carefully weigh the expected benefits of public recognition (such as permanent habitat protection and improved management) against a realistic appraisal of the additional collecting pressure that might result from PARCA designation. It is worth pointing out that in this age of satellite mapping services and internet-facilitated herp forums and communications, keeping the locations of rare populations "secret" from experienced and motivated collectors is increasingly challenging.

Organizational Implementation of PARCAs

Regional PARC chapters can play an important role in supervising and facilitating the state-level PARCA designation process. To this end we outline a series of steps that each regional PARC organization can follow in order to ensure development of Priority Amphibian and Reptile Conservation Area programs in every state.

Note that in a few cases, certain states may have nearly completed the PARCA designation process already as a result of previous habitat modeling exercises for priority wildlife species. In such cases, the state-level PARCA task team will have a much easier job, and should focus on refining the existing set of priority areas to be sure it reflects all of the target species, subspecies, and populations identified by the Regional planning team.

Also, we recognize that the PARCA designation process would be greatly facilitated if one or more herpetologists and/or landscape ecologists could be assigned to coordinate the identification and planning efforts for each PARC Region. Such professional staff time will require additional fundraising and substantial in-kind assistance by public agencies or private organizations. To date, it is our understanding that both the Southeast PARC and Northeast PARC regions have been awarded major grants from the USFWS Landscape Conservation Cooperative program to sponsor PARCA project analysts for this very purpose.

Role of National PARCA Task Team

The national PARCA Task Team could provide the following project oversight and support roles:

- Periodic contact with regional task teams to provide advisory support and review expertise for complex PARCA proposals
- Assistance with potential conservation planning tools and incentives for furthering regional PARCA land conservation and outreach goals
- Distribution of an annual PARCA E-Newsletter highlighting project successes, challenges, and progress nationally

- Solicitation of regional proposals for nationally-significant PARCA's
- Coordination with similar efforts in other nations (such as CARCNET's IMPARA system in Canada)

Role of Regional PARC Chapters

While the system is designed for state-level nominations and site selection, regional PARC chapters or coordinators can play an important oversight and coordinating role by considering the following responsibilities:

1. Each PARC region may designate a PARCA task team whose members will be charged with implementing the PARCA selection process across all states in the region. The regional PARCA task teams will ensure that all state PARCA plans are completed in a consistent fashion, by either a) delegating the state PARCA system planning to a smaller group of state-specific experts, and monitoring the progress of the state-level team; or b) accepting responsibility at the regional level for running the PARCA selection process for particular states with insufficient expertise or planning capacity/personnel time.
2. The Regional PARCA task teams may modify the proposed national criteria as appropriate to match the biological and geographic realities of their specific region. While it is important that the conceptual basis for each model criteria be maintained intact to insure comparable selection standards, we recognize that the numerical thresholds proposed within each criterion may not be appropriate for every region. For example, for the globally rare species criterion (#2), regions may want to be more or less inclusive than the current guidance: "clearly one of the 8 most important sites for conservation of the species in the state." Similarly, for the diversity criterion (#5), some regional PARCA teams may decide that the percentage of potential maximum species that qualifies a site as containing an "exceptionally rich diversity of reptiles and amphibians" is more or less than 75% as proposed.
3. After consideration of all of the potential state-level PARCAs in their zone, Regional PARCA task teams may convene to decide which are significant enough to justify selection as official Regional PARCAs. We anticipate a considerable reduction in the number of final sites when moving to the Regional level. While the state-level PARCA process is designed to yield Priority Amphibian and Reptile Conservation Areas from each state, the Regional PARCA designations should focus primarily on the relative importance of the different sites at this larger scale. If desired by the National PARC steering committee, an even smaller subset of Regional PARCAs can subsequently be chosen as National PARCAs by a review panel appointed for this purpose. To facilitate such higher-level PARCA classifications, it will be essential for the various state PARCA plans to report comparable data on the significance and characteristics (e.g. species lists, acreage, major habitat types, threats, etc.) of each of the sites within their borders.

Implementing PARCAs at the State Level:

1. Once rare species lists and site selection criteria have been developed, the appropriate task team (regional or state) should convene a meeting of expert herpetologists familiar with the conservation status and distributional patterns of amphibians and reptiles in the target state. Ideally, a draft list of PARCAs for the target state will be developed for review. It is therefore helpful

for participants to come prepared with as much relevant data as possible concerning target species and potential sites. The PARCA task team may elect to delegate relevant experts the responsibility to identify potential sites prior to the first statewide meeting, using a combination of official occurrence records, field notes, expert opinion, and habitat models where available. It will also be useful to bring to the discussion copies of any prior state- or ecoregion-wide conservation planning documents and associated maps of portfolio sites. This will ensure that previous large-scale prioritization efforts involving reptiles and amphibians will be taken into account during the PARCA selection process. It is likely that all of these preparations will rely heavily on GIS technology to integrate multiple sources of locality and habitat/land use conditions. For each candidate site, the following pieces of information should be collated:

- a. Name and location of the site.
- b. Approximate size of the site in acres.
- c. Justification for meeting the landscape viability criteria
- d. Major natural habitat type(s) present at the site and the USDA ecoregional section.
- e. PARCA criteria (one or more) met by the site, and supporting evidence such as species lists, dates of last observation, and documentation evidence (specimen, photo, etc.).
- f. Proportion of the site that is already under a formal management agreement (public ownership, easement, private land trusts, etc). Consultation with the GAP project's Protected Area Database (PAD-US) could be a valuable starting point for this analysis.
- g. Major site threats, and an evaluation of the overall threat to the persistence of target herps (e.g. Extreme, High, Medium, Low, None).
- h. Explicit evaluation of potential conservation benefits (e.g. are there realistic land conservation and management assets that can be brought to bear?) versus risks (e.g. increased collecting or persecution of target species) associated with PARCA designation.
- i. Any additional information relevant to the nomination of the site as a PARCA.

2. After an initial meeting, the Regional or State PARCA task teams should work to clean up the list, track down additional occurrence records or other needed information, and digitize the site boundaries map. The task team may also recommend new field surveys to generate needed information for later rounds of the designation process. The refined list will then be circulated to the committee members and participating herpetologists for final review, comment, and site selection. For PARC regions where the PARCA selection process has been delegated to state-level task teams, the Regional PARCA committee should also review the proposed list of sites to ensure accordance with their region-specific version of the PARCA criteria. **The Priority Amphibian and Reptile Conservation Areas designation is meant to imply a high degree of conservation significance, and therefore it is anticipated that not all sites nominated or initially considered will be selected as PARC-endorsed PARCA's.**

3. The committee will incorporate changes or updates as necessary from these reviews, and then publish the final listing and map of the sites in collaboration with the National PARC steering committee, providing copies to land conservation groups, state agencies, and relevant local government planning officials. A list and description of PARCAs will also be published on regional PARC and national PARC websites. The announcement of the sites should be made with as much fanfare and media attention as possible, in order to attract greater attention to the program and awareness of the need for greater habitat conservation for reptiles and amphibians. PARCA committees will need to be clear to both the media and the general public that PARCA designation does not imply any legal restrictions on private land use.

4. In cases where private landowners or public land managers are receptive to the designation of their properties as PARCA's, the state, regional, and national task teams should prepare a recognition package, including signage that may be displayed at the entrance to the properties, and plaques and certificates that may be displayed indoors. The state task teams should also consider providing all interested land owners and managers included within PARCA boundaries with copies of the appropriate PARC guide to habitat management for amphibians and reptiles, and arrange workshops to discuss best management practices for relevant target species.
5. If the various PARCA task teams so desire, sites (or parts of sites) within the overall Priority Amphibian and Reptile Conservation Areas network may be ranked by relative threat level, in order to create a separate listing of "Herp Hotspots" -- high priority PARCAs or sub-sites within PARCAs that merit urgent attention due to known imminent threats.
6. After the public release of the sites, the PARCA committees will continue to work actively to promote the list to conservation organizations, land use planners, land trusts, municipalities, foundations, and private citizens. The committees will attempt to track any significant conservation activities (e.g. land purchases or improvements in management) that take place on the sites, especially those that happen at least partly as a result of PARCA designation. Results from the program will be communicated on a regular basis to the Regional and National PARC steering committees, and to appropriate conservation partners.
7. Periodically, following initial site selection, the Regional or State PARCA committee will reconvene a meeting with relevant expert herpetologists to review the status of each site, and to consider new sites for inclusion in the program. Any sites that have been seriously degraded may be removed at this time, if deemed unrestorable by the committee and experts. The committee will continue to meet periodically to evaluate progress and challenges to the PARCA program. At any point during the review cycle, new sites may be proposed for PARCA status by outside experts and partners, and, if approved by the review committee, added to the official listing.

Helpful Websites:

Partners in Amphibian and Reptile Conservation:

www.parcplace.org

Important Bird Areas:

www.audubon.org/bird/iba/index.html

<http://www.birdlife.org/action/science/sites/index.html>

CARCNET Important Areas for Reptiles and Amphibians:

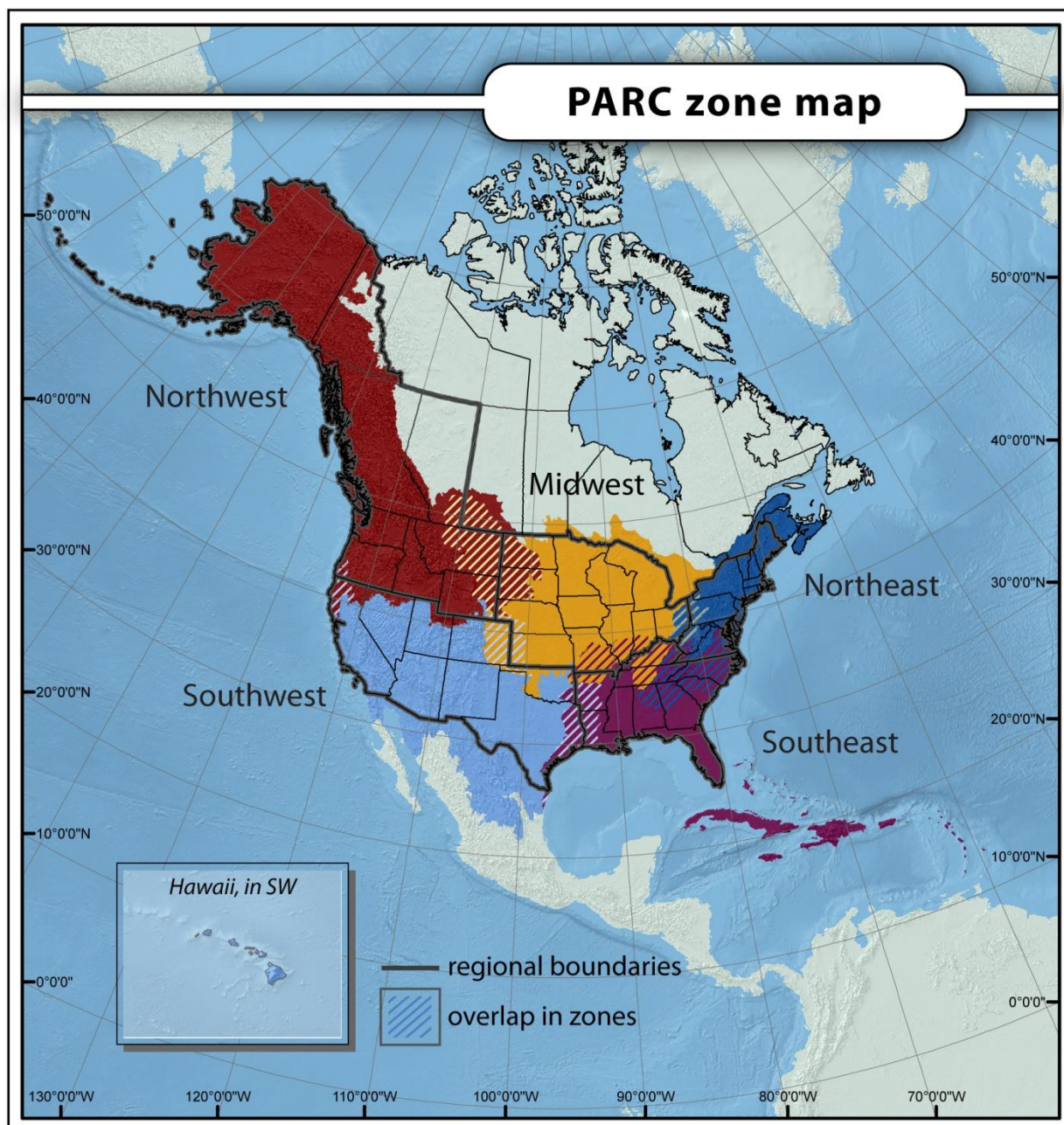
http://www.carcnet.ca/english/important_areas/intro.html

U.S. Protected Area Database

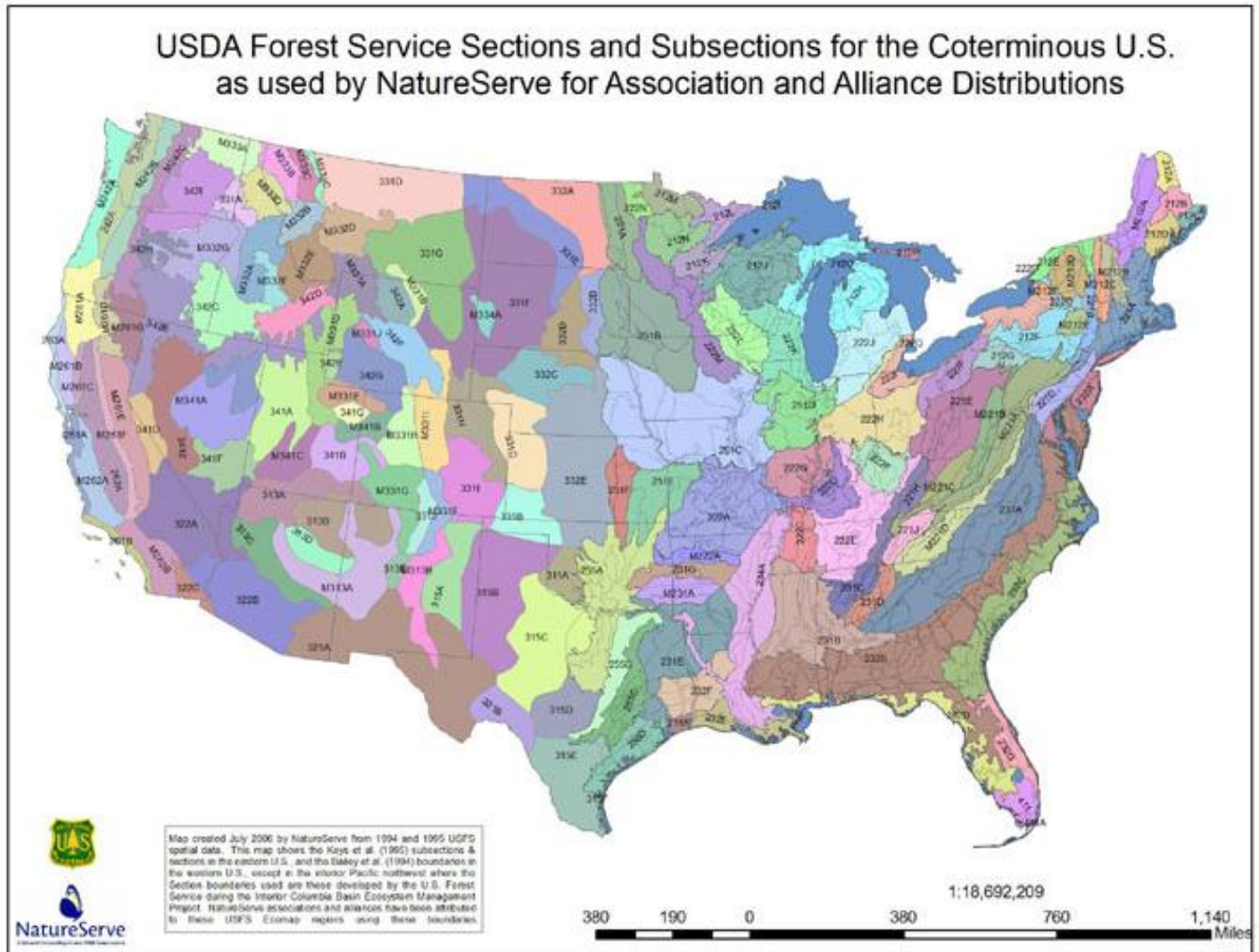
<http://gapanalysis.usgs.gov/padus/>

Map and Descriptions of USFS Bailey Ecoregions

<http://www.fs.fed.us/land/ecosysmgmt/>

Appendix 1. Map of Five Regional PARC Zones

Appendix 2. USDA Forest Service Ecoregional Sections for Use with PARCA Diversity Criterion



Appendix 3. Herpetofauna Listed Under the U.S. Endangered Species Act

Scientific Name	Common Name	Status	PARC Lead Region
Frogs and Toads			
<i>Anaxyrus baxteri</i>	Wyoming Toad	E	Northwest
<i>Anaxyrus californicus</i>	Arroyo Toad	E	Southwest
<i>Anaxyrus canorus</i>	Yosemite Toad	C	Southwest
<i>Anaxyrus [Bufo] houstonensis</i>	Houston Toad	E	Southwest
<i>Hyla wrightorum</i>	Arizona Treefrog	C	Southwest
<i>Lithobates [Rana] chiricahuensis</i>	Chiricahua Leopard Frog	T	Southwest
<i>Lithobates onca</i>	Relict Leopard Frog	C	Southwest
<i>Lithobates sevosus [Rana capito sevosus]</i>	Dusky Gopher Frog	E	Southeast
<i>Rana draytonii</i>	California Red-legged Frog	T	Southwest
<i>Rana luteiventris</i>	Columbia Spotted Frog	C	Northwest
<i>Rana muscosa</i>	Southern Mountain Yellow-legged Frog	E, C	Southwest
<i>Rana pretiosa</i>	Oregon Spotted Frog	C	Northwest
Salamanders			
<i>Ambystoma bishopi</i>	Reticulated Flatwoods Salamander	E	Southeast
<i>Ambystoma cingulatum</i>	Frosted Flatwoods Salamander	T	Southeast
<i>Ambystoma californiense</i>	California Tiger Salamander	E,T	Southwest
<i>Ambystoma macrodactylum croceum</i>	Santa Cruz Long-toed Salamander	E	Southwest
<i>Ambystoma mavortium stebbinsi</i>	Sonoran Tiger Salamander	E	Southwest
<i>Batrachoseps major aridus</i>	Desert Slender Salamander	E	Southwest
<i>Cryptobranchus alleganiensis bishopi</i>	Ozark Hellbender	E	Midwest
<i>Eurycea chisholmensis</i>	Salado Salamander	C	Southwest
<i>Eurycea nana</i>	San Marcos Salamander	T	Southwest
<i>Eurycea naufragia</i>	Georgetown Salamander	C	Southwest
<i>Eurycea sosorum</i>	Barton Springs Salamander	E	Southwest
<i>Eurycea rathbuni</i>	Texas Blind Salamander	E	Southwest
<i>Eurycea tonkawae</i>	Jollyville Plateau Salamander	C	Southwest
<i>Eurycea waterlooensis</i>	Austin Blind Salamander	C	Southwest
<i>Gyrinophilus gulolineatus</i>	Berry Cave Salamander	C	Southeast
<i>Necturus alabamensis</i>	Black Warrior River Waterdog	C	Southeast
<i>Notophthalmus perstriatus</i>	Striped Newt	C	Southeast
<i>Phaeognathus hubrichti</i>	Red Hills Salamander	T	Southeast
<i>Plethodon nettingi</i>	Cheat Mountain Salamander	T	Northeast
<i>Plethodon neomexicanus</i>	Jemez Mountains Salamander	C	Southwest
<i>Plethodon shenandoah</i>	Shenandoah Salamander	E	Northeast

Snakes

Scientific Name	Common Name	Status	PARC Lead Region
<i>Chionactis occipitalis klauberi</i>	Tucson Shovel-nosed Snake	C	Southwest
<i>Coluber lateralis euryxanthus</i>	Alameda Striped Racer	T	Southwest
<i>Drymarchon [corais] couperi</i>	Eastern Indigo Snake	T	Southeast
<i>Nerodia clarkii taeniata</i>	Atlantic Saltmarsh Watersnake	T	Southeast
<i>Nerodia erythrogaster</i>	Plain-bellied Watersnake	T	Midwest
<i>Pituophis melanoleucus lodingi</i>	Black Pinesnake	C	Southeast
<i>Pituophis ruthveni</i>	Louisiana Pinesnake	C	Southeast
<i>Sistrurus catenatus catenatus</i>	Eastern Massasauga	C	Midwest
<i>Thamnophis eques megalops</i>	Brown Gartersnake	C	Southwest
<i>Thamnophis gigas</i>	Giant Gartersnake	T	Southwest
<i>Thamnophis sirtalis tetrataenia</i>	San Francisco Gartersnake	E	Southwest
Lizards			
<i>Gambelia sila</i>	Blunt-nosed Leopard Lizard	E	Southwest
<i>Plestiodon egregius lividus</i>	Blue-tailed Mole Skink	T	Southeast
<i>Plestiodon reynoldsi</i>	Florida Sand Skink	T	Southeast
<i>Uma inornata</i>	Coachella Fringe-toed Lizard	T	Southwest
<i>Xantusia riversiana</i>	Island Night Lizard	T	Southwest
Turtles			
<i>Caretta caretta</i>	Loggerhead Sea Turtle	T	Southeast
<i>Chelonia mydas</i>	Green Sea Turtle	E,T	Southeast
<i>Dermochelys coriacea</i>	Leatherback Sea Turtle	E	Southeast
<i>Eretmochelys imbricata</i>	Hawksbill Sea Turtle	E	Southeast
<i>Glyptemys muhlenbergii</i>	Bog Turtle	T, SAT	Northeast, Southeast
<i>Gopherus agassizii</i> (also <i>G. morafkai</i>)	Desert Tortoise	T, C, SAT	Southwest
<i>Gopherus polyphemus</i>	Gopher Tortoise	T,C	Southeast
<i>Graptemys flavimaculata</i>	Yellow-blotched Map Turtle	T	Southeast
<i>Graptemys oculifera</i>	Ringed Map Turtle	T	Southeast
<i>Kinosternon sonoriense longifemorale</i>	Sonoyta Mud Turtle	C	Southwest
<i>Lepidochelys kempii</i>	Kemp's Ridley Sea Turtle	E	Southwest
<i>Lepidochelys olivacea</i>	Olive Ridley Sea Turtle	T	Southwest
<i>Pseudemys alabamensis</i>	Alabama Red-bellied Cooter	E	Southeast
<i>Pseudemys rubriventris</i>	Plymouth Red-Bellied Cooter	E	Northeast
<i>Sternotherus depressus</i>	Flattened Musk Turtle	T	Southeast
Crocodilians			
<i>Alligator mississippiensis</i>	American Alligator	SAT	Southeast
<i>Crocodylus acutus</i>	American Crocodile	T	Southeast

Key:

E	Endangered (E,T indicates some populations are listed as Endangered while others are listed as Threatened)
T	Threatened (T,C indicates some populations are listed as Threatened while others are classed as Candidate)
SAT	Listed Threatened due to similarity of appearance
SAE	Listed Endangered due to similarity of appearance
C	Candidate
PE	Proposed Endangered
PT	Proposed Threatened

Brackets in scientific or common name indicate that an older or alternate form of the name may be used in ESA documentation. Current scientific and common names are consistent with appendices 4 and 5.

Appendix 4. Herpetofauna Listed Critically Endangered (CR) & Endangered (EN) by the IUCN

Genus	Species	Common names	Red List Status	PARC Lead Region
Frogs and Toads				
<i>Anaxyrus</i>	<i>californicus</i>	Arroyo Toad	EN	Southwest
<i>Anaxyrus</i>	<i>canorus</i>	Yosemite Toad	EN	Southwest
<i>Anaxyrus</i>	<i>houstonensis</i>	Houston Toad	EN	Southwest
<i>Anaxyrus</i>	<i>nelsoni</i>	Amargosa Toad	EN	Southwest
<i>Lithobates</i>	<i>chiricahuensis</i>	Chiricahua Leopard Frog	CR	Southwest
<i>Lithobates</i>	<i>onca</i>	Relict Leopard Frog	EN	Southwest
<i>Lithobates</i>	<i>sevosus</i>	Dusky Gopher Frog	CR	Southeast
<i>Rana</i>	<i>muscosa</i>	Southern Mountain Yellow-legged Frog	EN	Southwest
<i>Rana</i>	<i>sierrae</i>	Sierra Nevada Yellow-legged Frog	EN	Southwest
Salamanders				
<i>Batrachoseps</i>	<i>campi</i>	Inyo Mountains Salamander	EN	Southwest
<i>Eurycea</i>	<i>naufregia</i>	Georgetown Salamander	EN	Southwest
<i>Eurycea</i>	<i>tonkawae</i>	Jollyville Plateau Salamander	EN	Southwest
<i>Gyrinophilus</i>	<i>gulolineatus</i>	Berry Cave Salamander	EN	Southeast
<i>Gyrinophilus</i>	<i>subterraneus</i>	West Virginia Spring Salamander	EN	Southeast
<i>Necturus</i>	<i>alabamensis</i>	Black Warrior River Waterdog	EN	Southeast
<i>Notophthalmus</i>	<i>meridionalis</i>	Black-spotted Newt	EN	Southwest
<i>Phaeognathus</i>	<i>hubrichti</i>	Red Hills Salamander	EN	Southeast
<i>Plethodon</i>	<i>stormi</i>	Siskiyou Mountains Salamander	EN	Northwest
<i>Plethodon</i>	<i>welleri</i>	Weller's Salamander	EN	Southeast
Snakes				
<i>Pituophis</i>	<i>ruthveni</i>	Louisiana Pinesnake	EN	Southeast
<i>Tantilla</i>	<i>oolitica</i>	Rim Rock Crowned Snake	EN	Southeast
Lizards				
<i>Gambelia</i>	<i>sila</i>	Blunt-nosed Leopard Lizard	EN	Southwest
<i>Uma</i>	<i>inornata</i>	Coachella Valley Fringe-toed Lizard	EN	Southwest
Turtles				
<i>Caretta</i>	<i>caretta</i>	Loggerhead Sea Turtle	EN	Southeast
<i>Chelonia</i>	<i>mydas</i>	Green Sea Turtle	EN	Southeast
<i>Lepidochelys</i>	<i>kempii</i>	Kemp's Ridley Sea Turtle	CR	Southwest
<i>Dermochelys</i>	<i>coriacea</i>	Leatherback Sea Turtle	CR	Southeast
<i>Clemmys</i>	<i>guttata</i>	Spotted Turtle	EN	Northeast
<i>Emydoidea</i>	<i>blandingii</i>	Blanding's Turtle	EN	Midwest
<i>Glyptemys</i>	<i>insculpta</i>	Wood Turtle	EN	Northeast
<i>Glyptemys</i>	<i>muhlenbergii</i>	Bog Turtle	CR	Northeast
<i>Graptemys</i>	<i>caglei</i>	Cagle's Map Turtle	EN	Southwest
<i>Graptemys</i>	<i>gibbonsi</i>	Pascagoula Map Turtle	EN	Southeast
<i>Graptemys</i>	<i>pearlensis</i>	Pearl River Map Turtle	EN	Southeast
<i>Pseudemys</i>	<i>alabamensis</i>	Alabama Red-bellied Cooter	EN	Southeast
<i>Sternotherus</i>	<i>depressus</i>	Flattened Musk Turtle	CR	Southeast

Appendix 5. Herpetofauna Listed Globally Rare by NatureServe

Scientific Name	Common Name	NatureServe Global Status	U.S. Distribution
Frogs and Toads			
<i>Anaxyrus baxteri</i>	Wyoming Toad	G1	US: WY
<i>Anaxyrus californicus</i>	Arroyo Toad	G2G3	US: CA
<i>Anaxyrus canorus</i>	Yosemite Toad	G2	US: CA
<i>Anaxyrus exsul</i>	Black Toad	G1Q	US: CA
<i>Anaxyrus houstonensis</i>	Houston Toad	G1	US: TX
<i>Anaxyrus microscaphus</i>	Arizona Toad	G3G4	US: AZ, NM, NV, UT
<i>Anaxyrus nelsoni</i>	Amargosa Toad	G2	US: NV
<i>Hyla wrightorum</i> pop. 2	Arizona Treefrog,	G4T2	US: AZ
<i>Lithobates capito</i>	Gopher Frog	G3	US: AL, FL, GA, NC, SC, TN
<i>Lithobates chiricahuensis</i>	Chiricahua Leopard Frog	G3	US: AZ, NM
<i>Lithobates fisheri</i>	Vegas Valley Leopard Frog	GX	US: NV (extirpated)
<i>Lithobates okaloosae</i>	Florida Bog Frog	G2	US: FL
<i>Lithobates onca</i>	Relict Leopard Frog	G1G2	US: AZ, NV, UT (extirpated)
<i>Lithobates sevosus</i>	Dusky Gopher Frog	G1	US: AL, LA, MS
<i>Lithobates tarahumarae</i>	Tarahumara Frog	G3	US: AZ, AZ (extirpated)
<i>Rana boylei</i>	Foothill Yellow-legged Frog	G3	US: CA, OR
<i>Rana cascadae</i>	Cascades Frog	G3G4	US: CA, OR, WA
<i>Rana draytonii</i>	California Red-legged Frog	G2G3	US: CA, NV
<i>Rana luteiventris</i> pop. 3	Columbia Spotted Frog - Great Basin population	G4T2T3Q	US: ID, NV, OR
<i>Rana muscosa</i>	Southern Mountain Yellow-legged Frog	G2	US: CA
<i>Rana pretiosa</i>	Oregon Spotted Frog	G2	US: CA, OR, WACA: BC
<i>Rana sierrae</i>	Sierra Nevada Yellow-legged Frog	G1G2	US: CA, NV
<i>Spea hammondi</i>	Western Spadefoot	G3	US: CA
Salamanders			
<i>Ambystoma bishopi</i>	Reticulated Flatwoods Salamander	G2	US: AL, FL, GA
<i>Ambystoma californiense</i>	California Tiger Salamander	G2G3	US: CA
<i>Ambystoma cingulatum</i>	Frosted Flatwoods Salamander	G2	US: FL, GA, SC
<i>Ambystoma macrodactylum croceum</i>	Santa Cruz Long-toed Salamander	G5T1	US: CA
<i>Ambystoma mavortium stebbinsi</i>	Sonoran Tiger Salamander	G5T1	US: AZ
<i>Amphiuma pholeter</i>	One-toed Amphiuma	G3	US: AL, FL, GA, MS

Scientific Name	Common Name	NatureServe Global Status	U.S. Distribution
<i>Aneides aeneus</i>	Green Salamander	G3G4	US: AL, GA, IN, KY, MD, MS, NC, OH, PA, SC, TN, VA, WV
<i>Aneides ferreus</i>	Clouded Salamander	G3	US: CA, OR
<i>Aneides hardii</i>	Sacramento Mountains Salamander	G3	US: NM
<i>Batrachoseps campi</i>	Inyo Mountains Salamander	G2	US: CA
<i>Batrachoseps diabolicus</i>	Hell Hollow Slender Salamander	G2	US: CA
<i>Batrachoseps gabrieli</i>	San Gabriel Mountains Slender Salamander	G2	US: CA
<i>Batrachoseps gregarius</i>	Gregarious Slender Salamander	G2G3	US: CA
<i>Batrachoseps incognitus</i>	San Simeon Slender Salamander	G2G3	US: CA
<i>Batrachoseps kawia</i>	Sequoia Slender Salamander	G1G2	US: CA
<i>Batrachoseps luciae</i>	Santa Lucia Mountains Slender Salamander	G2G3	US: CA
<i>Batrachoseps major aridus</i>	Desert Slender Salamander	G4T1	US: CA
<i>Batrachoseps minor</i>	Lesser Slender Salamander	G1G2	US: CA
<i>Batrachoseps relictus</i>	Relictual Slender Salamander	G2	US: CA
<i>Batrachoseps simatus</i>	Kern Canyon Slender Salamander	G2	US: CA
<i>Batrachoseps stebbinsi</i>	Tehachapi Slender Salamander	G2	US: CA
<i>Batrachoseps regius</i>	Kings River Slender Salamander	G1	US: CA
<i>Batrachoseps robustus</i>	Kern Plateau Salamander	G2	US: CA
<i>Batrachoseps wrighti</i>	Oregon Slender Salamander	G2G3	US: OR
<i>Cryptobranchus alleganiensis</i>	Hellbender	G3G4	US: AL, AR, GA, IL, IN, KY, MD, MO, MS, NC, NY, OH, PA, SC, TN, VA, WV
<i>Desmognathus abditus</i>	Cumberland Dusky Salamander	G2G3	US: TN
<i>Desmognathus aeneus</i>	Seepage Salamander	G3G4	US: AL, GA, NC, SC, TN
<i>Desmognathus folkertsi</i>	Dwarf Black-bellied Salamander	G2	US: GA, NC
<i>Desmognathus imitator</i>	Imitator Salamander	G3G4	US: NC, TN
<i>Desmognathus organi</i>	Northern Pygmy Salamander	G3	US: NC, TN, VA
<i>Desmognathus santeetlah</i>	Santeetlah Dusky Salamander	G3G4Q	US: NC, TN
<i>Desmognathus wrighti</i>	Pygmy Salamander	G3	US: NC, TN, VA
<i>Dicamptodon aterrimus</i>	Idaho Giant Salamander	G3	US: ID, MT
<i>Dicamptodon copei</i>	Cope's Giant Salamander	G3G4	US: OR, WA
<i>Dicamptodon ensatus</i>	California Giant Salamander	G3	US: CA
<i>Eurycea aquatica</i>	Brown-backed Salamander	G3	US: AL, TN

Scientific Name	Common Name	NatureServe Global Status	U.S. Distribution
<i>Eurycea chisholmensis</i>	Salado Salamander	G1	US: TX
<i>Eurycea junaluska</i>	Junaluska Salamander	G3	US: NC, TN
<i>Eurycea latitans</i>	Cascade Caverns Salamander	G3	US: TX
<i>Eurycea nana</i>	San Marcos Salamander	G1	US: TX
<i>Eurycea naufragia</i>	Georgetown Salamander	G1	US: TX
<i>Eurycea neotenes</i>	Texas Salamander	G1	US: TX
<i>Eurycea pterophila</i>	Fern Bank Salamander	G2	US: TX
<i>Eurycea rathbuni</i>	Texas Blind Salamander	G1	US: TX
<i>Eurycea robusta</i>	Blanco Blind Salamander	G1Q	US: TX
<i>Eurycea sosorum</i>	Barton Springs Salamander	G1	US: TX
<i>Eurycea tonkawae</i>	Jollyville Plateau Salamander	G1	US: TX
<i>Eurycea tridentifera</i>	Comal Blind Salamander	G1	US: TX
<i>Eurycea troglodytes</i>	Valdina Farms Salamander	G3	US: TX
<i>Eurycea tynerensis</i>	Oklahoma Salamander	G3	US: AR, OK
<i>Eurycea wallacei</i>	Georgia Blind Salamander	G2	US: FL, GA
<i>Eurycea waterlooensis</i>	Austin Blind Salamander	G1	US: TX
<i>Gyrinophilus gulolineatus</i>	Berry Cave Salamander	G1Q	US: TN
<i>Gyrinophilus pallescens</i>	Tennessee Cave Salamander	G2G3	US: AL, GA, TN
<i>Gyrinophilus subterraneus</i>	West Virginia Spring Salamander	G1	US: WV
<i>Hydromantes brunus</i>	Limestone Salamander	G1	US: CA
<i>Hydromantes shastae</i>	Shasta Salamander	G1G2	US: CA
<i>Necturus alabamensis</i>	Black Warrior River Waterdog	G2	US: AL
<i>Necturus lewisi</i>	Neuse River Waterdog	G3	US: NC
<i>Notophthalmus meridionalis</i>	Black-spotted Newt	G1	US: TX
<i>Notophthalmus perstriatus</i>	Striped Newt	G2G3	US: FL, GA
<i>Phaeognathus hubrichti</i>	Red Hills Salamander	G2	US: AL
<i>Plethodon ainsworthi</i>	Catahoula Salamander, Bay Springs Salamander	GH	US: MS
<i>Plethodon amplus</i>	Blue Ridge Gray-cheeked Salamander	G1G2	US: NC
<i>Plethodon asupak</i>	Scott Bar Salamander	G1G2	US: CA
<i>Plethodon aureolus</i>	Tellico Salamander	G2G3	US: NC, TN
<i>Plethodon caddoensis</i>	Caddo Mountain Salamander	G2	US: AR
<i>Plethodon chatahoochee</i>	Chatahoochee Slimy Salamander	G2G3	US: GA, NC
<i>Plethodon cheoah</i>	Cheoah Bald Salamander	G2	US: NC
<i>Plethodon fourchensis</i>	Fourche Mountain Salamander	G2Q	US: AR
<i>Plethodon hubrichti</i>	Peaks of Otter Salamander	G2	US: VA
<i>Plethodon kiamichi</i>	Kiamichi Slimy Salamander	G2	US: AR, OK

Scientific Name	Common Name	NatureServe Global Status	U.S. Distribution
<i>Plethodon kisatchie</i>	Louisiana Slimy Salamander	G3G4	US: AR, LA
<i>Plethodon larselli</i>	Larch Mountain Salamander	G3	US: OR, WA
<i>Plethodon meridianus</i>	South Mountain Gray-cheeked Salamander	G3	US: NC
<i>Plethodon metcalfi</i>	Southern Gray-cheeked Salamander	G3	US: GA, NC, SC
<i>Plethodon montanus</i>	Northern Gray-cheeked Salamander	G3	US: NC, TN, VA
<i>Plethodon neomexicanus</i>	Jemez Mountains Salamander	G2	US: NM
<i>Plethodon nettingi</i>	Cheat Mountain Salamander	G2G3	US: WV
<i>Plethodon ouachitae</i>	Rich Mountain Salamander	G2G3	US: AR, OK
<i>Plethodon petraeus</i>	Pigeon Mountain Salamander	G2	US: GA
<i>Plethodon punctatus</i>	Cow Knob Salamander	G3	US: VA, WV
<i>Plethodon savannah</i>	Savannah Slimy Salamander	G2G3	US: GA
<i>Plethodon sequoyah</i>	Sequoyah Slimy Salamander	G2	US: AR, OK
<i>Plethodon shenandoah</i>	Shenandoah Salamander	G1	US: VA
<i>Plethodon sherando</i>	Big Levels Salamander	G2	US: VA
<i>Plethodon shermani</i>	Red-legged Salamander	G3	US: GA, NC, TN
<i>Plethodon stormi</i>	Siskiyou Mountains Salamander	G2G3	US: CA, OR
<i>Plethodon vandykei</i>	Van Dyke's Salamander	G3	US: WA
<i>Plethodon virginia</i>	Shenandoah Mountain Salamander	G2G3	US: VA, WV
<i>Plethodon websteri</i>	Webster's Salamander	G3G4	US: AL, GA, LA, MS, SC
<i>Plethodon welleri</i>	Weller's Salamander	G3	US: NC, TN, VA
<i>Rhyacotriton cascadae</i>	Cascade Torrent Salamander	G3	US: OR, WA
<i>Rhyacotriton kezeri</i>	Columbia Torrent Salamander	G3	US: OR, WA
<i>Rhyacotriton olympicus</i>	Olympic Torrent Salamander	G3	US: WA
<i>Rhyacotriton variegatus</i>	Southern Torrent Salamander	G3G4	US: CA, OR
<i>Urspelerpes brucei</i>	Patch-nosed Salamander	G1	US: GA
Snakes			
<i>Charina umbratica</i>	Southern Rubber Boa	G2G3	US: CA
<i>Chionactis occipitalis klauberi</i>	Tucson Shovel-nosed Snake	G5T3Q	US: AZ
<i>Chionactis palarostris</i>	Sonoran Shovel-nosed Snake	G3G4	US: AZ
<i>Clonophis kirtlandii</i>	Kirtland's Snake	G2	US: IL, IN, KY, MI, MO, OH, PA
<i>Coluber lateralis euryxanthus</i>	Alameda Striped Racer	G4T2	US: CA
<i>Crotalus willardi obscurus</i>	New Mexico Ridge-nosed Rattlesnake	G5T1T2	US: AZ, NM
<i>Drymarchon couperi</i>	Eastern Indigo Snake	G3	US: AL, FL, GA, MS, SC

Scientific Name	Common Name	NatureServe Global Status	U.S. Distribution
<i>Heterodon simus</i>	Southern Hog-nosed Snake	G2	US: AL, FL, GA, MS (extirpated), NC, SC
<i>Lampropeltis extenuata</i>	Short-tailed Kingsnake	G3	US: FL
<i>Nerodia clarkii taeniata</i>	Atlantic Saltmarsh Watersnake	G4T1Q	US: FL
<i>Nerodia erythrogaster neglecta</i>	Copper-bellied Watersnake	G5T3	US: IA, IL, IN, KY, MI, OH, TN
<i>Nerodia harteri</i>	Brazos River Watersnake	G2	US: TX
<i>Nerodia paucimaculata</i>	Concho Watersnake	G2	US: TX
<i>Nerodia sipedon insularum</i>	Lake Erie Watersnake	G5T2	US: OH CA: ON
<i>Pantherophis vulpinus</i>	Eastern Foxsnake	G3	US: MI, OH CA: ON
<i>Pituophis melanoleucus lodingi</i>	Black Pinesnake	G4T2T3	US: AL, LA, MS
<i>Pituophis ruthveni</i>	Louisiana Pinesnake	G2	US: LA, TX
<i>Sistrurus catenatus</i>	Massasauga	G3G4	US: AZ, CO, IA, IL, IN, KS, MI, MN, MO, NE, NM, NY, OH, OK, PA, TX, WI CA: ON
<i>Sistrurus catenatus catenatus</i>	Eastern Massasauga	G3G4T3Q	US: IA, IL, IN, MI, MN, MO, NY, OH, PA, WI CA: ON
<i>Tantilla cucullata</i>	Trans-Pecos Black-headed Snake	G3	US: TX
<i>Tantilla oolitica</i>	Rim Rock Crowned Snake	G1G2	US: FL
<i>Thamnophis eques megalops</i>	Brown Gartersnake	G4T3	US: AZ, NM
<i>Thamnophis gigas</i>	Giant Gartersnake	G2G3	US: CA
<i>Thamnophis rufipunctatus</i>	Narrow-headed Gartersnake	G3G4	US: AZ, NM
<i>Thamnophis sirtalis tetrataenia</i>	San Francisco Gartersnake	G5T2	US: CA
Lizards			
<i>Anniella pulchra</i>	California Legless Lizard	G3G4	US: CA
<i>Aspidoscelis arizonae</i>	Arizona Striped Whiptail	G2	US: AZ
<i>Aspidoscelis inornata gypsi</i>	Little White Whiptail	G1G3	US: NM
<i>Aspidoscelis neotesselata</i>	Colorado Checkered Whiptail	G2G3	US: CO
<i>Aspidoscelis tessellata</i>	Common Checkered Whiptail	G3G4	US: NM, TX
<i>Coleonyx reticulatus</i>	Reticulate Banded Gecko	G3	US: TX
<i>Crotaphytus reticulatus</i>	Reticulate Collared Lizard	G3	US: TX
<i>Elgaria panamintina</i>	Panamint Alligator Lizard	G2G3	US: CA
<i>Gambelia sila</i>	Blunt-nosed Leopard Lizard	G1	US: CA
<i>Holbrookia lacerata</i>	Spot-tailed Earless Lizard	G3G4	US: TX
<i>Ophisaurus compressus</i>	Island Glass Lizard	G3G4	US: FL, GA, SC

Scientific Name	Common Name	NatureServe Global Status	U.S. Distribution
<i>Ophisaurus mimicus</i>	Mimic Glass Lizard	G3	US: AL, FL, GA, MS, NC, SC
<i>Phrynosoma blainvillii</i>	Blainville's Horned Lizard	G3G4	US: CA
<i>Phrynosoma goodei</i>	Goode's Horned Lizard	G3G4	US: AZ
<i>Phrynosoma mcallii</i>	Flat-tailed Horned Lizard	G3	US: AZ, CA
<i>Plestiodon egregius lividus</i>	Blue-tailed Mole Skink	G5T2	US: FL
<i>Plestiodon reynoldsi</i>	Florida Sand Skink	G2	US: FL
<i>Sceloporus arenicolus</i>	Dunes Sagebrush Lizard	G2G3	US: NM, TX
<i>Sceloporus woodi</i>	Florida Scrub Lizard	G3	US: FL
<i>Uma inornata</i>	Coachella Fringe-toed Lizard	G1Q	US: CA
<i>Uma notata</i>	Colorado Desert Fringe-toed Lizard	G3	US: AZ, CA
<i>Uma rufopunctata</i>	Yuman Desert Fringe-toed Lizard	G3	US: AZ
<i>Uma scoparia</i>	Mojave Fringe-toed Lizard	G3G4	US: AZ, CA
<i>Xantusia arizonae</i>	Arizona Night Lizard	G1G2	US: AZ
<i>Xantusia bezyi</i>	Bezy's Night Lizard	G2	US: AZ
<i>Xantusia gracilis</i>	Sandstone Night Lizard	G1	US: CA
<i>Xantusia riversiana</i>	Island Night Lizard	G1	US: CA
Turtles			
<i>Actinemys marmorata</i>	Western Pond Turtle	G3G4	US: CA, NV, OR, WA CA: BC (extirpated)
<i>Caretta caretta</i>	Loggerhead Sea Turtle	G3	US: AL, CA, CT, DE, FL, GA, LA, MA, MD, ME, MS, NC, NJ, NY, OR, RI, SC, TX, VA, VA
<i>Chelonia mydas</i>	Green Sea Turtle	G3	US: AL, CA, CT, DE, FL, GA, HI, LA, MA, MD, ME, MS, NC, NJ, NY, OR, RI, SC, TX, VA
<i>Dermochelys coriacea</i>	Leatherback Sea Turtle	G2	US: AK, CA, CT, DE, FL, GA, HI, LA, MA, MD, ME, MS, NC, NH, NJ, NY, OR, RI, TX, VA CA: BC, LB, NB, NF, NS, PE, QC
<i>Eretmochelys imbricata</i>	Hawksbill Sea Turtle	G3	US: CA, DE, FL, HI, LA, MA, MS, NC, NJ, RI, SC, TX
<i>Eretmochelys imbricata imbricata</i>	Atlantic Hawksbill Sea Turtle	G3T3Q	US: DE, FL, GA, MA, MS, NJ, RI, TX

Scientific Name	Common Name	NatureServe Global Status	U.S. Distribution
<i>Glyptemys insculpta</i>	Wood Turtle	G3	US: CT, DC, IA, MA, MD, ME, MI, MN, NH, NJ, NY, OH, PA, RI, VA, VT, WI, WV CA: NB, NS, ON, QC
<i>Glyptemys muhlenbergii</i>	Bog Turtle	G3	US: CT, DC (extirpated), DE, GA, MA, MD, NC, NJ, NY, PA, SC, TN, VA
<i>Gopherus agassizii</i>	Mohave Desert Tortoise	G4	US: AZ, CA, NV, UT
<i>Gopherus agassizii</i> pop. 1	Mohave Desert Tortoise - Mohave Population	G4T3Q	US: AZ
<i>Gopherus agassizii</i> pop. 2 (now <i>G. morafkai</i>)	Desert Tortoise - Sonoran Population	G4T4	US: AZ
<i>Gopherus polyphemus</i>	Gopher Tortoise	G3	US: AL, FL, GA, LA, MS, SC
<i>Graptemys barbouri</i>	Barbour's Map Turtle	G2	US: AL, FL, GA
<i>Graptemys caglei</i>	Cagle's Map Turtle	G3	US: TX
<i>Graptemys ernsti</i>	Escambia Map Turtle	G2	US: AL, FL
<i>Graptemys flavimaculata</i>	Yellow-blotched Map Turtle	G2	US: MS
<i>Graptemys gibbonsi</i>	Pascagoula Map Turtle	G2G3	US: MS
<i>Graptemys nigrinoda</i>	Black-knobbed Map Turtle	G3	US: AL, MS
<i>Graptemys oculifera</i>	Ringed Map Turtle	G2	US: LA, MS
<i>Graptemys pearlensis</i>	Pearl River Map Turtle	G2G3	US: LA, MS
<i>Kinosternon sonoriense longifemorale</i>	Sonoyta Mud Turtle	G4T1	US: AZ
<i>Lepidochelys kempii</i>	Kemp's Ridley Sea Turtle	G1	US: CT, DE, FL, GA, LA, MA, MD, ME, MS, NC, NC, NH, NJ, NY, RI, TX, VA
<i>Lepidochelys olivacea</i>	Olive Ridley Sea Turtle	G3	US: AK, CA, HI, OR
<i>Macrochelys temminckii</i>	Alligator Snapping Turtle	G3G4	US: AL, AR, FL, GA, IA, IL, KS, KY, LA, MO, MS, OK, TN, TX
<i>Pseudemys alabamensis</i>	Alabama Red-bellied Cooter	G1	US: AL, MS
<i>Pseudemys gorzugi</i>	Rio Grande Cooter	G3G4	US: NM, TX
<i>Pseudemys rubriventris</i> pop. 1	Northern Red-bellied Cooter	G5T2Q	US: MA
<i>Sternotherus depressus</i>	Flattened Musk Turtle	G2	US: AL
<i>Trachemys gaigeae</i>	Mexican Plateau Slider	G3	US: NM, TX
Crocodilians			
<i>Crocodylus acutus</i>	American Crocodile	G2	US: FL

Data as of July 2011

Report created February 11, 2012

Active Group: Animals, Vertebrates and with Selections within Active Group: Turtles, Crocodilians, Reptiles, or Amphibians

Location: US States: AL, AK, AZ, AR, CA, CO, CT, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, ME, MD, MA, MI, MN, MS, MO, MT, NE, NV, NH, NJ, NM, NY, NC, ND, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VT, VA, WA, WV, WI or WY Natives only

Conservation Status: Global statuses:

GX - Presumed Extinct (species)— Not located despite intensive searches and virtually no likelihood of rediscovery.

GH - Possibly Extinct (species) Eliminated (ecological communities and systems) — Known from only historical occurrences but still some hope of rediscovery. There is evidence that the species may be extinct or the ecosystem may be eliminated throughout its range, but not enough to state this with certainty. Examples of such evidence include (1) that a species has not been documented in approximately 20-40 years despite some searching or some evidence of significant habitat loss or degradation; (2) that a species or ecosystem has been searched for unsuccessfully, but not thoroughly enough to presume that it is extinct or eliminated throughout its range.

G1 - Critically Imperiled—At very high risk of extinction due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors.

G2 - Imperiled—At high risk of extinction or elimination due to very restricted range, very few populations, steep declines, or other factors.

G3 - Vulnerable—At moderate risk of extinction or elimination due to a restricted range, relatively few populations, recent and widespread declines, or other factors.

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