



2019 YEAR
IN REVIEW

FORGING PROACTIVE PARTNERSHIPS TO CONSERVE AMPHIBIANS, REPTILES, AND THE PLACES THEY LIVE.

-PARC'S MISSION

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PARC IS GRATEFUL TO THESE AGENCIES AND ORGANIZATIONS FOR THEIR GENEROUS FUNDING IN 2019:



WHO IS PARC?

We are a diverse network of partners that includes representatives of government, industry, nongovernmental organizations (NGOs), zoos, and aquariums as well as private consultants, private citizens, and academics. We are driven by our shared dedication to the conservation of amphibians and reptiles (herpetofauna).

WHAT'S IN THIS ANNUAL REPORT?

This report is a venue for celebrating PARC's 20th anniversary in addition to the numerous accomplishments during 2019 that helped advance our herpetofaunal conservation mission. In reviewing these achievements, you will find they are entwined with the strong thread of diverse partnerships that forms the foundation of PARC. To organize the varied activities highlighted in the ensuing pages, we have used the framework of our Strategic Plan, which focuses on three key areas: Network Growth, Habitat Conservation, and Species Conservation. Thanks to the diligent work of our members, we have made, and are continuing to make, significant strides within these areas.



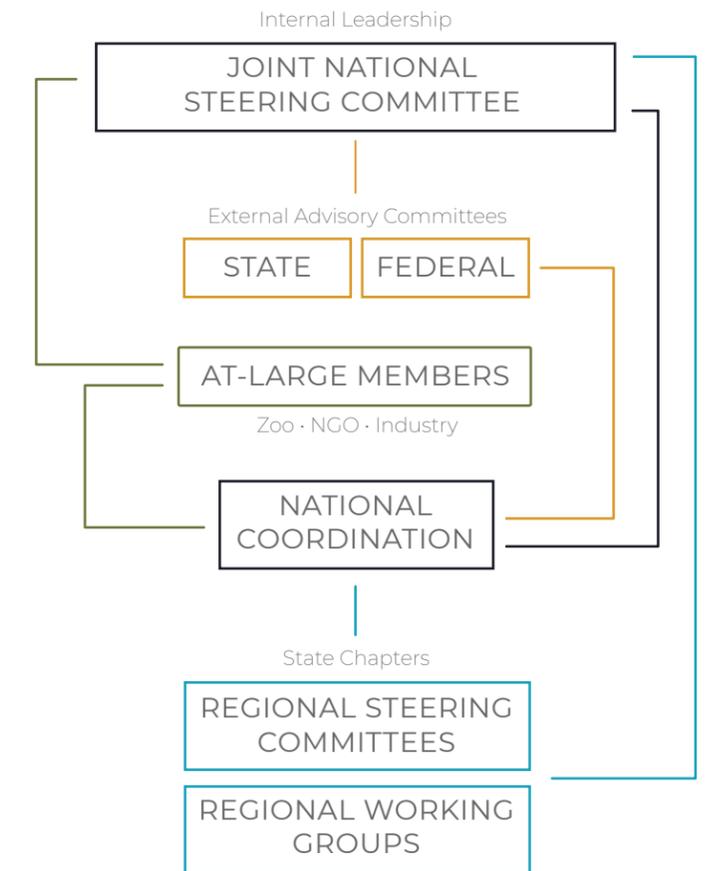
GUIDE TO ACRONYMS & ABBREVIATIONS

If you're new to PARC, our use of acronyms can be a little confusing, so here's a handy quick reference guide to some of our most frequently used abbreviations:

- AFWA** – Association of Fish and Wildlife Agencies
- ARC** – Amphibian and Reptile Conservancy
- CAP** – Conservation Action Plan
- DEITT** – Diversity, Equity, & Inclusion Task Team
- DoD** – Department of Defense
- DTT** – Disease Task Team
- FASC** – Federal Agencies Steering Committee
- JNSC** – Joint National Steering Committee
- NGO** – Non governmental organization
- PARCA** – Priority Amphibian and Reptile Conservation Area
- USFWS** – United States Fish and Wildlife Service
- USFS** – United States Forest Service
- USGS** – United States Geological Survey

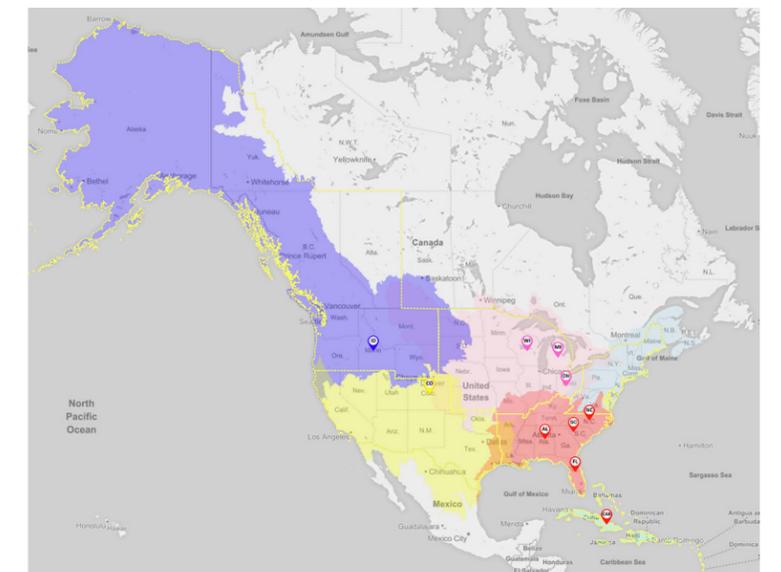
PARC Regions and State Chapters:

- MW PARC:** Midwest region
- OH PARC:** Ohio
- MI PARC:** Michigan
- WI PARC:** Wisconsin
- NE PARC:** Northeast region
- NW PARC:** Northwest region
- ID PARC:** Idaho
- SE PARC:** Southeast region
- ALA PARC:** Alabama
- CARIB PARC:** Caribbean
- FL PARC:** Florida
- NC PARC:** North Carolina
- SC PARC:** South Carolina
- SW PARC:** Southwest region
- CO PARC:** Colorado



PARC's organizational structure. Lines depict the general flow of communication.

Our membership extends from western Canada throughout the continental United States and into the Caribbean. Anyone with an interest in herpetofaunal conservation is welcome, regardless of experience or expertise.



PARC's regional and state working groups are our foundation, where on-the-ground issues are translated into actions and products. *Credit: Scott Hove*

CELEBRATING PARC'S 20TH ANNIVERSARY

In 2019, the PARC network marked the 20th year since its establishment in 1999. Over the past two decades, our network has grown, diversified, and accumulated numerous achievements in the pursuit of our mission and vision for herpetofaunal conservation. We celebrated our anniversary with a social media campaign highlighting twenty of our network's most notable accomplishments over the years (for the full list, visit: <https://parcplace.org/about/parcs-20th-anniversary/>). Many thanks to Linda Weir and the Anniversary Working Group for their hard work on this campaign.

In recognition of our anniversary, we have made the first edition of "Inventory and Monitoring: Recommended Techniques for Reptiles and Amphibians" available to download for free at: <https://parcplace.org/species/inventory-and-monitoring/>. PARC created this comprehensive guide to the inventory and monitoring of North American amphibians and reptiles in partnership with the USFS, DoD, and the University of Georgia's Savannah River Ecology Laboratory. Filled with color photographs and summaries of sampling techniques, this publication is an excellent resource for biologists, consultants, land managers, and other non-herpetologists. So far, over 200 people have downloaded the guide!

As we move into our third decade and beyond, we thank our many partners for their continued dedication to advancing the PARC mission.

Other Milestone Celebrations

Besides being the PARC network's 20th anniversary, 2019 also saw us celebrate the 20th anniversaries of NE PARC and the USGS National Amphibian Research and Monitoring Initiative (ARMI) as well as the 10th anniversaries of ARC, ALA PARC, and DoD PARC. All of these milestones were great opportunities to reflect on our achievements in herpetofaunal conservation, and we're excited to build on this momentum as we continue forging proactive partnerships to conserve amphibians, reptiles, and the places they live.





STRATEGIC AREA ONE

— NETWORK GROWTH

Our Goal: To strategically grow and enhance the PARC Network with partnerships that directly impact conservation actions.

Annual Meetings

Many of PARC's regional and state chapters held annual meetings in 2019. These events offer reunions of old friends as well as chances to meet new faces, all while discussing our shared interests of herpetology! Here, we outline a handful of highlights from these meetings.

ALA PARC held its annual meeting in November at Camp McDowell in Nauvoo, Alabama. The meeting, which celebrated the chapter's 10th anniversary, welcomed over 50 attendees and included many excellent oral and poster presentations. A silent auction raised \$712 for ALA PARC and its conservation outreach programs.

CARIB PARC held its biannual meeting in January at the University of the West Indies, Mona in Kingston, Jamaica. Participants from four countries in addition to the United States and its territories attended field trips, visited the Iguana Headstart program at the Hope Zoo, and shared research presentations. Participants in an invasive snakes workshop

discussed the establishment of Red-tailed Boas (*Boa constrictor*) in Puerto Rico and the Virgin Islands and developed a set of best practices to use when a population is detected. Another productive workshop discussed the information sharing experiences of academics, managers, and policy makers. Supported by the Fort Worth Zoo and the Iguana Specialist Group, several lucky meeting attendees were selected to see wild *Cyclura* iguanas. We look forward to the next Caribbean PARC meeting in Puerto Rico in January 2021!

CO PARC started 2019 off with a successful annual meeting in February at Boulder County Parks and Open Space in Longmont, Colorado. The well-attended meeting drew in people from across the region, presenting an excellent opportunity for network building. In his keynote address, "Make Your Herping Count," Sean Graham (Sul Ross State University) challenged CO PARC members to increase documentation in the field; a rise in CO PARC's data collection throughout the rest of the year suggested that members took the challenge to heart.



The curator of the Hope Zoo, Milton Rieback, giving CARIB PARC members a behind-the-scenes tour! Credit: Nicole Angeli



Attendees of the 2019 CO PARC meeting in Longmont, Colorado. Credit: CO PARC



A turtle cake celebrating David Mifsud's contributions to MI PARC. Credit: Katy Greenwald

underscores the importance of these meetings as networking opportunities for people embarking on careers in herpetofaunal conservation.

NE PARC celebrated its 20th anniversary in July at one of the region's best attended annual meetings, which was held at Stockton University in Galloway, New Jersey. Attendees were treated to field trips to The Wetlands Institute, including its Diamond-backed Terrapin (*Malaclemys terrapin*) facility, and to the famous New Jersey Pine Barrens to radio track Red Cornsnakes (*Pantherophis guttatus*) and Eastern Pinesnakes (*Pituophis melanoleucus*). Along with stellar oral and poster presentations on a variety of species and topics, a number of working groups, both new and seasoned, had productive breakout sessions.

NW PARC held its annual meeting in conjunction with the Society for Northwestern Vertebrate Biology and the Washington Chapter of The Wildlife Society in February in Grand Mound, Washington. The NW PARC-sponsored symposium included 14 talks on recent advances on environmental DNA approaches, pathogens, and Western Pond Turtle (*Actinemys marmorata*) biology and conservation. Another 23 contributed talks and posters covered a variety of ecology and management topics for regional herpetofauna. Discussion forums identified emerging program priorities for the Northwest as well as methods and ideas for more fully involving students and ensuring access to NW PARC workshops, meetings, projects, and publications.

OH PARC's annual meeting in March drew 150 participants to the Nationwide & Ohio



Attendees of the 2019 CARIB PARC meeting in Jamaica. Credit: CARIB PARC

MI PARC held its 10th annual meeting in March at Potter Park Zoo in Lansing, Michigan. Over 60 attendees enjoyed presentations by herpetologists from Michigan and beyond. One memorable highlight was a talk by Patrick Moldowan of Algonquin Wildlife Research Station (Ontario, Canada) on his recent discovery of a salamander-eating population of pitcher plants! MI PARC also presented the Potter Park Zoo with \$500 raised for for Mudpuppy (*Necturus maculosus*) conservation and celebrated David Mifsud's decade of contributions to MI PARC with a turtle-shaped cake.

MW PARC held its annual meeting in August at Clover Woods Camp and Retreat Center near Madrid, Iowa. There was increased attendance this year with many registrants being new to PARC. Over a third of the attendees were students, which



MI PARC presenting a check for \$500 to the Potter Park Zoo for a Mudpuppy (*Necturus maculosus*) conservation project. Credit: Katy Greenwald



Attendees of the 2019 MW PARC meeting in Iowa. Credit: MW PARC



Attendees of OH PARC's 2019 meeting in Columbus, Ohio. Credit: Greg Lipps



Attendees of the 2019 joint SE PARC and NC PARC meeting in North Carolina. Credit: Robert Hill

Farm Bureau 4-H Center in Columbus, Ohio. In a first of its kind partnership for the chapter, OH PARC sponsored an Ohio Biological Survey small grant, which awarded Courtney Dvorsky (Miami University) \$500 in support of her project "Between a corn field and a suburb: How do changes in land use impact amphibians on exurban landscapes?"

SE PARC hit another record this year with over 350 attendees at the annual meeting, which was held jointly with NC PARC at the Blue Ridge Assembly in Black Mountain, North Carolina. Highlights from the meeting included the "10 Years of Herp Conservation in NC" symposium, which recognized herpetofauna conservation activities over the past decade in North Carolina, and the "Long-term Research" symposium, which focused on long-term data sets in the region. The meeting included workshops covering topics ranging from public engagement to monitoring methods. NC PARC members led three of the meeting's workshops, which covered photography, automated monitoring, and marking techniques. SE PARC expects to see another large crowd at the 2020 meeting at Camp McDowell in Alabama.

SW PARC held its annual meeting at The Chiricahua Desert Museum & Geronimo Event Center in Rodeo, New Mexico in July. The meeting coincided with the 4th annual Charlie Painter BioBlitz, an event honoring the life and work of New Mexico's first State Herpetologist. Meeting highlights included exceptional student papers and a two-day hands-on educators' workshop on citizen science offered by the Arizona Game and Fish Department's wildlife education program, Focus Wild Arizona. The 2019 Charlie Painter Memorial Award was presented to USGS research ecologist Erin Muths for her outstanding mentorship, leadership, conservation efforts, and contributions for amphibians and reptiles in the Southwest.

Other News in Network Growth

Educating youth is a primary CO PARC objective. By including children in many of its 2019 field trips, CO PARC members gave young people valuable hands-on experience, opportunities to learn about herpetofauna in natural habitat, and models for how responsible conservationists treat wild species.



A participant in a CO PARC field trip gets to know a Black-necked Gartersnake (*Thamnophis cyrtopsis*). Credit: Tim Warfel



Attendees of SW PARC's annual meeting in New Mexico. Credit: Corey James Shaw

The Association of Zoos & Aquariums (AZA), through its Wildlife Trafficking Alliance, brought together government agency representatives, AZA staff and accredited members, universities, botanical gardens, and conservation organizations to develop a framework for the efficient identification, medical triage, and appropriate placement of animals confiscated from illegal trade. While the pilot program focuses on southern California, herpetologists from other PARC regions are participating because successful law enforcement, maintenance of evidence for ongoing criminal investigations, and animal welfare present complex, nationwide issues.

The National Diversity, Equity, & Inclusion Task Team (DEITT) had another fruitful year working towards PARC's strategic goal of Network Growth. In 2019, the team released the DEITT "Atmosphere and Demographic Survey" in all five PARC regions. The team also created an infographic summarizing the results from the 2018 and 2019 surveys, which will be available to download from the PARC website. These results are a vital starting point for understanding where PARC is succeeding and where additional efforts need to be focused to increase diversity, equity, and inclusion in the network.

The DEITT's @HerpetALlogy Twitter account reached over 2,700 followers in 2019. Over 40 herpetologists, field biologists, and/or conservationists shared their experiences and thoughts on topics ranging from non-traditional career paths, perceptions relating to race and wildlife careers, making field work accessible, and more. We hope even more of you will join the conversation next year!

In 2019, the DEITT diversity presentation was given at three regional meetings, three state meetings, and the national in-person meeting. The discussion sparked by these presentations enhanced the opportunities for collaboration on incorporating diversity, equity, and inclusion principles into members' conservation work.

In support of network growth, the JNSC developed the PARC Partner Expert Database to increase partnerships and collaborative working relationships among the herpetofauna conservation community. Users of the database can enter information about themselves (name, contact information, areas of expertise,



The HerpetALLogy Twitter campaign's banner includes pictures of the first "takeover" participants who helped promote the account and engage followers. Credit: Compiled and created by David Muñoz

species of expertise, etc.) and can also search for other members based on these data fields. These features make the database an excellent tool for finding collaborators to work on research, conservation, and management of herpetofauna. We hope you find the PARC Partner Expert Database useful for forging proactive partnerships to conserve amphibians, reptiles, and the places they live. Sign up today at: <https://parcplace.org/network/parc-partners/>

To promote PARC's Strategic Plan, the JNSC created a flyer that succinctly summarizes its main goals (Network Growth, Habitat Conservation, and Species Conservation). The flyer will be handed out at meetings, conferences and other events (within and outside the PARC network) to promote our mission. The flyer is available digitally at: http://parcplace.org/wp-content/uploads/2019/07/StrategicPlanFlyer_2019.pdf

In 2019, the JNSC developed a "Best Practices for PARC Membership Engagement and Leadership Recruitment" document with the purpose of providing guidance and recommendations to PARC regions and state chapters for engagement with network members and recruitment of future leadership. The document focuses on three topics: membership engagement; networking, outreach and branding; and leadership development. The intent of this "living document" is to help move our network towards achieving our mission within the framework and principles of our strategic plan.



The cover of PARC's Strategic Plan flyer.

PARC
PARTNERS
IN
AMPHIBIAN AND REPTILE CONSERVATION

The mission of Partners in Amphibian and Reptile Conservation (PARC) is to forge proactive partnerships to conserve amphibians, reptiles and the places they live. Our ultimate vision is of a society where amphibians and reptiles are valued for their importance in our natural and cultural heritage and are considered in all conservation and land management decisions.

PARC WELCOMES A NEW NATIONAL FEDERAL COORDINATOR



A Jemez Mountains salamander (*Plethodon neomexicanus*) meets PARC's new National Federal Coordinator, Michelle Christman, as volunteers look on. Credit: Nancy Karraker

PARC's FASC, composed of representatives from 12 federal agencies, facilitates communication and management among federal partners. By providing such a unified forum, the FASC is instrumental in implementing PARC's Strategic Plan. Further, PARC's leadership team includes a Federal Coordinator, who supports the coordination and integration of federal activities at all levels of the PARC organization, including the FASC. Recognizing the importance of coordinated federal efforts, in 2019, FASC agencies supported the USFWS, Natural Resource Program Center to host the Federal Coordinator as a permanent position, and we welcomed Michelle Christman into the role.

Michelle comes to the Federal Coordinator position from USFWS, Ecological Services and has been involved with PARC for over 10 years. She holds a Master of Science degree in Biology from Utah State University. She fostered a taxonomic specialty with amphibians and reptiles during her time with Ecological Services where she worked collaboratively to implement the Endangered Species Act. SW PARC meetings were Michelle's gateway to the PARC network. She became involved in the region's activities and, over time, took on greater responsibilities on its Steering Committee and subsequently served as Co-Chair for PARC's JNSC. Michelle brings a breadth of experience to her new role, including an in-depth understanding of regulatory processes, policies, and laws as well as a passion for working with others to conserve and recover amphibians and reptiles and their habitats. Michelle is excited to serve as PARC's Federal Coordinator, and we are just as excited to have her! She can be reached through parc_coordinators@parcplace.org

“ IT IS EXTREMELY GRATIFYING TO WORK WITHIN AN INCLUSIVE NETWORK WHERE PEOPLE HAVE A SHARED VALUE OF REPRESENTING AN OFTEN OVERLOOKED GROUP OF ANIMALS. ”



Sandy Durso, recipient of the 2019 Alison Haskell Award for Excellence in Herpetofauna Conservation, helping her son Andrew become a salamander as he dons one of her costumes. Credit: Kevin Durso



Priya Nanjappa, recipient of the 2019 Visionary Leader Award. Credit: Maya Hogan

NE PARC awarded its annual Herpetofaunal Conservation award to Scott Smith of the Maryland Department of Natural Resources. Scott is a founding member of NE PARC and has been assisting the organization in various capacities since 1999. His unparalleled work in herpetological research and education in Maryland for the last 30 years has significantly impacted herpetofaunal conservation in the state, especially for rare, threatened, and endangered species like the Bog Turtle (*Glyptemys muhlenbergii*), Northern Map Turtle (*Graptemys geographica*), Diamond-backed Terrapin (*Malaclemys terrapin*), Timber Rattlesnake (*Crotalus horridus*), and many others. Scott's role as a mentor, public resource, and conservation leader, coupled with his ability to form long-lasting partnerships, has helped shape the future of herpetological conservation for both Maryland and NE PARC.

NW PARC honored achievements of regional herpetologists with annual awards. Marc Hayes (Washington Department of Fish and Wildlife) received the 2019 Luminary Award for extraordinary leadership, vision, and commitment to amphibian and reptile conservation in the Northwest. Jamie Bettaso (Six Rivers National Forest, California) and Charlie Justus (Idaho Fish and Game) were co-recipients of the Unsung Hero Award, which recognizes tireless efforts for herpetofauna conservation. Lori Salzer (Washington Department of Fish and Wildlife) and Laura Sprague (USFWS, Idaho) were recognized for their artistic Creative Contributions to our silent auction.

2019 National PARC Award Recipients: Sandy Durso received the 2019 Alison Haskell Award for Excellence in Herpetofaunal Conservation, which recognizes individuals who exemplify extraordinary commitment to herpetofaunal conservation. In Sandy's case, this commitment is shown through her detailed creation of amphibian and reptile costumes that excite and engage tens of thousands of people, adults and children alike, at museums and education centers around the country. In collaboration with partner organizations, such as the Palo Alto Junior Museum and Zoo, Shaver's Creek Environmental Center, and the North Carolina Museum of Natural Sciences, over \$25,000 has been awarded to support the construction of these costumes. Sandy's carefully researched

creations help advance people's knowledge, empathy, and appreciation of herpetofauna and other wildlife.

Priya Nanjappa received the 2019 Visionary Leader Award, which recognizes individuals who exemplify extraordinary leadership, vision, and commitment in a manner that has carried PARC to new heights and significantly forwarded our mission. Priya has been a driving force and foundation for our network since its inception. She served as the State Agencies National Coordinator and worked tirelessly advocating, building, guiding, and leading PARC as it has grown into the organization it is today. Priya initiated key processes and campaigns to raise PARC's visibility and keep the network afloat through times of instability, transition, and growth, all

the while building partnerships and networks. She also made significant contributions to every PARC product produced over the last 13 years, including the Habitat Management Guidelines series, the PARC Strategic Plan, and the PARCA criteria. In addition, she co-organized and led event planning and logistics for many meetings and symposia as well as led the development, submission, and oversight of numerous grants supporting conservation and management projects. Priya's strategic vision, and her drive to engage with others to achieve it, epitomizes visionary leadership. Since leaving PARC in 2018, Priya took on a new role as Director of Operations for Conservation Science Partners where she continues to serve as a champion of conservation and to promote inclusion, equity, and diversity.





STRATEGIC AREA TWO

— HABITAT CONSERVATION

Our Goal: To identify, restore, and create important amphibian and reptile habitats and connectivity.

With habitat loss and fragmentation among the major threats to herpetofauna, PARC developed the PARCA project to increase public awareness and encourage landowners and conservation partners to take voluntary actions for the benefit of amphibians and reptiles. The process for identifying PARCAs is based on scientific criteria (e.g., species rarity, landscape integrity) and expert review. More details can be found at <http://parcplace.org/habitat/parcas/>.

In efforts led by national PARC, and with generous funding by USFS, FWS, and the State of Louisiana, we identified PARCAs in eight states during 2019: California,

Louisiana, Arizona, Colorado, Oregon, Nevada, Tennessee, and Michigan. This effort brought together an incredible number of partners from federal and state agencies, academia, zoos and aquaria, private industry, and others. Over 180 state experts participated in PARCA workshops where they contributed their knowledge, expertise, and time to identify the most important areas for amphibian and reptile conservation. Participants keep pushing forward on the PARCA front by beginning or continuing efforts in PARCAs, reaching out to other potential partners, and looking for potential programs and funding opportunities for conservation work in these vital areas.



The current distribution of PARCAs across the continental United States. Credit: JJ Apodaca

STRATEGIC AREA THREE

SPECIES CONSERVATION

Our Goal: To support range-wide species conservation collaborative actions and complementary efforts.

ALA PARC hosted the Flattened Musk Turtle and Black Warrior Waterdog Working Group meeting. Federally listed as threatened and endangered, respectively, the Flattened Musk Turtle (*Sternotherus depressus*) and the Black Warrior Waterdog (*Necturus alabamensis*) both have distributions restricted to the Black Warrior River basin in west-central Alabama.

CO PARC completed the sixth year of its ongoing multi-year survey in Otero County, Colorado with a record 330 herpetofauna observations of 42 species!

A CO PARC field survey documented the first Smooth Softshell (*Apalone mutica*) in the state of Colorado. The finding of this turtle, which was reported in *Herpetological Review*, underscores the value of such surveys in advancing the understanding of species' ranges.

Port Blakely, one of PARC's partners in industry, in collaboration with the Washington Department of Fish & Wildlife and USFWS, has monitored a Dempsey Creek population

of Oregon Spotted Frog (*Rana pretiosa*) as part of a long-term demographic study. Twenty-four years of egg-mass monitoring indicate the significance of the Dempsey Creek population to the vitality of the overall Black River population. In spring 2019, Port Blakely transferred the property within the Dempsey Creek watershed to the USFWS. Moving forward, the property will be managed for conservation of the frogs as part of the Billy Frank Jr. Nisqually National Wildlife Refuge, Black River Unit.

MW PARC has CAPs in progress for a number of species, including the Blanding's Turtle (*Emydoidea blandingii*), Wood Turtle (*Glyptemys insculpta*), Yellow Mud Turtle (*Kinosternon flavescens*), Alligator Snapping Turtle (*Macrochelys temminckii*), Cricket Frog (*Acris blanchardi*), Streamside Salamander (*Ambystoma barbouri*), Mudpuppy (*Necturus maculosus*), Smooth Greensnake (*Opheodrys vernalis*), Bullsnake (*Pituophis catenifer*), and Timber Rattlesnake (*Crotalus horridus*). Discussions at the region's annual meeting resulted in numerous people stepping forward





Successful breeding of Oregon Spotted Frogs (*Rana pretiosa*) at the Dempsey Creek population in Washington. Credit: Port Blakely



Participants gearing up for the sixth year of CO PARC's ongoing reptile and amphibian survey in Otero County, Colorado. Credit: Tim Warfel

to lead the development of these CAPs, which will be a collaborative effort bringing together expertise from across the Midwest region.

In an inter-regional collaborative effort, SE PARC's Hellbender Working Group has been consulting with NE PARC's Hellbender and Mudpuppy Group to create a CAP for the Hellbender (*Cryptobranchus alleganiensis*). This CAP will be geared towards wildlife managers, land owners, conservation organizations, and the timber management industry and will be applicable throughout the whole range of the species. The working group expects to have this product ready by next year's SE PARC meeting!

NE PARC welcomed the newly-formed Collaborative to Combat the Illegal Turtle Trade (CCITT) working group to the annual NE PARC



CO PARC's Hunter Johnson holding a Smooth Softshell (*Apalone mutica*). Credit: Nick Kreutzer

The Streamside Salamander (*Ambystoma barbouri*) is one of a plethora of species for which MW PARC is developing CAPs. Credit: Bob Brodman

meeting. The CCITT kicked off their efforts by holding a workshop on blood sampling and PIT (passive integrated transponder) tagging of turtles. Moving forward, the CCITT will continue developing strategies to combat poaching and illegal turtle trade in the northeastern United States and will be working closely with NE PARC and PARC.

Members of OH PARC led a multi-state team that included researchers from the Michigan Natural Features Inventory and the University of Purdue, Ft. Wayne on a collaborative project investigating the status of Blanding's turtles (*Emydoidea blandingii*) in the Lake Erie Watershed. The project was funded by a competitive State Wildlife Grant from the USFWS. In the first year, Ohio survey teams logged 10,097 trap nights at 37 sites and caught 3,121 turtles, including 217 Blanding's turtles.

In conjunction with HerpMapper, OH PARC launched an Ohio Herp Atlas for citizen scientists to report their amphibian and





SE PARC's Hellbender Working Group making progress on creating a Hellbender (*Cryptobranchus alleganiensis*) CAP during a productive break-out session at the region's annual meeting. Credit: Kirsten Hecht



Technicians hold Blanding's turtles (*Emydoidea blandingii*) captured during surveys in Ohio. Credit: Matt Cross



MEET THE
**2019 Save The Snakes
Support Grant Recipients**



Recipients of the 2019 Save The Snakes Support Grants. Credit: Save The Snakes

reptile observations. The atlas aims to provide everyone an opportunity to contribute to our understanding of the distribution and status of Ohio's herpetofauna. To contribute to the atlas, visit atlas.ohparc.org or use the HerpMapper app for mobile devices.

Save The Snakes, one of PARC's NGO partners, uses its Save The Snakes Support Grant program to empower passionate, committed individuals with an early-stage snake conservation vision who focus on community-based conservation strategies to protect threatened snake populations and mitigate human-snake conflict. In October 2019, grants were awarded to wildlife conservationists in six countries: Argentina, Brazil, Cameroon, Ecuador, Indonesia, and Mexico. We wish these recipients success in their projects and support their efforts for snake conservation and education. Learn more about their projects at: www.savethesnakes.org/grants2019

In May 2019, SW PARC held its 6th Flat-tailed Horned Lizard (*Phrynosoma mcallii*) Biomonitor Certification Training where a total of 40 people were trained and certified. This year's training took place in and around Yuma, Arizona. Biomonitorers serve as eyes and boots on the ground in helping conserve this species across its range. Since 2011, 400 people have completed this training conducted by members of SW PARC who volunteer their time.

DoD PARC and the USFWS jointly developed CAPs for the Spotted Turtle (*Clemmys guttata*) and Wood Turtle (*Glyptemys insculpta*) in 2019. These at-risk species have been petitioned for listing under the Endangered Species Act and are confirmed present on many military sites. The management practices described in the CAPs are intended to serve as guidelines that DoD resource managers can use to help plan, prioritize, and implement conservation and management actions. The final reports can be downloaded from the DoD PARC website: <https://www.denix.osd.mil/dodparc/parc-resources/>

To provide military personnel and natural resources managers with information about venomous snakes of the continental U.S., DoD PARC developed a video covering snake identification, common myths and



Participants in SW PARC's Flat-tailed Horned Lizard (*Phrynosoma mcallii*) Biomonitor Certification Training. Credit: Brian Aucone



DoD PARC developed a Snake Safety Video to educate military personnel about venomous snakes on military lands.



Spotted Turtles (*Clemmys guttata*) have been confirmed present on 39 military installations. Credit: Chris Petersen

misconceptions, and general snake safety measures. Although produced with military installations in mind, the educational video is useful for anyone living or working in areas of the continental U.S. that are home to venomous snakes and has garnered over 1,500 views since its publication earlier this year. To watch the video, visit: <https://www.youtube.com/watch?v=iCaXqgYGoLo>

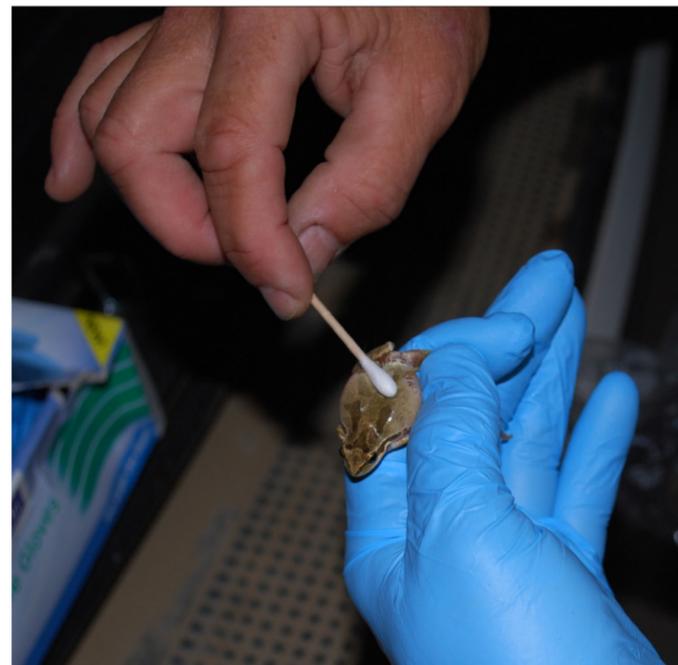


Eastern Hog-nosed Snake (*Heterodon platirhinos*) with snake fungal disease (SFD). The snake was found at a military base in Pennsylvania. Credit: Paul Block

Combating Herpetofaunal Diseases

With pathogens among the major threats to amphibians and reptiles, PARC supports a **National Disease Task Team (DTT)** to guide disease-related communication and collaboration among PARC regions, federal and state agencies, and other partners.

To promote early detection and rapid response to emerging diseases, the DTT maintains the North American Herpetological Disease Alert System (HDAS). In 2019, the HDAS received nine separate reports over eight states from the public and biologists regarding possible disease cases. In each case, DTT representatives alerted disease experts near the reporting site. By facilitating communication, the DTT strengthens PARC's network and provides an important outreach service to conserve herpetofaunal biodiversity. Further details about DTT and HDAS are available at: <http://parcplace.org/resources/parc-disease-task-team/>



Swabbing a Pine Woods Treefrog (*Hyla femoralis*) for chytrid fungus. Credit: Chris Petersen

In March 2019, nine members of the DTT contributed to the publication “Biosecurity Guidance for Field Sites at High Risk of Pathogen Transmission,” which was submitted to *Herpetological Review*. This paper expands considerations for field biosecurity measures to help prevent transmission of disease-causing pathogens. The guidance focuses on: 1) species at high-risk due to their rarity or vulnerability to disease emergence, 2) areas considered pathogen-free based on known pathogen-occurrence patterns, and 3) protected biodiversity areas where the preservation of native species is of paramount importance.

DTT Chairperson Matt Allender worked with national PARC representatives to update case definitions for Ophidiomycosis (Snake Fungal Disease [SFD]) and *Batrachochytrium salamandrivorans* (Bsal) to be consistent with current standards and terminology. Case definitions provide criteria for determining whether an individual has the disease and are crucial to monitoring potential outbreaks.

DoD PARC, in partnership with Matt Allender of the DTT, finalized a survey for the presence of SFD at 56 military sites in 2019. A total of 657 individual samples representing 58 species in 31 states were tested for the fungal pathogen. This survey was the first to detect the pathogen in Idaho, Oklahoma, and Puerto Rico. The final report can be downloaded from the DoD PARC website: <https://www.denix.osd.mil/dodparc/parc-resources/>

AFWA's Amphibian and Reptile Conservation Committee supported and participated in the Fish & Wildlife Health Forum, which provided perspectives on emerging diseases and best management practices used by the Committee.



LOOKING AHEAD TO NEXT YEAR

With all of the exciting things PARC partners accomplished in 2019, we can't wait to see what 2020 has in store! Here's a sneak peek at just a few of the things happening in the near future.

Amphibian Week: June 1-7, 2020 will mark the first annual Amphibian Week! This week will be dedicated to celebrating and promoting the conservation of amphibians and their habitats. For more information or to get involved in the festivities, contact PARC leaders at parc_coordinators@parcplace.org or ARC's JJ Apodaca at jjapodaca@amphibiansreptiles.org.

CAPs: We are excited for another year of progress on the CAP initiative as our partners continue to develop CAPs for more species nationwide. In 2020, we will begin posting completed CAPs on our website (parcplace.org) where they can be downloaded by anyone needing species-specific guidance on herpetofaunal conservation.

PARCAs: In 2020, we aim to begin releasing completed PARCAs and building partnerships for on-the-ground conservation in these important areas.

Turtle Task Team: A new National Turtle Task Team will begin work in 2020 with a mission of facilitating public-private partnerships to conserve native North American turtles. The team's objectives will include identifying management issues, developing partnerships and strategies to address conservation, and providing a centralized online location for the distribution of outreach products, resources, and contacts.



PHOTO CREDITS

Cover	Blue Ridge Two-lined Salamander (<i>Eurycea wilderae</i>) Marty Silver
Page 4, 5	Southern Toad (<i>Anaxyrus terrestris</i>) Chris Petersen
Page 6, 7	Northern Slimy Salamander (<i>Plethodon glutinosus</i>) Michael Skinner
Page 8, 9	Australian Water Python (<i>Liasis fuscus</i>) David Clode
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