ACKNOWLEDGMENTS

CREDITS:

Front Cover: Larval Frosted Flatwoods Salamander (Ambystoma cingulatum) in mesic flatwood habitat – Pierson Hill

Back Cover: Waterfall and forest habitat, Nantahala National Forest, North Carolina. – Alexander Novarro

Page 2 photo: Sierran chorus frog (Pseudacris sierra) – Jonathan Drescher-Lehman

Page 3 photo: Chaffee County, Colorado – Danny Martin

THANKS to Victor Young for graphic design and layout!

EDITORS:

PARC Communications Specialist:
Alexander Novarro, University of Maryland, College Park, MD

PARC National Coordinators:
Priya Nanjappa, Association of Fish and Wildlife Agencies (AFWA), Washington, DC
Jen Williams, National Park Service (NPS), Fort Collins, CO

SUGGESTED CITATION:

Conservation is achieved through sound, science-based management – researchers are continually expanding the set of tools and techniques available to update and revolutionize conservation actions. However, it is difficult for those who own or manage lands, or who are charged with making policy decisions, to stay on top of the latest science that might guide their efforts. Further, researchers often struggle to demonstrate the application of their work in management, policy, and conservation settings.

This is where PARC comes in, with our mission to accomplish herpetofaunal conservation through partnerships. We engage amphibian and reptile experts to translate the latest science into useful recommendations and guidance. Ultimately, this allows our partners to implement and achieve meaningful conservation action on the ground.

The partnerships that comprise PARC are diverse, and include representatives of government, industry, nongovernmental organizations (NGOs), private consultants, private citizens, and academia. Our membership now extends from western Canada throughout the continental US and into the Caribbean. PARC is unique in that anyone and everyone can get involved, regardless of their level of experience or expertise with amphibians or reptiles.

The only requirement is a passion for the conservation of herpetofauna. Find PARC in your area and get involved!
HABITAT IN FOCUS campaign

© ALEXANDER NOVARRO
With habitat loss being the greatest threat faced by reptiles and amphibians, PARC launched a new, multiyear conservation theme in 2015: Habitat in Focus. A new approach to PARC outreach, Habitat in Focus team members began collecting and sharing stories from partners via PARC’s social media sites. Using the hashtag #HabitatInFocus, topics included habitat restoration, land acquisition, and conservation, and provided examples of management actions that can be taken to maintain or improve habitat for herpetofauna. Electronic versions of PARC’s Habitat Management Guidelines (HMGs) were made available on the regional PARC websites, and a Southeast HMG training workshop, sponsored by the Amphibian and Reptile Conservancy (ARC) and US Forest Service (USFS), was held in October at the Conecuh National Forest. This theme will continue through 2016. Contact us if you have projects benefitting amphibians or reptiles that we can share!

Jen Williams, the Federal Coordinator (left), and Priya Nanjappa (right), the State Coordinator, are the only paid, national employees for PARC. In addition to typical coordination tasks, Jen and Priya coordinated, participated in, or assisted with many of the accomplishments listed throughout PARC’s 2015 Annual Report.

HABITAT IN FOCUS TASK TEAM:
Candace Hansen-Hendrikx, Amphibian Survival Alliance (ASA); Christopher Smith, Wildlife Research and Consulting Services, LLC; Jeff Holmes, ARC; Andrea Chaloux, New York Natural Heritage Program; Casey Burns, USDA Natural Resources Conservation Service (NRCS); Valorie Titus, Green Mountain College; Denim Jochimsen, University of Idaho; Ian Jessup, Colorado PARC; Jen Williams, PARC and NPS; JJ Apodaca, Warren Wilson College and WildSouth; Priya Nanjappa, AFWA; Linda Weir, US Geological Survey; and Sarah Bailey, University of Virginia.
PARTNERS IN AMPHIBIAN AND REPTILE CONSERVATION

PRIORITY AMPHIBIAN AND REPTILE CONSERVATION AREAS (PARCAs)

Modeled in part on the successful Important Bird Areas (IBAs) concept, PARCAs aim to promote voluntary conservation actions through the identification of the most significant geographic areas important for herpetofauna. PARCAs, while identified and coordinated at the national scale, will be implemented at state or regional levels. PARCAs carry no regulatory authority; however, the goal is to encourage and incentivize habitat management, restoration, or acquisition actions to benefit amphibian and reptile populations. Currently, there are efforts underway to complete PARCA identification in California, the Southeast, Northeast, and New Mexico. In 2016, PARC will continue identifying PARCAs across the country. Plans are also in place to make PARCA shapefiles available for download via the PARC website.

In 2015, PARC decided to make the establishment and implementation of PARCAs a national priority for the next three to five years.

HABITAT MANAGEMENT GUIDELINES (HMGS)

In 2015, PARC’s HMGs went digital! Free electronic copies can be found online for each of the following regions:

- Midwest
- Northeast
- Northwest
- Southeast

ROADS TASK FORCE

Restoring habitat connectivity despite the presence of roads has been an area of focus for the PARC Roads Task Force. In 2015, the publication of Roads and Ecological Infrastructure represented a culmination of the efforts of this group.

Chaparral habitat in Poway, California.

© ALEXANDER NOVARRO

Eastern Box Turtle (Terrapene carolina) in Stewart County, Tennessee infected with ranaviral disease.

© JOHN HEWLETT
NATIONAL DISEASE TASK TEAM

Several recent disease events, involving Batrachochytrium salamandrivorans (Bsal), ranavirus, and snake fungal disease, have received significant attention, as they threaten herpetofaunal biodiversity on a global scale. To address these threats, PARC formed the National Disease Task Team in January 2015 composed of biologists, veterinarians, and wildlife managers from the US, Canada, and Mexico. The team’s goal is to facilitate and guide communication, collaboration and response to outbreaks of herpetofaunal diseases. Since its inception, the team has developed a website, created a Bsal information sheet, started a regional list of professional contacts when new disease outbreaks occur, and supplied input on the North American response to Bsal.

2015 Co-Chairs
Matthew Gray, Co-chair, University of Tennessee, Institute of Agriculture
Matthew Allender, Co-chair, University of Illinois

A special swab is gently rubbed on the skin of a frog; the presence of pathogens can be detected from the swab in subsequent analysis.
PARC co-sponsored the SSAR annual meeting in Lawrence, KS from July 30 – August 2. At the opening plenary session, JJ Apodaca, PARC’s Joint National Steering Committee (JNSC) Senior Co-chair, introduced the PARC Executive Committee (ExComm) members; Jen Williams provided an overview of PARC and ARC; and Priya Nanjappa presented the Visionary Leader Award to Kurt Buhlmann. Throughout the four-day meeting, PARC products and sale items were on display in the exhibit room.

PARC sponsored three symposia at the meeting. The first, Identifying Priority Areas for Herpetofauna Conservation, reviewed progress to date on identifying PARCAs across the US and Important Amphibian and Reptile Areas in Canada, as well as plans for the future. At the second symposium, PARC’s Partners: Focusing on Habitat, representatives from federal and state agencies, zoos, counties, and non-governmental organizations highlighted the diverse habitat management work they are doing to benefit amphibians and reptiles. At the beginning of the final symposium, Communicating Herpetofaunal Conservation to the Public, Tyrone Hayes from the University of California, Berkeley gave the plenary lecture entitled, From Silent Spring to Silent Night: A Tale of Toads and Men. Christine O’Connell from the Alan Alda Center for Communicating Science spoke on Distilling Your Message: Putting Yourself into Your Science, which focused on how to clearly and effectively communicate scientific findings to the public. This half-day symposium was followed by two workshops to put that knowledge into practice.

Additionally, PARC organized a lunchtime event for students, Exploring Non-academic Careers in Herpetology, which gave students an opportunity to meet with various herpetological professionals from government, non-governmental organizations and private industry.
2015 PARC AWARD RECIPIENTS

Alison Haskell Award for Excellence in Herpetofaunal Conservation
2015 Recipient: John Jensen

John Jensen’s peers describe him as “productive and encouraging,” and “an ardent conservationist.” He has been at the center of the Eastern Indigo Snake (Drymarchon couperi) repatriation project in Alabama, expediting collection and transport of Georgia snakes for the captive breeding program. His efforts directly resulted in the successful repatriation of this federally Threatened species in Alabama. Similarly, John was involved in the successful reintroduction of Gopher Frogs (Lithobates capito) from captive-reared donor populations to sites with suitable habitat within Georgia. Another major accomplishment that John led was gaining state protection for Georgia’s freshwater turtles. John facilitated the conversion of two rattlesnake roundups to wildlife festivals that focus on education and wildlife appreciation. Snakes are no longer harmed at these events, nor do the events rely on wild-caught individuals. Finally, John was the lead editor of Amphibians and Reptiles of Georgia, which was completed with the involvement of dozens of authors and photographers, and with funding from multiple sources. John’s efforts and achievements have touched and influenced many people along the way, significantly improving the herpetofaunal conservation landscape in the process.

Alison Haskell Award for Excellence in Herpetofaunal Conservation

The Alison Haskell Award for Excellence in Herpetofaunal Conservation is presented annually by PARC in memory of Alison Haskell (1956 – 2006) to recognize an individual in North America who exemplifies extraordinary commitment to herpetofaunal conservation.
Visionary Leader Award
2015 Recipient: Kurt Buhlmann

Kurt has been a devoted member of PARC since its inception in 1999 and remains a tireless leader on a variety of issues related to PARC. In particular, he was a leader in the development of the HMGs, serving as a series co-editor, and was also a key editor of the Inventory and Monitoring Guide (I&M). Kurt put the tools into action when he helped conceive and conduct a series of regional habitat management training workshops. Few rival Kurt in terms of his genuine mentoring of younger PARC members, and he is often seen chatting at conferences, taking an honest interest in the work of PARC’s youngest members. Kurt’s peers admire his energy, enthusiasm, and vision, as well as his rare, unselfish charisma – of the latter is the reason so many schools, colleges, universities, and organizations invite Kurt as a guest speaker. In the field of herpetofaunal conservation, and in his roles for PARC, he leads by example, and is truly a Visionary Leader.

Visionary Leader Award

The Visionary Leader Award recognizes an individual in North America who exemplifies extraordinary leadership, vision, and commitment, specifically to PARC, in a manner that has carried PARC to new heights and has significantly forwarded the PARC mission.

From left to right – Priya Nanjappa, JJ Apodaca, Kurt Buhlmann, Kristin Stanford, and Jen Williams.
STUDENT INTERNS

Communications Specialist: 
Alex Novarro

Alex Novarro is a Ph.D. candidate at the University of Maryland, studying the physiological ecology and population biology of lungless salamanders. As PARC’s Communications Specialist, Alex facilitates internal communication between PARC’s Executive and Joint National Steering committees, coordinates the other interns, is lead editor of PARC’s Annual Report, and is coordinating the I&M reprinting. In 2015, Alex analyzed and presented data from the Shaping the Future of PARC survey at the JNSC in-person meeting in Omaha, Nebraska. He also presented the National Update at Northeast PARC’s annual meeting in West Greenwich, RI. Alex aspires to become a Professor of Biology and to remain involved with PARC throughout his career.

Photo Curator Intern:  
Jonathan Drescher-Lehman

Jonathan Drescher-Lehman works as PARC’s Photo Curator Intern while also working with Wood Turtles (Glyptemys insculpta) at an internship with the Smithsonian Conservation Biology Institute. As Photo Curator, he researched methods of online photo management and brought recommendations to PARC’s Executive Committee. Jonathan is now in the process of transitioning PARC’s photo library onto a more organized platform and labeling photos with keywords (e.g., common and scientific names) so that they can be searched through more easily. In tandem with his long-standing passion for herpetofauna, Jonathan enjoys combining his passions for nature photography and conservation.

Social Media Intern: 
Sarah Bailey

Sarah Bailey is a Biology major at the University of Virginia, with a specialization in Environmental and Biological Conservation. As PARC’s social media intern, Sarah wrote biweekly conservation stories for the Habitat in Focus theme (#HabitatInFocus) and posted them to PARC’s Facebook and Twitter accounts. Recently, she began assisting with the Communications Specialist’s responsibilities, which she will continue through 2016. While working with PARC, Sarah has enjoyed observing, participating in, and learning from the inner workings of a national conservation organization. She is interested in snake ecology and herpetofaunal conservation, and hopes to work with amphibians and reptiles in a zoological setting after graduation in Spring 2016.
JOINT NATIONAL STEERING COMMITTEE
JOINT NATIONAL STEERING COMMITTEE (JNSC)

PARC’s JNSC is the decision-making body of PARC, ensuring implementation of PARC’s mission. The JNSC communicates via monthly conference calls, e-mails and an annual in-person meeting among partner members to identify and address priorities and actions. The JNSC also works to provide effective communication and coordination among its partners, task teams, and PARC’s regional working groups and chapters.

In 2015, the committee was led by national PARC Co-Chairs, Linda Weir, JJ Apodaca, and Kristin Stanford, and staffed by PARC National Coordinators (pg. 5). Linda completed her two-year term in March, at which time Kristin began her two-year term. Additional voting members of the JNSC include the co-chairs of the five PARC Regional working groups, co-chairs of the Federal Agencies Steering Committee (FASC), co-chairs of the AFWA Amphibian and Reptile Subcommittee, a representative of the forest products industry, a representative of the zoo community and a representative of conservation-based NGOs. During the 2015 in-person meeting, the JNSC initiated a discussion of strategic directions for PARC, which will continue in 2016.

2015 Co-Chairs

JJ Apodaca, Warren Wilson College and WildSouth

Kristin Stanford (Incoming), Ohio Sea Grant and Ohio State University Stone Laboratory

Linda Weir (Outgoing), United States Geological Survey (USGS)

In addition to being involved with all of the projects described on the previous pages, the JNSC also partnered with ASA, Warren Wilson College, University of Tennessee Center for Wildlife Health, Tennessee State University, University of California at Berkeley, and WildSouth to hold the first Southern Appalachian Bsal meeting in Asheville, North Carolina in 2015.

The Inventory and Monitoring Guide (I&M) was one of PARC’s most popular publications, and quickly sold out. In 2015, the JNSC distributed a survey to gauge interest in a re-print of the I&M and received overwhelming interest in a second printing, which PARC aims to complete in 2016.
SHAPING THE FUTURE OF PARC SURVEY

After celebrating its 15-year anniversary in 2014, PARC distributed a survey entitled Shaping the Future of PARC to receive input on what PARC has done well over the past 15 years, what PARC can do better, and other suggested future directions. In total, there were 289 respondents, representing five regional working groups and six state chapters.

The survey results suggested that PARC has been a beneficial platform for professional development, networking, and information dissemination. The majority of participants indicated that the HMGs and Inventory and Monitoring Guide (I&M) have been the most beneficial PARC products for individuals, organizations, and herpetofaunal conservation in general. Additionally, participants highlighted regional meetings and the inclusivity and breadth of the partnership as notably important contributions to herpetofaunal conservation. Participants recommended that PARC focus on maintaining local meetings and networking opportunities, while expanding public outreach and education programs.

The majority of respondents would like to see PARC place future emphasis on (1) habitat conservation, connectivity, and restoration, (2) species recovery and conservation planning, and (3) unregulated or unsustainable commercial trade. PARC appreciates the thoughtful contributions of survey participants and looks forward to another 15 years of successful partnerships and amphibian and reptile conservation!

Word cloud composed of participant responses to open-ended answers related to the benefits of PARC over the past 15 years. The size of each word indicates its frequency. [CREDIT: ALEXANDER NOVARRO]
AT-LARGE JNSC MEMBER ACTIVITIES

FOREST PRODUCTS INDUSTRY

Forest industry members were involved with PARC, particularly at the regional levels. Jessica Homyack, Weyerhaeuser, served as the liaison between PARC and members of the forest products industry and other corporate landowners. Through this role, she delivered information about PARC products and initiatives to organizations that own or control a significant portion of US forests or purchase wood from those forests. Members from several forest products companies or associated organizations attended or provided financial support to the regional meetings. Further, forest industry supported numerous herpetofaunal research projects across the Pacific Northwest and southeastern US.

ZOOS

The Association of Zoos & Aquariums (AZA) and its accredited members partnered with PARC nationally and regionally. AZA’s Vice President of Federal Relations, Steve Olson, worked with PARC and other partners in responding to the emergence of Bsal, and communicated PARC updates to AZA’s Amphibian Taxon Advisory Group. Staff members at AZA-accredited facilities were active in PARC, including David Hedrick from the Chattanooga Zoo and member of the Southeast PARC Steering Committee; Kim Lovich from San Diego Zoo Global and outgoing co-chair of Southwest PARC; and multiple members that supported the Caribbean PARC regional working group.

NGOs

The Amphibian Conservation Action Plan was completed by the International Union for Conservation of Nature (IUCN) Species Survival Commission Amphibian Specialist Group in April 2015. Amphibian Survival Alliance (ASA) responded by immediately prioritizing actions that addressed the most imminent threats to amphibian survival. These threats include emerging infectious diseases, which have contributed to the global decline and extinction of amphibians. ASA began working with researchers, veterinarians and policy makers to monitor and control the movement of pathogens, invested in understanding which mitigation strategies are effective and began working with those involved in the trade of amphibians to reduce risks and improve practices. In particular, ASA worked with PARC through the National Disease Task Team to facilitate and guide communication on all amphibian diseases.
PARTNERS IN AMPHIBIAN AND REPTILE CONSERVATION

PARC REGIONAL WORKING GROUPS

MIDWEST PARC REGIONAL WORKING GROUP (MW PARC)  

MW PARC held its annual meeting at the University of Kansas in Lawrence, Kansas from July 29-30, 2015, immediately preceding the 58th meeting of the SSAR. The meeting featured keynote presentations by Dan Fogell (Southeast Community College, Lincoln, NE) entitled Climate Change and Nebraska’s Peripheral Herpetofauna: Predicting Biogeographical Transformation and Drew Davis (University of South Dakota, Vermillion, SD) entitled Updating Distributions of Amphibians and Reptiles from South Dakota. These presentations prompted a discussion of conservation challenges surrounding the status of herpetofauna in the Great Plains and the need for continued support of the collection and maintenance of museum specimens. Additionally, breakout sessions were held on topics including the potential for collaboration on conservation plans for Blanding’s Turtle (Emydoidea blandingii) and strategies for promotion of MW PARC activities and membership across MW PARC’s wide geographic footprint. The group also enjoyed social events and guided field trips at the Fitch Natural History Reservation and Baldwin Woods, both part of the Kansas University Field Station. George Pisani, Adjunct Herpetologist for Kansas Biological Survey and a collaborator of Dr. Fitch, led the trip and shared many wonderful stories of their fieldwork together.

2015 Co-Chairs

Erica Hoaglund, Sr. Co-chair,  
Minnesota Department of Natural Resources

Mark Jordan, Jr. Co-chair,  
Purdue University Fort Wayne

Katherine Greenwald, Outgoing Sr. Co-chair,  
Eastern Michigan University

PARC’s Regional and State working groups are the foundation of the partnership, where the on-the-ground issues are translated into actions and products.
Among NE PARC’s most active working groups was Emerging Diseases. This group continued to distribute a disinfection protocol, designed to help minimize risk of spreading disease, and Ranavirus FAQs; both products are available on NE PARC’s website. A new effort to get the word out about disinfection included an instructional video, still in final development. Finally, this group was also involved in a Regional Conservation Needs (RCN) study on the prevalence of snake fungal disease in northeastern US.

Two turtle working groups continued efforts on national and regional grant-funded (RCN and Competitive State Wildlife Grant) status assessments and conservation plans for Wood Turtles and Blanding’s Turtles. Representatives from the Blanding’s Turtle Working Group traveled to the MW PARC meeting to share findings and generate a greater range-wide interest in Blanding’s Turtle conservation, to be culminated in 2016 with a symposium in Massachusetts.

2015 Northeast PARC meeting attendees at Alton Jones Education Center, RI.

2015 Co-Chairs

Kathy Gipe, Sr. Co-chair, Pennsylvania Fish and Boat Commission

Brian Zarate, Jr. Co-chair, New Jersey Division of Fish and Wildlife

Lori Erb, Outgoing Sr. Co-chair, Mid-Atlantic Center for Herpetology & Conservation
NW PARC covers eight US states and three Canadian provinces and territories. The chapter is in its ninth year and continues to build new partnerships, develop useful products, and increase public awareness of herpetofauna conservation in the greater Northwest. NW PARC’s 8th annual symposium focused on expanding scientific knowledge and ecological literacy through citizen science. Over a dozen citizen science experts from several organizations, as well as actual volunteers, partook in the symposium. Sharman Apt Russell, award-winning author of *Diary of a Citizen Scientist: Chasing Tiger Beetles and Other New Ways of Engaging the World*, delivered a memorable keynote address that explored many aspects of citizen science involvement from classifying galaxies to counting tree frogs. An array of presentations followed that focused on citizen science research, data collection, and projects. The importance of partnerships was emphasized repeatedly, as well as the reality that much of the data could not be collected without the efforts of everyday citizens.

NW PARC acknowledges out-going co-chair Denim Jochimsen for her many hours of commitment to the chapter and welcomes Betsy Howell as NW PARC’s newest co-chair. Betsy is a wildlife biologist with the Forest Service in Olympia, WA and has been the long-serving treasurer of NW PARC. Julia Janicki, NW PARC’s new Webmaster, brings extensive web development and wildlife research experience to the chapter, and Kathryn Ronnenberg of the Pacific Northwest Research Station is taking over as newsletter editor.
**SOUTHEAST PARC REGIONAL WORKING GROUP (SE PARC)**

SE PARC’s task teams were busy in 2015! The SE PARC Education and Outreach Task Team implemented the first phase of a new product, an online series of blog posts addressing strategies for developing backyard herpetofaunal habitat. Current blog posts include creating wood/brush piles, rock piles, and a mini wetland as backyard habitat. In addition, supplementary blog posts (*Stories from a Yard Herp Family*, *What about Snakes in the Yard?*, and *Snakes, Why Did it Have to be Snakes?!*) were added to increase awareness and interest in creating backyard amphibian and reptile habitat. The project’s second phase will include more guest blog posts, backyard observation guides, backyard habitat pamphlets for each feature, and demonstrations of these habitats in public settings. Also, the Diseases, Pathogens & Parasites of Herpetofauna Task Team developed a new information sheet related to Bsal and revised an existing information sheet. SE PARC also is developing a priority amphibian and reptile species document that is currently in review with state level species experts. Over 140 students and professionals attended SE PARC’s annual meeting to participate in poster and oral presentations, task team meetings, workshops, field trips, and social events. The theme of the meeting was *Herp Conservation on the Bayou*.

---

**2015 Co-Chairs**

Andrea Drayer, Co-chair, 
University of Kentucky

Thomas Gorman, Co-chair, 
Virginia Tech

Bill Sutton, Outgoing Sr. Co-chair, 
Tennessee State University

Theresa Stratmann, Outgoing Jr. Co-chair, 
Goethe University-Frankfurt

and included two symposia – *Herpetofaunal Diversity in Gulf Coastal Plain Habitats* and *Social Media Uses in Conservation.*

---

Attendees enjoying a crawfish boil at SE PARC’s 2015 annual meeting in Covington, Louisiana.
SOUTHWEST PARC REGIONAL WORKING GROUP (SW PARC)

In addition to sharing information and hosting workshops at annual meetings, SW PARC maintains working groups that focus on specific topics, such as rattlesnake conservation, venomous reptiles, and PARCAs. The Venomous Reptile Training Working Group hosted one of two workshops at the annual meeting in Reno, NV that provided participants with background information and hands-on experience with handling venomous reptiles. The first statewide effort for developing PARCAs in SW PARC was accomplished for New Mexico; PARC hopes that the New Mexico PARCAs will be an example for the development of other statewide PARCAs in the southwest. The Southwest Region Disease Task Team will be looking for co-chairs and active members to participate in 2016. Contact SouthwestPARC@gmail.com for more information or to join a SW PARC working group.

2015 Co-Chairs

Michelle Christman, Sr. Co-Chair, US Fish and Wildlife Service (USFWS)

Clint Henke, Jr. Co-Chair, ERO Resources Corporation

Kim Lovich, Outgoing Sr. Co-Chair, San Diego Zoo Global
PARC’S STATE CHAPTERS

PARC continues to add state chapters, a subset of which are highlighted in this year’s report.

ALABAMA PARC (ALA PARC)

In October 2015, ALA PARC hosted a Southeast Habitat Management Workshop to provide hands-on training in the Conecuh National Forest and Solon Dixon Forestry Education Center, Andalusia, AL. Led by HMG co-authors (Mark Bailey, Joe Mitchell, and Kurt Buhlmann), participants were trained to manage pine forests, mesic hardwood forests, floodplain forests, sandhills, seasonal wetlands, bogs, and streams.

2015 Co-Chairs

Jimmy Stiles, Sr. Co-Chair, Auburn University
Dan Self, Jr. Co-Chair, Birmingham Zoo
Taylor Roberge, Outgoing Sr. Co-Chair, University of Alabama at Birmingham

Trainer Joe Mitchell with trainee Briana Smrekar holding a Scarlet Kingsnake (Lampropeltis elapsoides) during a Habitat Management Workshop.
COLORADO PARC (CO PARC)
In April, CO PARC surveyed Chatfield State Park in Littleton, CO, followed by a social at Jose O’Shea’s in Lakewood, CO. In July, CO PARC participated in an NPS-sponsored HerpBlitz in Pecos National Historical Park, Pecos, NM. CO PARC also surveyed Mills Canyon in the Kiowa National Grasslands, NM. Over a three-day weekend in August, CO PARC held its 5th annual survey of Otero County. Joseph Ehrenberger, coordinated volunteer support for ADAPTATION Environmental Services in partnership with Colorado Parks and Wildlife and USFS, for a long-term survey project of the Comanche National Grasslands.

2015 Co-Chairs
Ian Jessup, Sr. Co-Chair, CO PARC
Joseph Ehrenberger,
Outgoing Sr. Co-Chair,
ADAPTATION Environmental Services

2015 Annual Meeting – January 31
University of Northern Colorado, Greeley, CO
Highlights: Keynote speaker - Dr. Harry Greene, Cornell University

FLORIDA PARC (FL PARC)
In 2015, FL PARC planned an inaugural meeting to take place in 2016. The steering committee developed and distributed a meeting interest survey, which had over 150 responses from current and potential members representing a wide variety of backgrounds and affiliations. FL PARC also worked on developing outreach materials – a flash card game for identifying Florida’s venomous snakes and outlines for an upcoming short video series. The official Facebook page of FL PARC launched in February, amassing over 225 “likes” by the time of this report. The FL PARC webpage was also re-launched with a new look.

2015 Co-Chairs
Kirsten Hecht, Sr. Co-Chair,
University of Florida/Florida Museum of Natural History
Brian Smith, Jr. Co-Chair,
University of Florida
MICHIGAN PARC (MI PARC)
MI PARC was instrumental in commenting and reviewing on the publically available and free *Michigan Amphibian and Reptile Best Management Practices* manual. With their help and institutional knowledge, the manual was published and continues to be utilized as a valuable tool for the conservation of herpetofauna in Michigan.

2015 Chair
David Mifsud, Chair, Herpetological Resource and Management

2015 Annual Meeting – March 14
Potter Park Zoo, Lansing, MI

James H. Harding (middle) presented with the Outstanding Achievement in Amphibian and Reptile Conservation Award.
NORTH CAROLINA PARC (NC PARC)

2015 was a busy year! NC PARC members met with landowners from several counties, and conducted workshops on management activities that would benefit reptiles and amphibians, with natural resource specialists as the target audience. Species encountered by landowners included Mole Salamanders (Ambystoma talpoideum) and Timber Rattlesnakes (Crotalus horridus), both NC Species of Special Concern. Several workshops were conducted in the Piedmont and Coastal Plain, one of which focused on training wildlife law enforcement officers in identification and natural history of reptiles and amphibians. The NC PARC annual meeting was held jointly with the NC Herpetological Society for the second time, and over 100 participants attended.

NC PARC COORDINATOR

Jeff Hall
North Carolina Wildlife Resources Commission

2015 Annual Meeting – May 1-3
NC Zoo, Asheboro, NC

WISCONSIN PARC (WI PARC)

WI PARC’s working groups have been very productive! The Logo Contest Committee is currently pricing delivery of the final winning designs. The Outreach and Education Committee has been determining key species of concern for inclusion in standardized informational handouts for dissemination to the general public and compiling an outreach list. The Important Herp Areas (IHA) committee is working with WI Department of Natural Resources to examine differing state approaches and how IHAs might be crafted similar to the IBA initiative in Wisconsin.

2015 Co-Chairs

Gary S. Casper, Co-Chair, Great Lakes Ecological Services, LLC
Mary Linton, Co-Chair, Snapping Linton Ecology

WI PARC serves as the distribution center for mailing the MW PARC HMGs, and the chairs regularly attend MW PARC meetings and monthly conference calls.
PARC FEDERAL AGENCY
PARTNER ACTIVITIES
PARC FEDERAL AGENCY PARTNER ACTIVITIES

FEDERAL AGENCIES STEERING COMMITTEE (FASC)

The FASC was established in 2000, as a result of a Memorandum of Understanding (MoU) signed by ten federal agencies. In 2015, Animal and Plant Health Inspection Services (APHIS) began steps to become the 11th federal agency to sign the MoU.

The FASC serves as an external advisory committee to the JNSC and assists with strategic planning and program-wide priority setting for PARC; facilitates cross-agency collaboration; shares emerging issues and activities in relation to amphibian and reptile conservation; and contributes to PARC conservation actions. The FASC meets monthly via conference call, and annually in person.

Jen Williams has been the Federal Coordinator for two years. She staffs the FASC and serves as a National Coordinator to PARC along with the State Agencies Coordinator.

Dr. Rob Lovich and Casey Burns, FASC Co-chairs, worked diligently this year to secure funding for the Federal Coordinator’s salary, benefits, and travel, and for PARC conservation activities and projects. Financial contributions for these purposes vary from year to year according to each FASC agency’s budget and annual priorities. The number of agencies directly supporting the position increased from four agencies in 2015 to seven in 2016!

2015 Co-Chairs

Rob Lovich, Department of Defense (DoD)
Casey Burns (Incoming), Natural Resources Conservation Service (NRCS)
Mark Chase (Outgoing), USFWS

Left to right: Isaac Chellman (NPS), Jason Daniels (EPA), Paul Makela (Bureau of Land Management; BLM), Jennifer Anderson-Cruz (NRCS), Jen Williams (PARC & NPS), Alyssa Bangs (FWS) and Joe Robb (FWS). Not pictured, but gave the first talk at the symposium: Mark Vandever (USGS).

Various herpetofaunal conservation-related accomplishments in 2015 by FASC members include:

APHIS: Received approximately $800,000 in cooperative funding to provide direct protection of threatened and endangered herpetofauna, including work outside the US (in Cuba, Guam, and the Virgin Islands); controlled feral hogs to benefit herpetofaunal conservation; partnered with BLM and USFWS while serving on the Renewable Energy Action Team to conduct Common Raven (Corvus corax) control for protection of Mohave Desert Tortoises (Gopherus agassizii); protected Northern Diamond-backed Terrapins (Malaclemys t. terrapin) at John F. Kennedy International Airport by keeping nesting turtles off the runway; managed predators in Florida to benefit sea turtles, with the cooperation of DoD, USFWS, the state of Florida, Coastal State Parks, and Sea Turtle Conservancy; and received the Federal Laboratory Consortium’s 2015 Award for Excellence in Technology Transfer as a result of a partnership with a private engineering and design firm to address invasive Brown Treesnakes (Boiga irregularis) in remote areas of Guam.
BLM: Initiated tadpole identification training for Idaho (to take place in 2016), which included identification of trainers, a location, species to cover, and course structure; presented *Reptile and Amphibian Conservation on Bureau of Land Management Lands: Opportunities, Challenges and Examples* at the PARC’s Partners: Focusing on Habitat Symposium; collaborated with USGS and PARC to discuss activities and objectives for mining marker capping/removal and its relevance to herpetofauna; continued conservation genetics work on Chiricahua Leopard Frogs (*Lithobates chiricahuensis*) and Columbia Spotted Frogs (*Rana luteiventris*); and worked toward rebranding their aquatics program to encompass more aquatic resources.

DoD PARC: Received signed memo by the acting Assistant Secretary of Defense (Energy, Installations and Environment) formally endorsing the only federal strategic plan for herpetofaunal conservation - *The Strategic Plan for Amphibian and Reptile Conservation and Management on Department of Defense Lands*, a document written by DoD PARC members. DoD PARC members also updated herpetofaunal species lists for 80 Air Force installations and produced a summary report; developed a DoD PARC Group Charter; established guidelines for updating herpetofauna sections within Integrated Natural Resource Management Plans; hosted six webinars on the Natural Resource Program Webinar Series; added over 200 pictures to the DoD PARC’s Photo Library; updated the DoD PARC’s Fact Sheet and developed over 10 educational pamphlets and posters.

EPA: Finalized the *US Waters Rule* (together with the Army Corps of Engineers) to further clarify protection under the Clean Water Act for streams and wetlands; hosted a three-day wetland restoration workshop in Kansas City in partnership with the Center for Wetland and Stream Restoration and USFWS, which included 30 attendees from federal, state, tribal, and local agencies; served on the SSAR/PARC Planning Committee and assisted with on-site logistics; and presented *Environmental Protection Agency Opportunities for Amphibian and Reptile Habitat Restoration* at PARC’s Partners: Focusing on Habitat Symposium.

FSA: Continued to use the Conservation Reserve Program (CRP) as their primary means by which they facilitate amphibian and reptile conservation. The Agricultural Act of 2014 limits CRP to 24 million acres nationwide by 2017. General CRP enrollments account for 70% of CRP enrollment. While amphibians and reptiles can benefit from conservation covers established under General CRP, amphibian and reptile habitat is often a specific goal of various Continuous CRP initiatives. Several Continuous CRP initiatives target wetland restoration and amphibian, reptile and waterfowl habitat on up to 2,650,000 acres. The Conservation Reserve Enhancement Program (CREP) targets another 2,500,000 acres of wetlands, riparian areas, and adjoining upland for restoration. The State Acres for Wildlife Enhancement targets 1,750,000 acres of CRP for wildlife.
habitat improvement. Lastly, efforts continue to restore up to 250,000 acres of Longleaf Pine (Pinus palustris) forest by means of the CRP Longleaf Pine Initiative (about 15,000 acres are restored or enhanced annually), which provides financial assistance common to most Continuous CRP conservation practices (e.g., annual rental payments, cost-share assistance, and signing and practice incentives) to farmers and landowners in nine southern states to convert cropland to longleaf pine forests, which benefits Gopher Tortoises (Gopherus polyphemus), Eastern Indigo Snakes, Pinesnakes (Pituophis melanoleucus subspp.), Gopher Frogs, and other wildlife.

**NMFS**: Launched the *Species in the Spotlight: Survive to Thrive* campaign on Endangered Species Day, which included a spotlight on Leatherback Sea Turtles (*Dermochelys coriacea*) in the Pacific Ocean; proposed a rule, together with USFWS, to revise the listing of Green Sea Turtles (*Chelyonia mydas*) from Threatened globally (with the exception of the Florida and Mexican Pacific coast breeding populations, which are currently Endangered) to 11 Distinct Population Segments (some as Threatened and some as Endangered) under the Endangered Species Act and further extended the comment period; and provided *Loggerhead Sea Turtle Critical Habitat Designation Under the Endangered Species Act* for presentation at the PARC’s Partners: Focusing on Habitat Symposium.

**NPS**: Funded: (1) the designation of PARCAs, including an expert review workshop, in New Mexico [NM], (2) the first HerpBlitz by a federal agency (location: Pecos National Historical Park in Pecos, NM), and (3) webinars on basic life history and ecology of amphibians and reptiles and habitat management techniques to assist in their conservation on NPS lands (a series of four webinars for the Northeast, Southeast, Midwest, and Northwest are scheduled for 2016); and presented *Working on Recovery of the Endangered Mountain Yellow-legged Frog Complex in Sequoia and Kings Canyon National Parks* at the PARC’s Partners: Focusing on Habitat Symposium.

**NRCS**: Rebranded the Southwestern Willow Flycatcher Initiative as the Southwest Riparian Initiative. This new Endangered Species Act consultation will cover over 80 other federally listed species with overlapping habitat, including many herpetofaunal species such as California Red-legged Frogs (*Rana draytonii*), Chiricahua Leopard Frogs, and Desert Tortoises, and for which habitat will be restored and managed; hosted PARC’s Federal Coordinator on all regional calls to share information about PARC’s tools and services; and presented *Increasing Gopher Tortoise Habitat and Bog Turtle Habitat Through Working Lands for Wildlife by the Natural Resources Conservation Service* at the PARC’s Partners: Focusing on Habitat Symposium.
**USFS:** Partnered with ARC, USFWS, and the South Carolina Department of Natural Resources on the Needles in a Haystack project, in which a comprehensive inventory of amphibians and reptiles is being conducted on the Francis Marion National Forest in South Carolina, including targeted efforts for imperiled species; funded and partnered with ARC on the Southeast Habitat Management Guidelines Workshop on the Conecuh National Forest in Alabama, which focused on the longleaf pine ecosystem along with related or embedded habitat types; provided funding to Freshwater Illustrated to produce a mobile display and brochures on Eastern Hellbenders (*Cryptobranchus a. alleganiensis*); and partnered with ARC and the Wildlife Conservation Society to restore two ponds for Chiricahua Leopard Frogs on the Coronado National Forest in southern Arizona.

**USFWS:** Partnered with ARC and the Center for Wetland and Stream Restoration to host hands-on workshops for participants from federal, state, and local governments and other partners to: restore 17 wetlands for the federally Threatened Chiricahua Leopard Frog at Moreno Springs, New Mexico with The Nature Conservancy and Bat Conservation International; utilize its Partners for Fish and Wildlife Program to collaborate with Eastern Kentucky University (EKU) for restoration of an emergent wetland at Maywoods Environmental Education Laboratory in Richmond, during which participants conducted amphibian surveys and designed wetlands to be restored by the EKU Wetland Design and Restoration Class in 2016; complete restoration of two large ephemeral wetlands at Muscatatuck National Wildlife Refuge in Indiana (over 65 participants!) to provide habitat for Crawfish Frogs (*Lithobates areolatus*) and Plain-bellied Watersnakes (*Nerodia erythrogaster*); and work cooperatively with Mass Audubon to restore a wetland at Ashumet Holly Wildlife Sanctuary in East Falmouth, Massachusetts; contributed $15,000 for sampling of Bsal. The USFWS also presented Management of Crawfish Frogs Based on Experimental Pond Manipulation, Occupancy Modeling, and Use of Habitat at Big
Oaks National Wildlife Refuge in Southeastern Indiana at the PARC’s Partners: Focusing on Habitat Symposium.

**USGS:** Organized and hosted a workshop in Fort Collins, Colorado on structured decision making to prevent Bsal from entering the US and to respond efficiently and effectively if it does, including discussion on research needs, diagnostic plans, etc.; developed different working groups to address each component of identified strategies; formed the Bsal National Task Force from these efforts; developed a Bsal threat assessment model that was recently published; and presented a *Collaborative, Multi-disciplined Approach to Assess Amphibian Habitat in Restored Wetlands in an Agricultural Landscape* at PARC’s Partners: Focusing on Habitat Symposium.

Staff from NPS, USFS, USFWS and USGS are also serving on PARC’s National Disease Task Team in varying capacities, and staff from these same agencies, as well as DoD, are also serving on various committees of the Bsal National Task Force. For more information on these efforts, please see page 7.

(A) Skin lesions on a Fire Salamander (*Salamandra salamandra*) caused by Bsal infection; (B) Histological staining of a skin lesion, showing evidence of intracellular fungal invasion; (C) A single skin cell showing intracellular Bsal colonization via transmission electron microscopy micrograph.

Tiger Salamander (*Ambystoma tigrinum*)
PARC STATE FISH & WILDLIFE AGENCY PARTNER ACTIVITIES

AFWA AMPHIBIAN & REPTILE SUBCOMMITTEE

All states are charged with managing herpetofaunal populations and overseeing scientific, commercial, and personal uses, yet only half of the states have dedicated herpetologists on staff. The AFWA Amphibian and Reptile Subcommittee, initiated in 2008, serves as the States’ advisory committee to PARC.

The subcommittee provides input on strategic planning and priorities for PARC; facilitates multi-state collaboration; tackles issues that affect state management authority over herpetofauna; and shares emerging issues and activities related to amphibian and reptile conservation with other agencies and partners.

In 2015, the subcommittee’s primary focus was on the emerging salamander fungal pathogen, Bsal. In particular, subcommittee leadership met with USFWS Director, Dan Ashe, to discuss next steps for action to prevent the introduction of this deadly disease. The subcommittee also led the development of a Rapid Response Plan template. The subcommittee met in March and December 2015, and addressed Bsal as well as other topics, including sustainable use and proactive conservation of herpetofauna.

Chair and Vice-chair

Patricia Riexinger, Director of the New York Department of Environmental Conservation

Eric Gardner, Wildlife Deputy Assistant Director for the Washington Department of Fish and Wildlife

Priya Nanjappa, the AFWA Program Manager for Amphibians & Reptiles, and Invasive Species, provides executive staff support to this subcommittee while also serving as PARC National Coordinator on behalf of State Agencies. She has been in the position since 2005.
AMPHIBIAN AND REPTILE CONSERVANCY (ARC) ACTIVITIES

ARC, formerly known as Friends of PARC, is a non-profit, 501(c)(3) charitable organization established in 2009 to support herpetofaunal conservation and the mission of PARC. In 2015, ARC projects had a broad impact on the conservation of amphibians, reptiles and their habitats. Notable projects include:

- Restoring wetlands for amphibian breeding ponds
- Training habitat managers and landowners for conservation
- Educating tens of thousands via social media
- Providing fiscal sponsorship services for PARC
- NEW IN 2015: rare species surveys

2015 OFFICERS

Jeff Holmes, Executive Director
Ed Christoffers, Chief Financial Officer

Throughout 2015, ARC provided fiscal sponsorship services for several partners, including ensuring all accounts in its administrative care maintained positive balances for the year. Late in 2015, ARC was holding just over $148,700. [CREDIT: JEFF HOLMES]

ARC provided financial and administrative support (“PARC support”) to a wide range of important projects and partners. *PARC support total is a projected estimate. Financial support provided in 2014 totaled $207,010. [CREDIT: JEFF HOLMES]