



## 2013 ANNUAL REPORT







## ACKNOWLEDGMENTS

### CREDITS:

**Front Cover photos:** *Large background* - Prairie Rattlesnake (*Crotalus viridis*, Danny Martin); *Top Left to Right:* Arizona Mountain Kingsnake (*Lampropeltis pyromelana*, J.D. Willson); Eastern Kingsnake (*Lampropeltis getula*, J.D. Willson); Smooth Greensnake (*Opheodrys vernalis*, Jonathan Mays)

**Back Cover:** *Large background*, Common Gartersnake (*Thamnophis elegans*, Danny Martin); *Left side, top to bottom:* Rainbow Snake (*Farancia erytrogramma*, Mike Martin); Cottonmouth (*Agkistrodon piscivorus*, Mark Danaher); Gophersnake (*Pituophis catenifer*, Mike Martin)

**Page 2 photos:** *Top Left to Right:* Milksnake (*Lampropeltis triangulum*, Jonathan Mays); Dusky Pygmy Rattlesnake (*Sistrurus miliarius barbouri*, Mark Danaher); Scarlet Kingsnake (*Lampropeltis elapsoides*, J.D. Willson),

**Page 3 photos:** *Top Left to Right:* Eastern Massasauga (*Sistrurus catenatus catenatus*, Charlie Eichelberger); Arizona Mountain Kingsnake (*Lampropeltis pyromelana*, Polly Conrad); Eastern Ribbonsnake (*Thamnophis sauritus*, Seth Berry)

**Page 2-3 background:** Rio Grande floodplain, NM (Esther Nelson)

**THANKS** to Jen Williams (PARC Federal Agencies' Coordinator, National Park Service) for assistance in reviewing the draft, Andrew Dietrich and Paula Henry for their comments as part of the US Geological Survey (USGS) peer-review process, and to Victor Young for graphic design and layout!

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## INTRODUCTION

### PARC MISSION

To conserve amphibians, reptiles and their habitats as integral parts of our ecosystem and culture through proactive and coordinated public/private partnerships.



**P**artners in Amphibian and Reptile Conservation (PARC) was established in 1999 to address the widespread declines, extinctions, and range reductions of amphibians and reptiles, with a focus on conservation of taxa and habitats in North America. Amphibians and reptiles are affected by a broad range of human activities, both as incidental effects of habitat alteration and direct effects from overexploitation; these animals are also challenged by the perception that amphibians and reptiles are either dangerous or of little environmental or economic value. However, PARC members understand these taxa are important parts of our natural and cultural heritage and they serve important roles in ecosystems throughout the world. With many amphibians and reptiles classified as threatened with extinction, conservation of these animals has never been more important.

#### PARC is:

- An inclusive partnership created to help connect and complement local, regional, national, and international herpetofaunal and habitat conservation efforts.
- A network of like-minded citizens, professionals, and organizations dedicated to the conservation of herpetofauna and their habitats and representing science and education, species conservation and land management, industry and commerce, state and federal government, conservation societies, pet and field hobbyists, and the general public.
- An entity that coordinates and provides recommendations and guidelines based on sound science, and consensus among scientists.
- The only partnership to address the conservation of all amphibians and reptiles, as well as their habitats.

#### PARC is not:

- A funding entity.
- A government agency.
- A policy-making or regulatory entity.
- An advocacy entity.



## 2013 PARC HONORS

### PARC Selected to Participate in the Quarters for Conservation Program at Greenville Zoo:



For those not familiar with this program, participating zoos give each visitor a token as they enter the zoo. Inside, there is a kiosk displaying brief descriptions of 3-5 conservation programs where each zoo visitor can indicate support for a particular project by dropping his or her token into the project's corresponding well. This allows \$.25 of every zoo

entrance fee, plus a small portion of annual membership fees, to be put toward the Quarters for Conservation program. A portion of the funds raised in this effort goes back to the zoo's conservation programs, and the remainder is provided back to the featured projects. The funds that PARC receives from this program will go towards amphibian and reptile conservation efforts. PARC is honored to be among these selected projects at the Greenville Zoo (South Carolina). Special thanks to Barbara Foster and the Greenville Zoo's Conservation and Research Committee for nominating and selecting PARC!

### PARC Received the 2013 TWS Group Achievement Award:

PARC received The Wildlife Society's Group Achievement Award, which recognizes an organization's outstanding wildlife achievement. PARC joins other distinguished conservation organizations, including the Wildlife Management Institute, The Nature Conservancy, the [International] Association of Fish and Wildlife Agencies, the National Wild Turkey Federation, and many other productive and respected wildlife conservation groups, large and small, as a recipient of this award. PARC was officially recognized at the 2013 Annual Meeting of The Wildlife Society. We thank active PARC member, Jessica Homyack, for spearheading the nomination effort, as well as Jeff Holmes, Dede Olson, Val Titus, Bill Sutton

and Tom Gorman for providing letters of support for the nomination. PARC could not win such an award without the tireless efforts of our members and product/project development volunteers throughout the country. These PARC heroes are active in our Regional Working Groups and growing number of State Chapters; they are the reason that PARC is now a group with so many

notable achievements. Thanks to all of you! We are humbled by, and so grateful for, this recognition from such a preeminent wildlife stewardship organization as The Wildlife Society.



Valorie Titus (left) and Jessica Homyack (right) accepting the award from TWS President, Wini Kessler (center).



## 2013 PARC ALISON HASKELL AWARD FOR EXCELLENCE IN HERPETOFAUNAL CONSERVATION

**THIS AWARD** is presented annually by PARC, in memory of Alison Haskell (1956 – 2006), PARC's first Federal Agencies' Coordinator, to recognize an individual in North America whose work exemplifies extraordinary commitment to herpetofaunal conservation, as did Alison. The 2013 winner of this award was Charlie Painter. Through this award, PARC recognizes Charlie's outstanding passion for, and dedication to, conservation of amphibians and reptiles through quality science, education and partnerships.

He has formed numerous partnerships to implement conservation actions with local, state and federal agencies, universities, tribes and private landowners, among others. Charlie has developed conservation teams, plans or actions for the Jemez Mountain Salamander, Sacramento Mountain Salamander, Chiricahua Leopard Frog, Dunes Sagebrush Lizard, New Mexico Ridge-nosed Rattlesnake, Boreal Toad, Western River Cooter, Big Bend Slider and all of New Mexico's other fascinating herpetofauna. He developed and fostered a strong relationship with the Museum of Southwestern Biology at University of New Mexico, through which one of the strongest herpetofauna collections in the nation has been built and maintained. He displayed tenacious effort by developing commercial trade regulations for New Mexico's amphibians and reptiles and studying rattlesnake roundups in the region. Also, Charlie has participated in Southwest PARC and assisted in numerous regional and national PARC efforts to compile information on our nation's amphibians and reptiles.



Charlie Painter, winner of the 2013 PARC Alison Haskell Award for Excellence in Herpetofaunal Conservation.

In addition, his academic achievements have significantly advanced herpetofauna conservation. He served on thesis and dissertation committees that shaped several scholars in herpetology who have gone on to make valuable contributions to the scientific community. Charlie has authored over 80 peer reviewed articles and the 1996 book, *Amphibians and Reptiles of New Mexico*; served as editor for *Herpetological Review*; and became the first state herpetologist for the New Mexico Department of Game and Fish, having served in this capacity for over 25 years. Along with these accomplishments, he still finds time to teach school children about the importance and fascinating nature of amphibians and reptiles.

Charlie's achievements are truly noteworthy and deserve great recognition from the herpetofauna conservation community. PARC thanks him for his tireless and continued passion, work and dedication to amphibians and reptiles! PARC congratulates our "unsung hero" Charlie Painter, the 2013 Alison Haskell Award winner!



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## 2013 - YEAR OF THE SNAKE

**IN 2013** PARC designated and celebrated the Year of the Snake, an awareness campaign to highlight snake conservation, management, research and outreach. Many of the Year of the Snake campaign efforts from PARC regions and state, federal, academic, and non-governmental organization (NGO) partners are detailed elsewhere in this Annual Report. We hope you enjoy reading about all the amazing snake conservation work, and seeing the beautiful photos we have included throughout the report!

The Year of the Snake Planning Team developed the *State of the Snake* report, which identifies the current threats, conservation needs and status of snakes, and also highlights opportunities for public involvement. In addition, the team created monthly newsletters, the *Year of the Snake News*, featuring diverse stories on research, management, outreach, citizen science projects, interviews with snake experts, and some myth-busting facts about snakes. A monthly photo contest was held and the winning photos were used to develop a downloadable snake calendar each month. Over 150 photos entries

were submitted! The monthly calendar promoted various snake and other wildlife conservation-related events. In addition, hardcopy, full-color, 12-month calendars demonstrating the beauty of these animals were made available for purchase, along with various other Year of the Snake items at PARC's Café Press store ([www.cafepress.com/parcstore](http://www.cafepress.com/parcstore)). Proceeds will be made available as a snake conservation grant in 2014! The Year of the Snake webpage featured materials that were contributed by PARC regions and other PARC partners, local nature centers, citizen scientists, and the general public, and also served as the hub for Year of the Snake information. Lastly, our Year of the Snake Facebook page for sharing snake photos and stories garnered nearly 400 followers.

The Year of the Snake campaign reached audiences across the world. Over the course of the year, a total of 32 collaborating partners endorsed the Year of the Snake campaign and promoted our materials. Six of these were international partners, representing Slovenia (1), Hong Kong (1), Germany (1), the United Kingdom (1), and international efforts to conserve snakes (2). The campaign could not have raised awareness of the issues surrounding snakes without the assistance of everyone who authored and downloaded the monthly newsletters, photographers that submitted photos for the monthly calendar photo contest, and those inquiring minds that contacted the Year of the Snake Team with questions, suggestions, and contributions to this important effort. We are grateful to all of you!



Congratulations to Ann Hirschfeld of St. Louis, MO, who submitted the winning logo for PARC's 2013 Year of the Snake Logo Contest!



## PARC THANKS THE 2013 YEAR OF THE SNAKE PLANNING TEAM

Heidi Hall (The Orianne Society), Polly Conrad (The Orianne Society; PARC JNSC Co-Chair), Kathryn Ronnenberg (US Forest Service [USFS]), Scott Smith (Maryland Department of Natural Resources), Carrie Elvey (The Wilderness Center), Val Titus (Wildlife Conservation Society), and Cameron Young (Center for Snake Conservation)

*Special thanks to The Orianne Society for leading this effort!*

Materials from the 2013 Year of the Snake Campaign, including downloadable files of the *State of the Snake*, *Year of the Snake News* issues, calendars, and other Year of the Snake products can be found at [www.yearofthesnake.org](http://www.yearofthesnake.org).

## FUTURE CAMPAIGNS

In 2014, PARC will be raising awareness for salamanders much as we did for turtles, lizards, and snakes in 2011, 2012, and 2013, respectively. The Year of the Salamander campaign launched on January 1st, 2014 with 34 partner organizations on board. The campaign will include the following activities and products via [www.yearofthesalamander.org](http://www.yearofthesalamander.org):

- A photo contest, under way now, with a winning and runner-up photo to be chosen each month in 2014. The photos will be displayed monthly on a free downloadable monthly calendar. As of January 1st, we had over 200 photos submitted. This contest will run throughout 2014 and people are encouraged to submit photos via the email address at the end of this page.
- A webpage dedicated to outreach and education activities will be added to the website. This page will include educational materials developed specifically for the Year of the Salamander as well as links to other online resources. A video contest will be launched during the year to continue to garner support for the campaign.
- A monthly electronic newsletter will be produced, highlighting species, projects, and conservation issues relative to salamanders and their habitats. Our focus is to raise awareness for salamander education, research, and conservation in North America and beyond and will showcase species and issues from around the world. Please send any articles, artwork, project summaries, or other ideas to the email address at the end of this page.
- The Year of the Salamander Facebook page was launched January 1st and on the first day alone we had over 150 “likes.” We will continue to promote the campaign via social media and plan to launch Salamander Saturdays, highlighting a variety of species from around the world to encourage continued engagement with the campaign.
- Our colorful “State of the Salamander” report highlights the importance of salamanders, threats to their existence, and efforts being made to conserve these species. The document is written for a general audience and is available for download on our website. We are in the process of translating it into Spanish, and are seeking translators to help produce this report in other languages for further outreach.



Congratulations to Sheri Sanders of South Bend, IN, who submitted the winning logo for PARC's 2014 Year of the Salamander Logo Contest!

- We have a Café Press PARC store “([www.cafepress.com/parcstore](http://www.cafepress.com/parcstore)) with merchandise featuring the Year of the Salamander winning logo and a 2014 hardcopy wall calendar chock full of amazing photos that were submitted for the photo contest.
- Check out our partners page on the Year of the Salamander website, highlighting our partners in salamander conservation. We are continuing to seek partners to share our Year of the Salamander efforts and products. Please contact us at the email address below if you would like further information about partnerships.

For all inquiries, contact the team at:  
[yearofthesalamander@gmail.com](mailto:yearofthesalamander@gmail.com).

## THANKS TO ALL THE MEMBERS OF THE YEAR OF THE SALAMANDER PLANNING TEAM

Mary Beth Kolozsvary (Siena College), Dede Olson (USFS), JJ Apodaca (Warren Wilson College), Michelle Christman (US Fish & Wildlife Service [USFWS]), Rod Williams (Purdue University), Thomas Gorman (Virginia Tech), Katherine Greenwald (Eastern Michigan University), Karena DiLeo (Conserve Wildlife Foundation of New Jersey), Brandon Ruhe (Mid-Atlantic Center for Herpetology and Conservation), Ruth Marcec (The Association of Reptilian and Amphibian Veterinarians), Jacob Kubel (Massachusetts Natural Heritage and Endangered Species Program), Kathryn Ronnenberg (USFS), Valorie Titus (Wildlife Conservation Society), Carrie Elvey (The Wilderness Center), Matthew Evans (Smithsonian Conservation and Biology Institute), Lynn Bogan (NYS Office of Parks, Recreation & Historic Preservation), and Kirsten Hecht (University of Florida)



## PARC PRODUCTS AND PROJECTS

### Inventory and Monitoring Techniques Manual:

**PARC's** newest technical publication, *Inventory and Monitoring: Recommended Techniques for Reptiles and Amphibians with Application to the United States and Canada*, was printed and distributed in early 2013. The objective of this handbook is to provide wildlife managers and public and private land-



owners with information about reptiles and amphibians and the qualitative and quantitative techniques that can be used to obtain information on diversity, distribution, and abundance of these animals. It is user friendly, addresses amphibian and reptile species for North America, and provides specific recommendations on inventory and monitoring techniques applicable for

various life stages and to each species. Given high demand, we nearly sold out of hard copies in 2013, but we hope to offer e-reader or other electronic versions in 2014! Visit [www.parcplace.org/publications](http://www.parcplace.org/publications) for the most current information.

### Priority Amphibian and Reptile Conservation Areas (PARCAs):

Identifying priority habitat areas for amphibians and reptiles has become increasingly important, particularly in the face of climate change, growing human populations, and urban, commercial, and energy-related development. To this end, PARC finalized the criteria and an implementation plan for designating Priority Amphibian and Reptile Conservation Areas (PARCAs) at local, state or regional scales. Prepared by the PARC Important Herp Areas National Task Team led by Ron Sutherland (Wildlands Network, North Carolina) and Phillip deMaynadier (Maine Department of Inland Fisheries and Wildlife), the criteria and plan were made available at the PARC Publications website (<http://www.parcplace.org/publications.html>) in 2013. PARC members received grant funding from both the South Atlantic and

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



## THANKS TO ALL CONTRIBUTING AUTHORS OF THE INVENTORY AND MONITORING MANUAL!

We want to especially acknowledge the contributing authors: Kimberly M. Andrews (University of Georgia), James B. Bettaso (USFWS), Kurt A. Buhlmann (University of Georgia), Erin Rivenbark (USFWS), Dean A. Croshaw (University of New Orleans), Michael E. Dorcas (Davidson College), Luke A. Fedewa (US Army), J. Whitfield Gibbons (University of Georgia), Xavier A. Glaudas (University of Nevada), Gabrielle J. Graeter (NC Wildlife Resources Commission), Aaliyah D. Green (University of Georgia), Judith L. Green (University of Georgia), W. Jeffrey Humphries (NC Wildlife Resources Commission), John B. Jensen (Georgia Department of Natural Resources), Jason L. Jones (Nevada Department of Wildlife), Mary Beth Kolozsvary (Siena College), Thomas M. Luhring (University of Georgia), Peri Mason (Wesleyan University), Walter E. Meshaka, Jr. (State Museum of Pennsylvania), Brian S. Metts (Southeastern Natural Sciences Academy), Tony M. Mills (Low Country Institute), Charles R. Peterson (Idaho State University), Robert N. Reed (US Geological Survey [USGS]), Brian D. Todd (University of California, Davis), Ria N. Tsaligios (University of Georgia), Tracey D. Tuberville (University of Georgia), Anton D. Tucker (Mote Marine Laboratory), Lucas R. Wilkinson (University of Georgia), John D. Willson (University of Georgia), Lawrence A. Wilson (Fernbank Science Center), Christopher T. Winne (University of Georgia), Cameron A. Young (Center for Snake Conservation) and Robert T. Zappalorti (Herpetological Associates, Inc.)

North Atlantic Landscape Conservation Cooperatives, where they are implementing the PARCAs criteria and addressing the impacts of climate change within the PARCAs identified. If you are interested in designating PARCAs in your area, please view the PARCA publication on our website!



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## PARC Website and Social Media:

Visit PARC at [www.parcplace.org](http://www.parcplace.org)! PARC thanks JD Willson (University of Arkansas) and Tanner Jessel (University of Tennessee, Knoxville) for their volunteer time to keep our website up to date and attractive. We also thank Brian Todd (University of California, Davis) and Priya Nanjappa (Association of Fish and Wildlife Agencies [AFWA]) for maintaining our listserv and Valorie Titus (Wildlife Conservation Society) for administering PARC's Facebook and Twitter accounts!

## Symposium at the Joint Meeting of Ichthyologists and Herpetologists meeting, Albuquerque, New Mexico:

PARC sponsored a symposium at the JMIH in July 2013 entitled "Impact of energy development on amphibians and reptiles in North America." The symposium included an overview of the scope and scale of energy development globally, with emphasis on North America. Presentations covered the gamut of impacts from oil, gas, and mountaintop removal mining, to wind, solar, hydropower, and biomass harvesting. The symposium was kicked off with a "call to action" among the scientists present, as the speakers we found were among the very small number of people researching these topics. Given the scale of existing and potential (leased) development, it is clear that there is much more work to be done to be able to inform best practices for expanding the domestic energy portfolio while maintaining compatibility with amphibian and reptile population persistence. An exciting outcome of this symposium is that several publishers in attendance invited proposals for a book to cover this topic specifically for herpetofauna. PARC thanks Jeff Lovich (USGS) for his leadership on this topic, as well as in this event and beyond, as he continues to spearhead the book development effort. We look forward to updating our members on this project and outcomes as they progress.

A subset of speakers at the 2013 Impact of energy development on amphibians and reptiles in North America Symposium at the Joint Meetings of Ichthyologists and Herpetologists, Albuquerque, NM. From left to right: Stephen Spear, The Orianne Society; Denim Jochimsen, University of Idaho; Douglas Keinath, University of Wyoming; Priya Nanjappa, AFWA; Wendy Palen, Simon Fraser University; Barry Sinervo, University of California Santa Cruz; Jeff Lovich, USGS; Lee Fitzgerald, Texas A&M University; Jen Williams, Florida Fish and Wildlife Commission; Jessica Homyack, Weyerhaeuser; and Jacqueline Guzy, Davidson College



## CHECK OUT PARC ONLINE!

[www.parcplace.org](http://www.parcplace.org)



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## Habitat Management Guideline (HMG) Series:

Each volume in the series covers a regional geographic area that is largely based on ecoregions (Figure 1). These guidelines provide habitat management recommendations to benefit amphibian and/or reptile habitats and are intended for public and private land managers. During 2013, PARC continued its work to complete its flagship, five-volume HMG series that covers the continental US and parts of Canada. Specifically, PARC continued progress in the development of the Southwest regional guidelines. PARC thanks editors Rob Lovich (Naval Facilities Command Southwest), Ken Halama (University of California Natural Reserve System), Larry Jones (USFS), and the rest of the Southwest HMG team for their hard work to finish the Southwest HMG. The Southwest volume is expected to be printed in 2014, thus completing the entire series. PARC also thanks all of those dedicated herpetologists who contributed to the successful completion of all the previous HMGs. For more information on HMGs and on obtaining copies, see [www.parcplace.org/publications](http://www.parcplace.org/publications).



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## Roads Task Force:

The National Roads Task Force was created to partner with transportation entities to help develop solutions and conservation strategies to address passage, connectivity, collision, and other road-related issues for amphibians and reptiles. In July 2011, Johns Hopkins University Press (JHUP) awarded the editors, Kimberly Andrews (University of Georgia Savannah River Ecology Laboratory), Priya Nanjappa (AFWA), and Seth P.D. Riley (National Park Service), a book contract to produce a practical guidance manual for transportation professionals and biologists alike regarding the state of our knowledge in maintaining ecosystem connectivity and minimizing road effects on small animals, including herpetofauna, small mammals, and other small vertebrates. This publication, part of JHUP's new book series with The Wildlife Society, will describe and recommend considerations and best practices for small animals regarding mitigation measures and structure retrofitting or enhancement, with attention to minimizing costs and conflicts while maximizing connectivity and natural ecological functions. The manuscript underwent peer review in 2013, with much positive feedback. The copy-editing process via JHUP will begin in 2014, with the book to be published in 2015.



## JOINT NATIONAL STEERING COMMITTEE

**PARC's** Joint National Steering Committee (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.

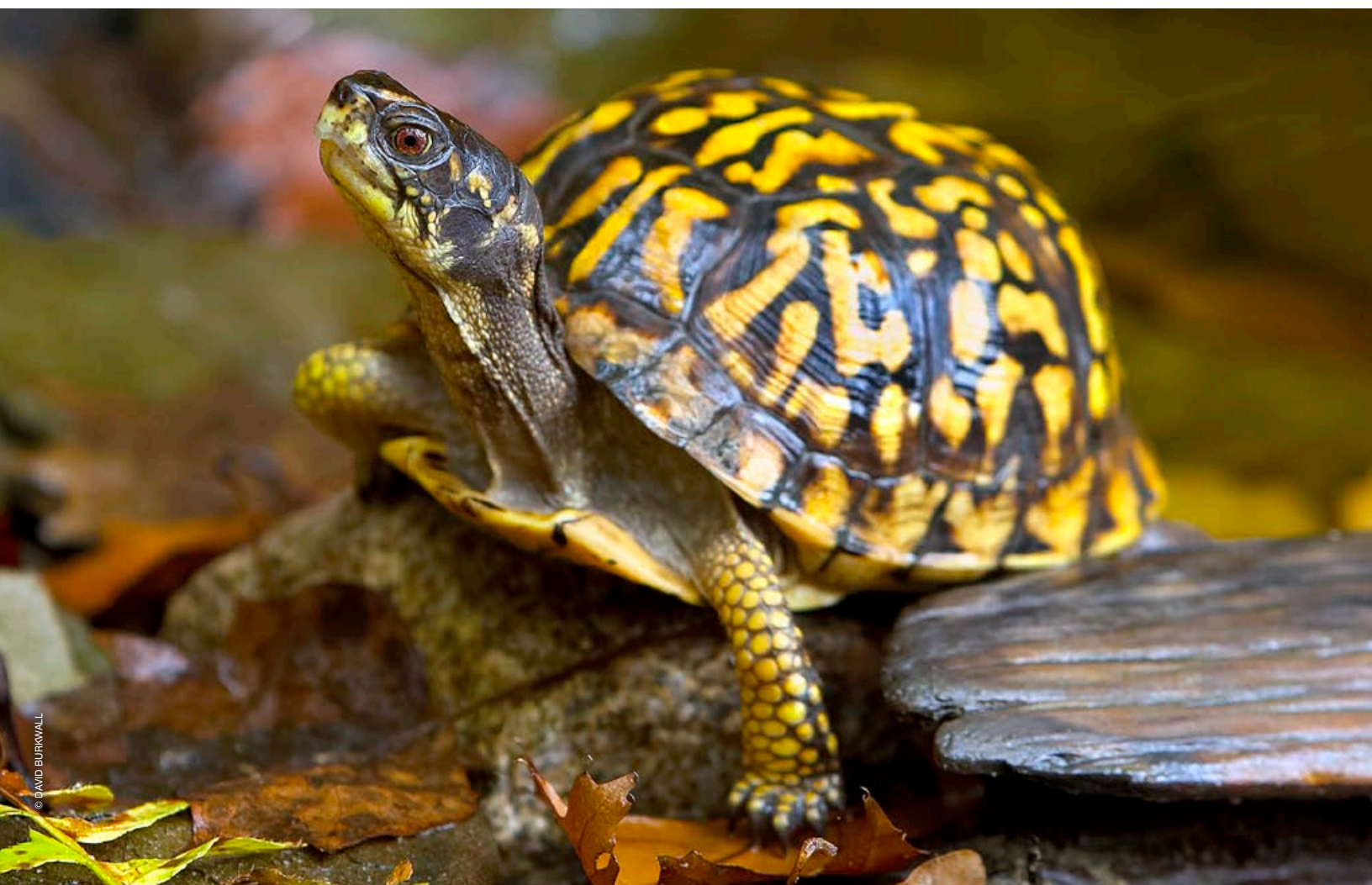
In 2013, the JNSC was led by the national PARC Co-chairs, Polly Conrad, Al Breisch and Linda Weir. Al completed his two-year term in March, at which time Linda began her two-year term. Additional voting members of the JNSC include PARC's National Coordinators (state and federal), the co-chairs of the five PARC Regional Working Groups, co-chairs of the Federal Agency 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. We have provided additional information on JNSC partners and activities in the pages that follow.

### 2013 Co-Chairs

Polly Conrad (The Orianne Society), Linda Weir (Incoming, USGS) and Al Breisch (Outgoing, Retired, former New York state herpetologist)

Some topics the JNSC discussed or addressed in 2013 included:

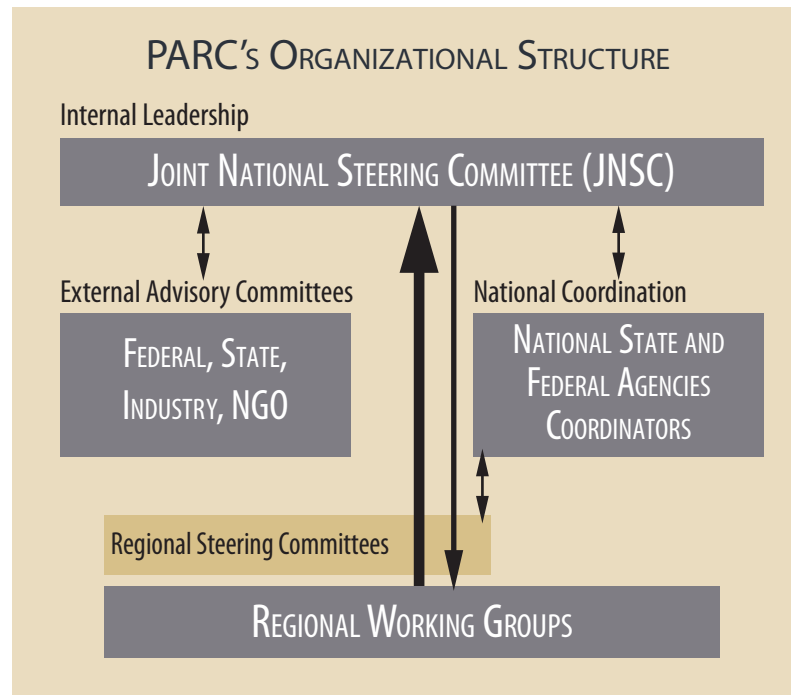
- 1) Selection and presentation of the third annual Alison Haskell Award for Excellence in Herpetofaunal Conservation (page 5);
- 2) Publication and distribution of the Inventory & Monitoring Handbook (page 8);
- 3) Assisting in development of the job announcement materials, as well as in selection of the PARC Federal Agencies Coordinator position (page 20);
- 4) Implementation of the PARC symposium at the 2013 Joint Meeting of Ichthyologists and Herpetologists (page 8). Thanks to Jeff Lovich (USGS) for leading this effort;



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- 5) Implementation of the 2013 Year of the Snake campaign, including activities surrounding a photo contest, newsletters, calendars, social media, and updating the Café Press PARC Store (see page 6). Thanks to Heidi Hall (The Orianne Society) for leading this effort;
- 6) Development and initial planning for the 2014 Year of the Salamander campaign (logo contest, photo contest, State of the Salamander document, newsletter development, website development and calendars; see page 7). Thanks to Mary Beth Kolozsvary (Siena College) for leading this effort;
- 7) Regional Working Group annual meetings and activities (page 15);
- 8) Development of a PARC 15-Year Anniversary symposium in conjunction with the 2014 The Wildlife Society meeting. Thanks to JJ Apodaca (Warren Wilson College) and Val Titus (Wildlife Conservation Society) for leading this effort;
- 9) Development of a co-sponsored meeting with the Society for the Study of Amphibians and Reptiles (SSAR) in 2015. Thanks to Al Breisch for leading this effort;
- 10) Finalization and release of the PARCA criteria and implementation plan on PARC's website (see page 8). Thanks to Ron Sutherland (Wildlands Network) and Phillip deMaynadier (Maine Department of Inland Fisheries and Wildlife) for leading this effort;
- 11) Acceptance of the two new PARC chapters, Florida and the Caribbean;



- 12) Endorsement of two books, *Reptiles & Amphibians of the Mojave Desert* (Parker and Brito 2013) and *Amphibians, Reptiles and Humans: Cultural Perceptions and Conservation Consequences* (Crump 2014).

The JNSC also worked closely with the Amphibian and Reptile Conservancy (ARC) to communicate funding requests for support of various symposia and workshops, to raise publication and product funding and to handle partner grants. For more details, please see ARC's 2014 Annual Report online at [www.amphibianandreptileconservancy.org](http://www.amphibianandreptileconservancy.org).





## AT-LARGE JNSC MEMBER ACTIVITIES

### Forest Products Industry:

A large portion of North American forests are owned by corporate private landowners who actively manage their forests to produce wood and fiber. These landowners and forest products companies who own manufacturing facilities have a strong interest in sustainable forestry and conservation of biological diversity, including amphibians and reptiles. Currently, one industry representative, employed by the National Council for Air and Stream Improvement, Inc., fills an at-large seat on the JNSC and another serves as a Southeast PARC Co-chair. Forest products industry representatives contributed to PARC's 2013 energy and herpetofauna symposium and are collaborating with state and federal agencies, NGOs, and others on conservation of federally listed herpetofauna species in the Southeast and other species of concern. In addition, this industry is an active supporter of research designed to explore cost-effective conservation of reptiles and amphibians in actively managed forest landscapes. Examples of on-going cooperative research includes studies of relationships between managed forest characteristics and selected species (e.g., Spotted Turtles, Oregon Slender Salamander, other stream-associated salamanders), herpetofauna response to biofuel production, and documentation of reptile and amphibian use of ephemeral wetlands and ditch systems. These and other ongoing studies typically involve collaboration with on-the-ground managers as well as researchers from various universities and other institutions.

### Zoos:

The partnership between PARC and the zoo community continued to strengthen across the US in 2013. Modern-day zoos are becoming more involved with education and outreach, as well as *in situ* and *ex situ* conservation. With rapid declines and near-extinctions of amphibians and reptiles, there is a need for active management and intervention. Zoos are unique institutions in that they have extensive resources for captive management and can partner with other conservation and research organizations. PARC volunteers representing the zoo and aquarium community are actively increasing the valuable role that zoos and aquariums play within the PARC community toward effective amphibian and reptile conservation. The Zoo representative seat on PARC's JNSC, is working to increase these roles and relationships in the coming years. In 2013, PARC continued its relationship with FrogWatch USA™, a citizen science program managed by the Association of Zoos and Aquariums (AZA), by hosting a training workshop prior to the SW PARC annual meeting. In addition to the above activities, we continue to have active zoo participation in the PARC regional working groups and meetings, including the Greenville Zoo (which selected PARC for its Quarters for Conservation Program), Denver Zoo, Lincoln Park Zoo, North Carolina Zoological Park, San Diego Zoo Global, Smithsonian's National Zoo, Toledo Zoo, Wildlife Conservation Society, and Zoo Atlanta, among others.



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## Non-Governmental Organizations (NGO):

PARC is continuing to develop partnerships with NGOs by encouraging reciprocal involvement at regional meetings, making PARC products available, and encouraging partners to take active roles on task teams, trainings, outreach efforts, and other PARC projects and products. In particular, in 2013, The Orianne Society led in coordinating the Year of the Snake activities, developed the first series of PARCAs, and have staff volunteering for PARC in several capacities. The Center for Snake Conservation also helped in planning and promoting the Year of the Snake activities. The Amphibian Survival Alliance is helping to promote PARC activities through their FrogLog newsletter, and they plan to play an active role in the 2014 Year of the Salamander. Additionally, the Amphibian and Reptile Conservancy continues to work closely with PARC on wetland restoration projects, and on funds and grant administration. These are just a subset of NGOs that work with PARC in various ways, with many NGO employees and members being actively engaged in PARC.



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Tom Biebighauser, Center for Wetlands and Stream Restoration, teaches participants how to identify suitable soils for wetland development during a wetland restoration workshop as part of ARC's 17x17 Wetlands Campaign.



## PARC REGIONAL WORKING GROUP ACTIVITIES

### 2013 Co-Chairs

Allison Sacerdote-Velat (Lincoln Park Zoo), Katy Greenwald (Incoming, Eastern Michigan University), Bruce Kingsbury (Outgoing, Indiana-Purdue University, Fort Wayne)

### Midwest Regional Working Group ([www.mwparc.org](http://www.mwparc.org))

**MW** PARC held its annual meeting at Forest Beach Migratory Preserve in Port Washington, Wisconsin from August 2-4, 2013 on the theme of “Conservation of Urban Amphibians and Reptiles,” with approximately 75 attendees. Fourteen talks and six posters were presented. The meeting featured a keynote presentation by Robert Cook, Ph.D. (National Park Service, Cape Cod National Seashore) entitled “Herpetological Restoration in an Urban Landscape” and a banquet presentation by Mike Mossman (Wisconsin Department of Natural Resources), entitled “Reservoir Waterdogs: The Neotenic Tiger Salamanders of the Badger Army Ammunition Plant.”

Several presentations explored research and management focused on the efficacy of restoration in urban areas and herpetofaunal response to urban restoration. Talks addressed the need for turtle nest protection, raccoon control and exclusion, timing of prescribed burns, effects of invasive brush clearing on reptiles, effectiveness of constructed hibernacula, disparate effects of urbanization across turtle species, and preliminary results of headstarting urban reptiles. An overarching message was the need for greater habitat complexity and connectivity among urban



An implantable diode and detector used to monitor an urban population of Butler's Gartersnakes (*Thamnophis butleri*) in Milwaukee, Wisconsin.



PARC's Regional Working Groups are the foundation of the partnership, where the on-the-ground issues are translated into actions and products.

restoration sites to aid species more sensitive to urbanization. MW PARC discussed the need for continued intensive management in high-use areas, long-term monitoring of herpetofaunal response to restoration, and the beneficial role public outreach and education can play in urban herpetofauna conservation. Breakout groups focused on incorporating herpetofaunal management into the Farm Bill, development of a comprehensive training framework, and merging the PARCA implementation group with a new State Wildlife Action Plan Update group. Updates were provided by representatives from Wisconsin PARC and Michigan PARC chapters.



A Tiger Salamander (*Ambystoma tigrinum*) metamorph consuming a Northern Leopard Frog (*Lithobates pipiens*) encountered on a field trip to a restored wetland site.



## Northeast Regional Working Group ([www.northeastparc.org](http://www.northeastparc.org))

**NE**PARC, held its annual conference July 24-26, 2013 at the New Jersey School of Conservation (NJSOC) at Branchville, NJ. This location was host to approximately 130 attendees, the largest NE PARC meeting to date, and included attendees from the US, Canada, and Tanzania.

This year's meeting included two featured presenters. The first was Ross Kiester, Chief Scientist at the Turtle Conservancy (TC). He spoke of TC's mission to conserve the most endangered turtles and tortoises and their habitats worldwide. The second was Howard Reinert (The College of New Jersey), who spoke about three species of rattlesnakes: Timber Rattlesnake (*Crotalus horridus*), Eastern Massasauga (*Sistrurus c. catenatus*), and Aruba Island Rattlesnake (*Crotalus unicolor*). NE PARC's nine active working groups engaged in discussions to advance current initiatives and prioritize actions: PARCAs, Wood Turtle, Year of the Salamander, Timber Rattlesnake, Hellbender/Mudpuppy, Vernal Pools, Blanding's Turtle, Emerging Diseases, and Roads. One new group was formed, NE PARC History, to highlight the very productive first 15 years of NE PARC's efforts. NE PARC's 2012-2013 products included a brochure about northeastern venomous snakes and their non-venomous look-alikes, a revision of the Northeast herpetofaunal species list, and a factsheet on snake fungal disease. In addition, the conference included three pre-meeting activities: 1) Maria Grace (Conserve Wildlife Foundation of NJ) led a group that hiked Sunrise Mountain; 2) Kelly Triece (Montclair State University) led tours of research projects at the NJSOC; and 3) NE State Biologists met for a well-attended round table discussion on State-relevant issues.

Last but not least, NE PARC distributed the *Habitat Management Guidelines for Amphibians and Reptiles of the*

## 2013 Co-Chairs

Andrea Chaloux (New York State Natural Heritage Program), Lori Erb (Incoming, Mid-Atlantic Center for Herpetology & Conservation), and Scott Angus (Outgoing, E2PM Consulting)

*Northeastern United States* book to partners, with approximately 300 copies provided at the Northeast Association of Fish and Wildlife Agencies (NEAFWA) meeting in Saratoga Springs, NY, and 900 copies at the NE PARC conference. If you would like to obtain a copy of this book, contact PARC for more information.



Timber Rattlesnake (*Crotalus horridus*)

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2013 Northeast PARC meeting attendees.



## Northwest Regional Working Group ([www.nwparc.org](http://www.nwparc.org))

**NW**PARC held its 6th annual meeting and workshop April 8-9, 2013 in Squamish, British Columbia. The meeting featured a workshop on remote sampling techniques and a symposium on amphibian and reptile salvage projects. The first day's workshop presentations explored the methods available for monitoring amphibians and reptiles remotely. These techniques are particularly useful when working with rare or elusive species, minimizing survey effort and disturbance to individuals. Stephen Spear (The Orianne Society), provided instruction on using eDNA (environmental DNA) to detect species presence from water or soil samples. Barb Beasley (Association of Wetland Stewards for Clayoquot and Barkley Sounds) and Josh Malt (British Columbia Ministry of Forests, Lands, and Natural Resources Operations) discussed the advantage of using camera traps to record animal occurrence. David Pilliod (USGS) described how IdentiFrog software enables the identification of individuals based on color pattern. Melissa Todd (British Columbia Ministry of Forests, Lands, and Natural Resources Operations) summarized approaches to consider when using radio-telemetry, and Christian Engelstoft (Biolinx Environmental Research Ltd.) demonstrated the application of PIT tags with RFID (Passive Integrated Transponder tag with Radio Frequency Identification) antennas to track animal movement. Cori Lausen (Wildlife Conservation Society Canada) presented on the use of song meters to help identify amphibian species. The field component of the workshop included demonstrations of the techniques.



Stephen Spear (The Orianne Society) demonstrating eDNA (environmental DNA) sampling methodology to attendees of the NW PARC Remote Sampling Techniques for Wildlife Workshop.

## 2013 Co-Chairs

Denim Jochimsen (University of Idaho),  
Kris Kendell (Incoming, Alberta Conservation Association),  
and David Pilliod (Outgoing, USGS)



A Coastal Tailed Frog (*Ascaphus truei*) observed while hiking near Squamish, BC, Canada just after the NW PARC workshop and symposium.

The second morning featured a symposium on amphibian and reptile salvage practices in British Columbia. Such practices involve the removal and relocation of species from a development site to minimize negative impacts, and are becoming increasingly common, particularly in Canada. A number of oral presentations and posters summarized case studies of such practices.

NW PARC thanks Betsy Howell (USFS) for her continued work as Treasurer, Brandon Fessler for serving as webmaster and newsletter editor, and the Communications Task Team for website updates ([www.nwparc.org](http://www.nwparc.org)) and e-newsletter contributions.



## Southeast Regional Working Group ([www.separc.org](http://www.separc.org))

**SE PARC** has accomplished much this year, from a fantastic annual meeting to great strides in outreach and regional conservation efforts. In February, SE PARC hosted yet another successful conference, with >150 people attending presentations, task team meetings, workshops, field trips, and nightly revelry. The conference was held in scenic Hickory Knob, South Carolina and despite cool and wet weather, we pulled together some excellent field trips and a bonfire. Highlights of the meeting included symposia that focused on the 2013 PARC Year of the Snake and on Regulations for Herpetofauna. The 2014 meeting will be held at Lake Cumberland State Park, Kentucky on February 13-16, 2014, where there will be special symposia to celebrate PARC's 2014 Year of the Salamander and to explore how the Endangered Species Act contributes to amphibian and reptile conservation.

One of SE PARC's significant accomplishments for 2013 included a successful herpetofaunal law enforcement training session at the annual meeting of the Southeastern Association of Fish and Wildlife Agencies in Oklahoma City, Oklahoma. This session was led by Sergeant Cagle and Master Officer Wayne from the North Carolina Wildlife Resources Commission and was attended by nearly 40 participants. Southeast PARC also supported development of Florida PARC and Caribbean PARC as new subunits in the region. Lastly, SE PARC steering committee members played a primary role in preparing PARC's application and subsequent presentation of The Wildlife Society's Group Achievement Award.

SE PARC continues to grow in talent, and we have used social media (e.g., Facebook, Linked In, Twitter) and our

## 2013 Co-Chairs

Jessica Homyack (Weyerhaeuser),  
Bill Sutton (Incoming, Clemson University), and  
JJ Apodaca (Outgoing, Warren Wilson College)



Debra Miller (University of Tennessee), DVM, instructing a herp necropsy workshop at the 2013 SE PARC meeting in Hickory Knob, SC.

redesigned webpage and blog to interact with existing and potential members. Products and information about our active Task Teams, including Disease and Pathogens and Education and Outreach, are also found on our webpage.



Members of the SE PARC steering committee, L-R: Kyle Barrett (Clemson University), Jenn Evans (North Carolina State University), Rebecca Hardman (University of Tennessee), Keri Landy (Louisiana Department of Wildlife and Fisheries), Gabrielle Graeter (North Carolina Wildlife Resources Commission), JJ Apodaca (Warren Wilson College), Bill Sutton (Clemson University), Jessica Homyack (Weyerhaeuser), Dave Steen (Virginia Tech), and Andrea Drayer (University of Kentucky)



## Southwest Regional Working Group ([www.swparc.org](http://www.swparc.org))

**THE SW**PARC annual meeting was held July 8-10 at the University of New Mexico in Albuquerque, New Mexico with the theme “Snake Conservation in the Southwest” in support of PARC’s Year of the Snake. Fifty-six attendees participated in the meeting, which was held just before the Joint Meetings of Ichthyologists and Herpetologists (JMIH). It kicked off with a FrogWatch USA™ workshop led by Rachel Gauza (AZA). This citizen-science program provides individuals, groups, and families an opportunity to learn about wetlands in their communities and to report data on their local frogs and toads. Following the meeting, SWPARC supported a workshop on occupancy and the program PRESENCE, led by Darryl MacKenzie, as well as a field trip to La Joya Wildlife Area and vicinity.

Between annual meetings, SWPARC kept busy with working group and training activities. The current working groups focus on PARCAs, Southwest HMGs, outreach to Mexico, and a new priority: Venomous Reptile Training. The

SWPARC workshop participants enjoyed a field outing to La Joya Wildlife Area, NM.



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## 2013 Co-Chairs

Tom Giermakowski (University of New Mexico Museum of Southwestern Biology), Kim Lovich (San Diego Zoo Global), and Jason Jones (Outgoing, Nevada Department of Wildlife)



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Meeting attendees had a great selection of items to bid upon at the SWPARC annual live auction fundraiser, emceed by SWPARC Steering Committee member, M.L. Robinson, and National PARC Coordinator, Priya Nanjappa.

task for this fourth working group is to produce a training class and educational materials for those who may encounter rattlesnakes (*Crotalus* spp.) and Gila Monsters (*Heloderma suspectum*) and may need to safely remove or relocate these animals. SWPARC also continued to provide biomonitor training for the Flat-tailed Horned Lizard (FTHL), *Phrynosoma mcallii*, in coordination with California Department of Fish & Wildlife, Arizona Game and Fish Department, and the FTHL Interagency Coordinating Committee. This year 98 biologists were trained.

The Colorado state chapter of PARC (CO PARC), co-chaired by Joe Ehrenberger (private consultant) and Danny Martin (Colorado State University), held its first annual meeting on January 26th at Colorado State University in Fort Collins. The all-day meeting was attended by 60 people, and included 18 presentations, a HerpQuiz competition, awards for best presentations, and an evening social. Outside of the annual meeting, CO PARC hosted two field trips to Yuma County and Otero County, and two surveys at Castlewood Canyon State Park and Golden Gate Canyon State Park. Both State Park surveys were conducted at the request of Colorado Parks & Wildlife; this cooperative effort will continue in 2014. CO PARC has several other ongoing activities, including periodic social events. For more information, check out CO PARC’s new website, [www.coparc.org](http://www.coparc.org), or e-mail [coloradoparc@gmail.com](mailto:coloradoparc@gmail.com).



## PARC FEDERAL AGENCY PARTNER ACTIVITIES

### Federal Agencies Steering Committee

Due to federal budget sequestration and the vacancy of the PARC Federal Agencies' Coordinator position throughout the 2013 calendar year, the PARC Federal Agencies Steering Committee (FASC) met via conference calls to discuss various pressing issues. These issues included:

- 1) Negotiating and executing the FY 2013 interagency funding agreements between the National Park Service and each of PARC's federal agency partners to provide funding for the Federal Agencies' Coordinator position, as well as discussing FY 2014 and related funding considerations;
- 2) Identifying and obtaining consensus regarding the vision for the next PARC Federal Agencies' Coordinator and the roles and responsibilities of the coordinator; and
- 3) Defining tasks related to advertising and hiring the new Federal Agencies' Coordinator.

In addition, during the vacancy of the position, the Joint National Steering Committee Co-chairs and the PARC State Agencies' Coordinator assisted in the following Federal Agency partner activities:

- 1) Overseeing production and distribution for the now-completed Inventory & Monitoring manual (I&M), and the final development of the Southwest Habitat Management Guidelines (SW HMG). These tasks included;
  - a. (I&M) Verification and distribution of large pre-orders to Federal Agencies directly from the production facility and small pre-orders to other partners via our order

fulfillment partner, and coordination of final invoicing;

- b. (SW HMG) Providing guidance on timelines and agency review opportunities; tracking overall costs and funding needs; tracking agency pre-orders and ensuring cost-effective production;
  - c. (Other HMGs) Handling storage and distribution of previously completed HMGs and account closeout with our order fulfillment partner;
- 2) Working with the Department of Defense (DoD) to further their DoD PARC initiative, including collaborating activities and completion of deliverables related to DoD Legacy Natural Resource Program grants;
  - 3) Finalizing and executing a PARC co-sponsored symposium (with the Society for the Study of Amphibians and Reptiles, and the Amphibian and Reptile Conservancy) focused on the impacts of energy development on herpetofauna, in conjunction with the 2013 Joint Meetings of Ichthyologists and Herpetologists, including inviting and later finding replacements for several federal speakers unable to attend due to sequestration; and
  - 3) Coordinating federal contributions for the 2013 Year of the Snake Newsletter.

### 2013 Co-Chairs

David Schmid (USFS) and Lianne Ball (USGS)



## NEW PARC FEDERAL AGENCIES' COORDINATOR SELECTED

In late November, 2013, our new PARC Federal Agencies' Coordinator, Jen Williams, was selected. Jen is from Pennsylvania, and received her B.S. in Biology from Gannon University in Erie, PA and her M.S. in Wildlife and Fisheries Science from Penn State; terrestrial salamanders were the focus of her thesis. Jen earned her doctorate at West Virginia University in Forest Resource Science, where she investigated the impacts to herpetofaunal communities from mountaintop removal mining. Most recently, she was employed by the Florida Fish and Wildlife Conservation Commission as a Regional Public Hunting Areas Biologist, where she also edited species action plans for turtle species, assisted in surveys for various herpetofauna, and served as leader for the action team that organized the 2013 Python Competition™. Jen officially starts with the National Park Service, host agency for the Federal Agencies' Coordinator position, in January 2014, and will be based in Ft. Collins, CO.



## FEATURE: US GEOLOGICAL SURVEY

### How historic habitat affects the contemporary distribution of Giant Gartersnakes in a modified landscape:

Little is known about the effects of historic habitat on contemporary species distributions when the historic habitat has been almost completely removed, but the species persist in a highly altered landscape. USGS Scientists have used occupancy modeling to examine the distribution of Giant Gartersnakes (*Thamnophis gigas*) at the landscape scale in the Sacramento Valley (northern portion of the Central Valley) of California, with an emphasis on the relative strength of historic and contemporary variables (landscape-scale habitat, local microhabitat, vegetation composition and relative prey counts) for predicting Giant Gartersnake occurrence. Proximity

to historic marsh best explained variation in the probability of occurrence of Giant Gartersnakes at the landscape scale, with greater probability of occurrence near historic marsh. We suspect that the importance of distance to historic marsh represents dispersal limitations of Giant Gartersnakes. These results suggest that preserving and restoring areas near historic marsh, and minimizing activities that reduce the extent of marsh or marsh-like (e.g., rice agriculture, canal) habitats near historic marsh may be advantageous to Giant Gartersnakes.

Halstead, B. J., G. D. Wylie, and M. L. Casazza. 2013. Ghost of habitat past: historic habitat affects the contemporary distribution of giant garter snakes in a modified landscape. *Animal Conservation* Article first published online: 22 AUG 2013 DOI: 10.1111/acv.12073.

*Giant Gartersnake (Thamnophis gigas),  
Sacramento Valley of California.*



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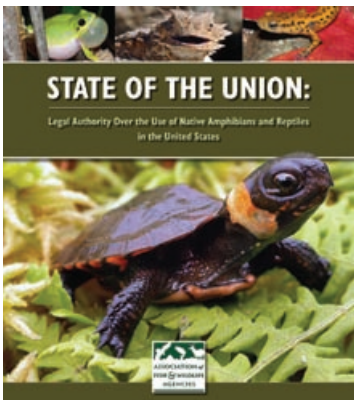
## PARC STATE FISH & WILDLIFE AGENCY PARTNER ACTIVITIES

### AFWA Amphibian & Reptile Subcommittee

The AFWA Amphibian and Reptile Subcommittee was initiated in 2008, and serves as the States' advisory committee to PARC. The Subcommittee is staffed by the AFWA Amphibian and Reptile Coordinator, Priya Nanjappa, who also serves as the National State Agencies' Coordinator on behalf of the states to PARC, the counterpart to the PARC Federal Agencies' Coordinator.

Through both meetings in March and September 2013, the Subcommittee was chaired by Ed Carter, Director of the Tennessee Wildlife Resources Agency, with Vice-chair, Eric Gardner, Washington Department of Fish and Game. Ed stepped down in Fall, and Patty Riexinger, Director of the New York Department of Environmental Conservation, agreed to assume this role. The Subcommittee continued to focus on native and non-native herpetofauna regulations, international issues related to trade, proactive conservation of herpetofauna, and recent scientific findings in amphibian declines and impacts of energy development.

The Subcommittee realized several key accomplishments in 2013:



- Updates to several state accounts in the national native amphibian and reptile regulatory summary report, *State of the Union: Legal Authority over the Use of Native Amphibians and Reptiles in the United States*, with the help of an AFWA intern, Whitney Walker. Updated accounts will be posted in 2014 to the AFWA website.

- Distribution of snake fungal disease factsheets and related information.
- Promotion of the SE PARC-led Amphibian and Reptile Training Workshop geared to Law Enforcement personnel and held at the 2013 SEAFWA meeting in October.
- Promotion of and participation in the National Reptile and Amphibian Advisory Council (NRAAC) Law Symposium (planned for November 2013, but postponed to March 2014).

The Subcommittee continued to keep on top of various policy and conservation issues in 2013.

### 2013 Chair and Vice-chair

Ed Carter (TN Wildlife Resources Agency, Outgoing),  
Eric Gardner (WA Department of Fish and Wildlife), and  
Patricia Riexinger (NY Department of Environmental  
Conservation, Incoming)

In addition, the state fish and wildlife agencies provided several stories of snake conservation for the monthly PARC Year of the Snake Newsletter. See all newsletters at [www.yearofthesnake.org](http://www.yearofthesnake.org).



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## AMPHIBIAN AND REPTILE CONSERVANCY ACTIVITIES

The Amphibian and Reptile Conservancy (ARC) is a non-profit, 501(c)(3) charitable organization established in 2009 to support herpetofaunal conservation and the mission of PARC. Executive Director, Jeff Holmes, and Ed Christoffers, Treasurer, kept busy in 2013, as ARC continued to support and complement the work of PARC. Given all of their accomplishments in 2013, ARC has produced its own annual report, now available at <http://www.amphibianandreptileconservancy.org>.

In their report, they highlight the broad impact of their 2013 programs, as well as goals for 2014. These 2013 accomplishments included:

- Restoring several wetlands for amphibian breeding ponds
- Training habitat managers and landowners in herpetofaunal conservation
- Educating tens of thousands via social media

In support of PARC and the larger conservation community, ARC continued to provide a number of ongoing services such as grant and funds management for PARC and other partners. ARC also supported and co-sponsored various conservation efforts, symposia and workshops, including:

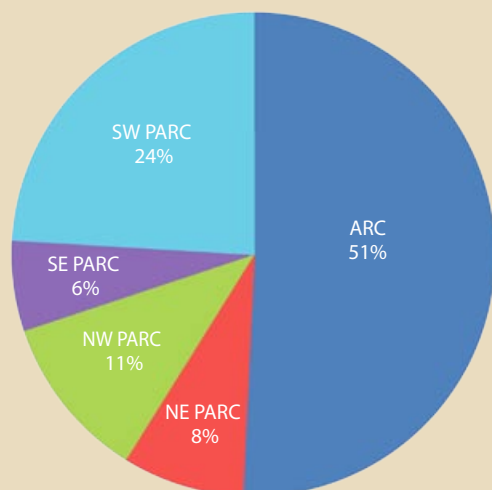
- The PARC Alison Haskell Award for Excellence in Herpetofaunal Conservation
- The PARC and SSAR co-sponsored *Impact of energy development on amphibians and reptiles in North America*



symposium at the Joint Meetings of Ichthyologists and Herpetologists

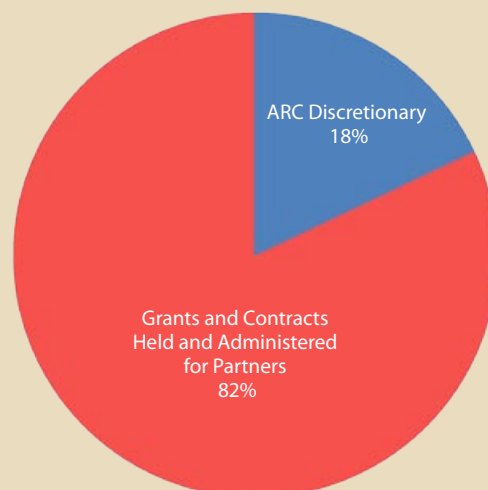
- The SE PARC-led *Law Enforcement for Herpetofauna* workshop at the 2013 Southeast Association of Fish and Wildlife Agencies Conference
- The publication of *Amphibians, Reptiles and Humans: Cultural Perceptions and Conservation Consequences* (Crump 2014)
- The publication of this PARC 2013 Annual Report

DISTRIBUTION OF PARC REGIONAL AND ARC-MANAGED FUNDS



ARC manages funds for four of the five PARC regions and holds or manages its own and other funds as well. The balance of all funds held or managed by ARC at the end of calendar year 2013 totaled \$162,545.

DISTRIBUTION OF ARC-MANAGED FUNDS



Among the funds that ARC holds and manages, the majority of these are grant funds that ARC manages for third parties, such as DoD Legacy Grants and the California-Nevada Amphibian Population Task Force. Discretionary funds are used for Conservation Programs, such as wetlands restoration, support for partner activities, and toward operating expenses such as accounting, postage, and shipping. The balance of funds held or managed by ARC at the end of calendar year 2013, excluding funds held for the PARC regions, totaled \$82,296.



