

NRCS WEBINAR 2016DEC14

Northwest PARC

<http://www.nwparc.org/>

The 10th Annual NW PARC Meeting will be held in **Arcata, California, February 27-March 3, 2017**, in conjunction with the Society for Northwestern Vertebrate Biology (SNVB) and the North Coast Chapter of The Wildlife Society. NW PARC will be sponsoring a day-long session on "Amphibian Research & Conservation Priorities." This will be an invited-speaker session with Dede Olson, dedeolson@fs.fed.us, coordinating. The weeklong meeting will be held at the Blue Lake Casino, approximately 10 minutes from Arcata. More details will be posted this fall at both NW PARC's Web site, www.nwparc.org, and SNVB's Web site, www.thesnvb.org.

Midwest PARC

<http://www.mwparc.org/>

The 2017 meeting will be held near Bloomington, IN. Dates TBA soon!

Ohio recently started a state PARC chapter and hosted its first meeting!

Northeast PARC

<http://northeastparc.org/>

Meetings are usually held in August of each year.

Southwest PARC

<http://www.swparc.org/>

Meetings are usually held in July or August each year.

Southeast PARC

<http://separc.org/>

SE PARC's blog site: <https://separc.wordpress.com/>

The 2017 Annual SEPARC meeting "Aligning Conservation Goals" will be held from February 16-19 in Little Rock, Arkansas at [Fern Cliff Camp and Conference Center](#).

Symposia to include:

- Breaking Down Barriers: Conservation through Education & Habitat Restoration
- Management of the Diverse Ecosystems of Arkansas

The meeting will feature oral and poster presentations, working groups, workshops, field trips, a silent auction, a photo contest, and socials! Check separc.org for the latest meeting information.

Salamanders and Carbon Cycling

http://www.nytimes.com/2014/04/08/science/salamanders-hefty-role-in-the-forest.html?_r=1

<http://onlinelibrary.wiley.com/doi/10.1890/ES13-00302.1/full>

Batrachochytrium salamandrivorans (Bsal)

Bsal is a fungal pathogen that causes chytridiomycosis in salamanders and that has been wiping out salamander populations in Europe. We don't want to get this pathogen into the U.S. The USFWS listed 201 salamander species as injurious to help keep lethal fungus out of U.S.:

- [News release](#)
- [Interim rule](#) as published in the Federal Register

[Link](#) to Yap et al. (2015) Bsal article

[PARC National Disease Task Team website](#)

Do you have a pet salamander?

Please visit [this link](#)!

Reporting Dead or Dying Amphibians and Reptiles

PARC Friends and Colleagues:

The PARC Disease Task Team has created a system for people in the U.S. and Canada to report an incident of sick, dying, or multiple dead amphibians or reptiles. Simply send an email to: herp_disease_alert@parcplace.org

IMPORTANT: Include in your email:

1. Your name and e-mail address (for any follow-up questions)
2. What you saw
3. Where it was (city, state and other location information, e.g., name of park or forest)
4. What types of animals were involved (species [if you are sure of the identification] and life stages observed [eggs, larvae, subadults, adults])
5. Is it ongoing (some sick-looking animals that are alive? or only dead or decayed animals observed?)
6. Any photos or other relevant information

The State or Provincial contacts for herpetofaunal diseases will be alerted, and they may contact you further for additional information. Following the report, the managing agency will make a decision on whether or not a follow-up action is needed. This system will help us to facilitate early detection and rapid response actions, where possible. It will also aid our understanding of the scope and severity of emerging infectious diseases.

Read more about amphibian and reptile diseases and efforts to help them [here](#), and specific information regarding the salamander fungus and associated efforts can be found [here](#).

Thank you in advance for your help to keep our herps healthy!

PARC Disease Task Team

Habitat Management Guidelines (HMGs; and other regional products!)

<http://www.nwparc.org/products.html>

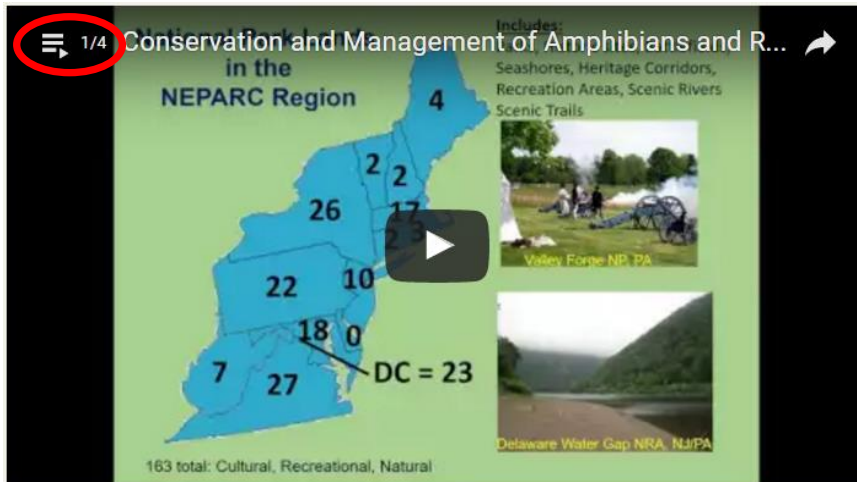
<http://www.mwparc.org/products/>

<http://northeastparc.org/>

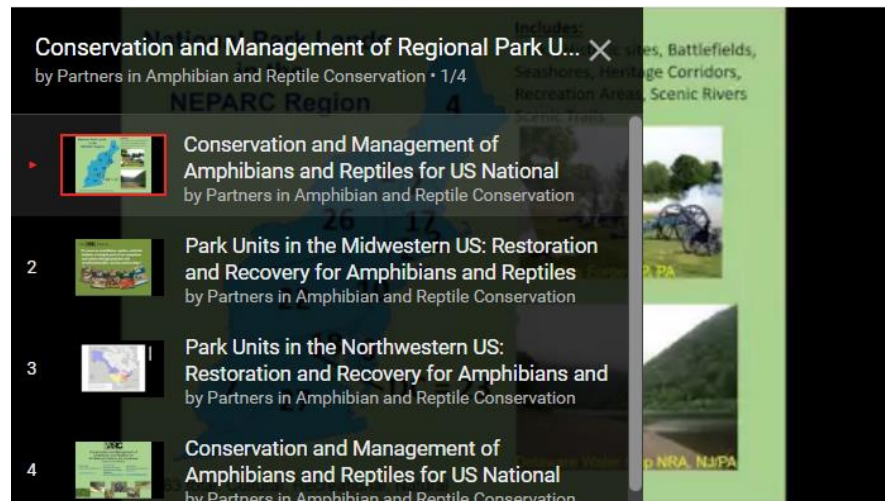
<http://separc.org/products/>

To purchase the SW HMG for \$15 + S&H, visit [this Amazon link](#).

To view the HMG webinars, visit [this link](#). Click the upper left corner of this webinar box.



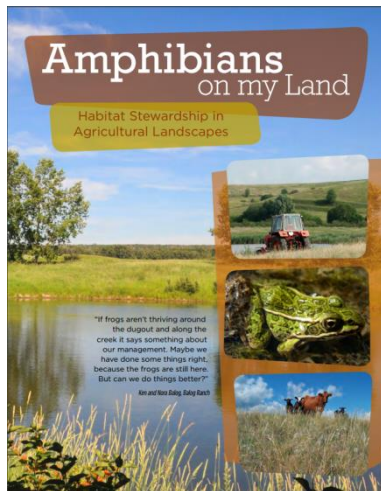
All four webinars will then show, as you see here:



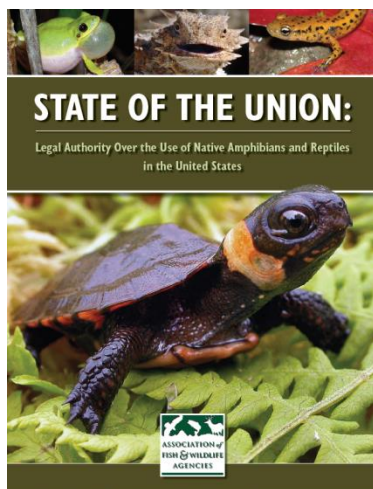
Inventory and Monitoring

[Amazon link](#) to purchase (for \$50 + S&H) *Inventory and Monitoring: Recommended Techniques for Reptiles and Amphibian, with Application to the United States and Canada* by Graeter, G. J., K. A. Buhlmann, L. R. Wilkinson, and J. W. Gibbons (Eds.). 2013. Partners in Amphibian and Reptile Conservation Technical Publication IM-1, Birmingham, Alabama

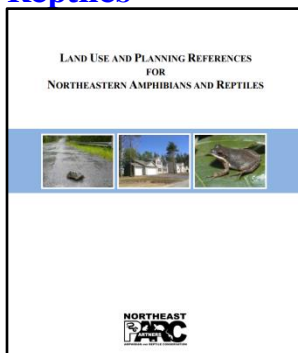
[Link to Amphibians on My Land: Habitat Stewardship in Agricultural Landscapes](#)



[Link to State of the Union: Legal Authority Over the Use of Native Amphibians and Reptiles in the United States](#)



[Link to Land Use and Planning References for Northeastern Amphibians and Reptiles](#)



Department of Defense (DoD)

- [Photo library](#)
- [DoD herp webinars](#); scroll down to NR Program Webinar Series Presentations (NR = natural resources)
- [Strategic Plan for Amphibian and Reptile Conservation and Management on Department of Defense Lands](#)

Priority Amphibian and Conservation Areas (PARCAs)

- Link to [PARCA info](#)
- [Model Criteria and Implementation Guidance for a Priority Amphibian and Reptile Conservation Area \(PARCA\) System in the U.S.](#)

Wetland Restoration Trainings

Contact Tom Biebighauser:

Thomas R. Biebighauser
Wildlife Biologist & Wetland Ecologist
Wetland Restoration and Training LLC
3415 Sugar Loaf Mountain Road
Morehead, KY 40351 USA
(606) 356-4569 cell
tombiebighauser@gmail.com
www.wetlandrestorationandtraining.com

[Link to information about the Alison Haskell Award for Excellence in Herpetofaunal Conservation](#)

CONSERVATION

Herpetological Review, 2015, 46(4), 666–671.
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SSAR and PARC: A Synergy of Science and Conservation Action



The July 2015 meeting of the Society for the Study of Amphibians and Reptiles (SSAR) in Lawrence, Kansas, served as a unique opportunity to formalize and enhance the relationship between Partners in Amphibian and Reptile Conservation (PARC) and SSAR. Throughout PARC's now 16-year history, SSAR members have engaged in PARC meetings and vice versa. However, this was the first time we collaborated directly on conference content. As part of this strengthened relationship, PARC was asked to put together an article for *Herpetological Review* about our past accomplishments and current activities. In particular, we were asked to consider where SSAR members fit into PARC's past, present, and future. The answer: Everywhere!

PARC's mission: *To conserve amphibians, reptiles and their habitats as integral parts of our ecosystem and culture through proactive and coordinated public/private partnerships.*

As we all know, effective management and conservation is dependent on sound science. Researchers are compiling an immense amount of data via an ever-increasing toolbox of techniques, which has the potential to fundamentally change conservation actions. However, all too often individuals charged with making policy or on-the-ground conservation decisions are unable stay abreast of the most current findings to improve and enhance management and policy decisions. To further compound this problem, researchers often struggle to get their findings into an application setting for natural resource managers. Enter PARC, whose mission is accomplished through partnerships—we engage experts in both the science and management realms to achieve conservation guidance and on-the-ground action. We provide recommendations and guidelines based on sound science and common sense; we also facilitate real conservation action.

PARC's Vision: *To provide leadership in the implementation of effective amphibian and reptile conservation on a local, state, regional, national and international scale in order to foster improved conditions for amphibians, reptiles and their habitats; one where common species remain common, and the future persistence of endangered and rare species is more certain.*

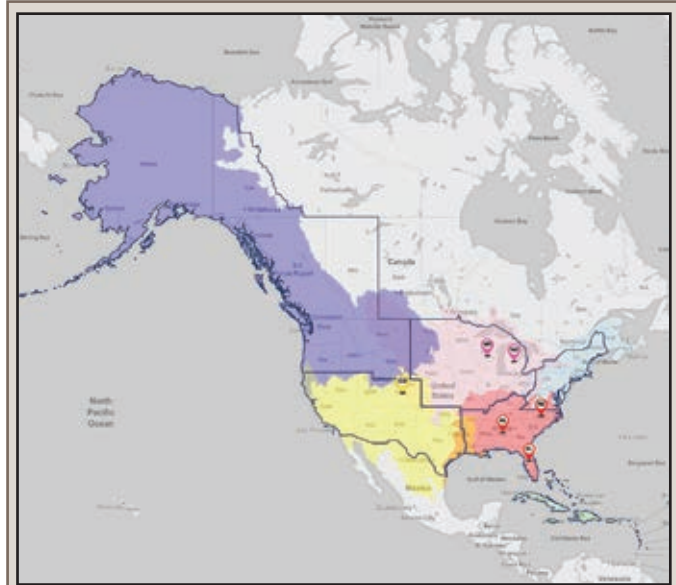


FIG. 1. Map of PARC regions, with regional working groups outlined in black, based on political boundaries. However, colored shading based on ecoregional boundaries is also included to depict how people may engage in PARC based on the location of their species of interest, research sites, or habitats with which they are most familiar; there are no constraints for participation solely based on physical address.

The partnership that comprises PARC is diverse, and includes representatives of government, industry, nongovernmental organizations, private consultants, interested individuals, and academia. Our membership now extends from western Canada throughout the continental US and into the Caribbean (Fig. 1). PARC is unique in that anyone and everyone can get involved,

PRIYA NANJAPPA*

Association of Fish and Wildlife Agencies/Partners in Amphibian and Reptile Conservation, Washington, D.C. 20002, USA

JENNIFER M. WILLIAMS

Partners in Amphibian and Reptile Conservation, Fort Collins, Colorado 80525, USA

JOSEPH J. APODACA

Warren Wilson College, Swannanoa, North Carolina 28778, USA

ALVIN R. BREISCH

Roosevelt Wild Life Station at SUNY-College of Environmental Science and Forestry, Syracuse, New York 13210, USA

*Corresponding author; e-mail: pnanjappa@fishwildlife.org

PARC MILESTONES

2015	<ul style="list-style-type: none"> • PARC co-sponsors the SSAR annual conference • 1st meeting of the Caribbean subregional chapter • 1st ever HerpBlitz, Pecos National Historic Park
2014	<ul style="list-style-type: none"> • PARC celebrates its 15th anniversary • PARC symposium, "15 and Forward," with interactive discussion on future directions, at The Wildlife Society annual conference • Year of the Salamander campaign
2013	<ul style="list-style-type: none"> • Inventory and Monitoring recommended techniques manual is published • PARC receives The Wildlife Society's Group Achievement Award • PARC symposium, "Impact of Energy Development on Amphibians and Reptiles in North America" • 1st Wisconsin PARC state chapter meeting • Year of the Snake campaign • Approval of Florida PARC state chapter • Approval of Caribbean subregional chapter
2012	<ul style="list-style-type: none"> • PARC officially endorses the Standard English and Scientific Names list produced by SSAR and other herpetological societies • Midwest Habitat Management Guidelines Published (2nd edition) • Year of the Lizard campaign
2011	<ul style="list-style-type: none"> • 1st presentation of the merit-based PARC Visionary Leader Award • 1st year of the annually presented Alison Haskell Award for Excellence in Herpetofaunal Conservation • PARC initiates annual reports (posted to our website, www.parcplace.org) • Year of the Turtle campaign • Approval of the Wisconsin PARC state chapter
2010	<ul style="list-style-type: none"> • 1st PARC, ARC, and USFS co-sponsored Wetland Restoration workshop • PARC and USFS co-sponsored symposium, "Guiding the Way: Using Amphibians and Reptiles as Models to Enhance Ecosystem Connectivity and Transportation Planning for Small Vertebrates"
2009	<ul style="list-style-type: none"> • PARC celebrates its 10-year anniversary; commemorative publication on PARC website • 1st meeting of the Alabama state chapter
2008	<ul style="list-style-type: none"> • 1st Northwest PARC meeting • 1st Michigan PARC state chapter meeting • 1st AFWA Amphibian & Reptile Subcommittee (PARC's state advisory committee) meeting • Northwest Habitat Management Guidelines published
2007	<ul style="list-style-type: none"> • PARC co-sponsored international conference, "Amphibian Declines and Chytridiomycosis: Translating Science into Urgent Action" • 1st PARC and USFS co-sponsored Habitat Management Training workshop • USGS and PARC co-sponsored symposium, "Understanding Agriculture's Effects on Amphibians and Reptiles in a Changing World"
2006	<ul style="list-style-type: none"> • PARC Strategic Planning workshop • Southeast Habitat Management Guidelines published • Northeast Habitat Management Guidelines published
2005	<ul style="list-style-type: none"> • 1st PARC and USFS co-sponsored Inventory & Monitoring Training workshop
2004	<ul style="list-style-type: none"> • State Agencies Coordinator position established • 1st meeting of the North Carolina State Chapter
2003	<ul style="list-style-type: none"> • PARC and DAPTF co-sponsored Cricket Frog decline workshop
2002	<ul style="list-style-type: none"> • Federal Agencies Coordinator position established • 1st Midwest PARC meeting • Midwest Habitat Management Guidelines Published (1st edition) • 1st Southwest PARC meeting • 1st Federal Agencies Steering Committee Meeting
2001	<ul style="list-style-type: none"> • PARC Habitat Management Guidelines conference • PARC Federal Agencies Memorandum of Understanding signed by 7 agencies
2000	<ul style="list-style-type: none"> • 1st Southeast PARC meeting • 1st Idaho PARC meeting
1999	<ul style="list-style-type: none"> • Inaugural PARC organizational meeting • 1st Northeast PARC meeting

Fig. 2. Timeline of major PARC activities and accomplishments, 1999–present.

regardless of their level of experience or expertise with amphibians or reptiles. To be a PARC member, the only requirement is a passion for the conservation of herpetofauna.

Another distinctive trait of PARC is that it is truly a bottom-up organization, where those in the field conducting scientific research, or those struggling with management challenges, come together to help provide expert-based guidance and conservation action at state, regional, or even national scales. We accomplish this primarily through our five Regional Working Groups and associated state chapters, which collectively form the foundation of PARC. These groups meet annually and identify amphibian and reptile conservation needs and goals. Goals identified then become projects or initiatives of Task Teams at the state or regional level, and some are carried forward via regional leadership to the Joint National Steering Committee. When multiple regions share the same priorities, their efforts are coordinated through National Task Teams.

Facts and Figures:

In its short history, PARC can attribute:

- Over **\$4.1 Million** in grants and contributions that were directly related to PARC conservation activities and products.
 - Many of these grants also supported post-doctoral, doctoral, or master's degree student research.
 - Sources were primarily federal grant programs and direct contributions, including Landscape Conservation Cooperatives, Competitive State Wildlife Grants, Regional Conservation Needs (Northeastern US), National Park Service, US Fish & Wildlife Service, Bureau of Land Management, Department of Defense Legacy Resource Management Program, US Forest Service (USFS), and others.
 - Sources of cash and in-kind matching funds for these grants included numerous state fish and wildlife agencies and academic institutions, and other private and nongovernmental partners, such as The Orianna Society and the Amphibian and Reptile Conservancy (ARC).
- Over **184,000** hits to our jobs page since we relaunched our website in November 2010.
- Over **3600** "likes" on our national Facebook page, and many more on each regional page.
- Over **2000** subscribers to our listserv, which has evolved over the years into an announcement-only, informational list.
- Nearly **500** followers on our national Twitter handle, @PARCorg.

PARC'S HISTORY, IN BRIEF

PARC was established in 1999 to address widespread declines, extirpations, and range reductions of amphibians and reptiles primarily in the United States. Over 200 people attended the inaugural PARC meeting, including 40 representatives of academic and research institutions. PARC was created as the first and only network to focus on all native amphibians and reptiles, regardless of conservation status. We work proactively to benefit herpetofaunal populations before regulatory actions are required. Our intent is to "keep common species common." Because of PARC's inclusive nature, with respect to people as well as herpetofauna, we believe it to be the most comprehensive conservation effort ever undertaken for amphibians and reptiles.

As shown in Fig. 2, we have maintained steady growth overall since our inception. An increase in activity occurred starting in

2006, facilitated by an extended period with both of PARC's paid national coordinators in place (see below). The two coordinators were able to work together to initiate issue-driven conferences and training workshops, begin identifying strategic directions for PARC, and support the regional working groups that were seeking to achieve structure and stabilization. Although there has been occasional turnover among the two coordinator positions, both are filled currently, and we are again experiencing another burst of activity as an organization.

Our 2007 international conference, "Amphibian Declines and Chytridiomycosis: Translating Science into Urgent Action" convened over 200 participants representing nine countries across four continents, including 68 attendees from academic research institutions. We held our 2010 and 2013 roads and energy symposia, respectively, at the Joint Meetings of Ichthyologists and Herpetologists. In 2014, our "15 and Forward" symposium at The Wildlife Society annual conference celebrated PARC's 15 years of growth and accomplishments; interactive sessions helped identify potential areas of improvement and future directions.

THE PARC ORGANIZATION

Joint National Steering Committee.—The 21-member governing body of PARC with representatives from each of five regional working groups, external advisory committees, the national chairs and coordinators, and three at-large members representing industry, zoos, and nongovernmental organizations (Fig. 3) (Table 1).

External Advisory Committees.—The chairs of two external advisory committees serve on PARC's Joint National Steering Committee.

Federal.—Eleven (11) federal natural resource and land management agencies are represented on PARC's Federal Agencies

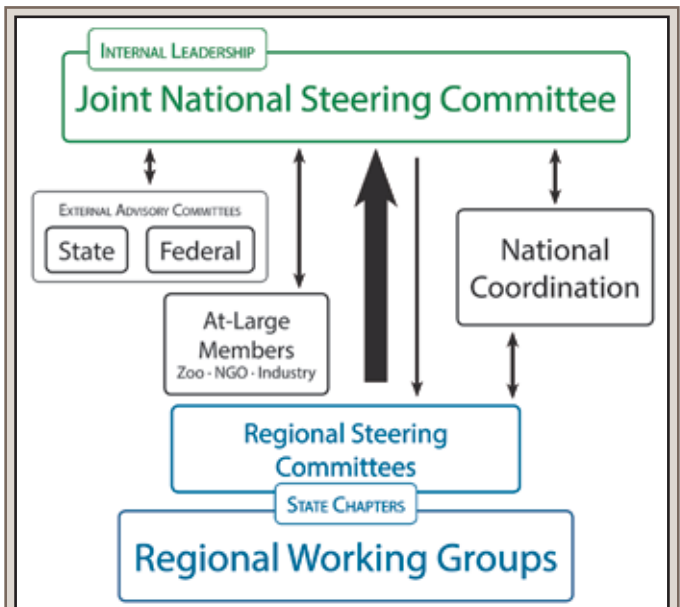


FIG. 3. The PARC organizational structure. Arrows depict the general flow of communication. Regional working groups form the foundation of PARC, driving up priorities and issues via their regional co-chairs to the Joint National Steering Committee (JNSC), the governing body of PARC. These co-chairs as well as the co-chairs of the external advisory groups, and at-large members, sit on the JNSC. Staffing is provided by two National Coordinators.

TABLE 1. Membership of the Joint National Steering Committee, the governing body of PARC, as of December 2015. Regional leadership elections occur at regional working group meetings, and national leadership elections occur each Spring.

Name	Affiliation	PARC Role
JJ Apodaca	Warren Wilson College, North Carolina	National Co-chair
Kristin Stanford	Ohio Sea Grant and Ohio State University Stone Lab	National Co-chair
Jen Williams	PARC, Colorado	National Coordinator, federal agencies
Priya Nanjappa	Association of Fish & Wildlife Agencies/PARC, DC	National Coordinator, state agencies
Alex Navarro	University of Maryland	Communication Specialist
Rob Lovich	US Naval Facilities Command, Southwest, California	Federal Agencies Steering Committee Co-chair
Casey Burns	Bureau of Land Management, Alaska	Federal Agencies Steering Committee Co-chair
Patty Riexinger	New York Department of Environmental Conservation	AFWA Amphibian & Reptile Subcommittee Chair
Eric Gardner	Washington Department of Fish and Wildlife	AFWA Amphibian & Reptile Subcommittee Vice-chair
Erica Hoaglund	Minnesota Department of Natural Resources	MW PARC Co-chair
Mark Jordan	Indiana-Purdue University, Fort Wayne	MW PARC Co-chair
Kathy Gipe	Pennsylvania Fish and Boat Commission	NE PARC Co-chair
Brian Zarate	New Jersey Department of Environmental Protection	NE PARC Co-chair
Kris Kendell	Alberta Conservation Association	NW PARC Co-chair
Betsy Howell	US Forest Service, Washington	NW PARC Co-chair
Andrea Drayer	Eastern Kentucky University	SE PARC Co-chair
Tom Gorman	Virginia Tech	SE PARC Co-chair
Michelle Christman	US Fish and Wildlife Service, New Mexico	SW PARC Co-chair
Clint Henke	ERO Resources, Colorado	SW PARC Co-chair
Jessica Homyack	Weyerhaeuser, North Carolina	At-large Member, Industry
James Lewis	Amphibian Survival Alliance, Virginia	At-large Member, NGO
Steve Olson	Association of Zoos and Aquariums, DC	At-large Member, Zoos
Jeff Holmes	Amphibian and Reptile Conservancy, Tennessee	ARC representative, Ex-officio
Ed Christoffers	Amphibian and Reptile Conservancy, Pennsylvania	ARC representative, Ex-officio
Linda Weir	US Geological Survey, Maryland	Past National Co-chair, Ex-officio
Polly Conrad	Utah State University	Past National Co-chair, Ex-officio

Steering Committee (FASC). These agencies are signatories to a PARC Memorandum of Understanding, established in 2001 and renewed every ten years, which formalizes their support and participation in the organization.

State.—States are represented in PARC via the Amphibian & Reptile Subcommittee of the Association of Fish and Wildlife Agencies (AFWA), which is a coordinating entity for all state and territorial fish and wildlife agencies in the United States and Canada. The subcommittee was established in 2008.

Regional Working Groups.—These groups are the foundation of PARC, where most of our members began their involvement. The Northeast (www.northeastparc.org) and Southeast (www.separc.org) are the oldest of the five regional working groups (regions), having initiated annual meetings in 1999 and 2000, respectively, shortly following PARC's first organizational meeting. The Midwest (www.mwparc.org) and Southwest (www.swparc.org) regions were initiated in 2002, and began regular annual meetings in 2006 and 2007, respectively. The Northwest region began meeting in 2008, and in the following year, expanded into western Canada. In 2013, the Southeast region expanded into the Caribbean.

Multiple examples exist in each region of people who became connected with PARC as undergraduate or graduate students, often due to involvement and encouragement by their professors to attend regional PARC meetings. In turn, many students have

risen into leadership roles within PARC. One such example is our current Joint National Steering Committee chair, Dr. JJ Apodaca (Professor of Conservation Biology, Warren Wilson College). JJ began attending Southeast PARC regional meetings as a first-year graduate student. He went on to become co-chair of that region, and now leads the PARC organization.

Among those who have chaired the regions or the national steering committee over the years, representatives have included:

- 20 from academic research institutions
- 10 from federal agencies
- 20 from state/provincial agencies
- 1 from industry
- 4 from zoos
- 3 from non-governmental organizations
- 6 from private consultancies

National Coordination.—There are two paid, national coordinators for PARC. The Federal Agencies Coordinator, Dr. Jen Williams, is the only full-time, paid national employee for PARC. The position is supported by the contributions of several federal agencies, and is term-limited to four years. However, efforts are underway to make this role a permanent, federal position, given the longevity of support and need for such coordination capacity among the federal agencies.

The State Agencies Coordinator, Priya Nanjappa, is the only other paid national employee for PARC. This position was initially devoted to PARC and herpetofaunal conservation, and was supported by state and nongovernmental sources and grants. However, due to various funding challenges, and to increase the stability of the position, the position portfolio was shifted. As such, 1/3 of Priya's time is spent in her PARC role while another 1/3 of her time is spent coordinating state agency amphibian and reptile conservation activities. The remaining 1/3 of her time is spent addressing invasive species policy (all taxa) for AFWA. The position is now funded by a variety of state, federal, and private sources.

Both Jen and Priya address general national PARC coordination, including conference and symposia development, implementation of national priorities, and serving as national points of contact for PARC. These duties are in addition to specific projects and tasks for federal and state agencies, respectively. The federal position is currently hosted by the National Park Service in Fort Collins, Colorado, while the state position is hosted by the Association of Fish and Wildlife Agencies in Washington, DC.

THE AMPHIBIAN AND REPTILE CONSERVANCY

The Amphibian and Reptile Conservancy (ARC) is a 501(c)(3) non-profit organization that supports amphibian and reptile conservation, and PARC activities. Originally named Friends of PARC, Inc., it was founded by former PARC leaders in November 2007 and received its non-profit, charitable organization tax status in 2009. Because PARC is not an incorporated entity, ARC serves as the fiscal sponsor for PARC, handling and distributing funds, fundraising, and managing grants. Staffed by two volunteer officers and managed by a board of eight directors, ARC's operations are supported by product sales and a modest amount from overhead from grant management, as well as from donations from partners and the general public. To learn more about ARC or to read their prior annual reports, visit www.amphibi-anandreptileconservancy.org.

CURRENT AND FUTURE CONSERVATION PROGRAMS AND PROJECTS

Priority Amphibian and Reptile Conservation Areas (PARCAs).—The concept of identifying geographic areas that are important for the survival of herpetofauna arose about the same time within the southeast, northeast and southwest regions. Given this broad interest, a national task team was formed in 2008 to develop criteria and an implementation plan, completed in 2012. In 2015, the PARC Joint National Steering Committee agreed to make the implementation of PARCAs a national priority for the next three to five years. Modeled in part on the successful Important Bird Areas concept, this effort aims to promote voluntary conservation actions through the identification of the most significant geographic areas important for herpetofauna. Determination of PARCAs is intended to be coordinated nationally, but implemented locally at the state or regional scale. 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. Shapefiles for PARCAs will be made available for download via the PARC website starting in 2016. Our hope is that these areas will help scientific and conservation communities leverage research and management activities within them.

Roads Task Force.—In 2015, Johns Hopkins University Press published the book, *Roads and Ecological Infrastructure*, part of their new book series with The Wildlife Society. This book was a direct result of the PARC National Roads Task Force, which was created to develop solutions and conservation strategies for passage, connectivity, collision, and other road-related issues for amphibians and reptiles, in partnership with transportation entities. The book offers the most current research and knowledge in maintaining ecosystem connectivity and natural ecological functions while minimizing road effects on animals, including herpetofauna, small mammals, and other small vertebrates. Support for this effort has been generously provided by the USFS, ACO Wildlife, and ARC.

Disease Task Team.—Several recent amphibian and reptile pathogens, such as *Batrachochytrium salamandrivorans* (*Bsal*), ranavirus, and snake fungal disease, have received significant attention for their threat to herpetofaunal biodiversity. To address these threats, PARC formed a disease task team in January 2015 composed of biologists, veterinarians, and wildlife managers from the United States, Canada, and Mexico, with the goal of facilitating and guiding communication, collaboration, and response to outbreaks of herpetofaunal diseases. The team has developed a website, created a handout on *Bsal*, started a regional list of professional contacts when new disease outbreaks occur, and supplied input on the North American response to *Bsal*.

Federal Agency Conservation Activities.—PARC's federal agency partners have voiced their need for, and interest in, receiving conservation and management guidance for amphibians and reptiles. Very few agencies have full-time, permanent herpetologist positions. Given this lack of herpetofaunal management and conservation capacity, they have been strong supporters, both financially and in an advisory role, for PARC to help meet federal agency information and capacity needs. In 2009, the Department of Defense (DoD) took a particular interest in elevating the profile of herpetofaunal conservation on their lands and initiated an agency-based subgroup, DoD PARC. In 2015, a DoD PARC Strategic Plan was officially approved and implementation is underway.

State Agency Conservation Activities.—Only about 1/2 of state fish and wildlife agencies have full-time herpetologists on staff, yet all states are charged with managing herpetofauna. In particular, states are charged with overseeing personal and commercial uses of herpetofauna. In 2000, Congress mandated states to develop State Wildlife Action Plans that identified species of greatest conservation need, and priority conservation goals and actions. With PARC starting around the same time, partnering to provide the latest scientific information that could aid the development of these plans was a natural fit. Over the years, PARC representatives have advised in the development and revision, and have developed products that would guide the implementation, of these State Wildlife Action Plans. One state that has been particularly innovative in developing their herpetofaunal conservation capacity is North Carolina. There, the coordinator of the state PARC chapter is a full-time, paid employee of the North Carolina Wildlife Resources Commission. The state coordinator and other chapter members work together on matters of herpetofaunal conservation and management.

Through the financial support and in-kind contributions of both state and federal agencies, PARC has developed several conservation projects for them geared toward their employees or toward conservation and management on their lands. We implement these projects using our network of scientific and topical

experts as authors, information resource providers, instructors, or project leads. The following are a subset of these existing and future resources:

- Habitat Management Guidelines regional book series
- Inventory and Monitoring recommended techniques manual
- Training workshops in
 - habitat management, and inventory and monitoring guidance
 - law enforcement, including basic species identification and handling
 - wetland restoration and creation, resulting in the restoration or creation of more than 40 wetlands since 2013
- Guidance for sustainable use of herpetofauna through regulatory measures
- Webinars on scientific research findings, and in basic herpetology
- Identification of PARCAs, and incentivizing conservation actions within them
- Climate vulnerability assessments of priority herpetofauna
- Coordinated sampling and surveillance for the *Bsal* fungal pathogen

INTERNSHIPS

Starting in 2014, PARC initiated internships geared toward students or others interested in assisting us in our communications, social media, and photo curation. Such opportunities for engagement become available periodically, and are excellent ways to network within our broad partnership, demonstrate leadership and initiative on a resumé, and, if desired, gain college credit.

SUMMARY

Science is in everything that PARC does; the involvement of scientists and experts on species and conservation issues is what keeps our efforts current and useful. At the national scale, we tackle large, overarching issues, while at regional and state scales, we tackle more specific and focused issues. At all levels, there are opportunities for anyone, whether an undergraduate or graduate student or a tenured professor, to become involved or even lead in our conservation initiatives and focused projects.

The PARC connection to the 2015 SSAR meeting provided an opportunity for our colleagues who are not typically able to attend scientific meetings to hear talks on cutting edge research and to network with the SSAR community. The social events were especially enjoyable, with the chance to meet and talk with

our herpetological heroes and rising stars alike. PARC members were greatly appreciative to SSAR for the opportunity to partner in the planning of the conference, particularly the time granted to PARC to present information about our activities during the plenary session, and also the space provided to create nontraditional, applied symposia. Many students approached PARC members throughout the meeting to say that they were previously unfamiliar with our organization and indicated an interest in becoming more involved.

The chance to reach so many budding and established herpetologists in one place was immensely valuable to PARC. We hope, following the meeting, SSAR members think of PARC more readily, and perhaps this article will further facilitate engagement from the SSAR community in the future. To participate in PARC meetings or activities, please visit our website (www.parcplace.org) for additional information, or contact our national coordinators, Priya Nanjappa (pnanjappa@fishwildlife.org) or Jen Williams (jen_williams@nps.gov). We look forward to further strengthening this important partnership with SSAR and hope you will join us at our upcoming regional and state chapter meetings. Likewise, we hope to see you all again as part of further PARC involvement in future SSAR meetings.

Acknowledgments.—We are deeply indebted to Joe Mendelson for the invitation to PARC to collaborate with SSAR on the 2015 meeting, and for his additional efforts to better connect our two organizations in the past few years. We also acknowledge Kraig Adler, Bob Aldridge, Aaron Bauer, Rafe Brown, Rich Glor, and Robert Hansen for their interest and assistance in including PARC as a co-sponsor of the 2015 SSAR meeting, leading to the development of this manuscript. We thank Kraig Adler, in particular, for the idea to create such an article, and suggestions for content as well as improvements to early drafts. We are appreciative to Linda Weir and Kristin Stanford for their ideas and insights in the development of this manuscript, and in planning content for the meeting. Our gratitude extends to Phillip deMaynadier, Bill Sutton, David Bender, and Danny Martin for their direct assistance in planning and coordinating some of the PARC symposia and events held at the 2015 SSAR meeting, and to Kimberly Andrews, Bob Brodman, Jason Daniels, Allison Sacerdote-Velat, John Moriarty, and George Pisani for their time and suggestions as part of the PARC-SSAR planning team. Valorie Titus was instrumental in coordinating items for, and overseeing, the PARC booth, and student volunteers Alex Novarro, Sarah Bailey, and Kiley Briggs provided excellent assistance during the PARC symposia with loading talks and timing speakers. Scott Hove provided us with excellent graphic design of the figures in this paper. Finally, we are grateful for the financial support provided by the Amphibian and Reptile Conservancy, and Jeff Holmes and Ed Christoffers in particular, toward the PARC events and speakers at the 2015 SSAR meeting.

Memorandum of Understanding

BETWEEN THE

**Bureau of Land Management
U.S. Department of Defense
U.S. Environmental Protection Agency
U.S. Farm Service Agency
U.S. Fish and Wildlife Service
U.S. Forest Service
U.S. Geological Survey
U.S. National Park Service
National Marine Fisheries Service
Natural Resources Conservation Service
Animal and Plant Health Inspection Service**

REGARDING

**The Partners in Amphibian and Reptile Conservation
Federal Agencies Steering Committee**

This Memorandum of Understanding (MOU) is made and entered into by, between and among the U.S. Bureau of Land Management; the U.S. Department of Defense; the U.S. Environmental Protection Agency; the U.S. Farm Service Agency; the U.S. Fish and Wildlife Service; the U.S. Forest Service; the U.S. Geological Survey; the U.S. National Park Service; the U.S. National Marine Fisheries Service; the U.S. Natural Resources Conservation Service; and the U.S. Animal and Plant Health Inspection Service, collectively referred to as the "Agencies."

I. Purpose

The purpose of the MOU is to provide a framework for cooperation and coordination among the Agencies in achieving the objectives of the Partners in Amphibian and Reptile Conservation (PARC) Federal Steering Committee. PARC is a coalition of Federal and State agencies, tribes, organizations, and industry groups who have agreed to contribute to PARC's mission, "to conserve amphibians, reptiles, and their habitats as integral parts of our ecosystem and culture through proactive and coordinated public/private partnerships." The PARC administrative structure includes a Federal Steering Committee, which coordinates PARC-related work among the Agencies, and which provides recommendations to the PARC Joint Steering Committee. Provisions of this MOU are designed to facilitate identification and implementation of actions that the Agencies can make together to facilitate the work of the PARC Federal Steering Committee.

II. Objectives

It is the desire of the Agencies to cooperate fully in matters relating to the conservation of amphibians and reptiles and their habitats. Cooperative efforts include, but are not limited to:

- 1) Identification of species, communities, ecosystems, areas, and other landscape features important to amphibian and reptile conservation;
- 2) Identification of species and habitats of concern, and corresponding risk factors and threats;
- 3) Development of procedures, practices, and programs that promote conservation of amphibians and reptiles and that reduce risks or avert threats;
- 4) Implementation of integrated inventories, monitoring, and data sharing;

- 5) Implementation of joint research;
- 6) Development and sharing of educational and scientific information important to conservation of amphibians and reptiles; and
- 7) Development and implementation of management or restoration projects for important areas (or habitats) in need of improvement.

III. The Agencies Shall

- 1) Cooperate in carrying out the purpose and objectives of this MOU.
- 2) Consider entering into specific agreements or contracts with each other to provide support for implementation of programs or projects that advance the objectives of this MOU.
- 3) Make resources of the Agencies available for furtherance of the purpose and objectives of this MOU, subject to applicable laws, regulations, and availability of funding.
- 4) Consider sharing relevant budget information and developing joint budget initiatives where appropriate.
- 5) Make lands administered by the Agencies available for the furtherance of the purpose and objectives of this MOU, subject to applicable laws, regulations, and management plans.
- 6) Utilize existing cooperative agreements to leverage opportunities to work together for amphibian and reptile conservation.
- 7) Consider offering specific agreements to partner agencies and organizations to advance the purposes of the PARC mission, subject to applicable laws and regulations.

IV. Authorities

This MOU is entered under the provisions of the following laws:

National Park Service Organic Act of 1916 (16 U.S.C. §§1-3) Fish and Wildlife Act of 1956 (16 U.S.C. § 742 *et seq.*)
 Multiple-Use Sustained-Yield Act of 1960 (16 U.S.C. §§ 528-531) Sikes Act (16 U.S.C. § 670a--670o)
 National Wildlife Refuge Administration Act of 1966, as amended by the National Wildlife Refuge System Improvement Act of 1977 (16 U.S.C. § 688dd *et seq.*)
 Endangered Species Act of 1973 (16 U.S.C. § 1531 *et seq.*)
 Federal Land and Policy Management Act of 1976 (43 U.S.C. § 1701 *et seq.*)
 National Forest Management Act of 1976 (16 U.S.C. § 1600 *et seq.*)
 Fish and Wildlife Coordination Act (16 U.S.C. §§ 661-667)
 Forest and Rangeland Renewable Resources Research Act of 1978 (16 U.S.C. §§ 1641-1648) National Parks Omnibus Management Act of 1998 (16 U.S.C. §§ 5931-5937)
 USGS Organic Act of March 3, 1879, as amended, 43 U.S.C. § 31 *et seq.* and 43 U.S.C. § 36c.
 Plant Protection Act of June 20, 2000, as amended, 7 USC §§ 7701 *et seq.*
 Animal Health Protection Act of May 13, 2002, as amended, 7 USC §§ 8301 *et seq.*
 Animal Damage Control Act of March 2, 1931 (7 U.S.C. § 426. Predatory and other wild animals) and December 22, 1987 (7 U.S.C. § 426c. Control of nuisance mammals and birds and those constituting reservoirs of zoonotic diseases; exception)
 Animal Welfare Act of August 24, 1966 (7 USC §§ 2131 *et seq.*)

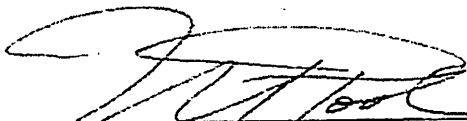
V. It is Mutually Agreed and Understood By, Between, and Among the Agencies that:

- 1) The Agencies will meet annually, or as needed, to discuss and reach consensus on guidelines for projects or programs to meet the purpose and objectives of this MOU.
- 2) This MOU in no way restricts any of the Agencies from participating in similar activities with other public or private agencies, organizations, groups, or individuals.
- 3) This MOU is neither a fiscal- nor a funds-obligation document. Any endeavor or transfer of anything of value involving reimbursement or contribution of funds between or among the Agencies will be handled in accordance with applicable laws, regulations, and procedures, including those for Government procurement and printing. Such endeavors will be outlined in separate agreements or contracts that shall be made in

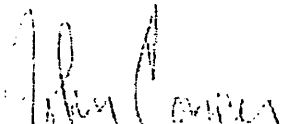
writing by representatives of the Agencies and shall be authorized independently by appropriate statutory authority. This MOU does not provide authority to transfer anything of value involving reimbursement or contribution of funds between or among the Agencies. Any contract or agreement for training or other services must comply with all applicable requirements for competition.

- 4) Modification within the scope of this MOU will be made by mutual consent of the Agencies, by the issuance of a written modification, signed and dated by the Agencies, prior to any changes being implemented.
- 5) Any of the Agencies may terminate their participation in this MOU, in whole or in part, prior to the date of expiration, by notifying the other Agencies in writing.
- 6) Additional Federal agencies may join in this MOU by notifying the Agencies in writing.
- 7) This MOU shall become effective the date of the last signature and will continue to be in effect until it is modified or terminated. This MOU may be modified or amended upon written consent of all Parties. This MOU may be terminated with a 30 calendar day written notice from any party.

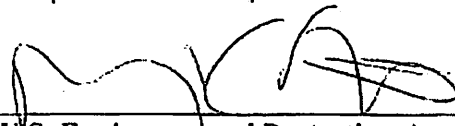
IN WITNESS THEREOF, the Parties hereto have executed this Memorandum of Understanding as of the last written date below.


Bureau of Land Management

11/27/2011
Date


U.S. Department of Defense

10/14/2011
Date


U.S. Environmental Protection Agency

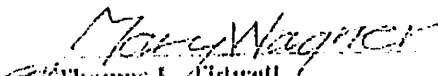
3/15/12
Date


Bruce Nelson
Farm Service Agency

10/13/11
Date


Rosemary W. Gould
U.S. Fish and Wildlife Service

3/14/2012
Date


Thomas L. Tidwell
Chief, U.S. Forest Service

2.8.2012
Date

Marcia McQuet
U.S. Geological Survey

September 27, 2011
Date

[Signature]
U.S. National Park Service

10/6/2011
Date

[Signature]
National Marine Fisheries Service

3/14/12
Date

Leonard Jordan
Natural Resources Conservation Service

3/14/2012
Date

Kevin Shea
Animal and Plant Health Inspection Service
Kevin Shea, Administrator
USDA, APHIS

1/6/2016
Date