

PARTNERS IN AMPHIBIAN AND REPTILE
CONSERVATION (PARC)



NATIONAL UPDATES
MARCH 2025

*Forging proactive
partnerships to
conserve amphibians,
reptiles, and the places
they live.*



Photos by: Brad O'Hanlon

FEDERAL AGENCIES STEERING COMMITTEE (FASC)



Framework for cooperation and coordination in matters relating to the conservation of amphibians, reptiles, and their habitats



NATIONAL TASK TEAMS

- Disease (DTT)
- Education/ Outreach
(Amphibian Week, Wild Turtle Week)
- Collaborative to Combat the
Illegal Trade in Turtles (CCITT)
- Ethical Herping (ETHOS)



May 4-10, 2025



Photos by: USGS, USFWS & Jenna Palmisano

DISEASE TASK TEAM

- Herp Disease Alert System (HDAS)
herpdiseasealert@parcplace.org
- Amphibian Disease Portal
- TWS: Managing Herp Health Symposium
- Ranavirus Reporting System
- Webinars
- Fact sheets
- Updated decontamination video



parcplace.org/species/herpetofaunal-disease-resources/



Works to prepare, detect and respond to the lethal salamander pathogen, *Batrachochytrium salamandrivorans* (Bsal)

salamanderfungus.org



What is Bsal?

Batrachochytrium salamandrivorans (Bsal) is an emerging pathogen that poses a serious threat to salamanders, newts, and related species. Clinical signs include skin lesions, lethargy, weight loss, and death.



Why do we care?

North America is a global center for salamander biodiversity with over 150 species found nowhere else in the world. Many of these animals bridge aquatic and terrestrial systems, where they play important ecological roles as predators and prey.



What do we do?

The North American Bsal Task Force integrates proactive management, policy, and research to coordinate a response to the Bsal threat.



AMPHIBIAN WEEK and WILD TURTLE WEEK

- Amphibian Week
 - ❖ >2,000 people in DC
 - ❖ Wild Hope Film Screening
- Wild Turtle Week
 - ❖ > 8 million reached online



May 4-10, 2025



June 9-13, 2025



<https://parcplace.org/education/>


COLLABORATIVE TO COMBAT THE ILLEGAL TRADE IN TURTLES



ETHOS

Ethical Herping and Observation Standards




American Birding
ASSOCIATION

Code of Birding Ethics • v. 2.1, Nov. 2019

--- Practice and promote respectful, enjoyable, and thoughtful birding as defined in this code ---
PLEASE SHARE IT WIDELY: ABA.ORG/ETHICS

1. Respect and promote birds and their environment.

(a) Support the conservation of birds and their habitats. Engage in and promote bird-friendly practices whenever possible, such as keeping cats and other domestic animals indoors or controlled, acting to prevent window strikes, maintaining safe feeding stations, landscaping with native plants, drinking shade-grown coffee, and advocating for conservation policies. Be mindful of any negative environmental impacts of your activities, including contributing to climate change. Reduce or offset such impacts as much as you are able.

(b) Avoid stressing birds or exposing them to danger. Be particularly cautious around active nests and nesting colonies, roosts, display sites, and feeding sites. Limit the use of recordings and other audio methods of attracting birds, particularly in heavily birded areas, for species that are rare in the area, and for species that are threatened or endangered. Always exercise caution and restraint when photographing, recording, or otherwise approaching birds.

(c) Always minimize habitat disturbance. Consider the benefits of staying on trails, preserving snags, and similar practices.

2. Respect and promote the birding community and its individual members.

(a) Be an exemplary ethical role model by following this Code and leading by example. Always bird and report with honesty and integrity.

(b) Respect the interests, rights, and skill levels of fellow birders, as well as people participating in other outdoor activities. Freely share your knowledge and experience and be especially helpful to beginning birders.

(c) Share bird observations freely, provided such reporting would not violate other sections of this Code, as birders, ornithologists, and conservationists derive considerable benefits from publicly available bird sightings.

(d) Approach instances of perceived unethical birding behavior with sensitivity and respect; try to resolve the matter in a positive manner, keeping in mind that perspectives vary. Use the situation as an opportunity to teach by example and to introduce more people to this Code.

(e) In group birding situations, promote knowledge by everyone in the group of the practices in this Code and ensure that the group does not unduly interfere with others using the same area.

3. Respect and promote the law and the rights of others.

(a) Never enter private property without the landowner's permission. Respect the interests of and interact positively with people living in the area where you are birding.

(b) Familiarize yourself with and follow all laws, rules, and regulations governing activities at your birding location. In particular, be aware of regulations related to birds, such as disturbance of protected nesting areas or sensitive habitats, and the use of audio or food lures.

--- Birding should be fun and help build a better future for birds, for birders, and for all people ---
--- Birds and birding opportunities are shared resources that should be open and accessible to all ---
--- Birders should always give back more than they take ---



DRAFT Ethical Herping Tenets

PARC promotes five Ethical Herping Tenets, which serve as a Code of Conduct for mindfully interacting with amphibians and reptiles. Herping is a type of recreational wildlife viewing specific to the search and observation of amphibians and reptiles. While there are many positive benefits of herping, understanding impacts to wildlife should be considered. These Tenets are designed to provide guidance to minimize risks to herpetofauna while they are being observed, and to encourage mindfulness of our own individual impact while enjoying and connecting with nature. PARC's complimentary Gold Standards of Herping and strategies to maximize compatibility provides more in-depth ethical herping guidance.

Following these Tenets promotes mindful herping and improves the wellbeing of the animals we enjoy. Learn more at <https://parcplace.org/education/herpethics/>

Tenet 1 – Respect Amphibians, Reptiles, and their Habitat

Avoid handling or capturing amphibians and reptiles unless necessary (e.g. moving an animal from a road). When amphibians and reptiles are handled, it causes stress, increases risk for injury or disease exposure, and may affect normal behaviors. Observing and photographing animals *in situ* is strongly encouraged.

Prior to visiting a site, consider if conditions are appropriate to find amphibians and reptiles while reducing negative impacts. Many amphibians, reptiles, and other wildlife depend on microhabitats created by various cover objects, such as tree bark, logs, and rocks. These microhabitats provide very specific temperature and moisture conditions upon which reptiles and amphibians depend. Disturbing these microhabitats can disturb and stress sheltering animals, alter or destroy the microhabitat conditions (e.g. dry out, warm/cool, silt-in, etc.) and in some cases, make them unusable. Care should be taken to minimize disturbing or altering microhabitats and cover objects. Bark should not be removed from trees. Objects, like rocks and logs, should be left in place, and animals should be observed when out and about.

Native amphibians and reptiles should not be collected or removed from the wild. Doing so causes undue stress, can spread pathogens and can negatively impact local populations.

Tenet 2 – Follow the Law, Regulations and Rules

Laws, regulations, and rules are critically important in protecting wildlife and must be adhered to. Furthermore, it is equally important to note that while an activity may be legal, those activities can still have significant and detrimental effects to individuals, populations, species, and habitats. It is best to observe native amphibians and reptiles *in situ* (e.g. in their natural habitat, undisturbed).

Laws, regulations, and rules vary by jurisdiction, ranging from federal to state to local levels. Ensure your activities are legal for the specific location. Be aware of, and follow all regulations and rules, which may differ among states and locations (e.g. National Parks, National Forests, State Forests, Tribal Lands, or Wildlife Management Areas (WMA's), etc.).

ARC 2024/2025 Updates



ARC
Amphibian and Reptile
Conservancy

How We Work To Achieve Our Goals



On the ground
conservation

Broad
strategy

Current Conservation Goals and Approaches



Identifying
PARCAs

On the
ground
projects

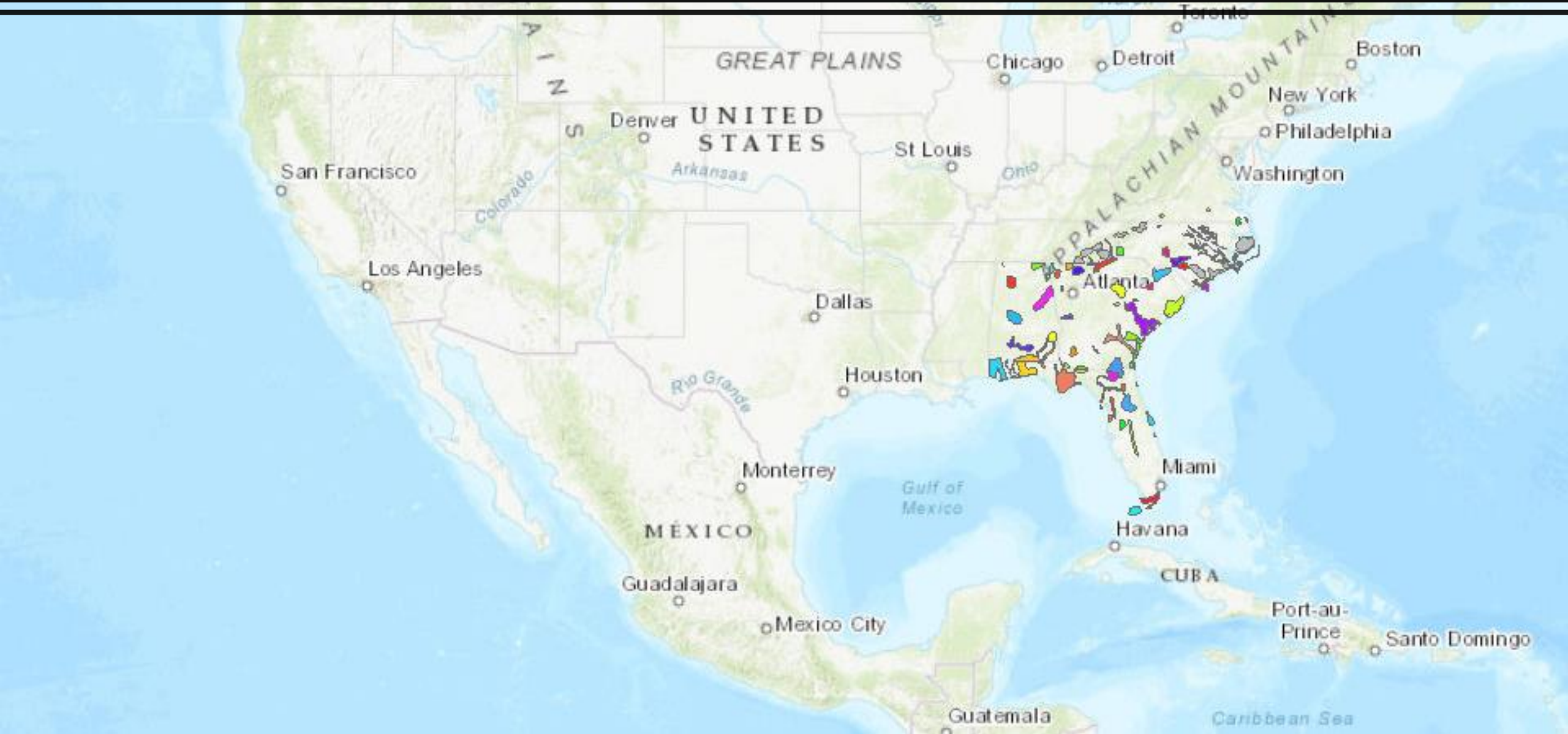


Why PARCAs?

- PARCAs give us a way to prioritize and concentrate effort and resources in order to rebuild metapopulations and ecosystems
- Place-based- allows us to align efforts with other groups
- PARCAs integrate perfectly into State and Federal conservation plans
 - SWAPS
 - Forest Plans
 - Recovery Plans
 - Prioritization plans
 - Etc.



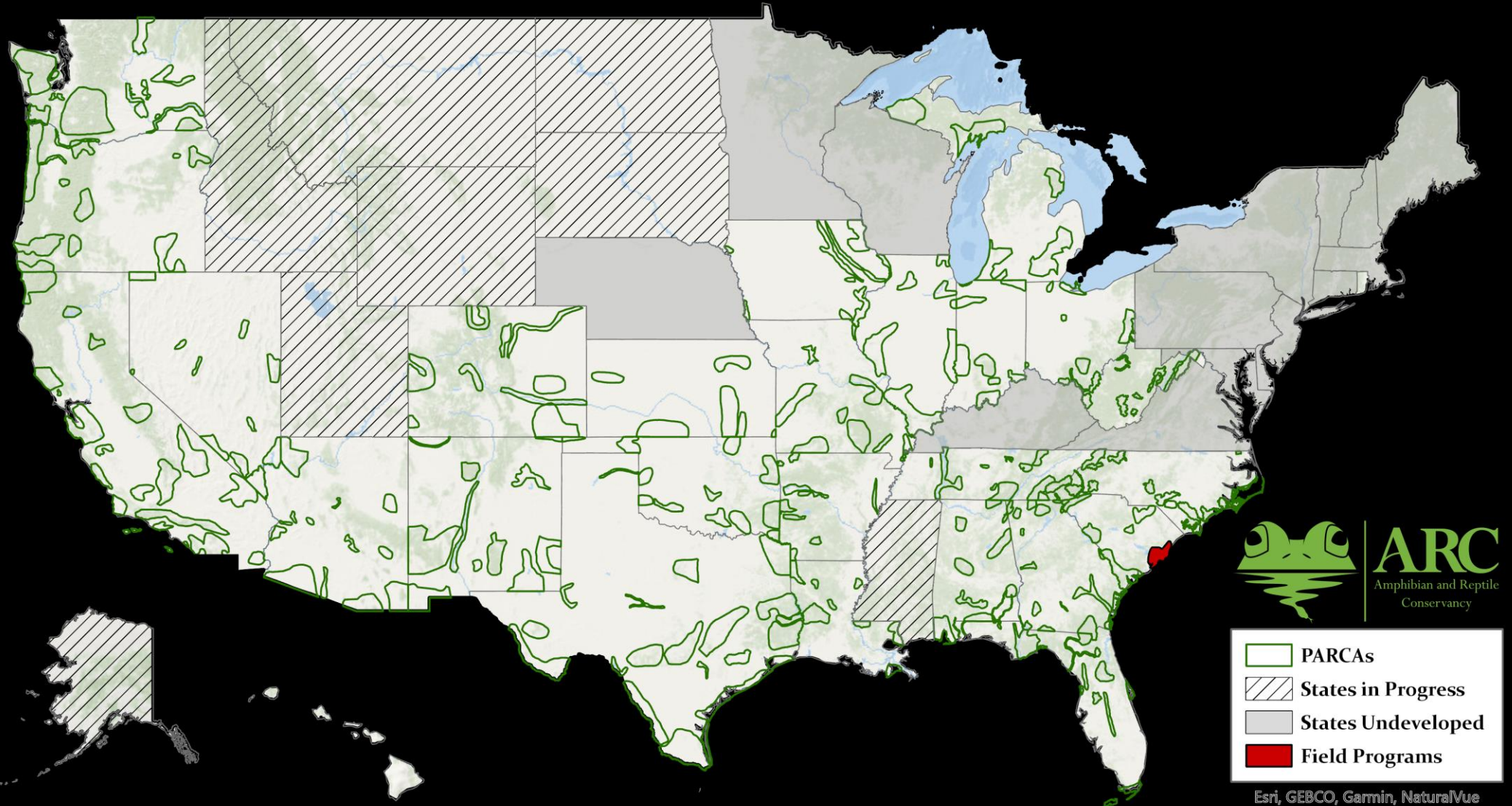
PARCA Progress- 2016



PARCA Progress 2024



On The Ground Programs - 2020

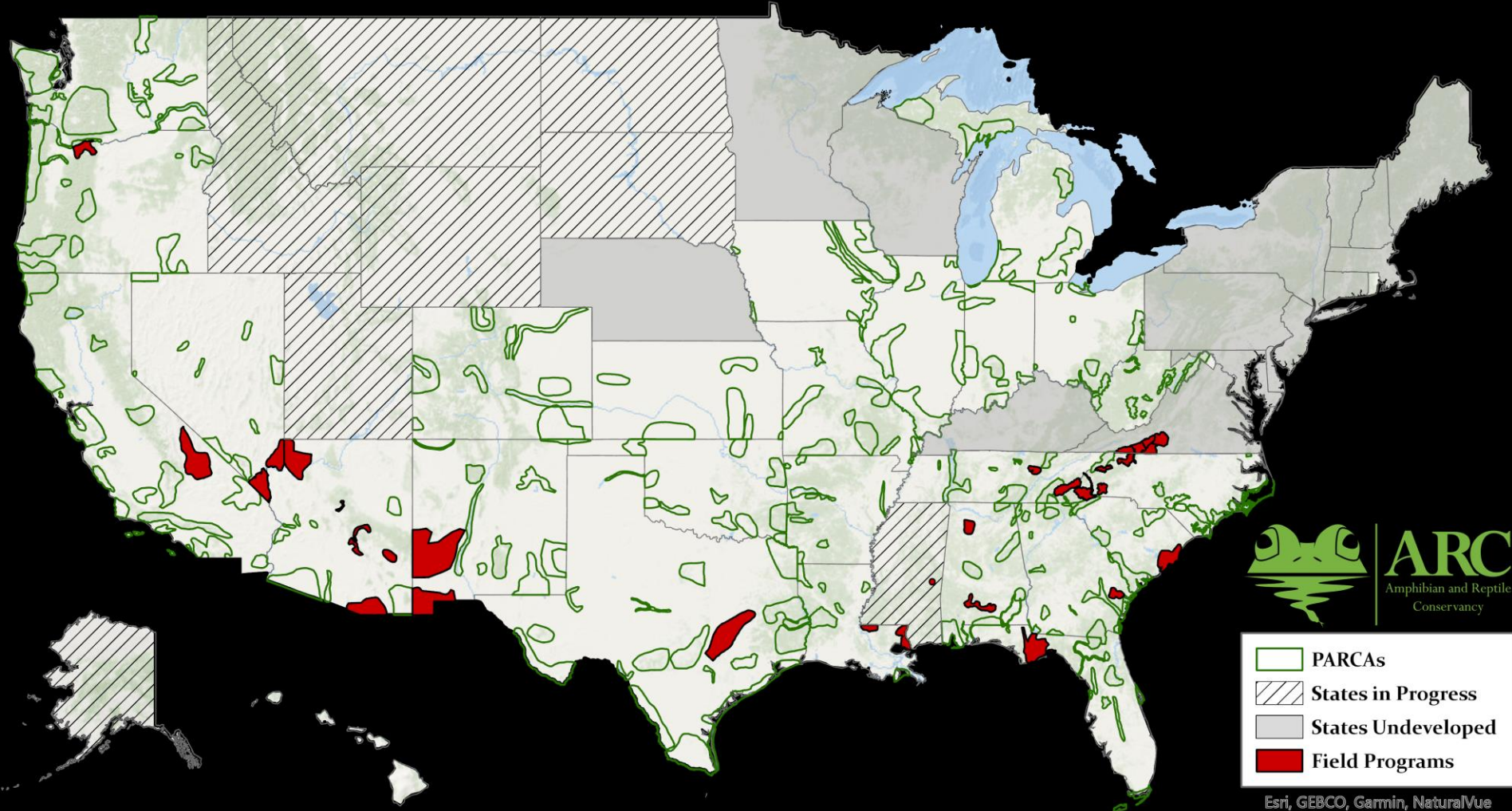


- PARCAs
- States in Progress
- States Undeveloped
- Field Programs

Esri, GEBCO, Garmin, NaturalVue

On The Ground Programs – 2023/2024

22 PARCAs!



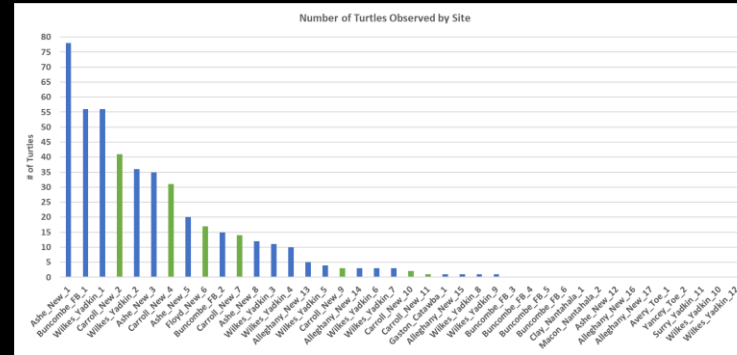
Public Lands- Partnerships

- Major programs/partnerships on Federal lands:
 - USFS
 - DoD
 - BLM
 - USFWS
 - NPS



How Does An ARC PARCA Program Work?

- State Partners
- Federal Partners
- Science for SSA- CSWG
 - Strategic recovery goals
 - Genomics
- Private Lands restoration work through NRCS and PFW
- Restoration work on federal lands





Private Lands- Major Progress Towards Recovery



Nationwide efforts

- Recovery Programs
 - Houston toad
 - RHS
 - Flatwoods salamanders
- Farm Bill policy
- NRCS Capacity and Strategy
- Innovative USFWS CBAs
- Tribal Working Group



Recovery Programs

- Houston Toad
- RHS





CCITT
COLLABORATIVE TO COMBAT
THE ILLEGAL TRADE IN TURTLES

Collaborative to Combat the Illegal Trade in Turtles (CCITT)

March 2025 Update



CCITT 2024 Accomplishments

- Published in Peer-Reviewed Journal
- Hosted Midwest Regional Workshop
- Attended World Congress of Herpetology
- Hosted 1st in Webinar Series on Turtle Repatriation
- Hired First CCITT Strategic Coordinator

Christman, Michelle, et al. "The Collaborative to Combat the Illegal Trade in Turtles: Addressing Illegal Wildlife Trade with an Adaptive Socio-Ecological Approach." *Chelonian Conservation and Biology: Celebrating 25 Years as the World's Turtle and Tortoise Journal* 23.2 (2024): 176-188.



Brooke Talley

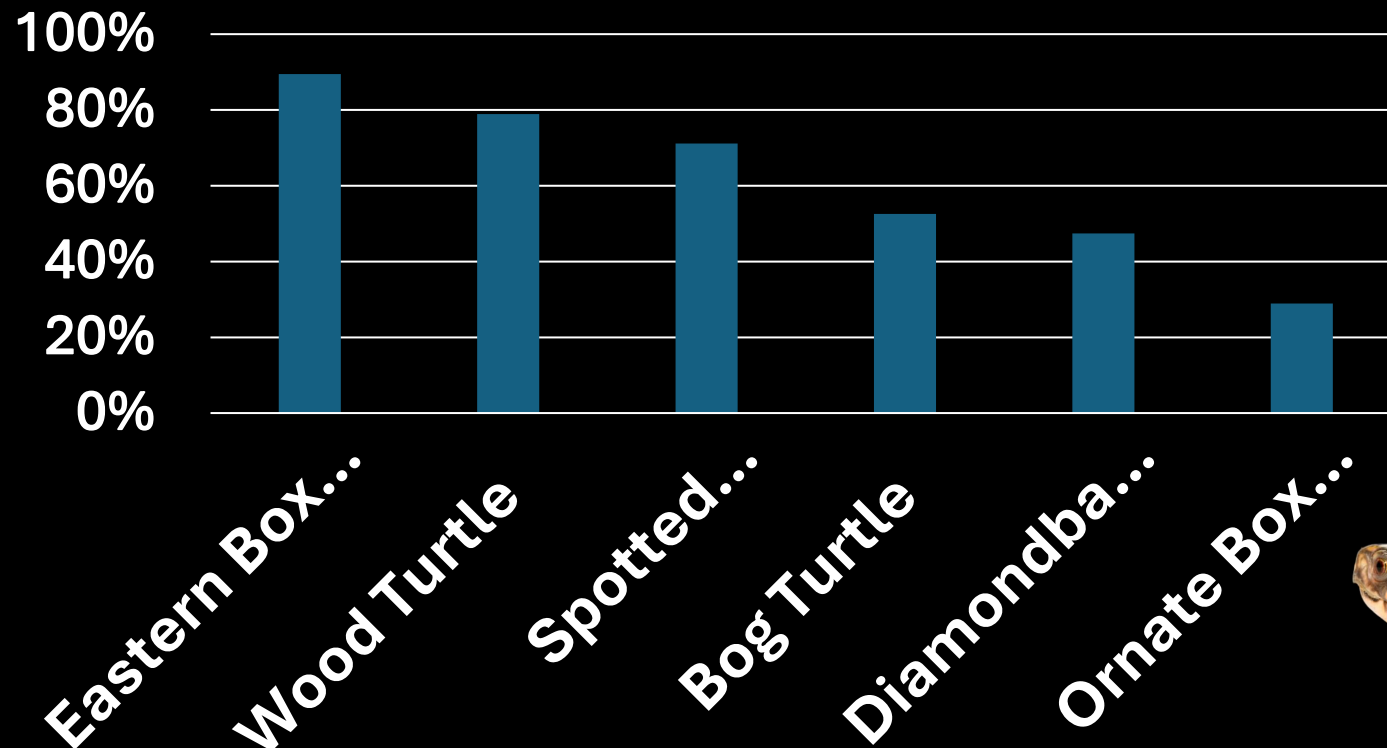
TURTLE CONSERVATION AND
POLICY DIRECTOR

Tallahassee, Florida

btalley@ARCProtects.org

CCITT 2025 Accomplishments (to date)

- Dr. Talley (ARC) testified for Colorado Senate (SB25-168)
- Hosted 2nd in Webinar Series on Turtle Repatriation
- CCITT Members Survey & Questionnaire

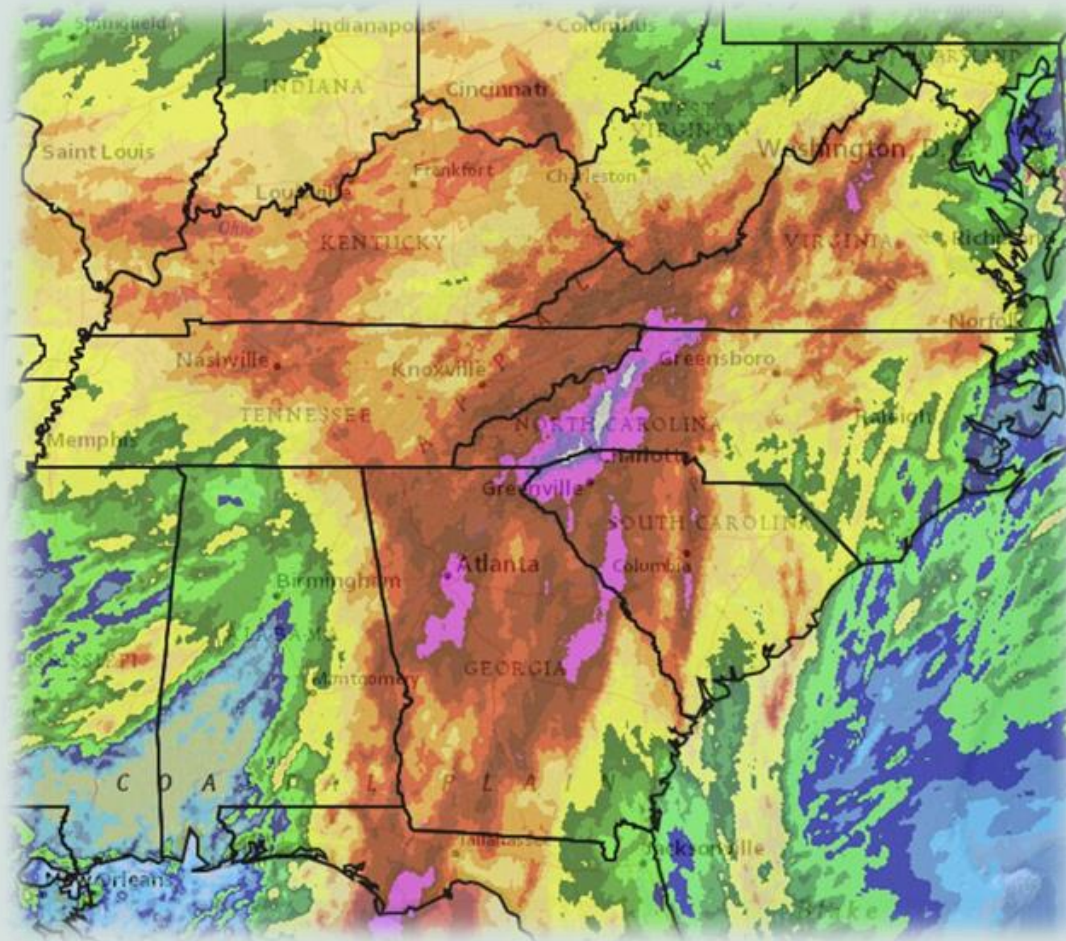


Thank You!



Hellbenders and Hurricanes

What Was Helene's Impact on Hellbenders in Western NC?



Good Question, this was the worst of the worst...1,000-yr event

- Perhaps the worst natural disaster in WNC history.
- Landscape changing
- >2,000 landslides
- Rivers crested 20-40+ ft above flood stage
- 33+ in. of rain in places
- 55 mph winds w/gusts >70 mph in valleys
- Hundreds of miles of rivers impacted, polluted, severely damaged
- Record loss of human life, domestic animals, wildlife, property, roads, railroads, whole towns;
- probable cost >\$53 billion in WNC alone



French Broad River flooding downtown Marshall



Photo by NCSU



Lori Williams



NORTH CAROLINA
Wildlife Resources Commission

2021 SEAFWA Wildlife Biologist of the Year

Floods Effects on a River (just a few)

- Huge Amounts of Sediment
- Shifting bed loads
- Displace/crush large rock substrate
- Piles of cobble that reroute waterflow
- Water Quality Itself
- Complete changes in the channel.



Toxic Waters



A hard-hit area on the Cane River



We had many dead hellbenders reported from these areas by clean up teams

More Cane River



Eastern Hellbender Salamanders



- Giant, aquatic, long-lived, crayfish-eating, salamander.
- Certainly, a “bio-indicator” (90% O₂ through skin).
- Cool, clean, fast-flowing streams with large, flat boulders with an opening and cavity underneath
- Abundant rocks of various sizes for their life stages and for prey items





NORTH CAROLINA
Wildlife Resources Commission

Extreme Impacts in Some Waterways

Reports from Clean-Up Crews, First Responders, citizens



- Counts of “40-50” dead in a 1-mile stretch on South Toe River.
- “at least 100” dead observed from the lower Cane.
- Dead reported in 4 of 8 sub-basins in the NC range.

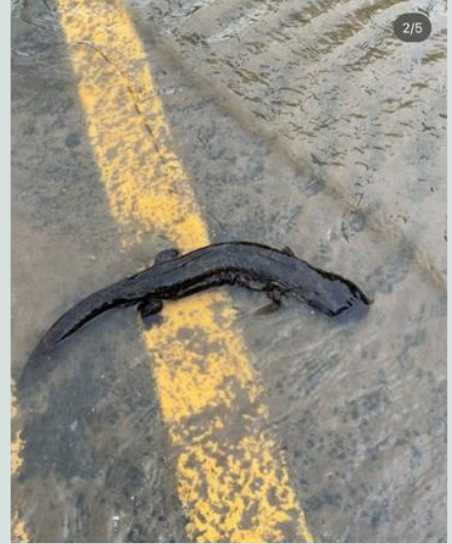


Nolichucky Sub-basin

- Hardest hit sub-basin in North Carolina.
- Arguably was our best population from top to bottom in NC and in the S. Appalachians.



Photos Sent to Us



On-going Struggles

Heavy machinery has been in the river constantly for months to rebuild road and rail beds--another source of disturbance, unfortunately.



Photo by P. Mannion



On-going Struggles



Photo by NC Newsline

NCDOT:

- >800 bridges were damaged in WNC
- 160 roads are still closed;
- 140 bridges still need total replacement





**There are Good
Stories Too!**



NORTH CAROLINA
Wildlife Resources Commission

What Next?

Priority for 2025: triage and survey

- In hard-hit areas, rapid assessment of habitat.
 - Is there any suitable habitat for hellbenders now?
 - Test water chemistry?
- Look for them!
 - lots of eDNA samples
 - use eDNA results to inform where we do snorkel surveys.
 - In some areas we can do pre and post event surveys with same protocols.
 - Do breeding surveys.



We have a large network of collaborators & partners in NC and the Southern Appalachian region and we remain committed to our Hellbenders!

Eastern Hellbender (*Cryptobranchus alleganiensis alleganiensis*)
Species Status Assessment Report
Version 2.1
November 2024



Photo Credit: Ryan Walls

Prepared by:
U.S. Fish and Wildlife Service
Midwest Region



“Rocky”
doing outreach

The NC Giant Salamander Network



E. Hellbender SSA (2024)



NORTH CAROLINA
Wildlife Resources Commission

**Fingers Crossed that Nature
is as resilient as we hope!**



HEALTHY TRADE INSTITUTE – THE FUTURE OF HEALTHY HERPETOFAUNAL TRADE

90th North American Wildlife and Natural Resources Conference
AFWA Amphibian and Reptile Conservation Committee

12 March 2025, 2:10 EDT

Matthew J. Gray, Ph.D.

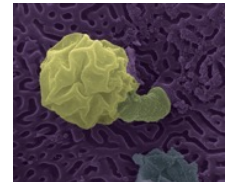
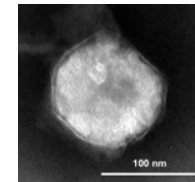
HTI President and CEO

UTIA School of Natural Resources

<https://healthytrade.org>



Tiger Salamander
Ambystoma tigrinum
\$39.99 SALE!



HTI Board Members :

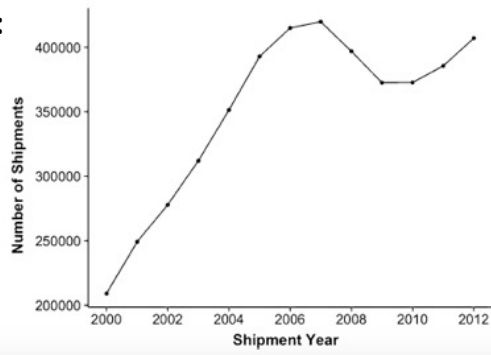
- Ashley Brinkman, Pet Advocacy Network, Director of Public Relations
- Neil Moherman, Reptiles by Mack, Director of Industry
- Dr. Danielle Galvin, University of Tennessee, Director of Operations & Outreach
- Dr. Debra Miller, University of Tennessee, Director of Science and Diagnostics



Global Wildlife and Amphibian Trade

- Wildlife Trade = \$300B annual, 2B specimens/yr (1/3 live), ~1000 species, 180 nations
- High-income Countries (USA, EU) drive market demand
- Amphibian Trade (\$3B): US = 50% of global imports = 4M / yr with 2M / yr to pet trade

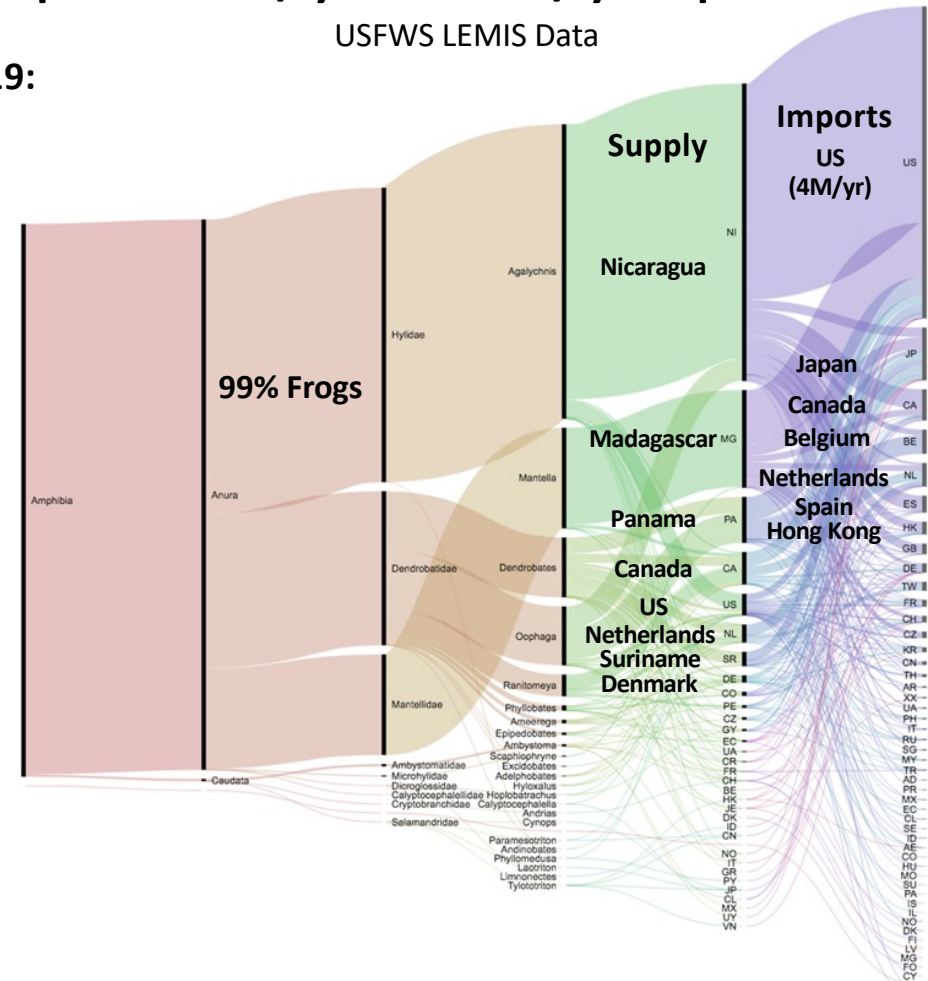
Smith et al. 2017:



Can et al. 2019:



USFWS LEMIS Data



Liew et al. 2021:

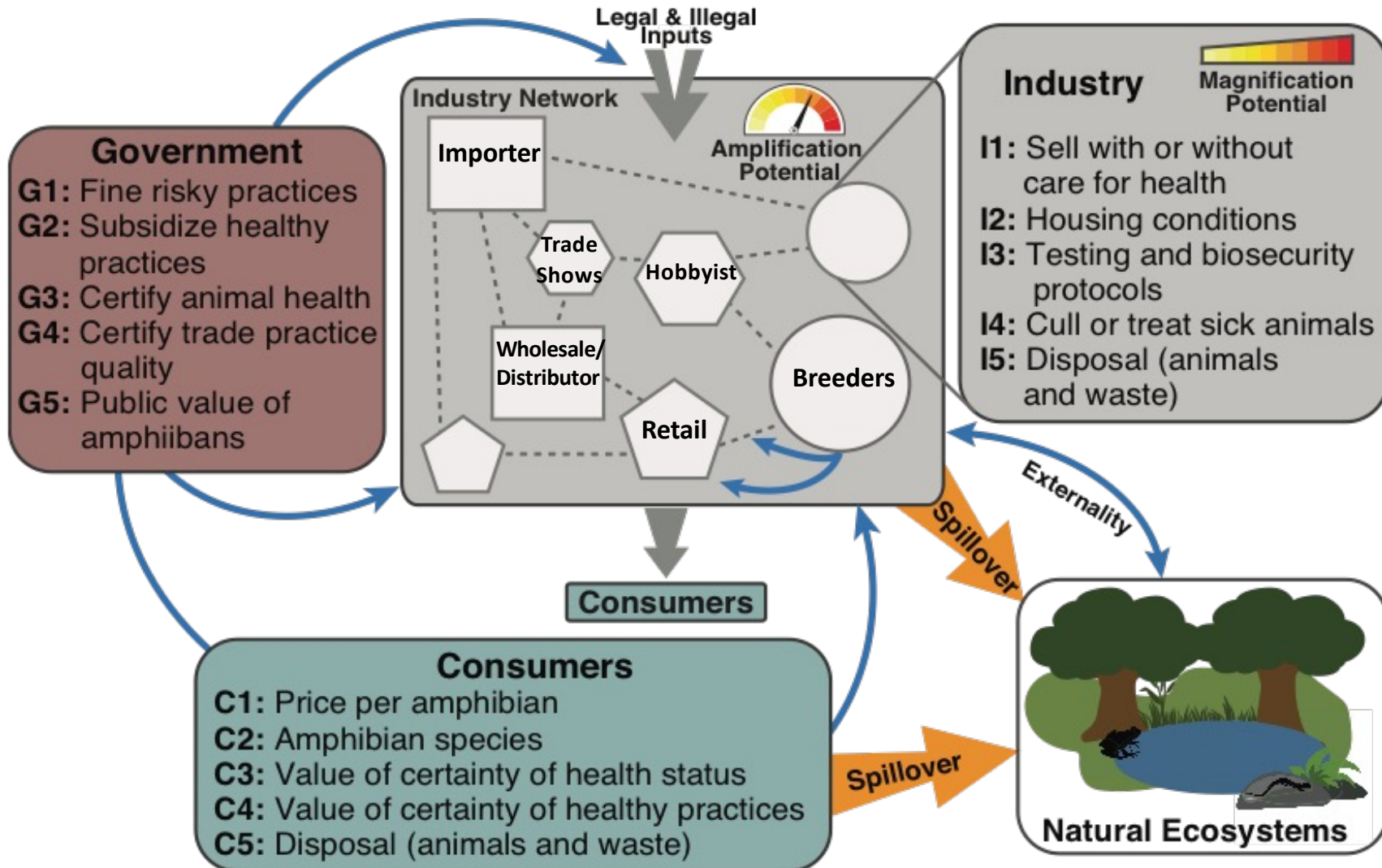
Science



U.S. Pet Amphibian and Reptile Trade Network

Size and Value
 \$10B Industry in USA
 >10,000 Businesses
 Millions of Consumers

Comparable Industries
 \$4B Global Drone
 \$12B U.S. Wheat
 \$20B NFL



Evidence of Amphibian Pathogens in Trade



Magnitude of the US trade in amphibians and presence of *Batrachochytrium dendrobatidis* and ranavirus infection in imported North American bullfrogs (*Rana catesbeiana*)

Lisa M. Schloegel^{a,d,*}, Angela M. Picco^b, A. Marm Kilpatrick^{a,c}, Angela J. Davies^d, Alex D. Hyatt^e, Peter Daszak^{a,d,*}

- US Ports = 8 – 62% Rv, Bd



2009

First Evidence of Amphibian Chytrid Fungus (*Batrachochytrium dendrobatidis*) and Ranavirus in Hong Kong Amphibian Trade

Jonathan E. Kolby^{1,2,*}, Kristine M. Smith², Lee Berger¹, William B. Karesh², Asa Preston³, Allan P. Pessier³, Lee F. Skerratt¹



2014



- Hong Kong = 12-57% Bd, Rv infected



SCIENTIFIC REPORTS

Epidemiological tracing of *Batrachochytrium salamandrivorans* identifies widespread infection and associated mortalities in private amphibian collections

Liam D. Fitzpatrick¹, Frank Pasmans², An Martel^{1,2} & Andrew A. Cunningham¹

2018



Amphibia-Reptilia 38 (2017): 554-556

2017

Trade in wild anurans vectors the urodelan pathogen *Batrachochytrium salamandrivorans* into Europe

Tao Thien Nguyen^{1,2}, Thinh Van Nguyen², Thomas Ziegler^{3,4}, Frank Pasmans⁵, An Martel^{5,*}



Pet Owners: Amphibian Release

ID help!

Iberian Ribbed Newt

ID Help

This absolute unit crawled out of a pond in Western Massachusetts earlier today. At least 6 inches long, pink, warty, can't find a thing on the internet, have NEVER witnessed a boy like this in my life- help?



238 28 Share

+ Add a Comment

Sort by: Best Search Comments

Western MA
9-13-24

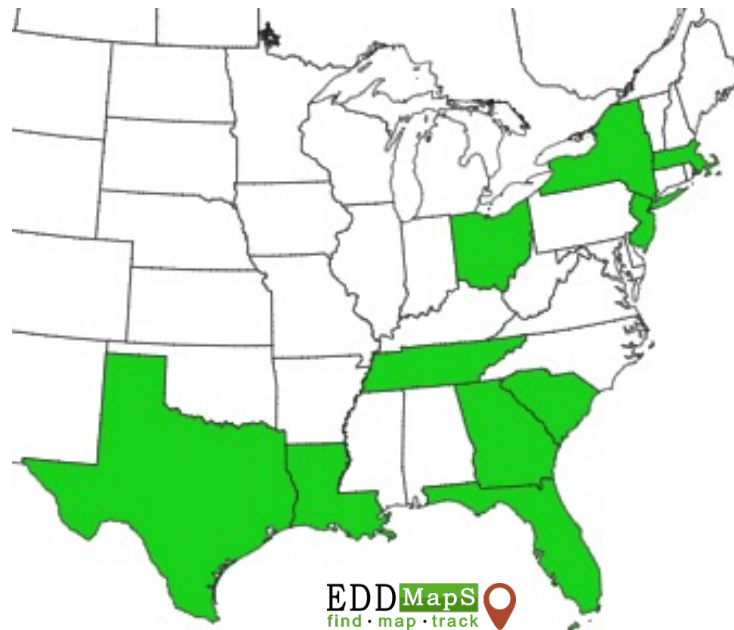


Sqieak • 5 days ago

This looks a lot like a Leucistic Spanish Ribbed Newt i'm definitely thinking escaped or released pet.

>10 Species with Established Populations in 11 States

Cuban Tree Frog



EDDMapS
find · map · track



Evidence of Reptile Pathogens in Trade

Adenoviral infection in a collection of juvenile inland bearded dragons (*Pogona vitticeps*)

RJT Doneley✉, KN Buckle, L Hulse

2014

AUSTRALIAN
VETERINARY
JOURNAL



Cryptosporidium serpentis Oocysts and Microsporidian Spores in Feces of Captive Snakes

Thaddeus K. Graczyk* and Michael R. Cranfield*†

2000

J. Parasitol., 86(2), 2000 p. 413–414
© American Society of Parasitologists 2000

Infection with *Nannizziopsis guarroi* and *Ophidiomyces ophiodiicola* in reptiles in Taiwan

Pei-Lun Sun, Chun-Kai Yang, Wen-Ta Li, Wei-Yin Lai, Yun-Chen Fan, Hwei-Chuen Huang, Pin-Huan Yu✉

2021

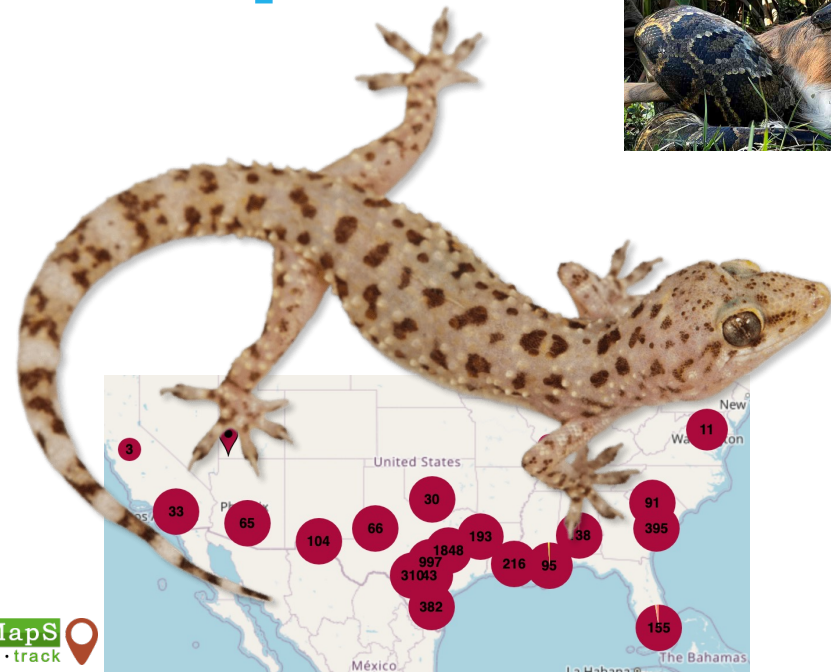
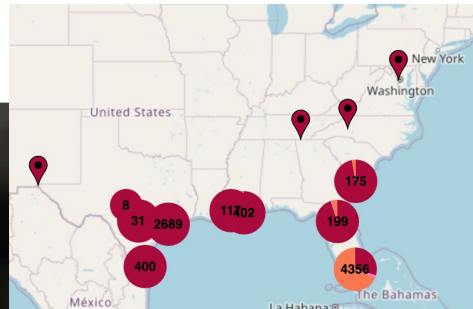
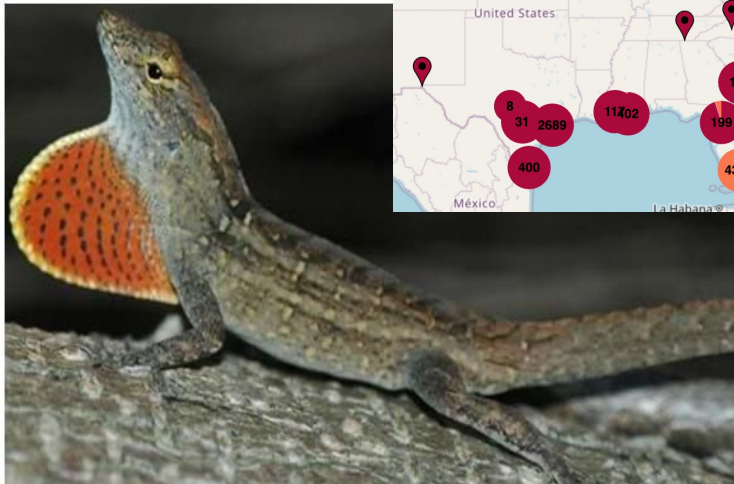


Pet Owners: Reptile Release



**>100 Species with
Established Populations in
>20 States (southern US)**

**Scientists Share 'Intense' Footage of Invasive
Python Swallowing 77-Pound Deer Whole in
Florida** [People](#)



Disease in Wildlife Trade

No U.S. programs or regulations to support clean (healthy) trade of wildlife

World Organization for Animal Health (WOAH [formerly OIE])

USA: USDA APHIS

Animal Health Certificate: Agricultural, Aquaculture and Companion Animals (not Wildlife)



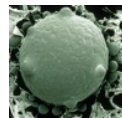
U.S. Fish and Wildlife Service

CiTES Listed Species (IUCN)

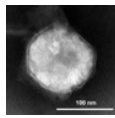
Convention on International Trade in Endangered Species
(no authority to regulate animal health)



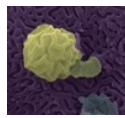
Bd



Rv



Bsal



>500 species; ~100 spp extinctions

Scheele et al. (2019), Gray and Chinchar (2024)



Industry Impacts:

Pet Amphibian Industry

Losses: Cavasos et al. (2023a)

\$140M / yr in US business revenues (10%)

- One business:
\$120K loss: one outbreak of ranavirus

Exploring business stakeholder engagement in sustainable business practices: Evidence from the US pet amphibian industry

Kevin Cavasos¹ | Neelam C. Poudyal¹ | Jesse L. Brunner² | Alexa R. Warwick³ | Joshua Jones⁴ | Neil Moherman⁵ | Mark George⁶ | Joshua D. Willard⁶ | Zachary T. Brinks⁶ | Matthew J. Gray¹



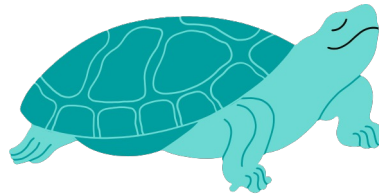
2023

Re-homing / Amnesty Programs

North Carolina



Friends of Scales: Illinois



INSTITUTE OF AGRICULTURE
AND NATURAL RESOURCES

Nebraska:
UNL Herpetology Lab
(snakes)



**Exotic Pet
Surrender Event**

Do you have an exotic pet that you are no longer able to care for?

Accepting fish, invertebrates, reptiles, pet birds, small mammals, and plants --no questions asked.

Saturday, March 22nd

Noon - 3 PM
Upham Woods Outdoor Learning Center
N194 County Rd N,
Wisconsin Dells, WI



<https://www.dontletitloose.com>

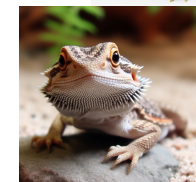


Amnesty Program
Great pets. Great homes.

<https://myfwc.com/wildlifehabitats/nonnatives/amnesty-program/>

Danielle Montesdeoca and Veronica Vargas

- Offered to **Florida Residents Only**
- **Re-homing:** Pair Pet Owners with Pet Adopters
 - Most Adopters are not Commercial
 - Owner Surrendering Meets Adopter
- **No health checks** on animals
- **150 – 500 adoptions** per year
 - 83% Reptiles
 - 4% Amphibians
 - 13% Other Wildlife



2.5 Employees: \$200K per year

Need for Healthy Trade System!



- Reduce Pathogens in Trade
- Reduce Pathogen Spillover

NSF DEB EEID Grant
#2207922



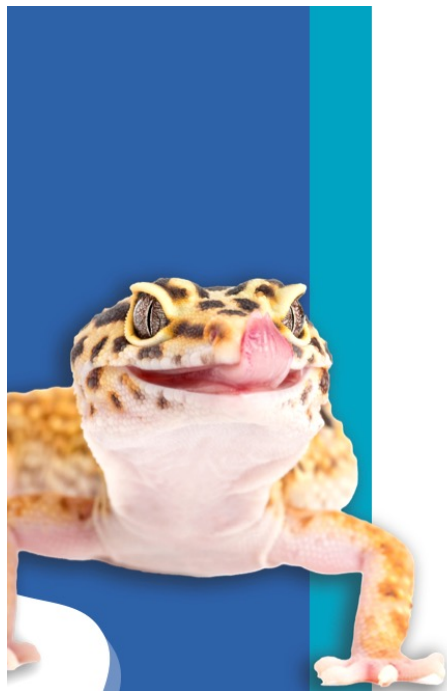
Met in June, July, and August 2022
(ad hoc committees: Sept 22-Aug 23)

<https://www.healthyamphibiantrade.org/>



Name	Organization
Anibal Armendaris	Pet Smart
Molly Bletz	University of Massachusetts
Zach Brinks	Josh's Frogs
Jesse Brunner	Washington State University
John Clare	Caudata.org
Devin Edmonds	University of Illinois
Mark George	Reptiles by Mack
Matt Gray	University of Tennessee
Scott Hardin	Pet Advocacy Network
Tim Herman	Indoor Ecosystems
Josh Jones	Pet Advocacy Network
Jonathan Kolby	Former FWS Import Inspector
Pat Kline	Frog Depot
John Mack	Reptiles by Mack
Neil Moherman	Reptiles by Mack
Marshall Myers	Advisory Council
Allan Pessier	Washington State University
Neelam Poudyal	University of Tennessee
Jose Salmeron	Two Amigos Import & Export, Inc.
Tom Waltzek	USDA - APHIS
Alexa Warwick	Michigan State University
Josh Willard	Josh's Frogs





What is the Healthy Trade Institute, Inc.?

The HTI is a 501(c)(3) U.S. nonprofit organization that is empowering businesses to champion healthy trade practices that enhance the wellbeing of pets and wildlife.

Science Driven with Focus on Health!

Est. Jan 2024

<https://healthytrade.org>

OUR VISION

**Launched in the U.S. with Amphibians in 2024
– Expanding to Reptiles in 2025**

We envision a future where businesses lead the way in promoting ethical & sustainable trade practices, fostering a harmonious balance between commerce and conservation where the wellbeing of pets and wildlife is prioritized; ensuring the health and prosperity of both pets and wildlife populations worldwide.





Healthy Trade Certification Program

<https://healthytrade.org>

2024 Amphibians



2025 Reptiles



HTI Provides up to **10 hours of free consultation** per year to members

- Online **training** and testing.
- Required **biosecurity** practices.
- Required **animal testing** by approved diagnostics laboratories. **Quality Control Testing**
- Required **response** procedures for positive detections.

Certify Businesses

(tiered annual membership fee; total amphibian & reptile sales)

U.S. Pet Owners are Willing to Pay up to 80% more for Certified Pathogen-free Amphibians

Evidence for a **Market Driven** Healthy Trade Certification Program

HTI Certified Businesses can Increase **Profit Margins by >20%** by selling Healthy Trade Certified Animals

Conservation Science and Practice
A Journal of the Society for Conservation Biology

Understanding the demand for and value of pathogen-free amphibians to US pet owners

Kevin Cavasos¹ | Ram K. Adhikari^{1,2} | Neelam C. Poudyal¹ | Jesse L. Brunner³ | Alexa R. Warwick⁴ | Matthew J. Gray¹

2023



Healthy Trade Institute, Inc.

<https://healthytrade.org>

Prevent Pathogen Spillover & Reduce Invasive Species!

HTI Herp Adoption Program

Nationwide!

There are various reasons for being unable to continue to care for a pet amphibian or reptile. The HTI can help by finding your pet a new home! In 2025, the HTI will be launching a Herp Adoption Program. There is **no fee for surrendering** your pet other than shipping costs to the HTI. The HTI will do a health assessment of the pet before rehoming to businesses or individuals.

In 2025, the HTI is accepting any **pet amphibians, bearded dragons, and ball pythons**. We will be expanding to include other reptile species in 2026.

If you are interested in either **surrendering** or **adoption**, please select and fill out one of the forms below.

Launching in May 2025!



Surrender Form

Adoption Form

Tennessee State Law:

Cannot accept native species, venomous snakes, or injurious species

Partnership with:



Normandy Reservoir, TN



Test for **Target Pathogens** of Industry or Conservation Concern



Emphasis on Adopting to **Commercial Vendors** (HTI Businesses)



HTI Partnership with UTIA

East TN Research & Education Center, JRTU



**Biosafety Level 2
Laboratory**

24 x 12 ft

**2-3 Levels of
Enclosures**

**Totaling
>200 linear ft**



House \geq 100 animals

Health Inspections by UT CVM & Test for HTI Pathogens

Residence Time < 30 days

Re-home: HTI Business Members (priority)

UT CVM: USDA Certificates of Inspection





Healthy Trade Certification and Herp Adoption Programs

Species and Target Pathogens

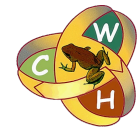


Scientists

- Dr. Oz Ossiboff (UF)
- Dr. Matt Allender (Univ. Illinois)
- Drs. Matt Gray, Deb Miller (UT)
- Dr. Allan Pessier (WSU)
- Dr. Maria Forzan (U. Wyoming)

Industry

- Dr. Greg Costanzo (PetSmart)
- John Wood (Pisces Molecular)
- Neil Moherman (Reptiles by Mack)
- Ash Brinkman (Pet Advocacy Network)



Center for
Wildlife
Health



Surrendered Species:

Non-native, not prohibited, not injurious, and not CITES-listed



Amphibians (accepting & certifying now)

- All species (not prohibited)
- Ranavirus
- *Batrachochytrium dendrobatidis* (Bd)
- *Batrachochytrium salamandrivorans* (Bsal)

Reptiles to include by 1 May 2025

- Bearded dragons
 - Pathogen = *Agamid adenovirus 1*
- Ball python
 - Pathogen = *Cryptosporidium serpentis*

Include by 1 Sept 2025

- Expand snake list for *C. serpentis*
- Add *Ophidiomyces* (SFD)

Possibly Include by 1 Mar 2026

- Bearded dragons
 - Pathogen = *Nannizziopsis guarroi* (yellow fungus)
- Non-native aquatic turtles
 - Pathogen = Ranavirus
 - Pathogen = *Emydomyces testavorans* (shell rot)



Possible HTI Partnerships with State Natural Resource Agencies



<https://healthytrade.org>

Programs: Healthy Trade Certification and Herp Adoption

- Assist with **Promoting Programs** (website, outreach)
 - **Endorse** the HTI
- Require businesses to be **members** of the certification program
- Contribute annually to **operations**: \$200K/year (\$5-10K/yr/state)
 - **Accept Herp Adoptions**
 - Assist with Rehoming or Humane Euthanasia for Seizure Cases
 - **Guidance to Businesses and Agencies with Pathogen Outbreaks**
 - **Research & Development: Surveillance, Novel Disease Treatments**
 - **Small Business Grants**



Support the HTI!



Third Global Amphibian &
Reptile Disease Conference

GARD26
Knoxville, TN
8 – 12 June 2026

info@healthytrade.org

(865) 974-9958



<https://healthytrade.org>

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Ashley Brinkman, Director of Public Relations, Ashley@petadvocacy.org

Neil Moherman, Director of Industry, Neil.Moherman@reptilesbymack.com

Danielle Galvin, Director of Operations & Outreach, dgalvin2@utk.edu

Debra Miller, Director of Science and Diagnostics, dmille42@utk.edu

Launching
Reptile Adoption
May 1st





Kentucky's Amphibian and Reptile Conservation Update

Courtney Hayes, Wildlife Biologist
courtney.hayes@ky.gov





Herp monitoring at Mammoth Cave National Park

- Mostly using tin, coverboards, and visual encounter surveys) since 2002
- Have been unable to rediscover several reptile species requiring open habitats and prairie remnants (e.g., Six-Lined Racerunner and Northern Pine Snake)
- Declines in other prairie-grassland reptiles (e.g., Slender Glass Lizard)
- Prescribed fire in the Park has been sporadic
- Project to restore and expand prairie remnants on the Park by clearing invasive woody vegetation and planting warm season grasses and forbs was abandoned after just one year



Streamside Salamander SSA

- Continue to be involved with these efforts
- As of 2024: >1800 records from Kentucky
- Continues to be a federal candidate despite being one of the most common amphibians within its range in Kentucky





Crawfish Frog breeding pond surveys

- Species has been considered for federal listing because major declines range-wide
- Declines tied closely to destruction of upland grasslands, where they inhabit crayfish burrows, and draining of seasonal and semi-permanent wetlands
- John monitors the Jackson Purchase region and areas near Berea, KY by driving and listening for their calls during warm rainy weather in early spring





Reptiles and Amphibians of Kentucky book

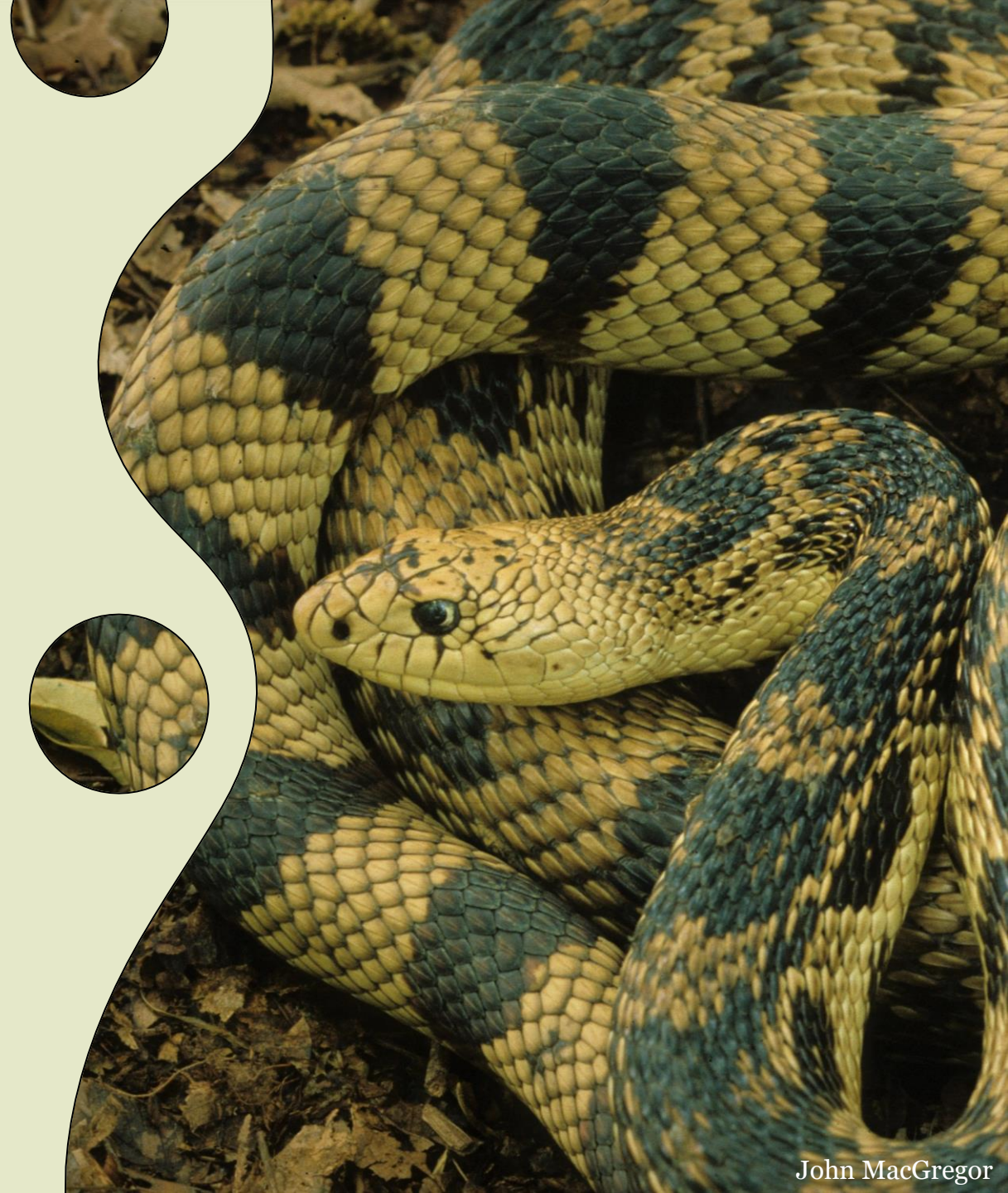
- John MacGregor has been working with herpetologists from Eastern Kentucky University and University of Kentucky to write a Kentucky specific field guide and natural history book





Northern Pine Snakes

- Collaborative project with the Office of Kentucky Nature Preserves
- Drift fence camera trap arrays at Land Between the Lakes National Recreation Area
- Cameras pulled in January 2025– results to come
- Future: captive breeding and release of young snakes with the Louisville Zoo



Salamander Blitzes

- Of the 198 described salamander species found in North America, 35 of these species are found in Kentucky.
- Bell, Harlan, and Letcher counties are home to 22 of these species
 - 8 of these are Species of Greatest Conservation Need (SGCN)
- Many of the documented locations of rare salamanders have only been visited once, and a few of these locations had not been re-visited in over 10 years.

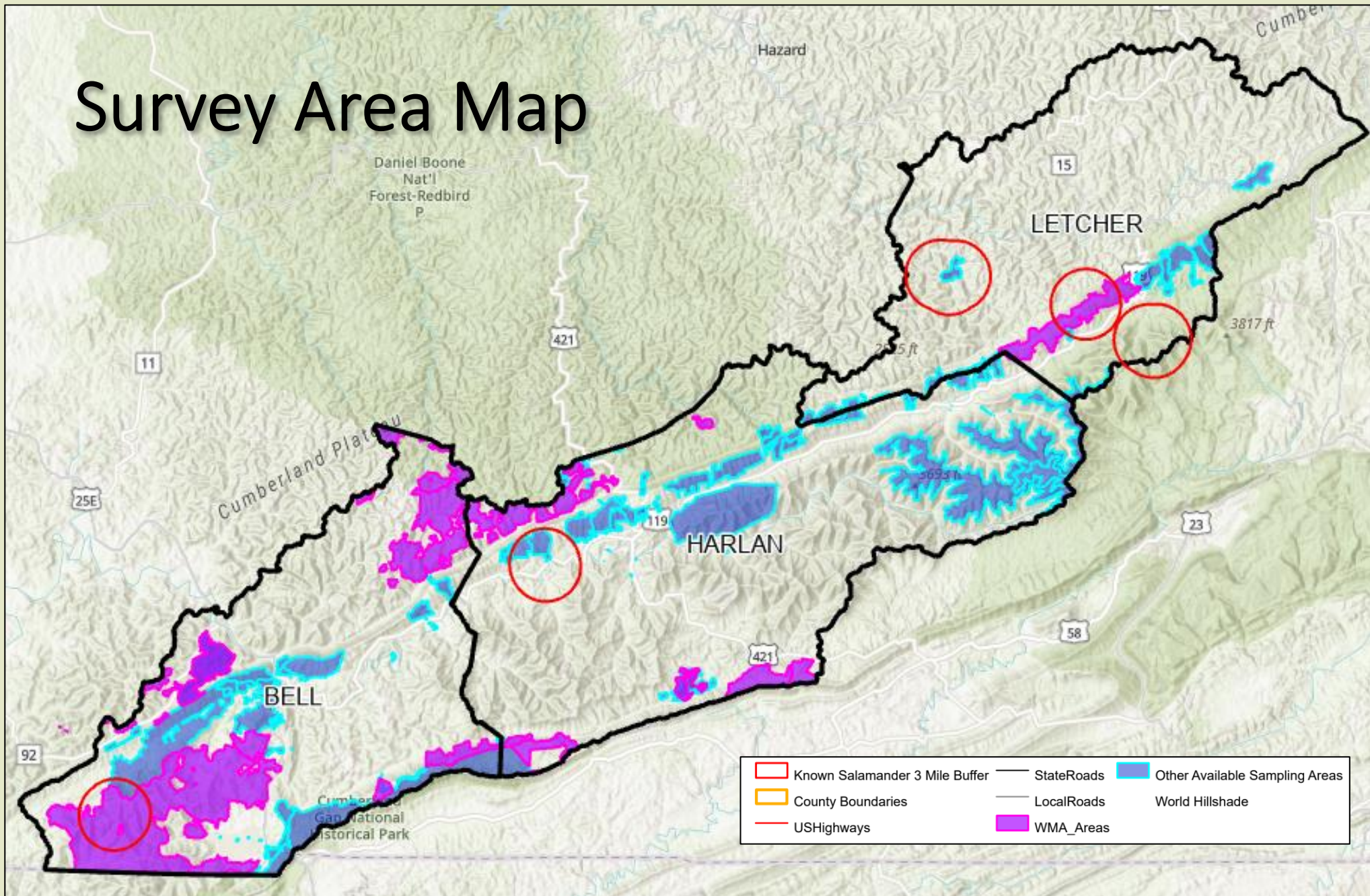


Salamander Blitzes

- Lodging funded by partner orgs (Kentucky Natural Lands Trust or The Nature Conservancy)
- 1st year: focus on yellow-spotted woodland salamanders
- This year: inventory of the new Cumberland Forest Wildlife Management Area



Survey Area Map





2023 Salamander Blitz Results

(Species of Greatest Conservation
Need designated in red)

Scientific Name	# Individuals Observed
<i>Aneides aeneus</i>	56
<i>Desmognathus monticola</i>	80
<i>Desmognathus ochrophaeus</i>	39
<i>Desmognathus</i> sp.	9
<i>Desmognathus welteri</i>	16
<i>Eurycea cirrigera</i>	22
<i>Eurycea longicauda</i>	28
<i>Gyrinophilus porphyriticus</i>	2
<i>Notophthalmus viridescens</i>	5
<i>Plethodon glutinosus</i>	92
<i>Plethodon kentucki</i>	91
<i>Plethodon richmondi</i>	1
<i>Plethodon</i> sp.	1
Total	442

SGCN Records >= 203



Michaela Rogers



Yellow-spotted Woodland Salamanders

- Only one known “stable” population of the species in the state
- Spring 2025 starting a project with Eastern Kentucky University to attempt to pinpoint variables for detection of the species and create a population estimate at the best-known site





Eastern Hellbenders

- Snorkel surveys (day and night) at historical locations to see if hellbenders are still there (of over 30 snorkel surveys, none have re-located hellbenders)
- eDNA analyses at historical locations
- Larval surveys in the only known breeding population in the state (we've observed them at all 3 locations now!)
- PIT tag scanning to relocate previously captured individuals
- Live trapping...



Eastern Hellbenders

- We set out live traps that are baited to find hellbenders.
- Done at the beginning of Spring (right now!), as the hellbenders start to move around more looking for food
- Hellbenders are weighed, measured, given a PIT tag, and released
- We captured 3 adults in the Green River last year (first time they have been confirmed in this location in many years)!





Eastern Hellbenders

- We have recruited our regional staff to help us with our genetic questions (Green River vs. Licking vs. Cumberland?)
- We held a training session for them on trapping, processing, and collecting tissue samples from hellbenders
- Currently creating traps and processing kits to send out to volunteers





Eastern Hellbenders

- Each fall, along with partners at Purdue University, we collect eggs from the only known breeding population in Kentucky to be reared in captivity
- >97% survival to sub-adulthood in captivity, as opposed to <10% in the wild





Eastern Hellbenders

- Prior to 2023, eggs were transported from Kentucky to Purdue University to be reared there until they were about 3 years old, then they would come back to Kentucky to be released
- In 2023, KDFWR began raising wild-caught hellbender eggs at our Center for Mollusk Conservation in Frankfort, KY



Eastern Hellbenders

- Releases of sub-adult hellbenders (approximately 3 years old) following Purdue University's "soft-release" method
- 25 sub-adults released in 2022
- 25 sub-adults released last August 2024





Thank you!

Courtney Hayes

Kentucky Department of Fish and
Wildlife Resources

courtney.hayes@ky.gov

