2026 Volume 2

PARS

Pennsylvania Amphibian & Reptile Survey

Summer Newsletter

MAC·HAC
The Mid-Atlantic Center for Herpetology and Conservation

A Partnership Project of The Mid-Atlantic Center for Herpetology and Conservation and The Pennsylvania Fish & Boat Commission

Contents

Cover Photo by: Jarren Uplinger
Inside Cover Photo by: Jarren Uplinger

Greetings!

Welcome back folks, with the cool rains of spring fading and the warmth of summer slowly creeping in, the herping season is in full swing. As always, we encourage you to refer to the PARS blockbusting guide to help this project continue its progression. This time of year is the beginning of excellent night time reptile cruising. As night time temperatures creep into the 60s and 70s, snakes will begin to utilize paved and unpaved roadways for thermoregulation, hunting, or as a corridor between habitats. For more information, please refer to our road cruising guide below. Remember to be safe when conducting road surveys and as always, don't forget the voucher!

All the best and happy herping!

-The PARS Team

Road Cruising for Reptiles

Introduction

Road Cruising, when well planned, can often be an effective surveying technique for detecting amphibians and reptiles in the warmer months of the year. It can be defined as slowly driving vehicles on paved or unpaved roadways in specific weather conditions with the intention of encountering amphibian and reptiles. The goal of this article is to help guide PARS volunteers towards successful and safe outings when blockbusting and utilizing roadways that intersect various habitats.

Methodology

During the warmer months of the year (May-September/ October), reptiles can readily be found throughout the commonwealth on warm roadways that intersect potential habitat as they move from overwintering locations to summer areas for foraging, mating, and basking opportunities. Prior knowledge of your target species' natural history is crucial when determining areas to survey. Begin by selecting blocks void of your target species and utilize mapping software (Google Earth, Maps, etc.) to determine sutiable habitat. The benefit of road cruising is that it can be conducted through areas with swaths of private land that would otherwise be inaccessible by foot. Once an area is selected, you can begin conducting surveys by slowly driving and doing passes on roadways within the block. During egress and ingress (Spring and Fall), surveys can be conducted at almost any time of day as reptiles rapidly disperse or return to summer areas. In the heat of summer, dawn and dusk are most productive as reptiles become crepuscular. It should also be noted that during stretches of extreme heat where temperatures stay well above 80 degrees at dusk, reptiles may move later than usual and can be detected throughout the night.

Equipment and Safety

It is imperative to conduct road surveys safely; wear reflective hi-vis clothing, only stop if it is safe to do so, avoid heavily traveled roads where it would be unsafe, pull over and use your flashers when stopping, etc. Reptiles encountered should be safely moved in the direction they were traveling. And don't forget a voucher! It is likely to come across numerous non-target species all of which will help provide valuable data to the PARS Project.




Disinfection Protocol

Disinfection of Field Equipment for Amphibian Pathogens

Minimizing Spread of Chytrid Fungi (Bd & Bsal) and Ranavirus

NORTHEAST PARC PARTNERS — AMPHIBIAN AND REPTILE CONSERVATION

Importance of Disinfection The spread of pathogens is a major threat to amphibians and reptiles worldwide.[1-5] This is particularly true for ranavirus (RV) and the two chytrid fungi, *Batrachochytrium dendrobatidis* (Bd) and *B. salamandrivorans* (Bsal), responsible for the disease, chytridiomycosis. Humans can move pathogens from one place to another and from one organism to another in little time and over great distances. With the increasing threat of infectious diseases among amphibians and reptiles worldwide, anyone engaged in educational, recreational, commercial, or professional activities in wetlands and aquatic habitats can play an important role in helping prevent the spread of pathogens by employinng basic disinfecting procedures to prevent pathogen spread.

Before Leaving for the Field Multiple chemicals are effective for inactivating Bd, Bsal and most RVs including Virkon Aquatic ®, bleach and ethanol [6-13] (see page 2 for detailed comparisons). To ensure maximum efficacy, prepare fresh only as much solution as you will need for that day's activity (e.g., sampling event, wetland survey, or fishing trip).

Suggested equipment:

- Brushes for scrubbing and removing mud and vegetation from equipment.
- Hand sanitizers and antiseptic alcohol wipes.
- Handheld bottles and/or pump sprayers for applying disinfectant and water.
- Clean rinse water.

- Powderless, nitrile gloves for handling animals. These should be discarded between animals.
- Small plastic bags. Avoiding direct contact with animals minimizes pathogen transfer and stress.
- Different sets of equipment for each site if disinfecting between sites is not possible.
- Trash bags.

Quick Reference

Virkon Aquatic	Bleach	Ethanol
1% solution *recommended for large equipment and gear*	1.6% solution *recommended for large equipment and gear*	70% solution *recommended for delicate equipment*

Read table for addition details and instructions

Instructions for Large Machinery Brush and scrub off mud (bio-degradable soap optional), disinfect with Virkon or bleach and rinse all exterior surfaces of boats, canoes, vehicles or trailers and their tires. See Julian *et al.* 2020[14] for more details on heavy equipment disinfection.

After Sampling & Before Moving to Another Site

1. Brush off mud and vegetation from field equipment (e.g., nets, buckets, boots). Soil or mud reduces effectiveness of the disinfection process.
2. Generously spray or immerse all items in disinfection solution.
   - Disinfectants are highly toxic to aquatic organisms; apply disinfectants at least 50 m (150 ft) from any natural water source.
   - NEPARC suggests 5 minutes of contact time in field situations, which is sufficient time for all 3 recommended disinfectants (table).
3. Rinse treated items well with water to minimize damage to equipment and to prevent exposing the next location to residual disinfectant (see pg. 2).
4. Use alcohol wipes or ethanol to disinfect calipers, measuring boards, and other sensitive equipment that was in contact with water or animals.



Scrub and Rinse | Disinfect | Rinse

End of the Day After returning from the field, all equipment should be washed and thoroughly disinfected. Set up two buckets or large tubs: one with water and one with disinfection solution.

- Brush or scrub off any soil or vegetation and rinse with water.
- Immerse in disinfectant and leave for 5 minutes of contact time.
- Rinse thoroughly with water.
- Hang equipment and gear, and allow them to air dry completely.

NEPARC Publication 2022- 02

Snakes

While microhabitats will vary by species. generally speaking, the strategies for road cruising are similar across all snake species. The following may be utilized as a very rough outline for cruising conditions that could increase detection probability.

May-June

Time - Any
Weather - Overcast to Sunny, Calm
Temperature - 60-70°F
Humidity - Moderate to High

Tips - Spring can be tricky for cruising. The warmest part of the day until dusk will give you the best chance at success.

July-August

Time - Dawn, Dusk, or Evening
Weather - Overcast to Sunny, Calm
Temperature - 60-90°F
Humidity - Moderate to High

Tips - During droughts, movement can be limited. Precipitation during the day can get things moving at dusk through the evening.

Sept. - October

Time - Any
Weather - Overcast to Sunny, Calm
Temperature - 60-70°F
Humidity - Moderate to High

Tips - September can be very productive for cruising at odd times of the day as juveniles and adults are returning to overwintering sites.

Photo taken in August at 9 PM, 70°F - Moderate Humidity - Forested gravel road on mid-slope of a rocky ridge.

Turtles

While microhabitats will vary by species. generally speaking, the strategies for road cruising are similar across all turtle species. The following may be utilized as a very rough outline for cruising conditions that could increase detection probability.

May-June

Time - Any
Weather - Overcast to Sunny, Calm
Temperature - 60-70°F
Humidity - Moderate to High

Tips - Spring can be very productive for road detections as females make their way to nesting areas. Target roads with soft soil on shoulders.

July-August

Time - Dawn, Dusk, or Evening
Weather - Overcast to Sunny, Calm
Temperature - 60-85°F
Humidity - Moderate to High

Tips - During the summer, heat drives turtles to water. Daytime showers can be an excellent time to cruise along streams or other habitat.

Sept. - October

Time - Any
Weather - Overcast to Sunny, Calm
Temperature - 60-70°F
Humidity - Moderate to High

Tips - Eggs begin to hatch in late August through the fall. Be mindful of small turtles on roadways when cruising this time of year.

Photo taken in July at 10 AM, 76°F - Paved road next to river and railroad tracks.

ACCESSING PRIVATE PROPERTY

Throughout the years, PARS volunteers have meticulously surveyed across the Commonwealth, particularly on public lands. Private lands remain undersurveyed and likely to harbor undocumented populations, range extensions, and potential county records. For many of the potentially extirpated localities outlined here private lands completely encompass the area.

This project does NOT give you access to enter private properties. However, in the majority of cases private landowners are open to allowing access when asked and informed of the purposes of the PARS project. These landowners are often an invaluable tool for conservation. IT IS REQUIRED TO OBTAIN PERMISSION FROM LANDOWNERS TO SURVEY PRIVATE PROPERTY. Obtaining permission can be done through calling landowners or more preferably for success, face-to-face through door knocking when possible. PARS has several resources available to provide landowners including a letter to property owners and a landowner release form. These can be found on the PaHerpSurvey Website in the resources tab under "Downloadable Resources".

https://paherpsurvey.org/resources.php#

PARS
Pennsylvania Amphibian & Reptile Survey

Dear Property Owner:

Your help is requested for an important study on the distribution and condition of Pennsylvania's amphibian and reptile populations. The Pennsylvania Amphibian and Reptile Survey (PARS) is a statewide program to document the presence of amphibians and reptiles throughout Pennsylvania.

The Mid-Atlantic Center for Herpetology and Conservation (MACHAC), in cooperation with the Pennsylvania Fish and Boat Commission (PFBC), is conducting a 10-year survey of the amphibians and reptiles of Pennsylvania beginning in 2013. The purpose of this project is to update historical distributions and establish a baseline for future efforts to detect change in regional population distributions. Final results will be compiled into a publication.

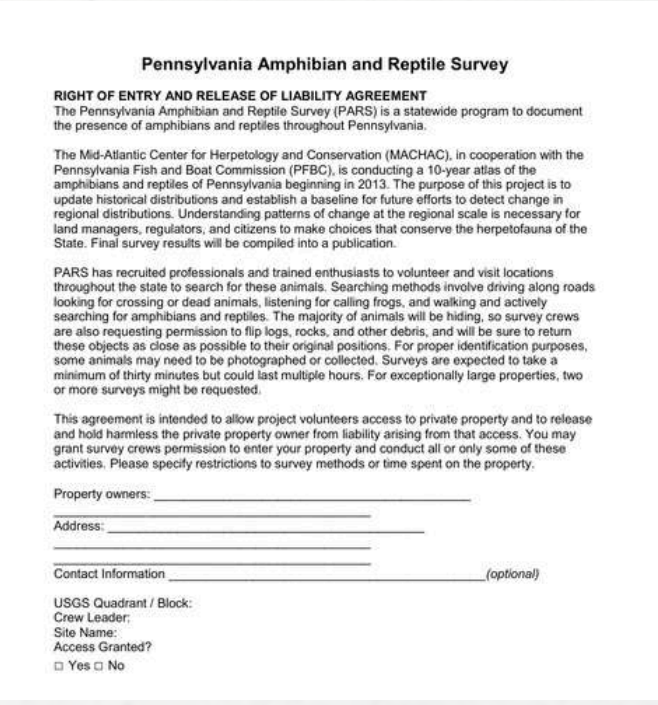
The PARS project is sending professionals and trained enthusiasts to volunteer and visit locations throughout the state search for these animals on public and private lands. Your permission is requested to allow PARS surveyors to visit your property to search for amphibians and reptiles. Searching methods involve driving along roads looking for crossing or dead animals, listening for calling frogs, and walking and actively searching for amphibians and reptiles. The majority of animals will be hiding, so survey crews are also requesting permission to flip logs, rocks, and other debris, and will be sure to return these objects to their original positions. For proper identification purposes, some animals may need to be photographed or collected.

Each surveyor will be appropriately identified and will observe proper protocols. Depending upon the size of your property, surveys may last up to several hours, or require more than one visit. Resultant data will be submitted into a secure database, and property owners will be provided with a list of amphibians and reptiles found on their properties.

If you are willing to allow a survey on your property, or have any questions, please contact The Mid-Atlantic Center for Herpetology and Conservation at info@machac.org.

Thank you in advance for your cooperation – *it is greatly appreciated!*

The Pennsylvania Amphibian and Reptile Survey Team



Pennsylvania Amphibian and Reptile Survey

RIGHT OF ENTRY AND RELEASE OF LIABILITY AGREEMENT

The Pennsylvania Amphibian and Reptile Survey (PARS) is a statewide program to document the presence of amphibians and reptiles throughout Pennsylvania.

The Mid-Atlantic Center for Herpetology and Conservation (MACHAC), in cooperation with the Pennsylvania Fish and Boat Commission (PFBC), is conducting a 10-year atlas of the amphibians and reptiles of Pennsylvania beginning in 2013. The purpose of this project is to update historical distributions and establish a baseline for future efforts to detect change in regional distributions. Understanding patterns of change at the regional scale is necessary for land managers, regulators, and citizens to make choices that conserve the herpetofauna of the State. Final survey results will be compiled into a publication.

PARS has recruited professionals and trained enthusiasts to volunteer and visit locations throughout the state to search for these animals. Searching methods involve driving along roads looking for crossing or dead animals, listening for calling frogs, and walking and actively searching for amphibians and reptiles. The majority of animals will be hiding, so survey crews are also requesting permission to flip logs, rocks, and other debris, and will be sure to return these objects as close as possible to their original positions. For proper identification purposes, some animals may need to be photographed or collected. Surveys are expected to take a minimum of thirty minutes but could last multiple hours. For exceptionally large properties, two or more surveys might be requested.

This agreement is intended to allow project volunteers access to private property and to release and hold harmless the private property owner from liability arising from that access. You may grant survey crews permission to enter your property and conduct all or only some of these activities. Please specify restrictions to survey methods or time spent on the property.

Property owners: _____

_____

Address: _____

_____

_____

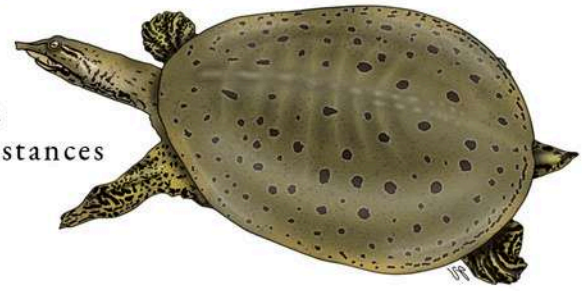
Contact Information _____*(optional)*

USGS Quadrant / Block:
Crew Leader:
Site Name:
Access Granted?
□ Yes □ No

Species Spotlight

Eastern Spiny Softshell Turtle (*Apalone spinifera*)

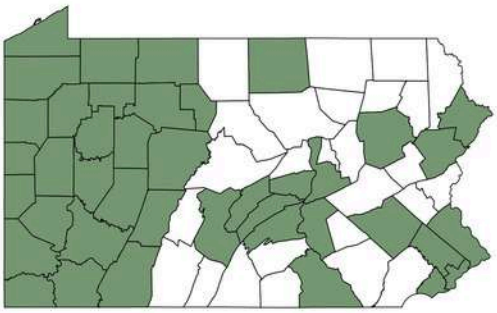
Gliding through the depths of Pennsylvania's rivers, streams, and lakes, lies a species that can only be described as other wordly in appearance. The Eastern Spiny Softshell Turtle is a skittish turtle species that is commonly seen basking at far distances throughout the commonwealth.



Species Description

Medium sized freshwater turtle species that is dark brown, grey, olive, or blackish grey in background coloration. The upper shell is a light green to brown with cirular marks on a smooth, leathery shell with no scutes. They have a snorkel like nose and light stripes on their face. Males are usually lighter colored and smaller than females. Females have spines along the leading edge of their shell.

Range Map



Behavior highlight

A group of Eastern Spiny Softshells basking on a bank by Stephen Staedtler.

Search Strategies

This species can be found along large rivers and lakes to small ponds and slow-moving creeks with sandy or muddy bottoms. Commonly seen basking in the open on muddy banks and logs, a spotting scope, binoculars, or a large telephoto camera lens is often required to obtain a voucher without forcing them to flee to the water.

OLD TIMERS. PENNSYLVANIAS LONGEST LIVED.

By: Sam Hall

Reptiles and amphibians have a knack for achieving remarkable longevity, with turtles and tortoises often serving as the go-to examples of long-lived herps. But just how old do some of Pennsylvania's reptiles and amphibians actually get? For most species, the honest answer is that we don't yet know for certain but we're beginning to get a much clearer picture.

One of the most captivating long-lived reptiles in the Commonwealth is the wood turtle. Many wood turtles are already well past the multi-decade mark by the time they are first encountered. Exactly how long wood turtles can live remains unknown, largely because we haven't been studying them long enough to know. What we do know though, is that a Westmoreland county wood turtle first marked in 1965—at an estimated age of 14 years—was recaptured for the first time in 2023. That made him at least 72 years old then, and apparently quite skilled at avoiding people. This is not out of the norm and we have known wood turtles to commonly be in excess of 40 - 50 years old.

Another notably long-lived species is the eastern box turtle. Like wood turtles, box turtles are often far older than those who stumble upon them might realize. While their maximum lifespan remains uncertain, most individuals will surpass 30 years, and they may reach 80 years or more-possibly even approaching and surpassing 100. There are even some reports from Massachusetts of an individual aged at an astounding 130 years old. As long-term studies continue and marked individuals are continually recaptured, our understanding of their true longevity will continue to grow.

Blanding's turtles also earn a place among Pennsylvania's most ancient reptiles. Adult females are regularly documented reproducing well past the 6 and 7 decade mark. One individual in Illinois, notched 3R11L, was first captured in 1954 as an adult and continues to show good health and reproductive activity. She was last recaptured in 2025 at an estimated 95 years old Beyond turtles, several of Pennsylvania's snakes can also reach impressive ages. The timber rattlesnake is our most notable example. These large-bodied pitvipers are among the longest-lived snake species in North America and while much remains to be learned, individuals are known to commonly exceed 30 years of age - particularly in the northern segment of their range. Remarkably, an individual more than 60 years old has been reported from New York.

Amphibians can also reach unexpectedly ancient ages. Salamanders, in particular, often live far longer than most people assume. Hellbenders are capable of surpassing 50 years of age, while mudpuppies may reach 30 to 40 years old. Even the diminutive red-backed salamander—a species many assume lives only a few years-likely can persist for more than three decades albeit they escape predation. What does this all mean? Simply put, herps are extremely long lived species with, in most cases, relatively low reproductive output. These two factors make them extremely susceptible to environmental changes unlikely to recover from compounding stressors over time. One of the many reasons why their conservation and protection are so vital.

Calling all writers!

Calling all writers! Have an interesting idea for a newsletter article? Contact us at info@machac.org with the subject line “newsletter”.

Articles can span just about any topic related to Pennsylvania herpetology, from history to natural history, and from funny field anecdotes to serious scientific pieces.

Contact & Resource Information

Regional Coordinators:

Northwestern Pennsylvania: Mark Lethaby - nw@paherpsurvey.org
North-central Pennsylvania: Duane Stafford - nc@paherpsurvey.org
Northeastern Pennsylvania: Kyle Loucks - ne@paherpsurvey.org
Southwestern Pennsylvania: Phillip Hong-Barco - sw@paherpsurvey.org
South-central Pennsylvania: Tom Pluto - sc@paherpsurvey.org
Southeastern Pennsylvania: Kyle Loucks - se@paherpsurvey.org

General Coordinators:

General Coordinators: general@paherpsurvey.org

County Coordinators:

For a current list of the County Coordinators please go to: https://paherpsurvey.org/coordinators.php

The PARS Team:

Lori Erb, President, The Mid-Atlantic Center for Herpetology and Conservation
Brandon Ruhe, Former President, The Mid-Atlantic Center for Herpetology and Conservation
Jason Poston, Webmaster and IT Expert, The Mid-Atlantic Center for Herpetology and Conservation
Chris Urban, Chief of the Natural Diversity Section, Division of Environmental Services, Pennsylvania Fish & Boat Commission
Kathy Gipe, Herpetologist and Nongame Biologist, Natural Diversity Section, Pennsylvania Fish & Boat Commission
MACHAC Contact: info@machac.org

Recommended Web Sites:

Pennsylvania Amphibian and Reptile Survey (PARS): www.paherpsurvey.org
The Mid-Atlantic Center for Herpetology and Conservation (MACHAC): www.machac.org
The Pennsylvania Fish & Boat Commission (PFBC): https://www.pa.gov/agencies/fishandboat
Society for the Study of Amphibians and Reptiles: www.ssarherps.org
Northeastern Partners in Amphibian and Reptile Conservation: www.northeastparc.org/