

The Vermont Reptile and Amphibian Atlas

Update

2021

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**For the Forest Ecosystem Monitoring Cooperative
(FEMC)**

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Vermont Reptile and Amphibian Atlas (2021)

Background

Localized intensive monitoring

Amphibian monitoring at Mt. Mansfield provides locally intensive data on a subset of amphibian species. While these data are particularly valuable and allow us to see year-to-year population changes of the monitored species at Mt. Mansfield and provide local information on abnormalities, and natural history, they do not allow us to see more widespread changes in the distribution and/or natural history (calling times, migration dates, etc.) of the full range of reptiles and amphibians statewide. Nor do they allow us to see changes in forest health, or the impacts of forest fragmentation and consumption on a larger scale. In addition, there is a real need to get reptile and amphibian natural history and management information out to a wide variety of landowners, land managers, and other natural resource professionals.

Statewide extensive monitoring

The Vermont Reptile and Amphibian Atlas is an effort begun in 1994 by the Reptile and Amphibian Scientific Advisory Group for the Vermont Endangered Species Committee. The atlas project initially began as an effort to gather data for use by this committee. Data were needed in order to make informed recommendations regarding the appropriate status and conservation of these species. Since then, the goals have widened to incorporate education, citizen involvement, and dissemination of information. The ultimate goal of the Atlas is to gather and disseminate data on the reptiles and amphibians of Vermont in a way that involves and informs Vermont individuals and organizations so that they will become more informed and effective stewards of wildlife habitat. The Atlas has grown since its inception in 1994 to involve over 7,000 volunteers and thirty-five private organizations and government agencies. With the help of organizations, agencies, volunteers, and staff members, we are continuing to collect information and broaden our knowledge base regarding the natural history, distribution, and effective conservation of Vermont's reptiles and amphibians. By providing the best and most up-to-date information on the conservation of these species in Vermont, we have become a trusted party in many conservation activities throughout the state.

Goals for the 2021 Atlas work

The goals for the 2021 Atlas work were: (1) to gather data for the Vermont Reptile and Amphibian Atlas; (2) to update and improve the Atlas website, Facebook page, and other outreach efforts (3) to review and enter current and previous years' herpetological reports; (4) to forward electronic files of the most recent calendar year's data to the VT Nongame and Natural Heritage Program; (5) continue to prepare all data and original reports and photos for long-term electronic archiving through the assigning of latitude and longitude coordinates and scanning of all original reports, slides, and photos, (6) to update and print our set of 4 Vermont reptile and amphibian posters, and (7) to respond to daily requests for information on the identification, conservation, natural history, and management of Vermont's reptiles and amphibians.

We were also required to submit this report and the most recent full-year's data to FEMC in the format of an Excel spreadsheet(s) with appropriate labels and metadata (for tabular data). The data will be added to the FEMC project library and made available to other researchers (subject to accessibility restrictions). The written report will be posted to the FEMC website. The data were sent in February of 2022. This is the final report for 2021.

Since this agreement overlapped the previous agreement with FEMC, data through July 31, 2021 and a short update covering 2021 through July 31, 2021 were sent previously. This report covers the entire year of 2021 and as a result the data sent and the data gathered and discussed overlap with the previous report.

Contributed records

Between January 1, 2021 and December 31, 2021 over 800 contributors provided 2,942 new records that were entered into the Vermont Reptile and Amphibian Atlas Database. This brings the total number of reports entered to 116,125.

The 2021 reports included 43 verified reports of S1 species, 150 verified reports of S2 species, 304 verified reports of S3 species, and 178 verified reports of S4 species. Reports also include unverified and negative records, amphibian and reptile road crossing locations, vernal pools, turtle egg-laying sites, snake dens and other significant herptile habitats. Sightings came from 240 towns, cities, grants, and gores and all Vermont counties. They included verified reports of all of Vermont's native species with the **exception of Boreal Chorus Frog (probably extirpated) and North American Racer**. Only a single report of **Fowler's Toad** was received. It was heard in Vernon and the report came from a reliable source but it was not accompanied with either photo or tape documentation. All S1-S3 reports were exported to Jodi Shippee of Vermont Fish and Wildlife in January of 2022.

As usual, all of these reports have been personally reviewed by us and when at all possible, the contributors have been personally contacted and thanked. Scores of ID and conservation questions have been personally responded to as well.

Exotic species

Every year we receive a few reports of non-native reptiles and amphibians that were either released pets or were accidentally transported via boats, trucks, RVs, and cars. We received a report of an **African Spurred Tortoise** (*Centrochelys sulcata*) in Ferrisburgh that I picked up and transferred to a warden. We received two different reports of **Mediterranean House Geckos** (*Hemidactylus turcicus*) during this time period. The reports came from Middlebury and Guilford. A **Brown Anole** (*Anolis sagrei*) was reported from Burlington. The anole and most other southern species will not survive a Vermont winter outdoors. That said, the Middlebury gecko report **may well represent a breeding population inside a heated warehouse**. A **Pond Slider** (*Trachemys scripta*) was reported from Mallett's Bay in Colchester. This is a common pet turtle species that has become invasive in southern New England. As our climate continues to warm, they could become invasive in Vermont. A box turtle from West Windsor turned out to be a southern sub-species (**Three-toed Box Turtle**-*Terrapene carolina triunguis*).

Hypothetical species

We received three reports of **Eastern Box Turtles** (*Terrapene carolina*) this past year. This time from Calais, Northfield, and Randolph. Only the Calais report was current, the other two much older. All of these reports are suspected to be released pets based on their isolated and northerly locations.

New locations out of the expected range

We received another report of a **Common Watersnake** (*Nerodia sipedon*) well north of its known range in the Connecticut River Valley. This report came from Jamaica. It was not accompanied with any photos. It is an additional 20 miles further north than last year's report from Weathersfield and the first from Windsor County.

Targeted survey efforts

In 2021, with my assistants, I personally visited 68 towns to gather new records. Many survey trips focused on those "towns" (including cities, gores, and grants) that have had the least survey effort. This is usually the result of low numbers of residents. In addition we focused our survey efforts on filling in distribution gaps of stream salamanders, since they are not often reported by citizen scientists. As a result we documented **Spring Salamander** (*Gyrinophilus porphyriticus*) in 26 towns.

No reptiles or amphibians were killed or harmed during any of these activities.

Field trips, presentations, and media outreach

In 2021, some in-person field trips and presentations began again. I provided in-person presentations or field trips for Camp Betsy Cox on May 16, the Ascutney Mountain Audubon Society on July 17th, the Burr and Burton Mountain Campus on September 9, the Dead Creek Wildlife Festival on October 2, and the Hannaford Career Center on October 7th. Zoom presentations were provided on March 18 for the Green Mountain Audubon Society, April 12 for the Richford Area Conservation Commissions and on April 14, for the College of the Atlantic.

Data sharing

In 2021, location data were again provided to the Natural Resource Conservation Service for their conservation easements. Our data also played a key role in testing models being developed by VTrans for predicting amphibian crossing areas and developing supporting data for adding Red-eared Slider (*Trachemys scripta elegans*) to the list of aquatic invasive nuisance species in Vermont.

I continue to be more aggressive about providing data to contributors from target towns where we need more data. What I provide to these people is a list of common reptiles and amphibians that are expected to be in their towns but have not yet been photo-documented. For towns that have a good chance of providing habitat for rarer species, I include our list of herptiles that should always be documented. I provided this sort of data to residents of over thirty towns. Many of these exchanges resulted in new town records.

Archiving Records

One of our shorter term goals was scanning old photos and slides that were used as documentation for reports. Once scanned these photos and slides are added directly into our database in a containment field. This allows future users of our data access to the original photo-documentation that was supplied with reports. During 2021 we finished scanning all prints (state-wide) and the scans have been labeled and added to our database. In addition we reviewed and thinned out all our 35 mm slides and have scanned the first 275. These scanned slides are now being labeled and added to the appropriate containment fields within our database. The remaining slides (second half) are currently at a photoshop being scanned. I am optimistic that we will have finished this entire scanning and labelling project by the end of April 2022.

Coordinates

A second short-term goal for 2021 was to make the location data in our database more useful by adding accurate latitude and longitude coordinates for as many records as possible. As a result, Atlas staff and others could more accurately and easily map distribution of reptiles and amphibians in Vermont, thereby better informing conservation recommendations. We had previously finished assigning lat longs to all unusual or rare species (S1-S3) as well as more common S4 species. During 2021, we finished adding lat long coordinates to all our reptile and amphibian records from Rutland County. This includes all common species (S5) as well as rare, threatened, and endangered species. In total this year, we assigned coordinates to 6,319 records from Rutland County. In addition, we have now added coordinates to all records in the Addison County towns of Addison, Bridport, Cornwall, Leicester, Orwell, Shoreham, Weybridge, and Whiting. We have partially completed Bristol, Middlebury, and Salisbury. This makes a combined total of 10,484 records updated in 2021. It will take a few more years to add coordinates to all older records of S5 species statewide.

Printed Posters, and updates to our website and Atlas

The final short-term goal for 2021 was to update and print our four Vermont reptile and amphibian posters. They have been updated and printed and are now available. Regular updates have continued to be made to our website including the addition of a YouTube channel. We have distributed printed copies of the 2019 update of our Vermont Reptile and Amphibian Atlas to college libraries in Vermont.

Update the hardware and software of our present computers

Although not listed as a goal for 2021, we needed to update both hardware and software on our two office computers. This May we purchased two new 27 inch iMac desktop computers, and updated all our essential software. This was a major and necessary upgrade that had been long overdue. We still use an older model laptop for in person presentations.

Additional funding and matching requirements

Additional funding during 2021 came from the Lintilhac Foundation, the South Lake Champlain Fund and the Hazel Fund of the Vermont Community Foundation, VT Fish and Wildlife, and an online fundraiser. All of the match required for this FEMC cost-share has been provided by my volunteer hours.