



*Newsletter of the
Maine Amphibian Monitoring Project*

2004 Season Update

Now that the 2005 season is well underway, let's look back at last year. There are some surprising similarities! Like this year, last season was late to get going...wood frogs didn't start calling until April 9 in southern Maine, at the very end of their "typical" window. We did have some unusually warm April nights with temps in the 70s that made for good calling and comfortable surveys. Northern Maine routes were doing their first runs by the end of April, much like this year. From then on, things fell into a more typical pattern, with second and third runs happening on schedule. We welcomed many new MAMPers in the 2004 season and increased our routes run from an all-time low of 41 in 2003 up to 51. We actually had volunteers who ran another five routes but we can't add them to the tally as they haven't sent in their data (You know who you are and it's not too late to send it in!).

The usual summary is posted in the table below, and we are looking forward to our tenth year (2006), after which we can take our first stab at trend data. USGS has been working to incorporate our pre-2001 data into the database, and hopefully with a summer intern on board this summer, that will be done by the fall. Aram and I are also working on creating some kind of table or graph to show the dates for runs, by zone, that have yielded code 3s for each species. Stay tuned and we'll get that out to you as soon as we figure out just how to do it. In the meantime, see the paragraph below on how to look up your run data if you need help gauging when your runs should be timed. If you have other suggestions for specific data summaries you'd like to see, please let us know. We are still learning the ins and out of the USGS database but once we figure out how it works, it should be an excellent tool for analysis. ~SG

| Species | Species Present on: | | | |
|-----------------------|---------------------|-----|--------------|----|
| | Routes (n=51) | | Runs (n=145) | |
| | # | % | # | % |
| Wood frog | 48 | 94 | 57 | 39 |
| Spring peeper | 51 | 100 | 133 | 9 |
| Northern leopard frog | 9 | 18 | 13 | 9 |
| Pickerel frog | 17 | 33 | 20 | 14 |
| American toad | 39 | 76 | 71 | 49 |
| Gray treefrog | 36 | 71 | 61 | 42 |
| Green frog | 46 | 90 | 68 | 47 |
| American bullfrog | 29 | 57 | 31 | 21 |
| Mink frog | 5 | 10 | 6 | 4 |

Routes Still Open!

There are still a couple of routes open for 2005 and it's not too late to get someone on board. They are: Caucomgomoc Lake, Advent Swamp, Musquacook Lake, Springfield, Ellsworth and Dedham.

News from the North American Amphibian Monitoring Project (NAAMP)

The 2005 field season is an exciting one, as the Frog Call Quiz website is making its debut. This new resource provides frog call survey volunteers an opportunity to hone their skills prior to collecting data and others an opportunity to learn how to identify frogs by sound. In March, NAAMP is holding a State Coordinators meeting in Indianapolis, Indiana to discuss how to incorporate the Quiz into our program. If you haven't tried out the Quiz, please do so and let Susan or Aram know what you think. Also, you can share the Quiz with your friends and family, as the "Public Quiz" portion of the website is available for all to use. Government Computer News (www.gcn.com) recently featured the Quiz in its on-line edition. The Frog Call Quiz website is: www.pwrc.usgs.gov/frogquiz/

Also expected this year, a new book called *Amphibian Declines: Conservation Status of United States Species* with a chapter on the development and protocol of the North American Amphibian Monitoring Program. The book will also include species accounts and range maps for all amphibians of the United States. Expected publication date is June 2005. ~Linda Weir, Coordinator, USGS

NAAMP Coordinators Meeting, Indianapolis

I was able to join in several sessions of the meeting by conference call so had the opportunity to comment on many of the pending decisions facing the coordinator group. Here are a few highlights:

- Counting the number of cars at each stop will be required starting in 2006 though the observer can stop counting after 50. Let's hope none of the stops in Maine fall into that category!
- Information about moon visibility will be collected starting in 2006...look for a modified datasheet next year.
- The web-based frog quiz (see paragraph above) will be mandatory starting in 2006...we will work with those of you who don't have high speed internet access to figure out some alternatives.
- Coordinators confirmed that the only reasons stops can be dropped from a route are for excessive ambient noise or volunteer safety. Stops cannot be dropped due to lack of calling frogs or habitat destruction.
- Stops can be moved up to 1/10 of a mile, assuming amphibians from the focal wetland type can still be heard, to address safety and noise issues.

GIS Coordinates Needed for MAMP Route Stops

For any of you who have access to handheld GPS units, please consider taking them along on your route this year. NAAMP is looking for stop locations to integrate with the new maps they've made for us over the last few years. Please mail (regular or electronic) the ten stop locations to Maine Audubon if you can get them. For those without access to a GPS unit we will work on getting "loaner" units to you in the next few years. ~SG

Web Data Entry

Thanks to all of you who entered your data on-line. It saves a good chunk of staff time to have you complete the first phase of data entry. After you've entered your data, they still need to be reviewed by an additional pair of eyes before they are actually accepted into the USGS

database. Although data entry seems pretty straightforward, you'd be surprised how many data entry mistakes are made each year. This means we still need a copy of your datasheet mailed to us at the end of the season. Please get copies to us by the end of the summer. **Make it easy on yourself (and MAMP staff) by mailing the data to us as soon as the third run is complete!** Thanks, in advance, for all your help collecting and turning in data!

Want to look at your route data from previous years?

You may find it useful to access data from previous years to help you decide on timing for running your routes, especially if you are new to the program. Here is how to access data from the USGS NAAMP web page:

- Log on to the [NAAMP web site](http://www.pwrc.usgs.gov/naamp/): www.pwrc.usgs.gov/naamp/
- Click on Data Access
- Click on Public Access
- Click on Single Instance
- Click on State-ME
- Choose Survey Year

At this point you will be in a worksheet. Find the route number you want to check (remember, check your neighbors' routes too), then click on the date for the run you want and the data will pop up. Try a couple of different years. You are looking for Code 2's and Code 3's. Find a year where the route runner seems to have hit the peak. It is also helpful to know which stops had these frogs at them in previous years. There is year to year variability, but this will fine tune the guessing game.

Research Corner: What's the latest amphibian research at the University of Maine?

Megan Gahl, PhD Candidate

Amphibian tadpoles in Acadia National Park (ANP) have experienced disease and die-off events in a number of wetland breeding sites over the last six years. Though the die-offs have not been great enough to incur declines of amphibians in any breeding wetlands, the diversity of diseases present and the number of amphibian species affected is unprecedented. This combination of factors in ANP offers a unique opportunity to study amphibian disease ecology over multiple years and to potentially improve management of threatened amphibian populations here and elsewhere.

My research in Acadia is twofold. The first part includes continual monitoring of wetlands where amphibians have experienced illness or mortality and preemptive examinations of other wetlands to monitor amphibian health beyond visible or clinical signs. In 2003, the first year of this work, green frogs, bullfrogs, wood frogs, and spring peepers in three ANP wetlands were diagnosed with *Anuraperkinsus* by the National Wildlife Health Center (a collaborator in this project), the first detection in ANP. *Anuraperkinsus* is an emerging infectious amphibian disease; the species description is currently in press. The pathological and environmental information gathered from ANP has been integral in understanding this newly identified disease.

The second part of my work involves environmental monitoring to determine what characteristics of amphibian populations or wetlands may make them more susceptible to amphibian die-off and disease events. Results from this work will help to inform management of ANP wetland and amphibian resources, including development of guidelines to reduce potential human-enhanced spread of amphibian disease within the park. Management implications include predictive capabilities for wetlands more inclined to harbor disease, identification of amphibian species most at risk, and sound wetland monitoring parameters.

David Patrick, PhD candidate

My research focuses on the effects of habitat fragmentation on the long-term survival of animal populations. With increasing levels of urbanization and development, many animals now find themselves living in patches of their natural habitat, surrounded by inhospitable features such as roads and farmland. The remaining areas of habitat are often altered to some degree, as is the case with commercial forests in Maine. I am interested in developing landscape-scale models that can be used to assess how such changes likely affect animal populations. These can then be used by land-managers to make informed decisions that integrate both sustainable resource use and amphibian conservation.

Amphibians in Maine present an ideal starting point for the development of these models. Amphibians have been shown to be sensitive to changes in their habitat, preferring not to cross features such as roads and open field areas. My research looks at how different forestry practices affect the number of juvenile amphibians moving out from their natal ponds. We have created four replicated landscapes, with a central breeding pond surrounded by the different forestry treatments. I then use several different approaches to look at how marked juvenile wood frogs and spotted salamanders move through this landscape, including drift fences and pitfall traps, tracking with fluorescent powder, and the use of computer simulations. The results of this can then be extrapolated to assess how forestry practices will affect the entire population.

Rose Graves, undergraduate

In recent years, disease has emerged as a potential causal factor for amphibian decline. We investigated the role of bullfrogs (*Rana catesbeiana*) as potential vectors of amphibian disease in a small wetland catchment including one permanent and two seasonal wetlands in Acadia National Park. We used visual encounter surveys, mark-resighting surveys, and radiotelemetry to (1) document movement patterns of juvenile, sub-adult, and adult male and female bullfrogs in one catchment and (2) determine if bullfrogs are moving into adjacent catchments. Using visual encounter surveys we found that the proportions of juveniles, subadults, males, and females present vary among the three wetlands. In addition, we found that a pattern existed in the two seasonal pools between the water level and the total number of bullfrogs present. Using a mark-resighting technique we found that 39.1% of 46 marked bullfrogs moved from the origin wetland to another wetland. We did not document any movement into an adjacent catchment though consider it a plausible explanation for disappearances of marked frogs.

We marked five bullfrogs with PD-2 transmitters and found that 2 of the 5 moved from their original wetland but none moved out of the catchment. We conclude that bullfrogs are moving between pools where amphibian disease presence is known and pools where amphibian disease is not known to exist and therefore may be vectors for amphibian disease.