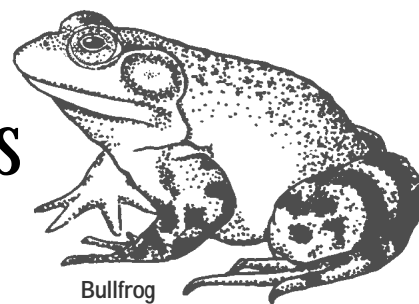


North and South: No Borders for Herps



Bullfrog

By Karyn Molines

Volunteers are geared up with buckets, plastic bags, aquariums, rulers, hand-held Pesola scales, and field guides. Their mission: to search the forest, field and wetlands for reptiles and amphibians. So goes the Great Herp Search, our annual census of reptiles and amphibians (a.k.a. herps).

The Search began in 1988 to determine the diversity of frogs, toads, salamanders, snakes, turtles, and lizards found within the Sanctuary. We document their habitat preferences and measure each animal's length and weight. In addition, the Search allows the public to learn about herps and encourages the appreciation and conservation of these animals.

In 1998, we expanded the Search to include the River Farm. The information gathered at both sites over four years helps us better understand habitat preferences among the different species. The following interpretations can be a guide for improving future Herp Searches and expanding them to include the Parris N. Glendening Nature Preserve. Hopefully, you'll read this before our 2002 Herp Searches on June 1 and June 8 and can come be part of the event.

Who Goes There?

We have documented (through the Herp Search, pitfall traps, Frog Calling Surveys, and general observations) forty-five species of reptiles and amphibians and have encountered all but five of these during the Herp Search (see sidebar). The search is an effective tool for determining whether a species occurs at a site. It also identifies specific habitats where rarely-

Reptiles and Amphibians Found at the Jug Bay Wetlands Sanctuary

(S) found during the Great Herp Search

(O) found during other studies or from casual observations

REPTILES	AMPHIBIANS
S Black Racer	S Marbled Salamander
S Black Rat Snake	S Mud Salamander
S Brown Snake	S Northern Dusky Salamander
S Eastern Garter Snake	S Red Salamander
S Hognose Snake	S Red-back Salamander
S King Snake	S Spotted Salamander
S Northern Water Snake	O Red Spotted Newt
S Queen Snake	O 4-toed Salamander
S Ribbon Snake	O 2-lined Salamander
S Ringnecked Snake	
S Rough Green Snake	S American Toad
S Smooth Earth Snake	S Fowler's Toad
S Worm Snake	S Spadefoot Toad
S Eastern Fence Lizard	S Bull Frog
S Five-lined Skink	S Cricket Frog
S Six-lined Racerunner	S Green Frog
S Eastern Box Turtle	S Grey Tree Frog
S Eastern Painted Turtle	S Leopard Frog
S Mud Turtle	S Pickerel Frog
S Musk Turtle	S Spring Peeper
S Red-bellied Turtle	S Wood Frog
S Snapping Turtle	O Green Treefrog
O Spotted Turtle	

seen species can be monitored. For example, the Northern Dusky Salamander was documented for the first time on the South Herp Search in a damp ravine leading to the Beaver Pond. It can readily be found there at other times.

Habitat, Habitat, Gotta Have A Habitat

Do different herp species prefer specific habitats? Amphibians, with their moist skins, require a certain amount of moisture, so one would expect them in the wetter areas. Stream valleys were the best habitat for finding frogs and toads during the Herp Search. Except for the toads, very few amphibians were found in fields, where it is sunny, hot and dry. In June,

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Summary of the Great Herp Search 1998-2001 with the highest value per year in **BOLD typeface**.

toadlets leave the wetlands and cross these open areas to reach the woods. Salamanders were most often found by searching under logs and leaves in the forest, but never in fields.

Snakes and lizards savor a warm sunny spot for basking, so the open fields might be the preferred habitat. Generally, the aquatic turtles will only be on land during nesting. Of 33 Painted Turtles found, only one was in fields. All other aquatic turtles were found either in the water or in nearby wetlands. Box Turtles were found in all habitats, including wetlands and streams.

Snakes could be found in any habitat, but some species preferred certain habitats. Northern Watersnakes and Queen Snakes were only found in wetlands. Garter and Worm Snakes were encountered mostly in the forest, while Black Rat Snakes were observed equally in forest, field and wetlands.

The North vs. the South

The land north of Two Run Creek encompasses 340 acres. South of the creek are the 277 acres referred to as the River Farm. Both "halves" of the Sanctuary have similar types of habitats consisting of tidal and non-tidal wetlands, upland forests, open

fields, streams, and lawn areas. But old farm fields and young woods dominate the South side, while almost half the acreage in the North is tidal wetlands. Based on the herp species found, both North and South have similar herp habitats. (See charts below).

* Greater numbers of individuals were captured in the South in 1998 and 1999, while the North had greater numbers of individuals in 2000 and 2001. (See table)

* All the Sanctuary's frog species and both *Bufo* (American and Fowlers) toads have been found on both sides of the

Sanctuary. (Only one Spadefoot Toad was found during the Search)

* Five of the Sanctuary's seven turtle species have been recorded on the South side, while six species have been found in the North. The additional species, the Musk Turtle was found only in the North searches prior to 1995, and the Spotted Turtle has not been found in either.

* All three lizards are found in the North, but only one lizard species, the Five-lined Skink has been spotted during the South Herp Search

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Most Abundant Species Found During The Herp Search.

The North and South sides of the Sanctuary appear to provide similar habitats for reptiles and amphibians.

Eight species comprised between 77% and 70% of all the individuals captured in the North and South, respectively. The composition of remaining species was generally the same on either tract.

The species that were unique to the North Herp Search include: Six-lined Racer Runner (11), Five-lined Skink (13), Black Racer (2), Brown Snake (3), Hognose Snake (1), King Snake (1), Queen

Most abundant species found during Herp Search South 1998-2001 • 537 Individuals, 29 Species

Snake (5), Rough Green Snake (2), Red Salamander (2), and Spadefoot Toad (1). Numbers in parentheses are total captured between 1998-2001.

Only three species were found in the South Herp Search but not the North

Most abundant species found during Herp Search North 1998-2001 • 615 Individuals, 36 Species

Search: Smooth Earth Snake (1) and the Northern Dusky (6) and Red-backed Salamanders (8). Dusky's have never been recorded on the North side, although the other two species have been found there at other times.

Into the Future

We found 12 species during the first Herp Search (1989) and 11 new species the second year. In most successive years, we found additional species, thus documenting 89% of the species known to live at the Sanctuary. However, some species known to live at the Sanctuary have never been discovered during the Herp Search. The Green Treefrog, the only frog species not sighted during the GHS, has been heard in the marsh during the Frog Calling Surveys. The three salamander species we have not encountered on the Herp Search include: the Two-lined Salamander, frequently encountered along streams at other times; the Four-toed Salamander, a small salamander infrequently caught in pitfall traps; and the Red-spotted Newt, found only once.

We find an average of 19 species per search (range =13 - 29), although the species found vary from year to year. Do we

now find certain species because we have more experienced volunteers than in earlier searches, or are we just lucky? Is the weather a factor in our ability to find different species?

I could answer yes to each question. By comparing maximum daily temperature, rainfall, and number of searchers during the North and South searches, we find that more individuals and more species were found when the day was warmer and wetter. The number of searchers and number of hours spent searching are not indicative of more species or individuals. (See table, p. 3) In fact, it appears that we caught fewer individuals and species with more searchers! To accurately analyze the effect of experience and numbers of searchers, we would need to perform a separate study.

With this knowledge, as we begin to survey the Glendening Preserve (or assist other sites in establishing a herp inventory) we anticipate that at least four years of data

collection are needed to document close to 90% of the species in an area. Also, a wide range of habitats must be surveyed each year to encounter the various species.

If you join us this year for the Great Herp Search, be prepared to scan the stream valleys, wander along the wetlands, and meander through the meadow to find the last of our "new" species. And you'll have a wonderful time finding the more common species as well.

Friends of Jug Bay Meet

On Sunday March 17, 2002, the Friends of Jug Bay held their annual meeting at the Wetlands Center with 40 people in attendance. David Burke, the Program Director of the Chesapeake Coastal Watershed Service, discussed the state's Greenprint land conservation program.

The Friends of Jug Bay were happy to present the 2002 Jug Bay Award to Bud Taylor. John W. "Bud" Taylor is a wildlife artist who is best known for paintings of birds and wetlands of the greater Chesapeake Bay region and especially the Patuxent River. Bud's fascination with birds and art began in his fourth grade classroom, where his teacher formed a Junior Audubon Society Club. His art centers around his love for birds and for the natural environment, especially the marshes, waterways and wildlife of the Chesapeake Bay and its tributaries.

Bill Steiner was elected as the new President of the Friends and Mike Quinlan Treasurer. Dotty Chaney and Peggy Brosnan will continue as secretary and vice-president, respectively. Both Doug Kuzmiak and Tom Petzka have left the executive board but will continue as board members. Other continuing board members include Jim Harle, Dotty Mumford, Jeff Shenot, Mike Quinlan, Susan Barber, Judy Burke, Susan Blackstone and Ken Riggelman. The board welcomed new member Ami Hazell, a neighbor to the Sanctuary and an elementary school teacher who brings her students to Jug Bay for field trips.

Terrapins Rule!

As March Madness reached its fevered peak, Jug Bay's Diamondback Terrapins rallied to cheer their namesake, the University of Maryland basketball team. On Saturday, March 30, the first Terrapin hatchling erupted from its nest at Jug Bay as the University of Maryland defeated Oklahoma. (We'd like to think it was cheering and doing a victory dance!) On Monday, April 1, Maryland played Indiana for the NCAA title. A few hours before the game began, a second Terrapin appeared in time to witness the big game. The Terps prevailed and won the national championship for the first time. Four more hatchlings joined the victory celebration the next day.

It was a first for Jug Bay, too, for Diamondback Terrapins had never been known to nest on Sanctuary property! By chance, summer interns spotted the mother digging a nest in the dark of night in June, 2001. Eight more hatchlings emerged later in April, bringing the total



A first for Jug Bay: Diamondback Terrapin Hatchlings

to 14 new Diamondback Terrapins, which were released to the river at Jug Bay.