

To Whom It May Concern,

The information in this document is the summary of a series of volunteer reptile and amphibian observations conducted in Hamilton Veteran's Park in Mercer County, NJ, and has been prepared for the Township of Hamilton. The results presented are from field observations and data collected in 2012, 2013, and 2014. The data from all three years was taken informally during morning and evening walks with family. This information is presented voluntarily for use in conservation endeavors.

My interest in taking this data was to use it as a comparative baseline against data that I collected in other open space preservations in Mercer County, NJ, as well as within several Mercer County Parks. The data collected in Mercer County Parks was largely the result of an agreement between myself and the county park naturalists. After the chief county naturalist indicated an interest in receiving meaningful data for conservation purposes, I attempted to further structure data collection and improve accuracy of the data by providing information such as exact dates, weather patterns, and other comments which I felt would further improve the value of the observations.

The data was taken from both Hamilton Veteran's Park, and from a single location in the surrounding forested area which I noted as Cypress Lane Woods. The Cypress Lane woods are adjacent to Veteran's Park, and are joined to Veteran's Park by Pond Run. This entire area is divided by Cypress Lane, Whitehorse-Mercerville and Whitehorse-Hamilton Square Roads.

This area is unique compared to the others assessed in Mercer County, mostly in that it is on the Inner Coastal Plain. The area of Veteran's Park and Cypress Lane Woods contains mostly forested habitat and wetlands, with a unique freshwater wetlands meadow within Veteran's Park.

In the data section, Hamilton Veteran's Park and Cypress Lane woods are reported separately, however they are reported together in the cumulative assessment totals. The following is a summary of the data for the past three years:

**Part I: Cumulative Assessment Total-Complete Species List for 2012-2014 for Hamilton Veteran's Park/Cypress Lane Woods (12 species)**

- Eastern box turtle
- Snapping turtle
- Painted turtle
- Northern gray treefrog
- Northern spring peeper
- Green frog
- Bullfrog
- Red-backed salamander
- Garter snake
- Black racer
- Southern ringneck snake
- Black rat snake

## Part II: Data Breakdown:

### 1. Totals:

- Turtles (3 species)
- Frogs/Toads (4 species)
- Salamanders (1 species)
- Snakes (4 species)
- Total (12 species)

### 2. Park/State Comparison for this assessment-totals of each for Vet's Park/Cypress Lane Woods vs. statewide totals documented by NJ Fish and Wildlife (including extirpated species):

- Salamanders 1/16 (6%)
- Frogs and Toads 4/16 (25%)
- Turtles 3/13 (23%)
- Lizards 0/3 (0%)
- Snakes 4/23 (17%)
- Total 12/71 (17%)

### 3. State/Park Comparison corrected for number of species potentially present in Mercer County as documented by NJ Fish and Wildlife (not including extirpated species):

- Salamanders 1/11 (9%)
- Frogs and Toads 4/11 (36%)
- Turtles 3/11 (27%)
- Lizards: 0/2 (0%)
- Snakes: 4/15 (27%)
- Total: 12/50 (24%)

### 4. Park/County Comparison for this assessment-totals of each for Vet's Park/Cypress Lane Woods vs. Mercer County Totals recorded in survey:

- Salamanders 1/4 (25%)
- Frogs and Toads 4/8 (50%)
- Turtles 3/3 (100%)
- Lizards 0/0 (0%)
- Snakes 4/8 (50%)
- Total 12/23 (52%)

### Part III: Species of Special Interest:

5. Endangered/threatened species found: none
6. Species of Special Concern (2\*): <http://www.state.nj.us/dep/fgw/ensp/pdf/spclspp.pdf>
  - Fowler's toad (*Anaxyrus fowleri*)
  - Eastern box turtle (*Terrapene c. carolina*)

\*These species are listed as Species of Special Concern by the State of New Jersey, as there is concern over their habitat loss and their vulnerability because of it. With box turtles, there is also concern about illegal collecting. Of potential interest to park administration is that we found several dead box turtles (with broken plastrons) after a meadow near the wetlands was mowed during the summer.

### Part IV: Vernal Pool Breeders:

Many amphibians and some reptiles use temporary pools created by snowmelt or spring rains. These pools are selected by amphibians largely because of the lack of fish predation on the tadpoles. In some cases, amphibians will use permanent ponds such as those located in the meadows in Veteran's Park, provided that they are free of potential predators, and provided that the pools contain water for the duration of the development of the tadpole. There are at least two such ponds in Veteran's Park (personal observation). Vernal pool breeders are classified as either *obligate breeders*, which are species that must use a vernal pool to breed, or *facultative species*, which will gravitate toward vernal pools if available, but will use other semi-permanent or permanent wetlands if vernal pools are not found.

7. Obligate vernal pool species found: (None-formal vernal pool survey not conducted)
8. Facultative vernal pool species found (7)
  - Snapping turtle (*Chelydra serpentina*)
  - Eastern painted turtle (*Chrysemys p. picta*)
  - Fowler's toad (*Anaxyrus fowleri*)
  - Bullfrog (*Lithobates catesbaeianus*)
  - Green frog (*Lithobates clamitans*)
  - Northern gray treefrog (*Hyla versicolor*)
  - Northern spring peeper (*Pseudacris crucifer*)

Hamilton Veteran's Park and the surrounding Cypress Lane Woods show a promising diversity of reptiles and amphibians. Their consistent presence serves as a reliable indicator of a healthy ecosystem capable of sustaining them, as well as sustaining populations of other fauna that may serve as their predators or prey. There is confidence that each population of the individual species found in the area are breeding populations, and steps toward their conservation should be considered. The following are examples that illustrate the presence of breeding populations of these species:

- 1) Presence of snapping turtle hatchling found in autumn 2012 (Vet's Park).
- 2) Presence of full spring peeper and gray treefrog choruses demonstrating advertisement calls and territorial vocalizations (behaviors indicative of breeding activity) in many locations within Vet's Park and throughout the Cypress Lane Woods during breeding season.
- 3) Presence of breeding ponds (vernal pools) in Veteran's Park and Cypress Lane Woods.
- 4) Discovery of Eastern box turtle specimen digging nest and laying eggs in meadow (Vet's Park) as well as 'nest digs', which are nests likely excavated by raccoons in search of eggs (Vet's Park).
- 5) Discovery of neonate garter snakes, incapable of traveling far from place of birth (Vet's Park).
- 6) High population densities of painted turtles, green frogs, garter snakes, and red-backed salamanders (Vet's Park).
- 7) Presence of egg clutch of black racer, and witnessing successful hatching of a specimen (Cypress Lane Woods).

The presence of 12 species of reptiles and amphibians were found in Veteran's Park and Cypress Lane Woods during the survey. This is greater than 50% of the total reptile and amphibian species found in Mercer County during the survey (23 species total). This is also 17% of the total reptile and amphibian species in New Jersey, including extirpated species and species whose range does not include Mercer County. Corrected for species that could potentially be located within Mercer County (and omitting extirpated species), this number increases to 24%. Consideration should be given to the fact that the entire area surveyed in Hamilton Township is not more than 350 acres, and that the other areas surveyed are located in Princeton and Hopewell. These individual tracts of land are larger and have been actively managed for the purpose of passive recreation. The Princeton and Hopewell tracts are also frequently adjacent to tracts of land that are larger yet, which increases the variety of habitats and the resulting biodiversity. Even then, the area surveyed with the most diversity was Baldpate Mountain in Hopewell, and assessment of this location revealed the presence of 15 species. 12 species were found in Mercer Meadows and Rosedale Park, two very large adjacent tracts of land with the benefit of Stony Brook and several small tributaries, as well as being located on the Piedmont, a geologic region that is rich in biodiversity. These numbers, again, reflect a healthy diversity of reptile and amphibian fauna within Veteran's Park and in the surrounding wooded area. The biotic and abiotic factors informally observed in these surveys also demonstrate that this area has the potential to support other reptile and amphibian species. It is possible that other species may be present within close proximity of the park, and their populations may reach a density that would pressure the species to expand its range into the park.

Any lack of herpetofauna diversity reported in the totals may not be a reflection of the actual number of species present, but instead may reflect limitations on time spent assessing the area, incorrect timing, or other limiting factors.

This year, my focus was on species that could be observed informally, without a structured survey site. The data collected is limited to what I could find on my own or with the help of my young sons. Care was taken not to excessively disturb any sensitive habitat, such as vernal pools or rotting logs, and disturbance of other areas was nearly nonexistent. The specimens were not harmed, nor were they unnecessarily handled. No equipment was used that might transmit fungal infections. One net was used at two different locations and was sprayed with a 10% bleach solution, rinsed thoroughly, and dried between locations to prevent transmission of disease.

Proposal for improvement of future assessments:

- 1) Further locate and assess vernal pools during breeding seasons. Focus on obligate vernal pool breeders at appropriate times
- 2) Include frog vocalization assessments during breeding seasons
- 3) Employ use of AC (artificial cover) in appropriate areas for improvement of snake data

This data was collected and vouchered on a volunteer basis. This data was collected to the best of my ability and all specimens were personally observed and positively identified. These specimens were photo vouchered where possible and these photographs are available upon request.

Thank you for your consideration,

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