Phase II Bog Turtle Survey

Summit Woods Property
Route 52
Town of East Fishkill,
Dutchess County, NY

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1.0 INTRODUCTION/METHODS

In March 2002 Ecological Solutions, LLC identified potential Bog Turtle (*Glyptemys muhlenberghi*) habitat on the 325.22 acres Summit Woods property located on Route 52 in the Town of East Fishkill, Dutchess County, NY (Figure 1.0-1). The Bog Turtle is listed as a New York State endangered species[1] and is listed as a threatened species by the US Fish and Wildlife Service.

As part of the continuing environmental review for the project, the Applicant ABD Fishkill, LLC contracted with Ecological Solutions, LLC in April 2006 to undertake a Phase II Bog Turtle survey within a total of 3.55 acres (Area 1: 0.83 ac.; Area 2: 2.72 ac.) of excellent quality potential habitat (limestone fen) identified on the site (Figure 1.0-2). Two additional areas of herbaceous wetland with fen indicator species totaling 20.67 acres [Area 3: 11.97 ac.; Area 4: 8.70 ac. (Figure 1.0-2)] were also evaluated but were determined to be unsuitable based upon the absence of consistent groundwater-driven hydrology. This report provides the results of the Phase II Bog Turtle survey within the 3.55 acres of high quality limestone fen habitats on this site during April, May, and June 2006.

The Phase II survey was completed in accordance with the protocols outlined by the Fish and Wildlife Service (2001)[2]. A bog turtle survey is an attempt to determine presence or probable absence of the species. Following the Phase II Bog Turtle Survey guidelines helps to maximize the potential for detection of bog turtles at previously undocumented sites at a minimum acceptable level of effort. Although the detection of bog turtles confirms their presence, failure to detect them does not absolutely confirm their absence (likewise, bog turtles do not occur in all appropriate habitats and many seemingly suitable sites are devoid of the species).

Three investigators (Jason Tesauro, Randy Stechert, and Michael Nowicki) surveyed the two identified limestone fen areas (Areas 1 and 2) on four days (May 25, June 1, June 8, and June 15, 2006) for the presence of Bog Turtles. Survey times lasted the required three (3) to six (6) person-hours per acre of wetland per visit. All surveys were performed generally between 9:00am and 3:00pm under optimal weather conditions with air temperatures between 70-85 degrees Fahrenheit during the surveys.

Visual surveys were executed using a combination of transect-based and random opportunistic search methods. During each survey rivulets, small open water zones, and other potential turtle refugia were probed with wooden sticks for subsurface turtles. Basking areas, including open-canopy hummocks, matted vegetation and

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[1] *New York State DEC Web Site Endangered Species Home Page Bog Turtle Fact Sheet*
[2] *US Fish and Wildlife Service 2001 Bog Turtle (Clemmys muhlenbergii) Northern Population, Recovery Plan Hadley, Massachusetts*

shallow waterways were also thoroughly examined—especially in early June when gravid females spend a significant time in the sun for egg gestation. Open tussocky areas were also combed for nests or eggshell fragments from hatched/predated nests of previous years. Areas 1 and 2 were surveyed four times for a total of 72 man-hours. As part of habitat evaluation/monitoring efforts, Areas 3 and 4 were also surveyed on the first and last day of the survey for a total of 12 man-hours.

In addition to visual searches, six un-baited funnel (i.e. commercial eel traps) and twelve box traps were set by Tesauro along potential travel corridors within Area 1. Traps were checked daily for a total of 14 days or 252 trap nights (18 traps x 14 days). Note that trapping was done only to complement survey efforts and was not done in any kind of "official" sense. A genuine trapping study, known as a "Phase III Survey," has very rigid federal protocols and is employed when a definitive sense of bog turtle presence/absence is required.

Figure 1.0-1
Location Map

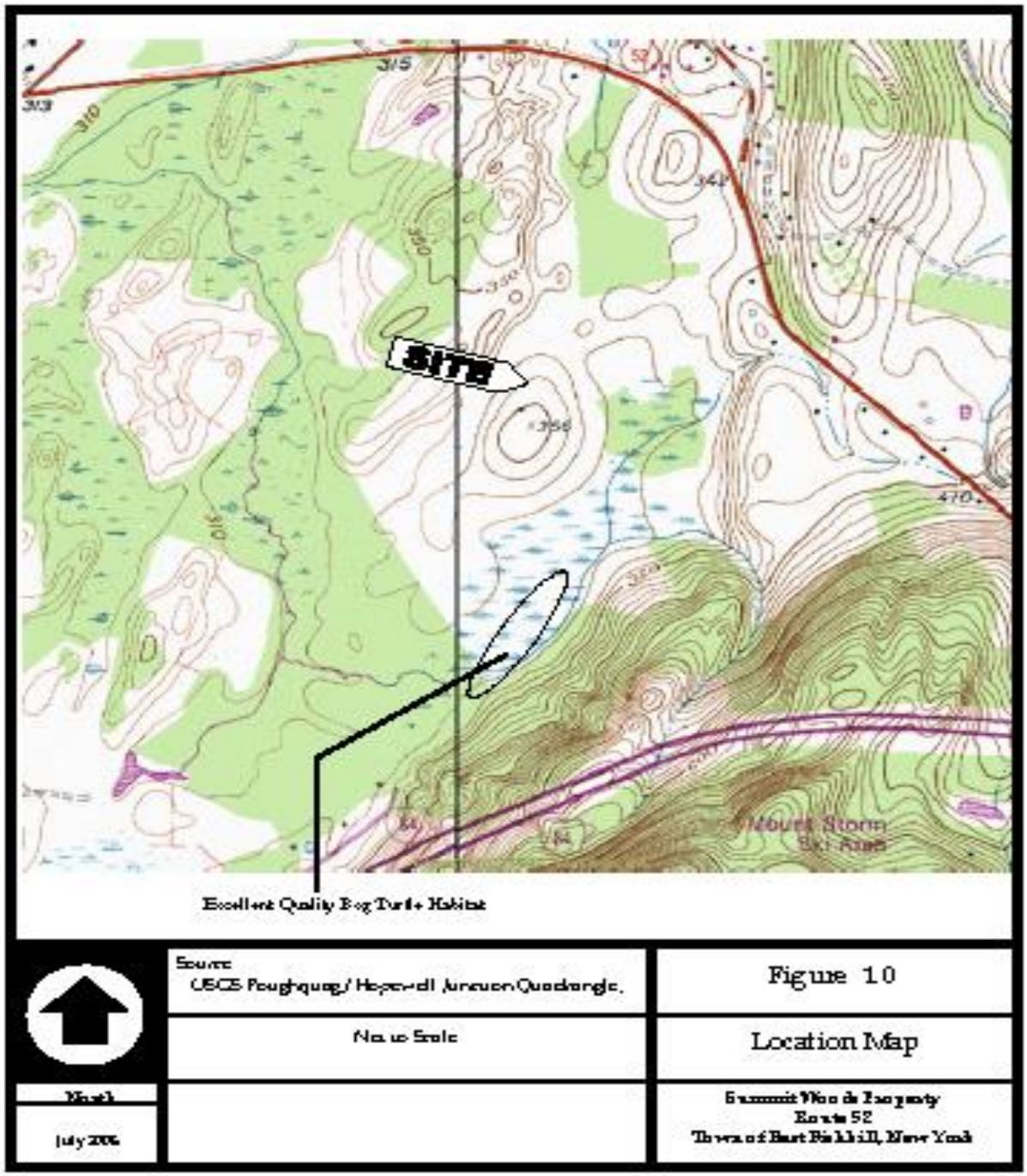

Figure 1.0-2
Potential Bog Turtle Habitat
Summit Woods Property

2.0 LITERATURE REVIEW

Bog Turtle Habitat - According to the federal recovery plan (USFWS, 2001), Bog Turtles' preferred habitat includes shallow, spring-fed fens, sphagnum bogs, swamps, marshy wet meadows with soft, muddy, organic bottoms, slow moving water, and open canopies bordered by shrub and red maple swamps. Plant species found in association with bog turtles include shrubby cinquefoil (*Potentilla fruticosa*), sedges (*Carex* spp., especially *Carex stricta),* sphagnum moss (*Sphagnum spp.),* and skunk cabbage (*Symplocarpus foetidus)*. The turtles frequently lay eggs atop tussock sedges in areas with open canopies and sparse shrub vegetation that would not shade the nests.

According to NYSDEC and the Natural Heritage Program (2003)[3], optimal habitat (in New York) has the following attributes:

- <25% canopy cover
- Headwater or spring head water sources
- Muddy substrate
- Shallow, uneroded rivulets
- Shrubby cinquefoil, sedges, rushes, sphagnum moss
- No obvious threats or evidence of negative impacts to wetland in the past.

2.1 Species Description

Bog Turtle - The secretive bog turtles are now in the Genus *Glyptemys,* and have a maximum length not exceeding 4.5 inches. The carapace is domed and from light brown to ebony, with scutes often having lighter-colored centers in a starburst pattern. The distinguishing feature is a large, conspicuous, bright orange or yellowish blotch on each side of the head. This blotch is present from birth in both sexes.

[3] *Personal conversations between Jesse Jaycox (Natural Heritage Program) and Mike Clancy (NYSDEC), with Mike Nowicki, 2003.*

3.0 HABITAT ASSESSMENT/RESULTS

The 325.22 acres Summit Woods property contains approximately 75 acres of wetland. The majority of the wetland onsite is comprised of a core of red maple hardwood swamp in the center with wet meadow and fen wetland types located on the outer fringe area. A watercourse (Van Anden Creek) drains the wetland system toward the south and several tributaries and rivulets are located entering and flowing through the system from the large area of steep slopes and areas near Route 52.

Four discrete patches of emergent wetland were evaluated for bog turtle habitat suitability: Area 1 (0.83 ac.), Area 2 (2.72 ac.), Area 3 (5.7 ac.), and Area 4 (11.97 ac.) Figure 1.0-2. Area 4 consists of a dry, mineral soil fen surrounding a poorly drained, marshy basin that had been ditched for agricultural use (presumably for hay). The hydrology in the basin is primarily standing water 6"-12" deep and appears to be maintained primarily by precipitation and run-off. The vegetation is composed of submergent and emergent species. Overall, the basin portion of wetland appears to function more like a vernal pool then a fen, despite the patchy occurrences of Shrubby Cinquefoil (*Pentaphylloides floribunda*), Grass-of-Parnassus (*Pamassia glauca*), Cotton Grass (*Eriophorum angustifolium*), and other bog turtle/fen 'indicator' species. The frequent observations of spotted turtles at Area 4 are potential testament to its vernal character. Wetland Area 3 meets all the criteria of suitable bog turtle habitat with the exception of hydrology. A few ephemeral seepages were identified in Area 3, but these seeps did not contain the appropriate volume nor had the consistency to create soft, mucky conditions well-suited for turtle burrowing. The vegetation in Area 3 contained fen species but was dominated by dense stands of the tall-growing sedge, *Carex lacustris*, Purple Loosestrife (*Lythrum salicaria*), and Gray Dogwood (*Cornus racemosa*).

Areas 1 and 2 were determined to contain highly suitable bog turtle habitat and were the focus of the Phase II survey. The hydrology at each of these habitats is maintained by copious springs which create a diverse array of rivulets, shallow pools, and flowages. Substrates are quaggy and contain a mixture of organic matter (deposits up to several feet deep) and mineral material. Dominant plant species include Poison Sumac (*Rhus vernix*), Sundew (*Drosera* sp.), Tussock Sedge (*Carex stricta*), sapling red maples, various ferns, thick mounds of sphagnum moss, and Skunk Cabbage (*Symplocarpus foetidus*). Almost no invasive/non-native plants exist in the high quality fen areas, and signs of past disturbance were non-existent (very rare for wetlands in Hudson Valley).

Despite the presence of excellent habitat at wetland Areas 1 and 2, the visual surveys and complementary trapping efforts yielded no bog turtles or sign of their presence. Other turtle species encountered during the Phase II survey were Spotted Turtle (*Clemmys gutatta*), Eastern Box Turtle (*Terrapene carolinensis*) and Snapping Turtle (*Chelydra serpentina*). In addition, Ribbon Snake (*Thamnophis sauritus*), DeKay Snake (*Storeria dekayi*), Milk Snake (*Lampropeltis triangulum*) and Garter Snakes (*Thamnophis sirtalis*) were also identified as well as several common amphibians including Pickerel Frog (*Rana palustris*) and Green Frog (*Rana clamitans melanota*) (Tables 3.0-1 and 3.0-2).

Table 3.0-1
Reptilian Species Observed

DATE	COMMON NAME	SCIENTIFIC NAME	NUMBER CAPTURED
5/25,6/1,6/15	Spotted Turtle	Clemmys guttata	5
6/8,6/15	Eastern Box Turtle	Terrapene carolinensis	2
6/15	Snapping Turtle	Chelydra serpentina	1
6/15	Milk Snake	Lampropeltis triangulum	1
5/25/6/8	Dekay's Snake	Storeria dekayi	2
5/25,6/1	Ribbon Snake	Thamnophis sauritus	2
6/15	Garter Snake	Thamnophis sirtalis	4

Table 3.0-2
Amphibian Species Observed

DATE	COMMON NAME	SCIENTIFIC NAME	NUMBER OBSERVED
5/25,6/1,6/15	Green Frog	Rana clamitans melanota	5
6/8,6/15	Pickerel Frog	Rana palustris	5

4.0 CONCLUSIONS

The negative results of this Phase II survey were very puzzling, to say the least. Bog turtles are extant at fens within one mile east and west of the Summit Woods site, and at least one of the sites (Bailey) is connected to Summit Woods via a contiguous wetland corridor. Hydrology, vegetation, lack of disturbance and overall ecological integrity of the onsite fens appear to exceed the criteria for bog turtle habitat suitability. The fens and other peripheral wetlands onsite support a robust population of spotted turtles based both on our observations and anecdotal information from a local resident who sees them frequently. Spotted turtles—and to a lesser degree, box turtles—are good indicators of high quality fens/wetland habitats; however, their presence is not a by proxy measure for bog turtles, as they use a much wider range of habitats than the fen-specific bog turtle.

Bog turtles are notoriously elusive mostly because of their small size and propensity for burrowing in the substrate. Another factor that influences their elusiveness is the structure of the habitat. Open, grassy sites with short vegetation and open water are much easier to survey and often produce better capture per search effort results than sites with dense, thickly structured vegetation (i.e., open sites have fewer places for turtles to hide). The Summit Woods bog turtle habitats (Areas 1 and 2) have very diverse habitat structure. The dense, tightly interwoven tussock sedges and mats of sphagnum moss that characterize these fens made searching very difficult and precipitated the decision to set traps. [Given the nature of the habitat, in hindsight a better approach would have been to skip the visual surveys altogether and do a comprehensive trapping survey (Phase III).] Within the best area of bog turtle habitat only a single turtle—a first-year spotted turtle—was found on the third day of the survey. (All other spotted turtles were found in portions of the wetland deemed unsuitable for bog turtles.) It is difficult to believe that adult spotted turtles or other juveniles are not also present in this area.

5.0 REFERENCES

U.S. Fish and Wildlife Service. 2001. Bog Turtle (Clemmys muhlenbergii), Northern Population Recovery Plan. Hadley, Massachusetts. 103 pp.