



**CARVEL PROPERTY DEVELOPMENT**

**Pine Plains and Milan,  
Dutchess County, New York**

**APPENDIX 8.2 – BOG TURTLE  
HABITAT ASSESSMENT**

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**Towns of Pine Plains and Milan, Dutchess County, New York**

## **BOG TURTLE HABITAT ASSESSMENT**

### **PREPARED FOR**

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## APPENDIX 8.2 BOG TURTLE HABITAT ASSESSMENT

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### **BOG TURTLE (*Clemmys muhlenbergii*) [NYSDEC-LISTED ENDANGERED]**

Correspondence from the U.S. Fish and Wildlife Service (USF&WS), dated March 14, 2005 identified a known bog turtle site within 10 miles of the project site. As noted in the USF&WS correspondence, bog turtles prefer open canopy wetlands with soft, saturated soils, such as fens or sedge meadows fed by seeps and springs of cold groundwater with calcium-rich bedrock or soils. In New York State, USF&WS indicates bog turtles are often found in areas with deep mucky soils and shallow water depths. Plants common to these areas include shrubby cinquefoil (*Potentilla fruticosa*), certain willows (e.g. *Salix candida*), sedges (*Carex flava*, *C. interior*), and sphagnum moss (*Sphagnum* spp.). **Refer to Appendix 1.1, USF&WS Correspondence.**

A careful survey by **MDRA** of all site wetlands provided no evidence of wetland features known to be associated with the well-documented habitat requirements of bog turtles in the Hudson Valley Region (**refer to Table I, Bog Turtle Habitat Features**). None of the site wetlands satisfy the known habitat requirements of bog turtle nor were bog turtles seen in any site wetlands during the more than 1,350 person-hours spent conducting biological surveys of site wetlands and associated habitats. As documented below, habitat requirements for this species in Dutchess and Columbia Counties, particularly early spring basking and nursery habitat, are well known. Thus, the lack of suitable habitat indicates extremely low probability of the presence of bog turtles on the project site. The absence of wetlands possessing the combined hydrologic, substrate, community structure and floristic features associated with the known bog turtle habitat requirements in the mid-Hudson Valley precluded the need to conduct a formal USF&WS Phase 1 bog turtle habitat survey. The nearest NYSDEC-confirmed bog turtle sites is located approximately 8 miles northeast of the project site in the Harlem Valley Calcareous Wetlands Complex, primarily in the Northeast-Ancram area.

### **Habitat Requirements**

The bog turtle is a small, (adults usually less than 4 inches in length) drab, secretive turtle that is considered very rare and endangered throughout its geographic range in New York State (NYSDEC 2003). Bog turtle distribution in Dutchess County is closely associated with areas underlain by carbonate rocks, including Stockbridge marble, or areas containing calcium rich soils and a reliable supply of mineral rich groundwater (**refer to Figure 1, New York State Amphibian and Reptile Atlas Distribution Map for Bog turtle**).

In Dutchess County, the best examples of optimal bog turtle habitat (particularly for spring basking and nursery areas) have been described as areas of calcareous wet meadow or calcareous shrub thicket, dominated by low-growing, somewhat tussocky vegetation (both vegetation types possess areas of predominantly herbaceous species that are generally less than 3 feet tall). Areas of suitable bog turtle habitat are also supplied with cool groundwater discharge flowing through areas of bare open soils marked with braided rivulets and small mucky pools. The soils associated with bog turtle habitat are soft and can be easily penetrated to a depth of at least 2 feet (Kiviat and Stevens 2001, NYSDEC 2003). **Refer to Table I, Bog Turtle Habitat Features, below.**

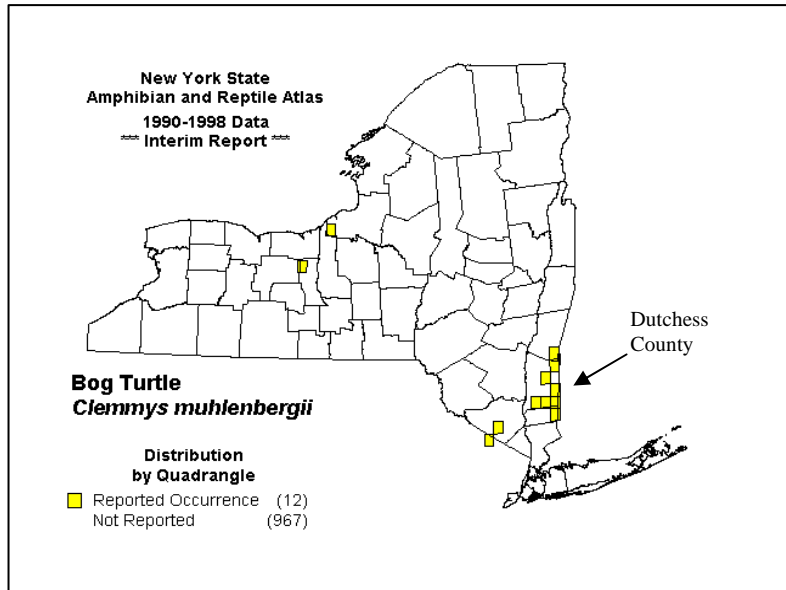


Figure 1: New York State Amphibian and Reptile Atlas Distribution Map for Bog turtle  
SOURCE: NYSDEC New York State Amphibian and Reptile Atlas Project;  
<http://www.dec.state.ny.us/website/dfwmr/wildlife/herp>

TABLE I BOG TURTLE HABITAT FEATURES	
CRITERION	DESCRIPTION
Hydrologic	Areas of cool, mineral rich perennial groundwater discharge in the form of shallow seeps and rivulets flowing through open, soft deep mucky soils.
Substrate	Carbonate bedrock (limestone, dolostone or marble) underlying usually deep, soft muck soils (easy to push a stick down and through for at least 2 feet).
Vegetation	Small-to-large areas of open wet meadows comprised of low-growing herbs (usually less than 3-feet tall) with scattered shrubs and trees; usually associated with open wet woodlands or young hardwood swamps with open tree canopy and direct sunlight to the herbaceous ground layer; includes rich sloping fen, rich graminoid fen and rich shrub fen ecological communities (Reschke 1990).
Flora	Predominance of low-growing tussock-forming plants and shrubs, usually less than three feet tall; predominance of calcicolous species (plants of established affinity for calcium rich, circum-neutral to alkaline soils); characteristic species include: tussock sedge ( <i>Carex stricta</i> ), yellow sedge ( <i>Carex flava</i> ), shrubby cinquefoil ( <i>Potentilla fruticosa</i> ), cotton grass ( <i>Eriophorum</i> spp), grass-of-Parnassus ( <i>Parnassia glauca</i> ), and spreading goldenrod ( <i>Solidago patula</i> ); other calcareous wetlands indicators include: swamp thistle ( <i>Cirsium muticum</i> ), interior sedge ( <i>Carex interior</i> ), crowded sedge ( <i>Carex stipata</i> ), porcupine sedge ( <i>Carex hystericina</i> ), Kalm's lobelia ( <i>Lobelia kalmi</i> ), Lady's tresses ( <i>Spiranthes</i> spp.), rose pogonia ( <i>Pogonia ophioglossoides</i> ), and tamarack ( <i>Larix laricina</i> ).

*Source: Adapted from Kiviat 1978, Kiviat 1993 and Kiviat and Stevens, 2001*

## On-Site Habitat Assessment

No calcareous wet meadows or calcareous fens exist on the project site, with the exception of one small fen-like area covering approximately 600 square feet within Wetland HF-3, just north of an excavated farm pond. The fen-like community comprises a narrow band of emergent vegetation that occurs along the southern shore of the pond. Its hydrology is provided by the pond and an inlet drainage channel. The fen-like habitat has a few fen-associated species. None of the more reliable floristic indicators of bog turtle habitat in the Hudson Valley (e.g. shrubby cinquefoil (*Potentilla fruticosa*), grass-of-Parnassus (*Parnassia glauca*), and yellow sedge (*Carex flava*)) are present in the fen-like habitat. This area is too small and too hard-bottomed to meet essential bog turtle habitat requirements (*refer to Table I*).

Some calcicoles have also been observed in other site wetlands (e.g. Wetland SF-1, RF-1 and LC-1 [ponds at the southern end of the project site]) but these habitats also do not provide suitable habitat for bog turtle. Site wetlands are largely underlain by acidic rock formations (e.g. Hudson River shale). The project site's herb-dominated wetlands (e.g. wet meadows and freshwater marshes) are dominated by reed canary grass, common reed, and other primarily non-calcareous species. These plant species may occur sparingly in bog turtle habitats or fens but do not comprise the dominant flora.

## REFERENCES

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