

June 28, 2021

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NDDB DETERMINATION NUMBER: 202107973

Project: PHASE II WOODLAND SPRINGS Affordable housing development, 55 WOODLAND SPRING DR., STAFFORD, CT

Expiration: June 28, 2023

I have reviewed Natural Diversity Data Base (NDDB) maps and files regarding this project. According to our records, there are State-listed species (RCSA Sec. 26-306) documented nearby the proposed project area.

- **Wood turtle (*Glyptemys insculpta*)- State Special Concern**

Watershed for:

- **Brook floater (*Alasmidonta varicosa*)- State Endangered**
- **Eastern pearlshell (*Margaritifera margaritifera*)- State Special Concern**

Wood turtle (*Glyptemys insculpta*)- State Special Concern

Individuals of this species are riverine and riparian obligates, overwintering and mating in clear, cold, primarily sand-gravel and rock bottomed streams and foraging in riparian zones, fields and upland forests during the late spring and summer. They hibernate in the banks of the river in submerged tree roots between November 1 and March 31. Their summer habitat focuses within 90m (300ft of rivers) and they regularly travel 300m (0.2 mile) from rivers during this time. During summer they seek out early successional habitat: pastures, old fields, woodlands, powerline cuts and railroad beds bordering or adjacent to streams and rivers. Their habitat in Connecticut is already severely threatened by fragmentation of riverine, instream, riparian, and upland habitats, but is exacerbated by heavy adult mortality from machinery, cars, and collection. This is compounded by the species late maturity, low reproductive potential, and high nest and hatchling depredation rates.

Site Design:

Female turtles looking for nesting habitat are frequently killed by vehicles when crossing roads. These turtles of reproductive age are the most valuable individuals in the population to maintain population persistence.

Highways with high traffic are impenetrable barriers that isolate populations

- Culverts/Crossings: Should be avoided. When necessary it is critical that the culvert or bridge allow turtles to pass underneath (i.e. it is not perched) and the road surface and side slope will not mimic sandy nesting areas for females.
- High traffic road surfaces and high traffic facilities (>100 vehicle/lane/day, 5-10 cars per hour) should use curbs and fencing to deflect animals off into wildlife underpasses or around high traffic areas.
- Low traffic road surfaces should (rate) should use Cape Cod-style curbing or no curb alternatives to allow animals to cross road unimpeded.

- Cluster development to reduce the amount of roadway needed and place housing as far from high use areas as possible.
- Do not use road surfaces and side slopes that will mimic sandy nesting areas for females.

Construction protection measures:

Land disturbance activities that will crush active turtles or unearth/or crush hibernating turtles or nests need to consider local habitat features and apply fencing and/or time of year restrictions as appropriate. We recommend you consult with a herpetologist familiar with preferred habitats to assist you with proper techniques to ensure the best protection strategies are employed for your site.

- Land disturbance and excavation confined to the upland (greater than 10 meters from a waterway) can be done without risk for impact to wood turtle if work is restricted to the dormant season (November 1- March 31).

If working in the upland between April 1- October 31:

- Exclusionary practices will be required to prevent any turtle access into construction areas. These measures will need to be installed at the limits of disturbance as shown on the plans.
- Exclusionary fencing be at least 20 inches tall and must be secured to and remain in contact with the ground and be regularly maintained (at least bi-weekly and after major weather events) to secure any gaps or openings at ground level that may let animal pass through.
- Prior to construction, all turtles occurring within fencing work area will be relocated to suitable habitat outside disturbance area. This should be performed by a qualified professional familiar with habitat requirements and behavior of the species.
- The Contractor must search the work area each morning prior to any work being done.
- All construction personnel working within the turtle habitat must be apprised of the species description and the possible presence of a listed species.
- Any turtles encountered within the immediate work area shall be carefully moved to an adjacent area outside of the excluded area and fencing should be inspected to identify and remove access point. These animals are protected by law and no turtles should be relocated from the site.
- In areas where silt fence is used for exclusion, it shall be removed as soon as the area is stable to allow for reptile and amphibian passage to resume.
- No heavy machinery or vehicles may be parked in any turtle habitat.
- Special precautions must be taken to avoid degradation of wetland habitats including any wet meadows and seasonal pools.

Site management:

- If mowing is necessary, leave a buffer at edge of fields that are only maintained in winter.
- Where feasible, mow during the cold months.
 - Best times to mow: (Nov 15- March 15).
 - Worst time to mow: May 15-August 30. This is when turtles are most likely to be away from stream or wetland buffers and get killed under your vehicle.

Freshwater mussels:

Freshwater mussels are aquatic animals that play an important role in our environment. These sedentary organisms live in sediments on the bottom of streams and rivers and provide a service to all by filtering water and removing bacteria and phytoplankton. It is because they are filter-feeding animals that they are very susceptible to sediments and pollutants in the water in which they live. The greatest diversity of freshwater mussels in the world is found in Eastern North America. Freshwater mussels are one of the most endangered groups of animals with almost three-quarters of the native mussels in North America imperiled. The disappearance of freshwater mussels is a reliable indicator of chronic water pollution.

Brook floater (*Alasmidonta varicosa*)- State Endangered

Habitat: Small to medium-sized rivers, usually in gravel and cobble substrates in swift current. The brook floater is critically imperiled throughout most of New England, including Connecticut. Remaining populations of brook floaters are found in undisturbed sections of streams in the upper reaches of watersheds that have relatively intact upland forest. DEEP Wildlife Division considers all streams with populations of brook floaters to be conservation priorities.

Eastern pearlshell (*Margaritifera margaritifera*)- State Special Concern

This freshwater mussel species lives buried in clean, stable, mixed substrate in fast-flowing unpolluted streams and rivers. Best habitats are good trout streams that are heavily shaded by a riparian canopy, possess clean cold water with high dissolved oxygen, and have stable channels with substrates of coarse sand, gravel, and cobble. Factors that limit the eastern pearlshell are changes to water quality, including eutrophication, acidification, sedimentation, and increases in water temperature.

The following considerations will help protect and benefit these species.

- Adhere strictly to water quality standards at your project site.
- Pay special attention and address specific monitoring targets for sediment, water temperature, copper, and ammonia (TAN).
- No vegetation should be removed from the 100ft buffer of waterways and turf grass and impervious surface should be minimized in the surrounding watershed.
 - Consider increasing protected riparian buffers from the standard 100ft to 300ft of streams. Percent forest cover throughout the watershed as well as adjacent to the rivers and streams has been highly correlated with Brook floater persistence, and this buffer will help maintain local habitat characteristics for this sensitive species.
- If applicable:
 - Ensure precautions are taken to avoid direct kill of freshwater mussels during any instream construction or modification.
 - Reconnect waterways that are disconnected by perched, undersized, or shallow stream culverts.
 - Employ precautions to prevent the introduction and spread of invasive plants and bivalves.
 - Take action to reduce non-point source pollution and educate the surrounding community about how to reduce non-point source pollution. More information can be found in our resources for Low Impact Development here:
 - www.ct.gov/deep/cwp/view.asp?a=2719&q=464958&deepNav_GID=1654

This is determination is valid for two years.

Natural Diversity Data Base information includes all information regarding critical biological resources available to us at the time of the request. This information is a compilation of data collected over the years by the Department of Energy and Environmental Protection's Bureau of Natural Resources and cooperating units of DEEP, independent conservation groups, and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. Consultations with the NDDDB should not be substituted for on-site surveys required for environmental assessments. Current research projects and new contributors continue to identify additional populations of species and locations of habitats of concern, as well as, enhance existing data. Such new information is incorporated in the NDDDB as it becomes available.

Please contact me if you have any questions (shannon.kearney@ct.gov). Thank you for consulting with the Natural Diversity Data Base and continuing to work with us to protect State-listed species.

Sincerely,

/s/ Shannon B. Kearney
Wildlife Biologist