

FEB 21 1993

O R E P

## TITLE 17: CONSERVATION

## CHAPTER I: DEPARTMENT OF NATURAL RESOURCES

## SUBCHAPTER C: ENDANGERED SPECIES

## PART 1080

## INCIDENTAL TAKING OF ENDANGERED OR THREATENED SPECIES

Conservation PlanSpring Brook Creek Meandering Project and Relocation of Native Mussels**Forest Preserve District of DuPage County**

The Mission of the Forest Preserve District of DuPage County is to acquire and hold lands containing forests, prairies, wetlands, and associated plant communities or lands capable of being restored to such natural conditions for the purpose of protecting and preserving the flora, fauna and scenic beauty for the education, pleasure and recreation of its citizens.

The Forest Preserve District of DuPage County's Habitat Improvement Project is designed to restore natural character to the landscape by re-establishing the natural conditions under which our native ecosystems evolved. A coordinated effort to restore the District's highest-quality natural areas, the Habitat Improvement Project's goal is to create conditions favorable to the sustainability and preservation of native plant and animal communities characteristic of DuPage County. State-of-the-art technologies and conservation methods are utilized to develop sustainable ecosystems. Restoration is conducted on prairie, wetland, stream and woodland environments. In addition to restoring these ecosystems, many plants and animals will be re-introduced into their native communities.

Springbrook Prairie Forest Preserve, formerly called Dragon Lake, is the Forest Preserve District's third-largest forest preserve at 1,849 acres. Most of this land is open fields and restored prairie, with wetlands and a small creek, Spring Brook, flowing through the preserve. In the 1960s, the land that is now Springbrook Prairie Forest Preserve was undeveloped farmland on the edge of Naperville. Although DuPage County had been rural since its founding in 1839, this area was suffering from overdevelopment in the early 1970s. The acquisition of land began with the initial 156-acre plot in 1975 and ended with the final 101 acres purchased from the Naperville School District 204 in 1980. In an effort to reduce the impact of flooding, the Forest Preserve District planned to create a 200-acre lake in the shape of a dragon (hence its former name). In response to the concerns of local birders, a citizen's advisory committee was formed and the plan was changed to keep the preserve open and more natural. The preserve was determined to be home to a number of grassland birds including two that are state listed species. This change, along with its new name of Springbrook Prairie, occurred in 1994. Today, the preserve is 1,849 acres of grasslands, restored prairies and wetlands, and is home to several rare and endangered species -- including the slippershell mussel (*Alasmidonta viridis*).

Several ecosystem types can be found here including: ponds, a high quality stream, fence rows, immature woods, European meadows, prairie plantings, shrubby fields and a fen. The European meadows are large areas planted to fescue and ladino clover (prior to 1979) and timothy, ladino clover and perennial rye (1979 to 1980). This area was planted in this manner primarily to prevent soil loss, but eventually this large contiguous grassland area became important habitat to several species of grassland birds and other wildlife. Springbrook Prairie is home to 107 species of resident birds, (190 species can be seen during migration) including overwintering raptors, wetland birds, Northern Harrier, Short-eared Owl, Bobolink, Eastern Meadowlark, Grasshopper Sparrow, Savannah Sparrow, and Henslow's Sparrow. Also found here are 24 fish, 5 amphibian, 6 reptile, and 19 mammal species. Recreational use at Springbrook Prairie forest Preserve includes multi-purpose trails, dog exercise and model airplane areas. All of the recreation areas are located near the perimeter of the preserve in order to leave large unbroken blocks of habitat in the interior.

## **DESCRIPTION OF ACTIVITIES**

As part of ongoing restoration and habitat improvement of Springbrook Prairie Nature Preserve, the District will meander a 1.5 mile section of Spring Brook Creek, a tributary of the DuPage River. Any potential negative impact to the slippershell mussel would occur as a result of these activities. There are no known slippershell mussels in the specific portion of the stream that will be meandered. This request for authorization is to ensure that, in the event that any live slippershell mussels are found during the course of the project, the project can continue uninterrupted. Please be assured that every effort will be made to reduce the negative impacts on the slippershell and all native mussel species. For the duration of this project, all native mussels will be relocated downstream. Negative impacts, if any, would only affect a small number of individuals; however the final result will be greatly improved habitat for native mussels in Spring Brook Creek.

Non-point source pollution in the form of heavy sediment is evident in many parts of the stream. Studies indicate that much of this sediment comes from the stream banks during high flow events. The primary objective is to meander 1.5 miles of the channelized stream to improve habitat, reduce bank erosion and improve water quality by reconnecting the stream to the historic flood plain thereby absorbing large volumes of water and dissipating energy in large storm events. By managing floodwaters and reducing erosive energy, the stability of the stream banks will improve. Stream channel design will incorporate improved fish, mollusk and macro invertebrate habitat. Along with detailed geomorphological studies of the stream, the District has done fish, mussel and macro invertebrate surveys in order to understand these complex relationships. The resulting increase in water quality will improve the biological as well as the aesthetic quality of the stream. This project also hopes to provide connectivity between lentic and lotic habitat, and maintain continuity between prairie and forested stream reaches in this unusual Chicagoland area resource.

Approximately 3 miles of Spring Brook Creek flows through the middle of Springbrook Prairie Forest Preserve. Of the 3 miles of stream, approximately one half remains in its predevelopment, meandering condition, although it is suffering from new hydrologic conditions. The District has removed over 8 miles of agricultural drain tiles in order to moderate preserve contributions to flow and restore wetlands. Over seventeen years of USGS gage station data combined with detailed cross-sectional and longitudinal profiles of the stream is the scientific basis for developing dimensions, patterns and profiles for the new hydrological dynamic. The stream bed will be elevated to normal entrenchment conditions. The new channel will be constructed with the use of natural materials and designed to re-saturate hydric soils to form a riparian wetland zone which will absorb floodwaters. Construction zones will be stabilized with native species consistent with preserve wide restoration plans.

**Legal description of affected property:**

<b>Township</b>	<b>Range</b>	<b>Section</b>	<b>Quarter section</b>
Naperville 38N	9E	26	SW
Naperville 38N	9E	34	NE
Naperville 38N	9E	35	NW

**BIOLOGY**

The slippershell mussel (*Alasmidonta viridis*) is listed by the State of Illinois as a Threatened species. There are reports of the slippershell mussel in the INHS database for Spring Brook Creek in 2004 (specimen INHS 30364). Additionally, surveys conducted by Roger Klocek of Shedd Aquarium in 1999 found a small population of slippershell mussels in Spring Brook Creek. A 2004 District mussel survey did not find any slippershell mussels at any of the three survey sites in Spring Brook Creek. This survey also collected data on dead/ weathered dead mussel shells. A total of thirteen dead shells of the slippershell mussel were found at two of the three sites. All known locations of slippershell mussels are downstream of stream meander project site.

Relatively little is known about the specific biology of the slippershell. Like most freshwater mussels of the family Unionidae, the slippershell mussel requires a fish host to complete its lifecycle. The fish hosts for the slippershell mussel include the Johnny darter (*Ethostoma nigrum*) and the mottled sculpin. Sperm is released into the water and is then taken in through the female's siphon for fertilization. Eggs develop into larvae within the female. The slippershell mussel is most likely a long-term (bradytic) breeder, holding larvae internally for about a year. These larvae, glochidia, then are released into the water and must attach to a suitable fish host in order to survive. Glochidia typically remain on fish hosts for a couple of weeks to several months depending on mussel species and other factors, although duration for the slippershell is unknown. During this time the mussel transforms into the adult form then drops from the host fish. The mussel spends the remainder of its life in the substrate. The lifespan of the slippershell mussel is not known. Like all freshwater mussels, the slippershell mussel is a filter feeder, obtaining nutrition by filtering particles, such as algae, zooplankton and debris from the water column. The habitats of the slippershell are creeks and headwaters of large rivers in sand, mud or fine gravel.

**MITIGATION OF NEGATIVE IMPACTS**

This habitat improvement project may negatively affect freshwater mussels in Spring Brook Creek during the actual restoration work. However, to reduce negative impact of this project on native mussels, any freshwater mussels in the project area will be relocated downstream from the restoration site in a suitable substrate for the duration of the project. Relocation downstream is the best option for this project. It is anticipated that much of the construction of the new channel will take place before connecting with the old channel and therefore occur in dry conditions. All erosion control measures approved by the permitting agencies will be adhered to. District staff will be on site for continual surveillance of construction progress. Staff biologists will be responsible for native mussel relocations whenever construction activities may adversely impact native mussel populations and before the old channel is abandoned. Siltation of the downstream relocation site will be minimized because the

majority of the construction of the meanders will not affect the existing channelized portion until the very end of the project.

Channel cross-sections, meander patterns and substrate of the new channel design is based on observations and data analysis of the downstream reaches where studies has shown mussel diversity and abundance to be much greater. Long term, the development of a pool/riffle meandering stream in the channelized portion of Spring Brook Creek will provide greatly improved habitat and water quality for all mussels including the slippershell as well their host fish, thereby increasing the possibility of establishing a viable reproductive population.

## **RELOCATION PROCEDURE**

Project sites will be surveyed immediately prior to any disturbance. All live mussels in the survey area will be collected and relocated downstream. Once these areas are surveyed and all mussels relocated, restoration procedures will begin. Visual surveys will be ongoing in the immediate project area to ensure all mussels are relocated. The relocation sites will be previously identified and marked before actual relocation. The relocation site will be equivalent to substrate, velocity, and depth of found mussels. Mussel relocation efforts will be restricted to the months of April through October to decrease stress from extreme air and water temperatures.

Collection of data is vital to subsequent monitoring processes. Therefore each slippershell mussel will be marked, photographed and data will be collected for each individual. After data is recorded the mussels will be transported to the relocation site. All of these procedures will be conducted in a manner that will minimize time out of the water and stress to the animals. At a suitable time subsequent to the completion of the project, the mussels will be relocated to the newly created meandered creek in appropriate location to repopulate the improved habitat. The mussel relocation area will be monitored each month for three months, then every three months, then twice a year during favorable seasonal changes. Establishing a monitoring program assessing the survival of relocated mussels is reasonable to determine the success of the relocation and is warranted to determine the positive affects of the habitat improvements.

First and foremost, this project is a habitat improvement project in a DuPage County forest preserve, rather than a development type project. No action to restore and improve habitat in this area would have a continuing detrimental effect on the current mussel population. Survey results for this area suggest that there are fewer mussel species and fewer individual mussels in 2004 than in 1999. We would anticipate that these populations would continue to decline unless the proposed habitat improvements occur. In the event that unforeseen circumstances arise during the course of the project, we would immediately consult experts on mussel biology and relocation such as DNR, INHS and Shedd Aquarium.

The Springbrook Creek restoration project follows the mission of the Forest Preserve of DuPage County. Adequate funding exists for this stream meander project as it is a \$1.5 million restoration project. The entire Natural Resources staff of the District, which includes 6 biologists, is fully committed to its success. Our guiding principles ensure that our actions, policies and decisions are founded in an understanding and acceptance of the responsibilities entrusted to us by the citizens of DuPage County for the preservation and protection of natural and cultural resources. At all operational levels, our actions are guided by a commitment to responsible land use, preservation and restoration for current and future generations. The end result of this meander project will be a greatly improved habitat and, we hope eventually a healthy, reproductively viable population of native mussels, including the slippershell mussel.

## **TIMELINE AND REPORTS**

The Springbrook Stream Meander project is scheduled to start construction in spring 2006. Construction is expected to take six to seven months. Stormwater and wetland permits require follow up monitoring to ensure vegetative success and establishment of appropriate wetland hydrology. As a result annual maintenance and monitoring reports are produced until permit performance standards are met, approximately five years. The District intends to assess mussel populations, including slippershell if any are encountered, within the stream reach to determine the success of habitat improvement to inform future maintenance and restoration plans. The District will inform IDNR by fax if any slippershell mussels are encountered and relocated as a result of the stream project. The District will report finding from monitoring of slippershells one year after relocation.

## **PERMITS**

No Federal permits are required for this project. The Forest Preserve District of DuPage County holds several relevant State Permits. Collection and Salvage, Wildlife Nuisance, two endangered and threatened species permits for Blandings turtle (*Emydoidea blandingii*), and barn owl (*Tyto alba*).

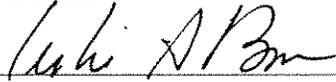
## IMPLEMENTATION AGREEMENT

Forest Preserve District of DuPage County  
3 South 580 Naperville Road  
Wheaton, Illinois 60187-8671

Mailing Address:  
P.O. Box 5000  
Wheaton, Illinois 60189-5000

The Forest Preserve District of DuPage County hereby agrees to carry out the conservation plan for the meandering of Spring Brook 2 located in Springbrook Prairie Forest Preserve and the relocation of slippershell mussels as described. We assure compliance with all other federal, State and local regulations pertinent to this project and to the execution of the conservation plan.

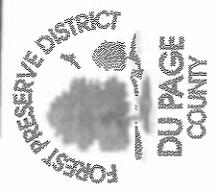
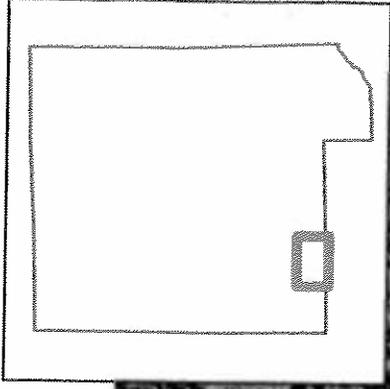
APPROVED:



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Natural Resource Management Supervisor, Forest Preserve District of DuPage County

# Springbrook Prairie Forest Preserve



### Legend

- Project area
- Relocation area
- Forest Preserve Boundary
- Trail

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