

# III. ENVIRONMENT AND NATURAL RESOURCES

## A. Vegetation

### HISTORIC VEGETATION

The pre-settlement landscape of the Darby Watershed is considerably different from the current use of land. Much of the watershed was covered with forests and wet prairies at the time of European settlement. **Map 17** displays the vegetation of the land prior to settlement. Remnants of native vegetation exist in a few locations and most often occur along railroads, roads, or abandoned pioneer cemeteries where soils experiences minimal disturbance. Several parks and nature preserves contain historic vegetation (See III. Land Use, G. Preserved Areas). Appendix H defines the major vegetation types found in the watershed prior to settlement.

### RARE OR THREATENED VEGETATION

The Darby Watershed contains a wide variety of State unique and threatened species. Many of the plants listed in Figure H1 in Appendix H are prairie species that can be located in prairie remnants across the watershed.

ODNR keeps a *Natural Heritage Database* for rare and endangered plants and animals, geologic features, high quality plant communities and breeding and non-breeding animal concentrations. Records in this database are kept only for the highest quality areas. This database is not complete for all of Ohio and relies on information supplied by many individuals and organizations. The Darby Watershed has a large record of information because a large amount of research has occurred in the watershed over the past 30 years. The complete list of records for rare or threatened vegetation can be found in Figure H1 of Appendix H. Figure 63 below summarizes the database.

<b>Figure 63: Natural Heritage Database: Vegetation (2004)</b>	
<i>Level of Protection</i>	<i>Number of Species</i>
Endangered	5
Threatened	11
Potentially Threatened	12
<b>Total</b>	<b>28</b>

The different levels of protection for vegetation listed above in the Natural Heritage Database are defined in Figure H2 in Appendix H.

## B. Wildlife

### SPECIES OF MAMMALS

The only mammal that has state protection status is the badger. The badger is a species of special concern and was last observed in 1999. Additional mammals that were recorded by ODNR in the early 1990s are listed in Figure H3 in Appendix H.

### SPECIES OF REPTILES AND AMPHIBIANS

Within the Darby Watershed there is only one species that has State protection status. The False Map Turtle is listed as a species of special concern and has been observed near the convergence of the Big Darby and Scioto River. Other species that were observed during an ODNR survey in the early 1990s are listed in Figure H4 in Appendix H.

### SPECIES OF MUSSELS

Mussels are the most endangered group of animals in North America with over half of Ohio mussels in trouble. Big Darby Creek supports a large diversity of mollusks few other streams can match. At the highest count there were 41 species recorded in the Big Darby. A survey by Dr. Tom Watters documented 38 species still living in the stream in 1986, including the state and federally endangered Northern Riffle Shell and Club Shell. A comprehensive report is now available on mussels trends and populations from Dr. Tom Watters and J. M. Flaute (2004) with the Ohio State University. The following Figure 64 lists all mussel species with some level of state or federal protection.

<i>Common Name</i>	<i>Scientific Name</i>	<i>Number of Occurrences</i>	<i>Last Observance</i>	<i>State Status</i>	<i>Federal Status</i>
Clubshell	<i>Pleurobema clava</i>	10	1996-10-19	E*	FE*
Northern Riffleshell	<i>Epioblasma torulosa rangiana</i>	9	1996-11-04	E	FE
Elephant-ear	<i>Elliptio crassidens</i>	6	1990-10-30	E	
Pocketbook	<i>Lampsilis ovata</i>	3	1963-09	E	
Rabbitsfoot	<i>Quadrula cylindrica cylindrica</i>	8	1996-11-01	E	
Rayed Bean	<i>Villosa fabalis</i>	11	1996-11-04	E	
Snuffbox	<i>Epioblasma triquetra</i>	10	1996-11-04	E	
Washboard	<i>Megaloniaias nervosa</i>	4	1996-10-12	E	
Black Sandshell	<i>Ligumia recta</i>	2	1990-11-02	T*	
Fawnsfoot	<i>Truncilla donaciformis</i>	3	1996-11-01	T	
Pondhorn	<i>Uniomerus tetralasmus</i>	1	1990-10-27	T	
Deertoe	<i>Truncilla truncata</i>	2	1986-08	SC*	
Purple Wartyback	<i>Cycloniaias tuberculata</i>	3	1996-11-01	SC	
Round Pigtoe	<i>Pleurobema sintoxia</i>	6	1990-11-16	SC	
Salamander Mussel	<i>Simpsonaias ambigua</i>	3	1996-11-01	SC	
Wavy-rayed	<i>Lampsilis fasciola</i>	10	1996-09-29	SC	

Lampmussel					
Significant Mollusk beds	Breeding Animal Community	17	1995-09-02		
Totals: 17 entries		108		E: 8, T: 3, SC: 5 Total:16	FE: 2
Source: ODNR, 2004. Natural Heritage Database					

\* E – State Endangered, T – State Threatened, SC – State species of Special Concern, FE – Federal Endangered

The large number and diversity of mussels is an excellent indicator of water quality. Mussels, unlike fish and bugs, stay in one place most of their lives and rely on tiny plants and animals (plankton) suspended in the water for their food source. Mussels draw the water inside their shells through a siphon and their gills filter out the food and take in the oxygen. The fact that mussels filter water for their food source and live between 10 and 100 years makes them an excellent indicator of water quality. Any gradual or sudden loss of mussels is an indicator that water quality is declining. Non-point source pollution such as sediment, urban and agricultural runoff, and the removal of streamside vegetation is the largest threat to the health and survival of mussels in the Darby Watershed (Tezloff, 2000).

## SPECIES OF FISH

Darby Creek Watershed supports a high level of diversity among fish species. Ohio EPA collected 98 species of fish between the years of 1979 and 2000 which is displayed in Figure H5 in Appendix H. Of these fish several are considered rare and endangered and are listed in Figure 65.

Figure 65: Natural Heritage Database: Fish (2004)				
Common Name	Scientific Name	Number of Observances	Last Observed	State Status
Goldeye	<i>Hiodon alosoides</i>	2	1959-09	E
Northern Brook Lamprey	<i>Ichthyomyzon fossor</i>	3	1970-05-11	E
Northern Madtom	<i>Noturus stigmosus</i>	2	1992-08-25	E
Spotted Darter	<i>Etheostoma maculatum</i>	3	1998-07-29	E
Bluebreast Darter	<i>Etheostoma camurum</i>	6	1992-10-08	T
Lake Chubsucker	<i>Erimyzon sucetta</i>	2	1985-04	T
Tippecanoe Darter	<i>Etheostoma tippecanoe</i>	6	1997-10-06	T
Eastern Sand Darter	<i>Ammocrypta pellucida</i>	1	1960-10	SC
River Redhorse	<i>Moxostoma carinatum</i>	9	1990-09-04	SC
Totals: 9		34		E:5, SC:2 T: 3
Source: ODNR, 2004. Natural Heritage Database				

## SPECIES OF BIRDS

Darby Creek Watershed has an extensive list of bird sightings, several of which are protected. The watershed is home to a few state protected nesting species which are listed in Figure 66.

**Figure 66: Natural Heritage Database: Nesting Birds (2004)**

Common Name	Scientific Name	Number of Occurrences	Last Observance	State Status
Loggerhead Shrike	<i>Lanius ludovicianus</i>	4	1987-06	E
Upland Sandpiper	<i>Bartramia longicauda</i>	1	1978	T
Great Blue Heron colony	Breeding Animal Community	1	1990-12	

Source: ODNR, 2004. Natural Heritage Database

At Battelle-Darby Creek Metropark alone, 187 birds were sighted including 62 nesting species. There have been sightings of ten state protected birds and two federally protected species (see Figure 67). Figure H6 in Appendix H lists all birds sited at Battelle-Darby Creek Metropark.

**Figure 67: State and Federally Protected Birds sighted at Battelle-Darby Metropark (1987-2003)**

Common Name	Scientific Name	State Status	Federal Status
Bittern, American	<i>Botaurus lentiginosus</i>	E	
Crane, Sandhill	<i>Grus canadensis</i>	E	
Eagle, Bald	<i>Haliaeetus leucocephalus</i>	E	T
Falcon, Peregrine	<i>Falco peregrinus</i>	E	FE
Harrier, Northern	<i>Circus cyaneus</i>	E	
Osprey	<i>Pandion haliaetus</i>	E	
Sapsucker, Yellow-bellied	<i>Sphyrapicus varius</i>	E	
Flycatcher, Least	<i>Empidonax minimus</i>	T	
Sandpiper, Upland	<i>Bartramia longicauda</i>	T	
Thrush, Hermit	<i>Catharus guttatus</i>	T	

Source: Surveys in early June by Metroparks since 1997 and Dan Rice (ODNR) since 1987

## INVASIVE SPECIES

There are a number of invasive species in the Darby Watershed that cause a variety of problems. In Ohio approximately 3,000 species of plants are known to occur in the wild, but about 25 percent are not native to Ohio. Some of these species reproduce and grow in an invasive manner squeezing out native plants and creating monocultures. Species diversity is important in maintaining a healthy ecosystem particularly to sensitive species. The major invasive species for the Darby Watershed are listed in Figure 68.

<b>Figure 68: Invasive Species in the Darby Watershed</b>			
<i>Type</i>	<i>Common Name</i>	<i>Type</i>	<i>Common Name</i>
Bird	Starling	Shrub	Glossy Buckthorn
Tree	Osage Orange	Shrub	Common Buckthorn
Tree	Black Locust	Plant	Garlic Mustard
Shrub	Amur Honeysuckle	Fish	Carp
Shrub	Tartarian Honeysuckle	Mussel	Asiatic Clam
Shrub	Morrow Honeysuckle	Insect	Gypsy Moth
Shrub	Japanese Honeysuckle	Insect	Asian Lady Bug
Shrub	Burning Bush	Insect	Giant Wasp
Shrub	Wintercreeper	Insect	Japanese Beetle
Shrub	Autumn Olive		

Source: Albin, Mac (Franklin County Metroparks) and McCormac, Jim (ODNR), 2004.

Additional invasive species not mentioned in the above list are a number of European meadow species that account for approximately a quarter of all species in central Ohio meadows. Though not yet present in the Darby Watershed, the Emerald Ash Borer is spreading in Ohio.