

APPENDIX D
FLORA AND FAUNA LISTS

**TABLE D-1
DRAGONFLIES AND DAMSELFLIES OF THE
BUFFALO CREEK WATERSHED**

Common Name	Scientific Name
Appalachian Jewelwing **	<i>Calopteryx angustipennis</i>
Ebony Jewelwing	<i>Calopteryx maculata</i>
American Rubyspot	<i>Hetaerina americana</i>
Smoky Rubyspot	<i>Hetaerina titia</i>
Spotted Spreadwing	<i>Lestes congener</i>
Common Spreadwing	<i>Lestes disjunctus</i>
Sweetflag Spreadwing **	<i>Lestes forcipatus</i>
Slender Spreadwing	<i>Lestes rectangularis</i>
Lyre-tipped Spreadwing	<i>Lestes unguiculatus</i>
Eastern Red Damsel	<i>Amphiagrion saucium</i>
Variable Dancer	<i>Argia fumipennis</i>
Powdered Dancer	<i>Argia moesta</i>
Aurora Damsel	<i>Chromagrion conditum</i>
Rainbow Bluet	<i>Enallagma antennatum</i>
Azure Bluet **	<i>Enallagma aspersum</i>
Double-striped Bluet **	<i>Enallagma basidens</i>
Familiar Bluet	<i>Enallagma civile</i>
Turquoise Bluet	<i>Enallagma divagans</i>
Marsh Bluet	<i>Enallagma ebrium</i>
Stream Bluet	<i>Enallagma exsulans</i>
Skimming Bluet	<i>Enallagma geminatum</i>
Orange Bluet	<i>Enallagma signatum</i>
Fragile Forktail	<i>Ischnura posita</i>
Eastern Forktail	<i>Ischnura verticalis</i>
Sedge Sprite	<i>Nehalennia irene</i>
Canada Darner	<i>Aeshna canadensis</i>
Lance-tipped Darner **	<i>Aeshna constricta</i>
Common Green Darner	<i>Anax junius</i>
Black-tipped Darner **	<i>Aeshna tuberculifera</i>
Shadow Darner	<i>Aeshna umbrosa</i>
Fawn Darner	<i>Boyeria vinosa</i>
Lancet Clubtail	<i>Gomphus exili</i>
Ashy Clubtail	<i>Gomphus lividus</i>
Sable Clubtail **	<i>Gomphus rogersi</i>
Northern Pygmy Clubtail **	<i>Lanthus parvulus</i>
Maine Snaketail	<i>Ophiogomphus mainensis</i>
Prince Baskettail	<i>Epitheca princeps</i>
Dot-tailed Whiteface	<i>Leucorrhinia intacta</i>
Widow Skimmer	<i>Libellula luctuosa</i>
Blue Dasher	<i>Pachydiplax longipennis</i>
Wandering Glider	<i>Pantala flavescens</i>
Eastern Amberwing	<i>Perithemis tenera</i>
White-faced Meadowhawk **	<i>Sympetrum obtrusum</i>
Ruby Meadowhawk	<i>Sympetrum rubicundulum</i>
Band-winged Meadowhawk **	<i>Sympetrum semicinctum</i>
Yellow-legged Meadowhawk	<i>Sympetrum vicinum</i>

** Species of Special Concern as of publication date.

Source: U.S. Geological Survey. 2007. Dragonflies and Damselflies of the United States.
www.npwrc.usgs.gov/resource/distr/insects/dfly/index.

**Table D-2
MUSSEL SPECIES RECORDED FROM BUFFALO CREEK WATERSHED**

Common Name	Scientific Name	Global Rank	State Rank	PA Status	PBS Status	Federal Status	NHP Track	Source
Elktoe	<i>Alasmidonta marginata</i>	G4	S4		N		Y	(1)
Spike	<i>Elliptio dilatata</i>	G5	S4		N		N	(2)
Long-solid	<i>Fusconaia subrotunda</i>	G3	S1		PE		Y	(2)
Wavy-rayed lampmussel	<i>Lampsilis fasciola</i>	G5	S4		N		Y	(1), (2), (3)
Plain pocketbook	<i>Lampsilis cardium</i>	G5	S4		N		N	(1), (2), (3)
Fatmucket	<i>Lampsilis siliquoidea</i>	G5	S4		N		N	(2), (3)
Creek heelsplitter	<i>Lasmigona compressa</i>	G5	S2S3		CR		Y	(2)
Fluted-shell	<i>Lasmigona costata</i>	G5	S4		N		N	(1), (2), (3)
Clubshell	<i>Pleurobema clava</i>	G2	S1S2	PE	PE	LE, XN	Y	(1)
Round pigtoe	<i>Pleurobema sintoxia</i>	G4	S2		PE		Y	(1), (3*)
Kidneyshell	<i>Ptychobranthus fasciolaris</i>	G4G5	S4		N		N	(1), (2), (3)
Giant floater	<i>Pyganodon grandis</i>	G5	S4				N	(2)
Creeper	<i>Strophitus undulatus</i>	G5	S4S5		N		N	(1)
Rainbow mussel	<i>Villosa iris</i>	G5	S1		PE		Y	(1), (3)

Notes:

Global ranks: G3 = Vulnerable, G4 = Apparently secure, G5 = Secure.

State Ranks: S1 = Critically Imperilled, S2 = Imperilled, S3 = Vulnerable, S4 = Apparently Secure, S5 = Secure.

PA Status: PE = Pennsylvania Endangered.

PBS Status: N = Under Study, CR = Candidate Rare, PE = PA Endangered

Federal Status: LE = Listed Endangered, XN = Nonessential Experimental

Source: 1 = Ortmann 1919, 2 = Winters 1973, 3 = Bier 1993-1995.

Reference (1) cites one locality: Buffalo Creek, Harbison, Butler County.

Reference (2) cites one locality: Little Buffalo Creek, Sarver, Butler County.

Reference (3) data is from lower Buffalo Creek, Butler County.

Table D-3
FISH SPECIES POTENTIALLY OCCURRING IN THE
BUFFALO CREEK WATERSHED

Common Name	Scientific Name
Least Brook Lamprey	<i>Lampetra aepyptera</i>
Paddlefish **	<i>Polyodon spathula</i>
Gizzard Shad	<i>Dorosoma cepedianum</i>
Central Stoneroller	<i>Campostoma anomalum</i>
Redside Dace	<i>Clinostomus elongatus</i>
Spotfin Shiner	<i>Cyprinella spiloptera</i>
Common Carp	<i>Cyprinus carpio</i>
Silverjaw Minnow	<i>Ericymba buccata</i>
Gravel Chub **	<i>Erimystax x-punctatus</i>
Striped Shiner	<i>Luxilus chrysocephalus</i>
Common Shiner	<i>Luxilus cornutus</i>
River Chub	<i>Nocomis micropogon</i>
Golden Shiner	<i>Notemigonus crysoleucas</i>
Bigeye Chub	<i>Notropis amblops</i>
Emerald Shiner	<i>Notropis atherinoides</i>
Ghost Shiner**	<i>Notropis buchanani</i>
Silver Shiner	<i>Notropis photogenis</i>
Rosyface Shiner	<i>Notropis rubellus</i>
Sand Shiner	<i>Notropis ludibundus</i>
Mimic Shiner	<i>Notropis volucellus</i>
Bluntnose Minnow	<i>Pimephales notatus</i>
Fathead Minnow	<i>Pimephales promelas</i>
Blacknose Dace	<i>Rhinichthys atratulus</i>
Longnose Dace	<i>Rhinichthys cataractae</i>
Creek Chub	<i>Semotilus atromaculatus</i>
Quillback	<i>Carpiodes cyprinus</i>
White Sucker	<i>Catostomus commersoni</i>
N. Hogsucker	<i>Hypentelium nigricans</i>
Silver Redhorse	<i>Moxostoma anisurum</i>
Black Redhorse	<i>Moxostoma duquesnei</i>
Golden Redhorse	<i>Moxostoma erythrurum</i>
Shorthead Redhorse	<i>Moxostoma macrolepidotum</i>
Black Bullhead **	<i>Ameirus melas</i>
Yellow Bullhead	<i>Ameirus natalis</i>
Brown Bullhead	<i>Ameirus nebulosus</i>
Channel Catfish	<i>Ictalurus punctatus</i>
Stonecat	<i>Noturus flavus</i>
Flathead Catfish	<i>Pylodictis olivaris</i>
Brown Trout	<i>Salmo trutta</i>
Trout-Perch	<i>Percopsis omiscomaycus</i>
Brook Silverside	<i>Labidesthes sicculus</i>
Brook Stickleback **	<i>Culaea inconstans</i>
Mottled Sculpin	<i>Cottus bairdi</i>
White Bass	<i>Morone chrysops</i>
Rock Bass	<i>Ambloplites rupestris</i>
Green Sunfish	<i>Lepomis cyanellus</i>
Pumpkinseed	<i>Lepomis gibbosus</i>
Bluegill	<i>Lepomis macrochirus</i>

Smallmouth Bass	<i>Micropterus dolomieu</i>
Spotted Bass	<i>Micropterus punctulatus</i>
Largemouth Bass	<i>Micropterus salmoides</i>
White Crappie	<i>Pomoxis annularis</i>
Black Crappie	<i>Pomoxis nigromaculatus</i>
Greenside Darter	<i>Etheostoma blennioides</i>
Rainbow Darter	<i>Etheostoma caeruleum</i>
Fantail Darter	<i>Etheostoma flabellare</i>
Johnny Darter	<i>Etheostoma nigrum</i>
Variagate Darter	<i>Etheostoma variatum</i>
Banded Darter	<i>Etheostoma zonale</i>
Yellow Perch	<i>Perca flavescens</i>
Logperch	<i>Percina caprodes</i>
Blackside Darter	<i>Percina maculata</i>
Sauger	<i>Stizostedion canadense</i>
Walleye	<i>Stizostedion vitreum vitreum</i>

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Source: Cooper 1983.

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Round pigtoe	<i>Pleurobema sintoxia</i>	G4	S2		PE		Y	(1), (3*)
Kidneyshell	<i>Ptychobranthus fasciolaris</i>	G4G5	S4		N		N	(1), (2), (3)
Giant floater	<i>Pyganodon grandis</i>	G5	S4				N	(2)
Creeper	<i>Strophitus undulatus</i>	G5	S4S5		N		N	(1)
Rainbow mussel	<i>Villosa iris</i>	G5	S1		PE		Y	(1), (3)

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Gizzard Shad	<i>Dorosoma cepedianum</i>
Central Stoneroller	<i>Campostoma anomalum</i>
Redside Dace	<i>Clinostomus elongatus</i>
Spotfin Shiner	<i>Cyprinella spiloptera</i>
Common Carp	<i>Cyprinus carpio</i>
Silverjaw Minnow	<i>Ericymba buccata</i>
Gravel Chub **	<i>Erimystax x-punctatus</i>
Striped Shiner	<i>Luxilus chrysocephalus</i>
Common Shiner	<i>Luxilus cornutus</i>
River Chub	<i>Nocomis micropogon</i>
Golden Shiner	<i>Notemigonus crysoleucas</i>
Bigeye Chub	<i>Notropis amblops</i>
Emerald Shiner	<i>Notropis atherinoides</i>
Ghost Shiner**	<i>Notropis buchanani</i>
Silver Shiner	<i>Notropis photogenis</i>
Rosyface Shiner	<i>Notropis rubellus</i>
Sand Shiner	<i>Notropis ludibundus</i>
Mimic Shiner	<i>Notropis volucellus</i>
Bluntnose Minnow	<i>Pimephales notatus</i>
Fathead Minnow	<i>Pimephales promelas</i>
Blacknose Dace	<i>Rhinichthys atratulus</i>
Longnose Dace	<i>Rhinichthys cataractae</i>
Creek Chub	<i>Semotilus atromaculatus</i>
Quillback	<i>Carpiodes cyprinus</i>
White Sucker	<i>Catostomus commersoni</i>
N. Hogsucker	<i>Hypentelium nigricans</i>
Silver Redhorse	<i>Moxostoma anisurum</i>
Black Redhorse	<i>Moxostoma duquesnei</i>
Golden Redhorse	<i>Moxostoma erythrurum</i>
Shorthead Redhorse	<i>Moxostoma macrolepidotum</i>
Black Bullhead **	<i>Ameirus melas</i>
Yellow Bullhead	<i>Ameirus natalis</i>
Brown Bullhead	<i>Ameirus nebulosus</i>
Channel Catfish	<i>Ictalurus punctatus</i>
Stonecat	<i>Noturus flavus</i>
Flathead Catfish	<i>Pylodictis olivaris</i>
Brown Trout	<i>Salmo trutta</i>
Trout-Perch	<i>Percopsis omiscomaycus</i>
Brook Silverside	<i>Labidesthes sicculus</i>
Brook Stickleback **	<i>Culaea inconstans</i>
Mottled Sculpin	<i>Cottus bairdi</i>
White Bass	<i>Morone chrysops</i>
Rock Bass	<i>Ambloplites rupestris</i>
Green Sunfish	<i>Lepomis cyanellus</i>
Pumpkinseed	<i>Lepomis gibbosus</i>
Bluegill	<i>Lepomis macrochirus</i>

Smallmouth Bass	<i>Micropterus dolomieu</i>
Spotted Bass	<i>Micropterus punctulatus</i>
Largemouth Bass	<i>Micropterus salmoides</i>
White Crappie	<i>Pomoxis annularis</i>
Black Crappie	<i>Pomoxis nigromaculatus</i>
Greenside Darter	<i>Etheostoma blennioides</i>
Rainbow Darter	<i>Etheostoma caeruleum</i>
Fantail Darter	<i>Etheostoma flabellare</i>
Johnny Darter	<i>Etheostoma nigrum</i>
Variagate Darter	<i>Etheostoma variatum</i>
Banded Darter	<i>Etheostoma zonale</i>
Yellow Perch	<i>Perca flavescens</i>
Logperch	<i>Percina caprodes</i>
Blackside Darter	<i>Percina maculata</i>
Sauger	<i>Stizostedion canadense</i>
Walleye	<i>Stizostedion vitreum vitreum</i>

** Species of Special Concern as of publication date.

Source: Cooper 1983.

Table D-4
FISH SPECIES RECORDED FROM BUFFALO CREEK

Common Name	Scientific Name
Banded Darter	<i>Etheostoma zonale</i>
Blacknose Dace	<i>Rhinichthys atratulus</i>
Blackside Darter	<i>Percina maculata</i>
Bluegill	<i>Lepomis macrochirus</i>
Bluntnose Minnow	<i>Pimephales notatus</i>
Brown Trout	<i>Salmo trutta</i>
Central Stoneroller	<i>Campostoma anomalum</i>
Common Carp	<i>Cyprinus carpio</i>
Common Shiner	<i>Luxilus cornutus</i>
Creek Chub	<i>Semotilus atromaculatus</i>
Emerald Shiner	<i>Notropis atherinoides</i>
Fantail Darter	<i>Etheostoma flabellare</i>
Freshwater Drum	<i>Aplodinotus grunniens</i>
Gizzard Shad	<i>Dorosoma cepedianum</i>
Golden Redhorse	<i>Moxostoma erythrurum</i>
Greenside Darter	<i>Etheostoma blennioides</i>
Johnny Darter	<i>Etheostoma nigrum</i>
Lamprey sp.	<i>Petromyzontidae</i>
Largemouth Bass	<i>Micropterus salmoides</i>
Lepomis hybrids	<i>Lepomis</i>
Logperch	<i>Percina caprodes</i>
Mimic Shiner	<i>Notropis volucellus</i>
Mottled Sculpin	<i>Cottus bairdi</i>
Northern Hog Sucker	<i>Hypentelium nigricans</i>
Pumpkinseed	<i>Lepomis gibbosus</i>
Rainbow Darter	<i>Etheostoma caeruleum</i>
Rainbow Trout	<i>Oncorhynchus mykiss</i>
Redside Dace	<i>Clinostomus elongatus</i>
River Chub	<i>Nocomis micropogon</i>
Rock Bass	<i>Ambloplites rupestris</i>
Rosyface Shiner	<i>Notropis rubellus</i>
Sand Shiner	<i>Notropis ludibundus</i>
Silver Shiner	<i>Notropis photogenis</i>
Smallmouth Bass	<i>Micropterus dolomieu</i>
Spotfin Shiner	<i>Cyprinella spiloptera</i>
Stonecat	<i>Noturus flavus</i>
Striped Shiner	<i>Luxilus chrysocephalus</i>
Variagate Darter	<i>Etheostoma variatum</i>
Walleye	<i>Sander vitreus</i>
White Crappie	<i>Pomoxis annularis</i>
White Sucker	<i>Catostomus commersoni</i>

Source: Pennsylvania Fish and Boat Commission Surveys 1978, 1990, 2000.

**Table D-5
AMPHIBIANS AND REPTILES OF THE
BUFFALO CREEK WATERSHED**

Common Name	Scientific Name	Status
Eastern Hellbender**	<i>Cryptobranchus alleganiensis</i>	U
Mudpuppy	<i>Necturus maculosus</i>	U
Jefferson Salamander**	<i>Ambystoma jeffersonianum</i>	?
Spotted Salamander	<i>Ambystoma maculatum</i>	C
Red-spotted Newt	<i>Notophthalmus viridescens</i>	U
Northern Dusky Salamander	<i>Desmognatus fuscus</i>	C
Seal Salamander	<i>Desmognathus monticola</i>	U
Mountain Dusky Salamander	<i>Desmognathus ochrophaeus</i>	C
Northern Two-lined Salamander	<i>Eurycea bislineata</i>	C
Longtail Salamander	<i>Eurycea longicauda</i>	U
Northern Spring Salamander	<i>Gyrinophilus porphyriticus</i>	U
Redback Salamander	<i>Plethodon cinereus</i>	C
Northern Slimy Salamander	<i>Plethodon glutinosus</i>	C
Northern Red Salamander	<i>Pseudotriton ruber</i>	U
American Toad	<i>Bufo americanus</i>	C
Fowlers Toad**	<i>Bufo woodhousii</i>	H
Gray Treefrog	<i>Hyla versicolor</i> and <i>Hyla chrysoscelis</i>	U
Northern Spring Peeper	<i>Pseudacris crucifer</i>	C
Bullfrog	<i>Rana catesbeiana</i>	C
Green Frog	<i>Rana clamitans</i>	C
Pickereel Frog	<i>Rana palustris</i>	U
Northern Leopard Frog**	<i>Rana pipiens</i>	C
Wood Frog	<i>Rana sylvatica</i>	U
Common Snapping Turtle	<i>Chelydra serpentina</i>	U
Painted Turtle	<i>Chrysemys picta</i>	U
Wood Turtle**	<i>Clemmys insculpta</i>	U
Eastern Box Turtle**	<i>Terrapene carolina</i>	U
Eastern Spiny Softshell	<i>Apalone spinifera</i>	U
Northern Black Racer	<i>Coluber constrictor</i>	U
Northern Ringneck Snake	<i>Diadophis punctatus</i>	C
Black Rat Snake	<i>Elaphe obsoleta</i>	U
Eastern Milk Snake	<i>Lampropeltis triangulum</i>	U
Northern Water Snake	<i>Nerodia sipedon</i>	C
Smooth Green Snake**	<i>Opheodrys vernalis</i>	U
Queen Snake**	<i>Regina septemvittata</i>	U
Northern Brown Snake	<i>Storeria dekayi</i>	U
Northern Redbelly Snake	<i>Storeria occipitomaculata</i>	U
Eastern Garter Snake	<i>Thamnophis sirtalis</i>	C
Northern Copperhead**	<i>Agkistrodon contortrix</i>	U
Eastern Massasauga**	<i>Sistrurus catenatus</i>	U

** Species of Special Concern as of publication date.

Source: Laux 2008, Hulse *et al.* 2001, McCoy 1982.

Table D-6
BREEDING BIRD SPECIES RECORDED FROM BUFFALO CREEK

Buffalo Valley

Canada Goose	<i>Branta canadensis</i>
Wood Duck	<i>Aix sponsa</i>
Mallard	<i>Anas platyrhynchos</i>
Common Merganser	<i>Mergus merganser</i>
Ring-necked Pheasant	<i>Phasianus colchicus</i>
Ruffed Grouse	<i>Bonasa umbellus</i>
Wild Turkey	<i>Meleagris gallopavo</i>
Great Blue Heron	<i>Ardea herodias</i>
Green Heron	<i>Butorides virescens</i>
Turkey Vulture	<i>Cathartes aura</i>
Bald Eagle	<i>Haliaeetus leucocephalus</i>
Northern Harrier	<i>Circus cyaneus</i>
Sharp-shinned Hawk	<i>Accipiter striatus</i>
Cooper's Hawk	<i>Accipiter cooperii</i>
Red-shouldered Hawk	<i>Buteo lineatus</i>
Broad-winged Hawk	<i>Buteo platypterus</i>
Red-tailed Hawk	<i>Buteo jamaicensis</i>
American Kestrel	<i>Falco sparverius</i>
Killdeer	<i>Charadrius vociferus</i>
Spotted Sandpiper	<i>Actitis macularius</i>
Upland Sandpiper	<i>Bartramia longicauda</i>
American Woodcock	<i>Scolopax minor</i>
Rock Pigeon	<i>Columba livia</i>
Mourning Dove	<i>Zenaida macroura</i>
Black-billed Cuckoo	<i>Coccyzus erythrophthalmus</i>
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>
Barn Owl	<i>Tyto alba</i>
Eastern Screech-Owl	<i>Megascops asio</i>
Great Horned Owl	<i>Bubo virginianus</i>
Barred Owl	<i>Strix varia</i>
Common Nighthawk	<i>Chordeiles minor</i>
Whip-poor-will	<i>Caprimulgus vociferus</i>
Chimney Swift	<i>Chaetura pelagica</i>
Ruby-throated Hummingbird	<i>Archilochus colubris</i>
Belted Kingfisher	<i>Ceryle alcyon</i>
Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>
Red-bellied Woodpecker	<i>Melanerpes carolinus</i>
Downy Woodpecker	<i>Picoides pubescens</i>
Hairy Woodpecker	<i>Picoides villosus</i>
Northern Flicker	<i>Colaptes auratus</i>
Pileated Woodpecker	<i>Dryocopus pileatus</i>

Eastern Wood-Pewee	<i>Contopus virens</i>
Acadian Flycatcher	<i>Empidonax virescens</i>
Willow Flycatcher	<i>Empidonax traillii</i>
Least Flycatcher	<i>Empidonax minimus</i>
Eastern Phoebe	<i>Sayornis phoebe</i>
Great Crested Flycatcher	<i>Myiarchus crinitus</i>
Eastern Kingbird	<i>Tyrannus tyrannus</i>
White-eyed Vireo	<i>Vireo griseus</i>
Yellow-throated Vireo	<i>Vireo flavifrons</i>
Blue-headed Vireo	<i>Vireo solitarius</i>
Warbling Vireo	<i>Vireo gilvus</i>
Red-eyed Vireo	<i>Vireo olivaceus</i>
Blue Jay	<i>Cyanocitta cristata</i>
American Crow	<i>Corvus brachyrhynchos</i>
Horned Lark	<i>Eremophila alpestris</i>
Purple Martin	<i>Progne subis</i>
Tree Swallow	<i>Tachycineta bicolor</i>
Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>
Bank Swallow	<i>Riparia riparia</i>
Barn Swallow	<i>Hirundo rustica</i>
Black-capped Chickadee	<i>Poecile atricapillus</i>
Tufted Titmouse	<i>Baeolophus bicolor</i>
White-breasted Nuthatch	<i>Sitta carolinensis</i>
Carolina Wren	<i>Thryothorus ludovicianus</i>
House Wren	<i>Troglodytes aedon</i>
Blue-gray Gnatcatcher	<i>Polioptila caerulea</i>
Eastern Bluebird	<i>Sialia sialis</i>
Veery	<i>Catharus fuscescens</i>
Wood Thrush	<i>Hylocichla mustelina</i>
American Robin	<i>Turdus migratorius</i>
Gray Catbird	<i>Dumetella carolinensis</i>
Northern Mockingbird	<i>Mimus polyglottos</i>
Brown Thrasher	<i>Toxostoma rufum</i>
European Starling	<i>Sturnus vulgaris</i>
Cedar Waxwing	<i>Bombycilla cedrorum</i>
Blue-winged Warbler	<i>Vermivora pinus</i>
Golden-winged Warbler	<i>Vermivora chrysoptera</i>
Northern Parula	<i>Parula americana</i>
Yellow Warbler	<i>Dendroica petechia</i>
Chestnut-sided Warbler	<i>Dendroica pensylvanica</i>
Black-throated Green Warbler	<i>Dendroica virens</i>
Blackburnian Warbler	<i>Dendroica fusca</i>
Yellow-throated Warbler	<i>Dendroica dominica</i>
Prairie Warbler	<i>Dendroica discolor</i>
Cerulean Warbler	<i>Dendroica cerulea</i>

Black-and-white Warbler	<i>Mniotilta varia</i>
American Redstart	<i>Setophaga ruticilla</i>
Worm-eating Warbler	<i>Helmitheros vermivorum</i>
Ovenbird	<i>Seiurus aurocapilla</i>
Louisiana Waterthrush	<i>Seiurus motacilla</i>
Kentucky Warbler	<i>Oporornis formosus</i>
Mourning Warbler	<i>Oporornis philadelphia</i>
Common Yellowthroat	<i>Geothlypis trichas</i>
Hooded Warbler	<i>Wilsonia citrina</i>
Canada Warbler	<i>Wilsonia canadensis</i>
Yellow-breasted Chat	<i>Icteria virens</i>
Scarlet Tanager	<i>Piranga olivacea</i>
Eastern Towhee	<i>Pipilo erythrophthalmus</i>
Chipping Sparrow	<i>Spizella passerina</i>
Field Sparrow	<i>Spizella pusilla</i>
Savannah Sparrow	<i>Passerculus sandwichensis</i>
Grasshopper Sparrow	<i>Ammodramus savannarum</i>
Henslow's Sparrow	<i>Ammodramus henslowii</i>
Song Sparrow	<i>Melospiza melodia</i>
Northern Cardinal	<i>Cardinalis cardinalis</i>
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>
Indigo Bunting	<i>Passerina cyanea</i>
Bobolink	<i>Dolichonyx oryzivorus</i>
Red-winged Blackbird	<i>Agelaius phoeniceus</i>
Eastern Meadowlark	<i>Sturnella magna</i>
Common Grackle	<i>Quiscalus quiscula</i>
Brown-headed Cowbird	<i>Molothrus ater</i>
Orchard Oriole	<i>Icterus spurius</i>
Baltimore Oriole	<i>Icterus galbula</i>
Purple Finch	<i>Carpodacus purpureus</i>
House Finch	<i>Carpodacus mexicanus</i>
American Goldfinch	<i>Carduelis tristis</i>
House Sparrow	<i>Passer domesticus</i>

(Total = 119)

**Table D-7
MAMMAL SPECIES OF THE BUFFALO CREEK WATERSHED**

Common Name	Scientific Name
Virginia Opossum	<i>Didelphis virginiana</i>
Masked Shrew	<i>Sorex cinereus</i>
Smoky Shrew	<i>Sorex fumeus</i>
Pygmy Shrew	<i>Sorex hoyi</i>
Northern Shorttailed Shrew	<i>Blarina brevicauda</i>
Least Shrew**	<i>Cryptotis parva</i>
Hairy-tailed Mole	<i>Parascalops breweri</i>
Star-nosed Mole	<i>Condylura cristata</i>
Keen's Myotis **	<i>Myotis keenii</i>
Small-footed Myotis **	<i>Myotis leibii</i>
Little brown Myotis	<i>Myotis lucifugus</i>
Indiana Bat **	<i>Myotis sodalis</i>
Red Bat **	<i>Lasiurus borealis</i>
Hoary Bat **	<i>Lasiurus cinereus</i>
Silver-haired Bat**	<i>Lasionycteris noctivagans</i>
Eastern Pipistrelle	<i>Pipistrellus subflavus</i>
Big Brown Bat	<i>Eptesicus fuscus</i>
Eastern Cottontail	<i>Sylvilagus floridanus</i>
Eastern Chipmunk	<i>Tamias striatus</i>
Woodchuck	<i>Marmota monax</i>
Gray Squirrel	<i>Sciurus carolinensis</i>
Fox Squirrel	<i>Sciurus niger</i>
Red Squirrel	<i>Tamiasciurus hudsonicus</i>
Southern Flying Squirrel	<i>Glaucomys volans</i>
Beaver	<i>Castor canadensis</i>
White-footed Mouse	<i>Peromyscus leucopus</i>
Deer Mouse	<i>Peromyscus maniculatus</i>
Norway Rat	<i>Rattus norvegicus</i>
House Mouse	<i>Mus musculus</i>
Southern Redbacked Vole	<i>Clethrionomys gapperi</i>
Meadow Vole	<i>Microtus pennsylvanicus</i>
Woodland Vole	<i>Microtus pinetorum</i>
Muskrat	<i>Ondatra zibethicus</i>
Southern Bog Lemming	<i>Synaptomys cooperi</i>
Meadow Jumping Mouse	<i>Zapus hudsonius</i>
Woodland Jumping Mouse	<i>Napaeozapus insignis</i>
Coyote	<i>Canis latrans</i>
Red Fox	<i>Vulpes vulpes</i>
Gray Fox	<i>Urocyon cinereoargenteus</i>
Black Bear	<i>Ursus americanus</i>
Raccoon	<i>Procyon lotor</i>
Ermine	<i>Mustela erminea</i>
Long-tailed Weasel	<i>Mustela frenata</i>
Least Weasel	<i>Mustela nivalis</i>
Mink	<i>Mustela vison</i>
Striped Skunk	<i>Mephitis mephitis</i>
Bobcat	<i>Felis concolor</i>
White-tailed Deer	<i>Odocoileus virginianus</i>

** Species of Special Concern as of publication date.

Source: Merritt 1982.

TODD SANCTUARY REPORT NO. 10

Ferns of Todd Sanctuary

by L. K. Henry
Carnegie Museum

For the last two growing seasons, I have been checking the Sanctuary for ferns and have found 24 different kinds in the woods, thickets and clearings.

The most common ferns are: Cinnamon (Osmunda cinnamomea), growing in wet areas and on flood plains in woods; New York (Thelypteris noveboracensis), and Hayscented (Dennstaedtia punctilobula), in large patches in woods and thickets; Fancy or Intermediate Wood (Dryopteris intermedia), and Marginal Wood (Dryopteris marginalis), in rocky woods and on rocks; and Bracken (Pteridium aquilinum var. latiusculum), in dry areas of woods and thickets.

The most infrequent ferns here are Maidenhair (Adiantum pedatum) and Ebony Spleenwort (Asplenium platyneuron), both found in rocky woods. The Southern Lady Fern (Athyrium asplenioides), of damp woods, is also infrequent.

Rock-cap Fern or Polypody (Polypodium virginianum) grows commonly together with the Marginal Wood Fern and the Fancy Fern on large rocks scattered throughout the woods. Sensitive Fern (Onoclea sensibilis) is frequently found in moist, low areas in woods in association with Cinnamon Fern. Rattlesnake Fern (Botrychium virginianum) is the most frequent of the three Grape Ferns found here, while the Dissected (Botrychium dissectum) and Coarse-lobed (Botrychium obliquum) ones are infrequent in woods and thickets.

The most common Clubmoss is Crowfoot Clubmoss or Running Pine (Lycopodium flabelliforme), while both Ground Cedar (Lycopodium tristachyum) and Round-branch Ground Pine (Lycopodium obscurum var. dendroideum) are frequent. Running Clubmoss (Lycopodium clavatum) is infrequent in thickets, woods and clearings. There is one small stand of Meadow Spikemoss (Selaginella apoda), discovered by Dr. Joan Gottlieb.

The majority of these ferns may be seen by walking the various trails in the Sanctuary. The annotated list follows:

OPHIOGLOSSACEAE (Adder's-tongue Family)

Botrychium dissectum, Dissected or Lace-leaf Grape Fern. Infrequent in woods and thickets.

B. obliquum, Oblique or Coarse-lobed Grape Fern. Infrequent in woods and thickets.

B. virginianum, Rattlesnake Fern. Frequent in woods.

OSMUNDACEAE (Flowering Fern Family)

Osmunda cinnamomea, Cinnamon Fern. Common in wet areas of woods.

O. claytoniana, Interrupted Fern. Frequent in woods.

POLYPODIACEAE (Fern Family)

- Adiantum pedatum, Maidenhair Fern. Infrequent in woods.
Asplenium platyneuron, Ebony Spleenwort. Infrequent in woods.
Athyrium angustum var. rubellum, Northeastern Lady Fern. Common in damp woods and thickets.
A. asplenioides, Southern Lady Fern. Infrequent in damp woods.
Dennstaedtia punctilobula, Hayscented Fern. Common in woods and thickets.
Dryopteris intermedia, Fancy Fern or Intermediate Wood Fern. Common in woods.
D. marginalis, Marginal Wood Fern or Evergreen Wood Fern. Common in woods.
D. spinulosa, Toothed Wood Fern or Spinulose Wood Fern. Frequent in damp woods.
D. x triploidea, Triploid Wood Fern, hybrid of D. intermedia and D. spinulosa. Infrequent in woods.
Onoclea sensibilis, Sensitive Fern. Frequent in damp woods.
Polystichum acrostichoides, Christmas Fern. Common in woods and on rocks.
P. acrostichoides f. crispum, Crisped Christmas Fern. Rare in woods.
Polypodium virginianum, Rock-cap Fern or Polypody. Frequent on rocks and at "cliff dwellings."
Pteridium aquilinum var. latiusculum, Bracken. Common in woods, meadows and thickets.
Thelypteris noveboracensis, New York Fern or Tapering Fern. Common in woods and thickets.

LYCOPODIACEAE (Clubmoss Family)

- Lycopodium clavatum, Running Clubmoss. Infrequent in thickets and woods.
L. flabelliforme, Crowfoot Clubmoss or Running Pine. Common in woods, thickets and clearings.
L. obscurum var. dendroideum, Round-branch Ground Pine or Tree Clubmoss. Frequent in moist, open woods and clearings.
L. tristachyum, Ground Cedar. Frequent in open woods and thickets.

SELAGINELLACEAE

- Selaginella apoda, Meadow Spikemoss. Rare on damp rocks along stream.

(NOTE: Mounted specimens of the species listed are available for study by anyone interested in examining them. The collection is kept in the visitor center cabin.)

Epilogue:

Herbaceous Angiosperms of Todd Sanctuary - A Tentative Listing.

18 Feb. 1977.

This summary is most likely representative of less than half of the herbs of Todd. Indeed, the grasses and sedges have been ignored (for various excuses), and other families have been inadequately revealed. Thus, there is a need for more hours and hours of field work. However identification, be it of great importance, should now give way to our attempts at disclosure of the ecology and ethology (?) of our flora. Onward.

Also. This summary is potentially erroneous by including misidentifications. The naturalists often had to make do with field guides which were not inclusive of all possible species (e.g., the Peterson series guide). Please make corrections and additions. I would appreciate any feedback.

CW Bier

Herbaceous Angiosperms of Todd Sanctuary - A Tentative Listing *

I. Monocotyledoneae (monocot class)

1. Sparganiaceae (Bur-reed Family)

Sparganium spp. bur-reed

2. Araceae (Arum Family)

Arisaema spp. Jack-in-the-pulpit
Symplocarpus foetidus skunk-cabbage

3. Commelinaceae (Spiderwort Family)

Tradescantia spp. spiderwort

4. Juncaceae (Rush Family)

Juncus spp. rushes

5. Liliaceae (Lily Family)

Veratrum viride white hellebore
Uvularia perfoliata perfoliate bellwort
U. sessilifolia sessile-leaved bellwort
Allium spp. wild onion
Hemerocallis flava yellow day-lily
Hosta ventricosa blue plantain-lily
Lilium superbum Turk's-cap-lily
Erythronium americanum yellow trout-lily
Ornithogalum umbellatum star-of-Bethlehem
Clintonia umbellulata white clintonia
Smilacina racemosa Solomon's zigzag
Maianthemum canadense wild lily-of-the-valley
Polygonatum biflorum Solomon's-seal
Medeola virginiana Indian cucumber-root
Trillium erectum purple trillium
Trillium grandiflorum large-flowered trillium
Smilax spp. greenbrier (non-herbaceous)

6. Iridaceae (Iris Family)

Sisyrinchium spp. blue-eyed grass

7. Orchidaceae (Orchis Family)

Cypripedium acaule common moccasin-flower
Spiranthes cernua nodding ladies'-tresses
Goodyera pubescens downy rattlesnake-plantain

* Note: This summary also includes several non-herbaceous angiosperms which have been conventionally dubbed "wild flowers". Additional woody species are treated in a separate summary.

II. Dicotyledoneae (dicot class)

8. Urticaceae (Nettle Family)

Urtica dioica
Pilea pumila

stinging nettle
dwarf clearweed

9. Aristolochiaceae (Birthwort Family)

Asarum canadense
Aristolochia serpentaria

wild ginger
Virginia snakeroot

10. Polygonaceae (Buckwheat Family)

Rumex crispus
R. obtusifolius
R. acetosella
Tovara virginiana
Polygonum pennsylvanicum
P. cespitosum
P. persicaria
P. sagittatum

curled dock
broad dock
sheep-sorel
Virginian knotweed
Pennsylvania smartweed
long-bristled smartweed
lady's-thumb
arrow-leaved tearthumb

11. Phytolaccaceae (Pokeweed Family)

Phytolacca americana

pokeweed

12. Portulacaceae (Purslane Family)

Claytonia virginica

spring-beauty

13. Caryophyllaceae (Pink Family)

Arenaria lateriflora
Stellaria graminea
Cerastium vulgatum
Lychnis coronaria
Silene stellata
S. virginica
Dianthus armeria

grove-sandwort
common stitchwort
common mouse-ear chickweed
mullein-pink
starry campion
fire-pink
deptford pink

14. Ranunculaceae (Crowfoot Family)

Ranunculus abortivus
R. recurvatus
R. hispidus
R. septentrionalis
Thalictrum dioicum
T. polygamum
Anemonella thalictroides
Hepatica acutiloba
Anemone virginiana
A. quinquefolia
Clematis virginiana
Aquilegia canadensis
Cimicifuga racemosa
Actaea pachypoda

kidneyleaf-buttercup
hooded buttercup
hispid buttercup
swamp buttercup
early meadow-rue
tall meadow-rue
rue-anemone
round-lobed hepatica
thimbleweed
wood-anemone
Virginia virgin's bower
wild columbine
black cohosh
white baneberry

15. Berberidaceae (Barberry Family)

Podophyllum peltatum

May-apple

16. Papveraceae (Poppy Family)

Sanguinaria canadensis

bloodroot

Dicentra eximia

wild bleeding-heart

Corydalis flavula

yellow corydalis

17. Cruciferae (Mustard Family)

Barbarea vulgaris

wintercress

Dentaria diphylla

two-leaved pepperwort

D. laciniata

cut-leaf toothwort

Cardamine pensylvanica

Pennsylvania bitter cress

Arabis canadensis

sicklepod

18. Crassulaceae (Sedum Family)

Sedum ternatum

stonecrop

19. Saxifragaceae (Saxifrage Family)

Saxifraga virginiensis

early saxifrage

Tiarella cordifolia

foamflower

Heuchera americana

alumroot

Mitella diphylla

miterwort

20. Rosaceae (Rose Family)

Spiraea latifolia

meadowsweet (non-herbaceous)

S. tomentosa

steplebush (non-herbaceous)

Aruncus dioicus

goat's-beard

Gillenia trifoliata

bowman's-root

Amelanchier spp.

Juneberry (non-herbaceous)

Fragaria virginiana

common strawberry

F. vesca

woodland strawberry

Waldsteinia fragarioides

barren strawberry

Potentilla norvegica

rough cinquefoil

P. canadensis

dwarf cinquefoil

P. simplex

common cinquefoil

Geum canadense

white avens

Rubus odoratus

purple-flowering raspberry (non-herbaceous)

R. spp.

blackberries, dewberries and raspberries (some non-herbaceous)

Agrimonia spp.

agrimony

Rosa multiflora

multiflora rose (non-herbaceous)

21. Leguminosae (Pea Family)

Trifolium pratense

red clover

T. repens

white clover

T. hybridum

alsike clover

T. agrarium

hop-clover

T. procumbens

low hop-clover

Melilotus alba

white sweet clover

Leguminosae (continued)

- | | |
|---|--|
| <u>Lotus corniculatus</u> | European bird's-foot-trefoil |
| <u>Desmodium nudiflorum</u> | naked-flowered tick-trefoil |
| <u>D. glutinosum</u> | pointed-leaved tick-trefoil |
| <u>D. canescens</u> | hoary tick-trefoil |
| <u>D. canadense</u> | showy tick-trefoil |
| <u>Lespedeza stipulacea</u> | Korean clover |
| 22. Oxalidaceae (Wood-Sorrel Family) | |
| <u>Oxalis stricta</u> | yellow wood-sorrel |
| 23. Geraniaceae (Geranium Family) | |
| <u>Geranium maculatum</u> | wild geranium |
| 24. Polygalaceae (Milkwort Family) | |
| <u>Polygala sanguinea</u> | blood milkwort |
| 25. Euphorbiaceae (Spurge Family) | |
| <u>Euphorbia corollata</u> | flowering spurge |
| 26. Balsaminaceae (Touch-Me-Not Family) | |
| <u>Impatiens pallida</u> | pale touch-me-not |
| <u>I. capensis</u> | spotted touch-me-not |
| 27. Guttiferae (Saint John's-Wort Family) | |
| <u>Hypericum perforatum</u> | common St. John's-wort |
| <u>H. spathulatum</u> | shrubby St. John's-wort (non-herbaceous) |
| <u>H. mutilum</u> | dwarf St. John's-wort |
| <u>H. canadense</u> | Canada St. John's-wort |
| 28. Cistaceae (Rockrose Family) | |
| <u>Lechea spp.</u> | pinweed |
| 29. Violaceae (Violet Family) | |
| <u>Viola cucullata</u> | marsh blue violet |
| <u>V. papilionacea</u> | common blue violet |
| <u>V. missouriensis</u> | Missouri violet |
| <u>V. sagittata</u> | arrow-leaved violet |
| <u>V. blanda</u> | mild violet |
| <u>V. pensylvanica</u> | smooth yellow violet |
| <u>V. striata</u> | cream-violet |
| <u>V. conspersa</u> | American dog violet |
| <u>V. rostrata</u> | long-spurred violet |
| 30. Onagraceae (Evening-Primrose Family) | |
| <u>Oenothera biennis</u> | common evening primrose |
| <u>Oenothera spp.</u> | sundrops |
| <u>Circaea quadrisulcata</u> | enchanter's nightshade |
| <u>C. alpina</u> | smaller enchanter's nightshade |

31. Araliaceae (Ginseng Family)

Aralia spinosa
A. racemosa
A. hispida
A. nudicaulis
Panax trifolium

devil's-walking-stick (non-herbaceous)
 spikenard
 bristly sarsaparilla
 wild sarsaparilla
 dwarf ginseng

32. Umbelliferae (Parsley Family)

Sanicula marilandica
Osmorhiza claytoni
O. longistylis
Zizia aurea
Cryptotaenia canadensis
Daucus carota

black snakeroot
 sweet cicely
 anise root
 golden alexanders
 honewort
 wild carrot

33. Clethraceae (White Alder Family)

Clethra alnifolia

sweet pepperbush (non-herbaceous)

34. Pyrolaceae (Wintergreen Family)

Pyrola elliptica
Monotropa uniflora
M. hypopithys

shinleaf
 Indian-pipe
 pinesap

35. Ericaceae (Heath Family) (non-herbaceous)

Rhododendron roseum
Kalmia latifolia
Epigaea repens
Gaultheria procumbens

early azalea
 mountain-laurel
 trailing arbutus
 wintergreen

36. Primulaceae (Primrose Family)

Lysimachia quadrifolia
L. ciliata

whorled loosestrife
 fringed loosestrife

37. Apocynaceae (Dogbane Family)

Apocynum androsaemifolium
A. cannabinum

spreading dogbane
 Indian hemp

38. Asclepiadaceae (Milkweed Family)

Asclepias tuberosa
A. exaltata

butterfly-weed
 poke milkweed

39. Polemoniaceae (Phlox Family)

Polemonium reptans
Phlox divaricata
P. maculata

Greek valerian
 blue phlox
 wild sweet William

40. Hydrophyllaceae (Waterleaf Family)

Hydrophyllum virginianum
H. appendiculatum

Virginia waterleaf
 appendaged waterleaf

41. Boraginaceae (Borage Family)

Myosotis scorpioides
Mertensia virginica

true forget-me-not
Virginia cowslip

42. Verbenaceae (Vervain Family)

Verbena urticifolia
V. hastata

white vervain
blue vervain

43. Labiatae (Mint Family)

Teucrium canadense
Scutellaria incana
Glechoma hederacea
Prunella vulgaris
Stachys tenuifolia
Monarda didyma
M. fistulosa
Blephilia ciliata
Satureja vulgaris
Lycopus virginicus
L. americanus
Collinsonia canadensis

germander
downy skullcap
ground ivy
heal-all
rough hedge-nettle
bee-balm
wild beramot
downy wood-mint
basil
bugleweed
cut-leaved water-horehound
horse-balm

44. Scrophulariaceae (Figwort Family)

Scrophularia lanceolata
Chelone glabra
Penstemon hirsutus
Mimulus rigens
Gratiola neglecta
Veronica officinalis

figwort
turtlehead
hairy beard-tongue
square-stemmed monkey-flower
hedge-hyssop
common speedwell

45. Orobanchaceae (Broom-Rape Family)

Orobanche uniflora

one-flowered cancer-root

46. Rubiaceae (Madder Family)

Galium aparine
G. triflorum
G. boreale
Mitchella repens
Houstonia caerulea

cleavers
fragrant bedstraw
northern bedstraw
partridge-berry
bluets

47. Caprifoliaceae (Honeysuckle Family)

Lonicera japonica
Triosteum perfoliatum

Japanese honeysuckle (non-herbaceous)
wild coffee

48. Campanulaceae (Bluebell Family)

Specularia perfoliata
Campanula americana
Lobelia siphilitica
L. spicata
L. inflata

Venus looking-glass
tall bellflower
great lobelia
pale-spike lobelia
Indian-tobacco

49. Compositae (Composite Family)

<u>Vernonia noveboracensis</u>	New York ironweed
<u>Eupatorium maculatum</u>	spotted Joe-Pye-weed
<u>E. fistulosum</u>	hollow Joe-Pye-weed
<u>E. purpureum</u>	sweet Joe-Pye-weed
<u>E. perfoliatum</u>	bonset
<u>E. rugosum</u>	white snakeroot
<u>Liatris spicata</u>	dense blazing-star
<u>Solidago caesia</u>	blue-stem goldenrod
<u>S. bicolor</u>	silver-rod
<u>S. juncea</u>	early goldenrod
<u>S. rugosa</u>	rough-stemmed goldenrod
<u>S. canadensis</u>	Canada goldenrod
<u>S. altissima</u>	tall goldenrod
<u>S. graminifolia</u>	grass-leaved goldenrod
<u>Aster divaricatus</u>	white wood aster
<u>A. schreberi</u>	Schreber's aster
<u>A. prenanthoides</u>	crooked-stemmed aster
<u>A. acuminatus</u>	whorled wood aster
<u>Erigeron annuus</u>	daisy-fleabane
<u>Ambrosia trifida</u>	great ragweed
<u>A. artemisiifolia</u>	common ragweed
<u>Rudbeckia laciniata</u>	green-headed coneflower
<u>R. hirta</u>	black-eyed Susan
<u>Helianthus agustifolius</u>	narrow-leaved sunflower
<u>H. decapetalus</u>	thin-leaved sunflower
<u>Actinomeris alternifolia</u>	wing-stem
<u>Coreopsis lanceolata</u>	lance-leaved coreopsis
<u>Bidens frondosa</u>	beggar-ticks
<u>Galinsoga ciliata</u>	hairy galinsoga
<u>Achillea millefolium</u>	common yarrow
<u>Chrysanthemum leucanthemum</u>	ox-eye-daisy
<u>Tussilago farfara</u>	coltsfoot
<u>Erechtites hieracifolia</u>	pilewort
<u>Senecio aureus</u>	golden ragwort
<u>Arctium minus</u>	common burdock
<u>Cirsium vulgare</u>	bull-thistle
<u>C. pumilium</u>	pasture-thistle
<u>Cichorium intybus</u>	common chicory
<u>Krigia biflora</u>	two-flowered Cynthia
<u>Taraxacum officinale</u>	common dandelion
<u>Lactuca canadensis</u>	wild lettuce
<u>Prenanthes altissima</u>	tall white lettuce
<u>Hieracium aurantiacum</u>	orange hawkweed
<u>H. floribundum</u>	smoothish hawkweed
<u>H. venosum</u>	rattlesnake-weed
<u>H. paniculatum</u>	panicked hawkweed

49 families, 238+ species

List compiled by summer naturalists: William R. Anderson, Thomas Bancroft, Khrist Bender, Charles W. Bier and Jeff Maugans; with additional assistance by Ann Bancroft and Paul G. Wiegman. Report by Charles W. Bier, 12 Sept. 1976.

References: Gray's Manual of Botany, M. L. Fernald, 8th ed., 1950 (taxonomic order, nomenclatures and identifications). A Field Guide to Wildflowers, R. T. Peterson, M. Mckenny, 1968 (identifications).

TODD SANCTUARY REPORT NO. 6
A SURVEY OF THE TREES AND SHRUBS OF TODD SANCTUARY
By Michael Dudley
Junior Summer Naturalist, 1970

This project was started in the summer of 1969 and carried through the summer of 1970. During this time a total of 118 species were found and identified within the Sanctuary boundaries.

Todd Sanctuary is a mixed deciduous-coniferous forest within the Central Hardwood Region. This region is typified by a variable climate, rich soils and fairly even precipitation. The climax forest, which is a major unit characterized by distinctive vegetative life forms, is a mixture of conifers and broad-leafed trees in this area. During the 1940's in this area, the hemlocks were extensively logged off. Throughout the Sanctuary, evidence can now be found of varying stages of succession.

The Sanctuary is fortunate to have three different forest communities. A prominent community is the hemlock forest. This community occurs mainly between 900 and 1020 feet above sea level along the Sanctuary's three streams. Hemlocks require a moist acid-type soil and will grow to heights of 60-70 feet. These trees provide habitat for a wide spectrum of wildlife.

The second community is the oak-hickory association. This community covers all of the Sanctuary except along the streams and in the meadows. Oak, hickory, cherry, maple and birch are the main types of trees present. The oak family is the most important hardwood in the United States. There are about 15 different kinds within this region. Because these trees quite frequently hybridize, some species found were not included in this report because of their difficulty to key down. The mixture of shade and open sunny spaces in this habitat provides niches for many forms of wildlife. In fact, more niches are provided than in any other forest type.

The third and final community is the meadows. These meadows are typified by an abundance of deerberry and dense thickets of American crabapple and generally poor soils. Few species of animals actually live out in the open meadow but tend to have their homes in the oak forests or along the edges of the crabapple thickets and penetrate into the meadow at times in search of food. Thus, these three areas regulate such factors as light intensity, temperature, moisture absorption, evaporation and fertility of the soil.

The common names listed alphabetically below are based on the Petrides book, "A Field Guide to Trees and Shrubs," in the Peterson Field Guide Series. The relative numbers of each species is indicated by the designations "A" for abundant, "C" for common, and "U" for uncommon. Non-native species are designated as "cultivated."

Trees and shrubs identified:

Trees:

- C--Domestic apple
- C--Black ash
- Cultivated--European mountain ash
- U--Green ash
- A--White ash
- C--Bigtooth aspen
- C--Quaking aspen
- C--American basswood
- C--American beech
- A--Black birch
- U--Yellow birch
- C--Smooth blackhaw
- *--Sweet buckeye
- C--Butternut
- Cultivated--Common Catalpa
- C--Choke cherry
- C--Sweet cherry
- C--Wild black cherry
- C--American chestnut
- A--American crabapple
- C--Flowering dogwood
- **C--American elm
- C--Slippery elm
- C--Black gum
- U--American hackberry
- A--Eastern hickock
- C--Bitternut hickory
- A--Shagbark hickory
- C--Shellback hickory
- C--Kophornbeam
- U--Downy juneberry
- U--Swamp juneberry
- U--Black locust
- U--Cucumber magnolia
- C--Red maple
- C--Sugar maple
- Cultivated--White mulberry
- C--Musclewood
- C--Black oak
- C--Blackjack/Black Oak hybrid
- U--Chinquapin oak
- C--Red oak
- C--Scarlet oak
- C--Shingle oak
- C--White oak
- Cultivated--Pitch pine
- U--Red pine
- U--Scotch pine
- Cultivated--Virginia pine
- C--White pine
- U--Allegheny plum
- C--Tulip poplar
- C--Sassafras
- C--Smooth sumac
- C--Staghorn sumac
- C--Winged sumac
- C--Black walnut
- C--Black willow

*--One found in 1969, but missing in 1970. **--But dying out.

Shrubs:

- C--Smooth alder
- U--Speckled alder
- C--Trailing arbutus
- C--Northern arrowwood
- C--Pink azalea
- C--American bittersweet
- C--Blackberry
- C--Common highbush blueberry
- C--Early low blueberry
- U--Black chokeberry
- U--Purple clematis
- U--Hercules club
- U--Coralberry
- C--Thicket creeper
- Cultivated--Trumpet creeper
- C--Virginia creeper
- C--Bristly black currant
- U--Garden red currant
- A--Tall deerberry
- U--Bristly dewberry
- C--Prickly dewberry
- U--Narrowleaf dogwood
- C--Red-osier dogwood
- C--Red-panicle dogwood
- C--Common elderberry
- U--Red elderberry
- C--Pasture elderberry
- C--Frost grape
- U--New England grape
- C--Bristly greenbrier
- C--Bullbrier greenbrier
- C--Common greenbrier
- C--Redberry greenbrier
- C--Cockspur hawthorn
- C--Dotted hawthorn
- C--Witch hazel
- C--American hazelnut
- Cultivated--Japanese honeysuckle
- Cultivated--Hop
- C--Wild hydrangea
- A--Poison ivy
- C--Mountain laurel
- Cultivated--Lilac
- C--Nannyberry
- C--Ninebark
- Cultivated--Autumn olive
- C--Partridgeberry
- U--Common privet
- C--Black raspberry
- C--Flowering raspberry
- C--Swamp rose
- C--Shrubby Saint Johnswort
- U--Snowberry
- C--Spicebush
- C--Broadleaf spirea
- C--Steeplebush
- C--New Jersey tea
- C--Mapleleaf viburnum
- C--Redberry wintergreen
- Cultivated--American yew