

COMMONWEALTH of VIRGINIA

Biological Survey of the Radford Army Ammunition Plant; including Threatened, Endangered, and Species of Concern

Final Report, May, 1999



By:

Virginia Department of Game and Inland Fisheries
Wildlife Diversity Division
Verona, Va.

For:

Alliant Techsystems, INC.
Radford Army Ammunition Plant
Radford, Va.

COMMONWEALTH of VIRGINIA

Biological Survey of the Radford Army Ammunition Plant; including Threatened, Endangered, and Species of Concern

Final Report, May, 1999



By:

Virginia Department of Game and Inland Fisheries
Wildlife Diversity Division
Verona, Va.

For:

Alliant Techsystems, INC.
Radford Army Ammunition Plant
Radford, Va.

Investigators and Contributors

Principal Investigator: Richard J. Reynolds, VA Dept. of Game & Inland Fisheries

Principal Fauna Investigator: Curtis S. Garriock, VA Dept. of Game & Inland Fisheries

Principal Flora Investigator: Thomas F. Wieboldt, VA Polytechnic Institute and State University

Contributors:

Dr. Barbara Abraham	Hampton University
Dr. Ron Caldwell	Lincoln Memorial University
Larry Crane	VA Dept. of Game & Inland Fisheries
Greg Harvey	VA Dept. of Game & Inland Fisheries
Chris Hobson	VA Division of Natural Heritage
Dr. Richard Hoffman	VA Museum of Natural History
Dr. John Holsinger	Old Dominion University
Clyde Kessler	
Chris Ludwig	VA Division of Natural Heritage
Chris Mattson	VA Dept. of Game & Inland Fisheries
Monte McGregor	VA Dept. of Game & Inland Fisheries
Mike Pinder	VA Dept. of Game & Inland Fisheries
Christine Plaughter	VA Museum of Natural History
Dr. Steve Roble	VA Division of Natural Heritage
Betsy Stinson	VA Dept. of Game & Inland Fisheries
Andy Zadnik	VA Dept. of Game & Inland Fisheries

Table of Contents

I.	Introduction	
II.	Natural Communities.....	1
	Upland Forest.....	2
	Limestone Barren.....	18
	Xeric Calcareous Cliff.....	21
	Calcareous Fen.....	24
	Piedmont/Mountain Bottomland Forest.....	28
	Sand/Gravel/Mud Bar and Shore.....	40
III.	Artificial Communities.....	43
	Grassland.....	44
	Successional Woodland/Forest.....	64
	Pine Plantation.....	71
	Wet Meadow/Marsh and Ponds.....	81
IV.	References.....	85
V.	Appendices.....	87
	Appendix A: Figures	
	Appendix B: Taxa Lists by Facility	

Introduction

This report is in fulfillment of Contract No. DAAA09-91-Z-001, Purchase Order No. VE-10818 and Purchase Order No. VE-10817. This report presents the results of two years of fieldwork at the Radford Army Ammunition Plant (RAAP). The major objectives of the project included sampling the flora and fauna of each facility, typing and delineation of the major habitat community types at each facility, and providing management recommendations for both community types and threatened, endangered or species of concern.

Endangered, Threatened, and Species of Concern Lists

We defined E&T species as those listed by the federal and state regulatory agencies, the U.S. Fish and Wildlife Service, Virginia Department of Agriculture and Consumer Services (plants and insects), and the Virginia Department of Game and Inland Fisheries (animals excluding insects). Because the federal government does not maintain a legal description or listing of Species of Concern, we used those for the state of Virginia. For animal taxa, we used the Species of Concern list maintained by the Virginia Department of Game and Inland Fisheries. For plant taxa, we used the Rare Vascular Plant List of the Virginia Department of Conservation and Recreation, Natural Heritage Program. Neither Federal nor State governments maintain community lists that provided status of Endangered, Threatened, or Special Concern. While legal status is not presented for community types, several community types are presented that are considered rare or unique by plant ecologists in Virginia.

Description of Rank, Status, and Information Presented for each Community Type

For each major community type, information including species rank and status, community description, rare species and community accounts, management recommendations, taxa lists, and maps for each facility is provided.

Status and Rank Descriptions: Each rare and unique species is identified in a table at the beginning of each community type. The species scientific name, common name, global rank, state rank, federal status, and state status is presented. The scientific name and common name follow current field guides identified in the reference.

Global and state ranks are defined by natural heritage programs and The Nature Conservancy based on the range-wide status of a species or variety. Ranks are defined as follows.

G1 = Extremely rare and critically imperiled with 5 or fewer occurrences or very few remaining individuals; or because of some factor(s) making it especially vulnerable to extinction.

G2 = Very rare and imperiled with 6 to 20 occurrences or few remaining individuals; or because of some factor(s) making it especially vulnerable to extinction.

G3 = Either very rare and local throughout its range or found locally (even abundantly at some of its locations) in a restricted range; or vulnerable to extinction because of other factors. Usually fewer than 100 occurrences are documented.

G4 = Common and apparently secure globally, though it may be rare in parts of its range, especially at the periphery.

G5 = Very common and demonstrably secure globally, though it may be rare in parts of its range, especially at the periphery.

GH = Formerly part of the world's biota with expectation that it may be rediscovered.

GX = Believed to be extinct throughout its range with virtually no likelihood of rediscovery.

GU = Possibly rare, but status uncertain and more data needed.

G? = Unranked, or, if following ranking, rank uncertain (ex. G3?).

G_Q = the taxon has a questionable taxonomic assignment, such as G3Q.

G_T_ = signifies the rank of a subspecies or variety. For example, a G5T1 would apply to a subspecies of a species that is demonstrably secure globally (G5) but the subspecies warrants a rank of T1, critically imperiled.

S1 = Extremely rare and critically imperiled with 5 or fewer occurrences or very few remaining individuals in Virginia; or because of some factor(s) making it especially vulnerable to extirpation in Virginia.

S2 = Very rare and imperiled with 6 to 20 occurrences or few remaining in Virginia; or because of some factor(s) making it vulnerable to extirpation in Virginia.

S3 = Rare to uncommon in Virginia with between 20 and 100 occurrences; may have fewer occurrences if found to be common or abundant at some of these locations; may be somewhat vulnerable to extirpation in Virginia.

S4 = Common and apparently secure with more than 100 occurrences; may have fewer occurrences with numerous large populations.

S5 = Very common and demonstrably secure in Virginia.

SH = Formerly part of the Virginia biota with expectation that it may be rediscovered.

SX = Believed extirpated from Virginia with virtually no likelihood of rediscovery.

SE = Exotic; not believed to be a native component of Virginia's flora.

SR = Reported for Virginia, but without persuasive documentation which would provide a basis for either accepting or rejecting the report.

SU = Possibly rare, but status uncertain and more data needed.

S_?= Rank uncertain, for example S2? denotes a species or variety which may range from S1 to S3, another example is SE?, meaning a taxon may or may not be native to Virginia.

Federal ranks are those assigned by the U.S. Fish and Wildlife Service under the Endangered Species Act of 1973. Ranks are defined as follows.

FE = Federal Endangered. Those species of plants or animals in danger of extinction throughout all or a significant portion of their ranges.

FT = Federal Threatened. Those species of plants or animals which are likely to become endangered species within the foreseeable future throughout all or a significant portion of its range.

C1 = Category 1. Taxa for which substantial information exists to support the proposal to list the taxon as endangered or threatened.

State ranks for fauna (excluding endangered insects) are those assigned by the Virginia Department of Game and Inland Fisheries under Virginia's Endangered Species Act of 1972, amended in 1977. State ranks for flora and insects are those assigned by the Virginia Department of Agriculture and Consumer Services under Virginia's Endangered Plant and Insect Species Act of 1979. The rank of special concern (SC) does not apply to plants or insects. Ranks are defined as follows.

SE = State Endangered. Any species which is in danger of extinction throughout all or a significant portion of its range, other than a species of the class Insecta deemed to be a pest and whose protection under the provisions of the article (3.1-1021) would present an overriding risk to the health or economic welfare of the Commonwealth.

ST = State Threatened. Any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

SC = Special Concern. Any species which is restricted in distribution, uncommon, ecologically specialized, or threatened by other imminent factors.

Because a category of special concern does not exist for state flora, we used the Virginia Department of Conservation and Recreation, Division of Natural Heritage's Rare Vascular Plant list. The ranks are as follows.

Rare List = Includes all plants believed to be sufficiently rare or threatened to merit an inventory of their status and locations.

Watchlist = Includes plants which are uncommon or of uncertain status in Virginia.

Information Descriptions: A community description identifies the common flora and physical features that define the community type. Rare species and community accounts describe the locations and status of each species or community. Management recommendations are provided for both the community type and any Threatened, Endangered or Species of Concern associated with the community type. Both flora and fauna taxa lists are provided for each community type. Some of the smaller community types (e.g., Calcareous Fen) were not specifically sampled for fauna, but were part of a larger sampling effort. For these community types, fauna lists for the surrounding habitat is referenced. A map of each facility shows the community types delineated along with other physical features (roads, streams, rivers, etc.). Lastly, a combined list of all flora and fauna found at each facility is provided in Appendix B.

Housing of Specimens

As part of the sampling process, representative specimens were collected from several of the taxa. These specimens will be housed in different collections depending on the taxa. Plants are housed at the Massey Herbarium at the Virginia Polytechnic Institute and State University. Reptiles, amphibians, and invertebrates are housed at the Virginia Museum of Natural History in Martinsville and Blacksburg. Mammals are housed at the Virginia Commonwealth University in Richmond.

Sampling Techniques

Sampling effort and techniques varied across taxa. The following is an overview of the sampling techniques used by taxa.

Plants: Plants were sampled by walking each community type and recording all species observed. When rare plants were encountered, detailed surveys were made to determine the number and distribution of the species.

Invertebrates: Invertebrates were sampled using sweep nets, light traps, seine, pitfall traps, and hand collections. Effort was not evenly distributed across the community types. When a rare invertebrate was encountered, additional survey efforts were conducted to determine the number and distribution of the species.

Fish: Fish were sampled using backpack electroshocker, seines, and visual observations. Surveys included the New River within the boundaries of the Arsenal and the tributaries and ponds within the Arsenal boundaries.

Reptiles and Amphibians: Reptiles and amphibians were sampled using time constrained searches, road surveys, pitfall traps, cover traps, seines, and visual observations. Sampling efforts were not uniform across community types.

Birds: Birds were sampled by auditory and visual recognition. Surveys included walking through community types and recording all birds heard or seen within the community type. Sampling efforts were not uniform across community types.

Mammals: Mammals were sampled using pitfall traps, Sherman live traps, snap traps, mist nets, and visual observations. Sampling efforts were not uniform across community types.

Geographic Information System (GIS) and Maps

The location of the rare plants and animals, delineation of community types, sample points and associated species were initially located on enlarged U.S.G.S. topographic maps. These points were then digitized into ArcInfo/ArcView GIS files from which report maps were generated. The ArcView files and associated data are provided in addition to the final report. This GIS layer should provide a useful tool in any planning efforts that require the information collected through this contract.

NATURAL COMMUNITIES

Upland Forest
Limestone Barren
Xeric Calcareous Cliff
Calcareous Fen
Piedmont/Mountain Bottomland Forest
Sand/Gravel/Mud Bar and Shore

Community Type: Upland Forest
(including Dry Calcareous Forest/Woodland,
Chestnut Oak, and Mesic Calcareous Forest)

Acreage: Acres (Hectares) Total: 957 (388) Main: 717 (291) New River: 240 (97)

Community Type Location Maps: Figure 1 and Figure 2

Rare Species Site Maps for Flora: Figure 3 and Figure 4

Rare Species Site Maps for Fauna: N/A

Sample Site Maps for Fauna: Figures 7 through 16

Rare and Unique Species & Communities					
SCIENTIFIC NAME	COMMON NAME	GLOBAL RANK	STATE RANK	FEDERAL STATUS	STATE STATUS
<u>Community Type</u>					
N/A	Xeric Calcareous Cliff	N/A	N/A	N/A	N/A
<u>Plants</u>					
<i>Blephilia hirsuta</i>	Hairy woodmint	G5?	S3	N/A	Watchlist
<i>Carex hirtifolia</i>	Pubescent sedge	G5	S3	N/A	Watchlist
<i>Cystopteris tennesseensis</i>	Tennessee bladderfern	G5	S1	N/A	Rare List
<i>Hydrastis canadensis</i>	Golden-seal	G4	S3	N/A	Watchlist
<i>Juglans cinerea</i>	Butternut	G4	S3?	N/A	Watchlist
<i>Panax quinquefolius</i>	American ginseng	G4	S4	N/A	Watchlist
<i>Rhamnus lanceolata</i>	Lance-leaved buckthorn	G4G5T?	S3	N/A	Watchlist

COMMUNITY DESCRIPTIONS

Three distinct vegetative communities are combined under the Upland Forest Community due to the great similarities and overlap in fauna. Each community type is described below including the associated rare and unique flora. However, the general species lists are combined into one list at the end of this section.

Dry Calcareous Forest/Woodland

This community occurs both at the New River and Main facilities on steep to moderate slopes underlain by limestone. Low outcrops may be frequent and scree or loose rocks of variable size are usually scattered over the surface. Slopes are dry due to shallow rocky soils and either solar heating or wind on SE-W aspects. The forest canopy is relatively low and may be thin in rockier sites. The forest is characterized by the presence of *Quercus muhlenbergii*, Chinquapin Oak, usually mixed with (but sometimes

replaced by) an assemblage of non-oak hardwoods such as *Celtis occidentalis*, *Ulmus rubra*, *Acer saccharum/nigrum*, *Carya* spp., and *Fraxinus americana*. The subcanopy is usually thin and composed of *Ostrya virginiana*, *Cercis canadensis*, *Cornus florida*, and saplings of canopy trees. A variant of this community with *Quercus rubra* co-dominant in the overstory and *Hamamelis virginiana* in the subcanopy occurs along the SW-facing slope above the railroad north from Pepper. Herb cover and diversity is typically considerable in this community type, but herbs are sparse at the Pepper locality probably as an artifact of logging history in which an even-aged and relatively young canopy has created more shady conditions less favorable to herbs. Characteristic herbs in this community type are *Bromus pubescens*, *Festuca subverticillata*, *Muhlenbergia sobolifera*, *Sphenopholis nitida*, *Carex digitalis*, *Carex laxiflora*, *Carex platyphylla*, *Allium cernuum*, *Hypoxis hirsuta*, *Aquilegia canadensis*, *Cimicifuga racemosa*, *Taenidia integerrima*, *Asclepias quadrifolia*, *Scutellaria nervosa*, *Galium circaezans*, *Houstonia longifolia*, *Erigeron pulchellus*, and *Senecio obovatus*.

Rare species: *Cystopteris tennesseensis*
Juglans cinerea
Rhamnus lanceolata

This community is relatively free of invasive exotics in most situations. *Lonicera maackii* and *Ailanthus altissima* are the two species most often encountered with *Berberis thunbergii* less frequently so.

Mesic Calcareous Forest (also called Rich Cove/Mesic Slope Forest)

Mesic calcareous forest occurs over limestone and is often transitional to dry calcareous forest/woodland. It occupies upland flats, lower slopes, ravines, karst areas, and slopes of various aspects where moisture conditions are moderate. Soils are better developed and support a diverse assemblage of herbaceous species. At the Arsenal, this community is interspersed with dry calcareous forest/woodland with which it is mapped as a single unit. Compared with the dry calcareous forest/woodland, mesic calcareous forest is recognized in the field by its shadier conditions and higher canopy with more of a mixture of hardwoods. Rocks and outcropping may or may not be present. Except for local dominance by spicebush (*Lindera benzoin*), the shrub layer is usually sparse or absent unless invasive exotic species are present. Although many hardwood species are shared between these two communities, the composition shifts. Drought tolerant species such as *Quercus muhlenbergii* and *Carya* ssp. become less frequent whereas *Acer saccharum* increases along with *Juglans nigra*, *Liriodendron tulipifera*, *Tilia americana*, *Aesculus* sp., and *Prunus serotina*. The herb layer is diverse, especially in spring. Characteristic species include *Deparia acrostichoides*, *Diplazium pycnocarpon*, *Poa sylvestris*, *Carex blanda*, *Carex communis*, *Carex copulata*, *Carex hitchcockiana*, *Carex oligocarpa*, *Arisaema triphyllum*, *Disporum*, *Smilacina racemosa*, *Trillium grandiflorum*, *Delphinium tricornis*, *Caulophyllum thalictroides*, *Jeffersonia diphylla*, *Sedum ternatum*, *Hackelia virginiana*, *Senecio aureus*.

Rare species: *Carex hirtifolia*
Hydrastis canadensis
Panax quinquefolius
Blephilia hirsuta

Note: Numerous sites are transitional between the more mesic community described above and the dry calcareous forest/woodland. In addition, aerial photos reveal the forest was timbered in the 1930's and therefore, has not yet reached a climax community. This disturbance also allowed invasion by exotic species such as *Poa trivialis*, *Microstegium vimineum*, *Ornithogalum umbellatum*, *Berberis thunbergii*, *Cardamine hirsuta*, and *Duchesnea indica*, which are prevalent in many areas.

Chestnut Oak Forest (Scarlet Oak Variant)

This community type occupies only small portions of the Main facility where the underlying bedrock is in the Price Formation. The rock types are shales and thin-bedded sandstones. The soil is, therefore, more acidic than that derived on limestone formations which underlie the rest of the two sites. Despite this fact, in ravines and on northerly slopes, more mesic forests develop. Chestnut Oak Forest occurs on ridgetops, upper slopes, and lower down on SE-SW slopes. The sites are well drained and site quality is poor. The forest is characterized by having mixed oaks and pines, scattered heaths, and very sparse herb cover. The ground layer is predominantly woody with low ericaceous shrubs or tree seedlings. Chestnut oak (*Quercus prinus*) and scarlet oak (*Q. coccinea*) dominate the overstory with the following species being frequent: *Quercus alba*, *Q. velutina*, and pines (*Pinus strobus*, *P. virginiana*, and *P. pungens*). Other frequent tree species are *Nyssa sylvatica* and *Acer rubrum* in the overstory and *Amelanchier arborea*, *Cornus florida*, and *Oxydendron arboreum* in the subcanopy. The shrub layer is principally comprised of *Vaccinium pallidum*, *V. stamineum*, and *Gaylussacia baccata*. This community is positionally at the very edge of the Price Formation and is transitional to more mesic forest types adjacent to it. The herb-poor feature of the community may be due in part to the dense shade produced by hardwood resprouting following recent timbering of the forest. A few characteristic herbs are *Carex pensylvanica*, *C. digitalis*, *Cypripedium acaule*, *Polygala pauciflora*, and *Monotropa hypopithys*.

Rare species: None

Note: Ericaceous shrubs occur occasionally in small patches in other community types where the soil is rocky and acidic due to either chert or tertiary gravels at or near the surface. These sites, nevertheless, support a more mesic assemblage of species than would be found in the Chestnut Oak Community.

RARE SPECIES & COMMUNITY ACCOUNTS

Xeric Calcareous Cliff: This is a unique natural community that is addressed separately in this report. This community type is recognized under the Oak-Hickory Forest community because it is surrounded by forest habitat and management in this area may affect the cliff. Specific

management recommendations for the xeric calcareous cliff and surrounding area are made under the community type, Xeric Calcareous Cliff (page 21).

Hairy Woodmint (*Blephilia hirsuta*): Hairy woodmint was found at both the Main and New River facilities with the species being almost weedy in mesic successional woodland. Many hundreds of plants occur in sinkholes and ravines just north of the residential area at the Main facility. The species was heavily browsed by deer to the point that a concerted effort had to be made to find flowering plants where the species had been seen in great abundance earlier in the season. At the New River facility, a much smaller population was found in successional, grazed woodland in Hazel Hollow.

Pubescent Sedge (*Carex hirtifolia*): Pubescent sedge was found only at the Main facility. Two populations, relatively close together, occur in karst topography in the Mesic Calcareous Forest natural community. It occurs on gentle slopes and flats where rich colluvium supports a grass/sedge-dominated spring flora in mixed open hardwoods with scattered spicebush. Numerous plants occur in each population.

Tennessee Bladderfern (*Cystopteris tennesseensis*): This species was known previously only from two small populations in Montgomery County. It is not surprising, then, that the Tennessee bladderfern should be found at the Main facility. What is surprising is its great abundance. Literally thousands of plants were found in crevices and pockets of limestone outcrops (rarely also on tree bases nearby) scattered along the S-SE facing bluff of New River from just W of the Burning Ground for about 2.25 km upstream. Rocks in this section have numerous small solution holes which are favored sites. Interestingly, *Cystopteris bulbifera*, the common bulblet fern, seems to be absent from this same area.

Goldenseal (*Hydrastis canadensis*): Goldenseal was found only at the Main facility at one location in a Mesic Calcareous Forest community. The site was fairly recently timbered and is now in a shady, briery, successional stage. The small population contains a few dozen small plants.

Butternut (*Juglans cinerea*): Butternut is not a rare species but is maintained on the list because disease is apparently causing its decline. A single medium sized tree was found at the Main facility in Mesic Calcareous Forest at the toe of a S-facing river bluff. Although noted only once, the species occurs with some regularity in dry to mesic calcareous forests and probably occurs at other places at the Arsenal as well.

Ginseng (*Panax quinquefolius*): Ginseng was found only at the New River facility in Mesic Calcareous Forest in Hazel Hollow. This wide-ranging species is maintained on the rare plant list due chiefly to pressures on the species from collecting because of its value as a medicinal herb. It typically occurs in rich deciduous forest. The precise location of this species was not recorded, inadvertently, hence its location is not mapped.

Lance-leaved Buckthorn (*Rhamnus lanceolatas*): Lance-leaved buckthorn was found only at one place at the Main facility. A single, heavily browsed stem only about two

decimeters high, is all that was seen. This species was seen on a small, NW-facing dry calcareous woodland near the water tower above the road to Gate 4. Good habitat is available at both facilities for this characteristically local species.

MANAGEMENT RECOMMENDATIONS

General Recommendations

With the existing diversity of habitat types at the Arsenal, active management for Upland Forests should be limited to allow the forests to mature. There is sufficient habitat in grassland and early successional forests that creation of these habitats within the upland forests is unnecessary. Allowing the forests to mature will naturally create habitat features (snags, small openings, cavity trees, down logs, etc.) over time that will benefit a variety of wildlife.

A management alternative that can be applied is the creation of “soft edges” in areas where forests adjoin grasslands. To create a soft edge, a 60 to 100 foot buffer should be established. Within the first 30 to 50 feet of the edge, 75% of the trees should be removed. Within the next 30 to 50 feet, 50% of the trees should be removed to provide a soft succession from grassland to forest. This will allow a continuum of succession between open field and forest that provides cover, herbaceous and woody forage, and nesting habitat for edge species. Of concern in the “soft edges” will be the invasion of exotic species such as multiflora rose, barberry, and autumn olive. Manual removal of exotics and the planting of native shrubs is recommended.

Rare Species and Community Recommendations

Hairy Woodmint (*Blephilia hirsuta*): The hairy woodmint is a species of deep woods or mesic successional woodlands. This species needs a canopy cover and deep, humus-rich soil. The general recommendation of allowing the forest to mature will provide sufficient habitat for this species.

Pubescent Sedge (*Carex hirtifolia*): This sedge prefers open forests with well drained, loose or humus-rich soil. Mature hardwoods with an open understory are preferred. The general recommendation of allowing the forest to mature will provide sufficient habitat for this species.

Tennessee Bladderfern (*Cystopteris tennesseensis*): The large expanse of this population indicates that it is self maintaining at the Main facility. Again, this is a species that prefers a mature hardwood forest with open canopy. The general recommendation of allowing the forest to mature will provide sufficient habitat for this species.

Goldenseal (*Hydrastis canadensis*): Hydrastis typically grows in mesic mixed hardwood forests. Allowing forest succession to advance and develop a mature canopy is the best management for this species.

Butternut (*Juglans cinerea*): The threat to this species is a fungal pathogen and not management induced as far as we know. Because of this, the only recommendation is to maintain forest cover in areas where it occurs.

Ginseng (*Panax quinquefolius*): This is a species associated with mature forests. Maintenance of mature forests should allow this plant to persist.

Lance-leaved Buckthorn (*Rhamnus lanceolatas*): Browsing and/or grazing is the main pressure on this species at present. Caging of the existing plants could be beneficial in allowing them to mature. Because this species root-sprouts readily, caging should extend well beyond the existing above ground shoots. This plant is largely dioecious so recruitment of additional plants for cross pollination is recommended.

TAXA LISTS

PLANTS

Family	Scientific Name	Common Name
Aceraceae	<i>Acer rubrum</i>	red maple
Aceraceae	<i>Acer saccharum/nigrum</i>	sugar maple
Amaryllidaceae	<i>Hypoxis hirsuta</i>	common goldstargrass
Apiaceae	<i>Taenidia integerrima</i>	yellow pimpernel
Araceae	<i>Arisaema triphyllum</i>	jack-in-the-pulpit
Araliaceae	<i>Panax quinquefolius</i>	ginseng
Asclepiadaceae	<i>Asclepias quadrifolia</i>	four-leaved milkweed
Asteraceae	<i>Erigeron pulchellus</i>	Robin's plantain
Asteraceae	<i>Senecio aureus</i>	golden ragwort
Asteraceae	<i>Senecio obovatus</i>	squaw-weed
Berberidaceae	<i>Berberis thunbergii</i>	Japanese barberry
Berberidaceae	<i>Caulophyllum thalictroides</i>	blue cohosh
Berberidaceae	<i>Jeffersonia diphylla</i>	twinleaf
Betulaceae	<i>Ostrya virginiana</i>	hop hornbeam
Boraginaceae	<i>Hackelia virginiana</i>	beggar's-lice
Brassicaceae	<i>Cardamine hirsuta</i>	hairy bittercress
Caprifoliaceae	<i>Lonicera maackii</i>	honeysuckle
Cornaceae	<i>Cornus florida</i>	flowering dogwood
Cornaceae	<i>Nyssa sylvatica</i>	black gum
Crassulaceae	<i>Sedum ternatum</i>	wild stonecrop
Cyperaceae	<i>Carex blanda</i>	woodland sedge
Cyperaceae	<i>Carex communis</i>	fibrous-root sedge
Cyperaceae	<i>Carex copulata</i>	coupled sedge
Cyperaceae	<i>Carex digitalis</i>	slender wood sedge
Cyperaceae	<i>Carex hirtifolia</i>	pubescent sedge
Cyperaceae	<i>Carex hitchcockiana</i>	Hitchcock's sedge
Cyperaceae	<i>Carex laxiflora</i>	loose-flowered sedge
Cyperaceae	<i>Carex oligocarpa</i>	eastern few-fruit sedge
Cyperaceae	<i>Carex pensylvanica</i>	Pennsylvania sedge
Cyperaceae	<i>Carex platyphylla</i>	broad-leaved sedge
Dryopteridaceae	<i>Cystopteris tennesseensis</i>	Tennessee bladderfern
Dryopteridaceae	<i>Deparia acrostichoides</i>	silver spleenwort
Dryopteridaceae	<i>Diplazium pycnocarpon</i>	glade fern
Ericaceae	<i>Gaylussacia baccata</i>	black huckleberry
Ericaceae	<i>Monotropa hypopithys</i>	pinetop
Ericaceae	<i>Oxydendron arboreum</i>	sourwood
Ericaceae	<i>Vaccinium pallidum</i>	upland low blueberry
Ericaceae	<i>Vaccinium stamineum</i>	squaw huckleberry
Fabaceae	<i>Cercis canadensis</i>	redbud
Fagaceae	<i>Quercus alba</i>	white oak

Fagaceae	<i>Quercus coccinea</i>	scarlet oak
Fagaceae	<i>Quercus muhlenbergii</i>	chinquapin oak
Fagaceae	<i>Quercus prinus</i>	chestnut oak
Fagaceae	<i>Quercus rubra</i>	red oak
Fagaceae	<i>Quercus velutina</i>	black oak
Hamamelidaceae	<i>Hamamelis virginiana</i>	witch hazel
Juglandaceae	<i>Juglans cinerea</i>	butternut
Juglandaceae	<i>Juglans nigra</i>	black walnut
Lamiaceae	<i>Blephilia hirsuta</i>	hairy woodmint
Lamiaceae	<i>Scutellaria nervosa</i>	veined skullcap
Lauraceae	<i>Lindera benzoin</i>	spicebush
Liliaceae	<i>Allium cernuum</i>	wild onion
Liliaceae	<i>Disporum lanuginosum</i>	yellow mandarin
Liliaceae	<i>Smilacina racemosa</i>	false solomon's seal
Liliaceae	<i>Trillium grandiflorum</i>	large flowered trillium
Liliaceae	<i>Ornithogalum umbellatum</i>	star of bethlehem
Magnoliaceae	<i>Lireodendron tulipifera</i>	tulip tree
Oleaceae	<i>Fraxinus americana</i>	white ash
Orchidaceae	<i>Cypripedium acaule</i>	pink lady's slipper
Pinaceae	<i>Pinus pungens</i>	tablemountain pine
Pinaceae	<i>Pinus strobus</i>	white pine
Pinaceae	<i>Pinus virginiana</i>	Virginia pine
Poaceae	<i>Bromus pubescens</i>	common eastern brome sedge
Poaceae	<i>Festuca subverticillata</i>	nodding fescue
Poaceae	<i>Microstegium vimineum</i>	eulalia
Poaceae	<i>Muhlenbergia sobolifera</i>	cliff muhly
Poaceae	<i>Poa sylvestris</i>	woodland bluegrass
Poaceae	<i>Poa trivialis</i>	rough bluegrass
Poaceae	<i>Sphenopholis nitida</i>	shiny wedge grass
Polygalaceae	<i>Polygala pauciflora</i>	flowering wintergreen
Ranunculaceae	<i>Aquilegia canadensis</i>	wild columbine
Ranunculaceae	<i>Cimicifuga racemosa</i>	black snakeroot
Ranunculaceae	<i>Delphinium tricorne</i>	dwarf larkspur
Ranunculaceae	<i>Hydrastis canadensis</i>	goldenseal
Rhamnaceae	<i>Rhamnus lanceolata</i>	lance-leaved buckthorn
Rosaceae	<i>Amelanchier arborea</i>	common serviceberry
Rosaceae	<i>Duchesnea indica</i>	Indian strawberry
Rosaceae	<i>Prunus serotina</i>	black cherry
Rubiacea	<i>Galium circaezans</i>	wild liquorice
Rubiacea	<i>Houstonia longifolia</i>	long-leaved summer bluets
Simarubaceae	<i>Ailanthus altissima</i>	tree of heaven
Tiliaceae	<i>Tilia americana</i>	basswood
Ulmaceae	<i>Celtis occidentalis</i>	hackberry
Ulmaceae	<i>Ulmus rubra</i>	slippery elm

INVERTEBRATES

Class: Arachnida

Order: Araneae

Family	Scientific Name	Common Name
Agelenidae	<i>Cicurina pallida</i>	
Agelenidae	<i>Cryphoea montana</i>	
Agelenidae	<i>Cybaeus sp.</i>	
Agelenidae	<i>sp.</i>	
Agelenidae	<i>Wadotes bimucronatus</i>	
Agelenidae	<i>Wadotes calcaratus</i>	
Agelenidae	<i>Wadotes hybridus</i>	
Agelenidae	<i>Wadotes sp</i>	
Anyphaenidae	<i>Anyphaena fraterna</i>	
Anyphaenidae	<i>Anyphaena celer</i>	
Araneidae	<i>Araneus sp.</i>	
Araneidae	<i>Araneus marmoreus</i>	
Araneidae	<i>Meta menardi</i>	
Araneidae	<i>Micrathena gracilis</i>	
Araneidae	<i>Micrathena mitrata</i>	
Araneidae	<i>Neoscona pratensis</i>	
Araneidae	<i>Verrucosa arenata</i>	
Clubionidae	<i>Agroeca minuta</i>	
Clubionidae	<i>Castianeira cingulata</i>	
Clubionidae	<i>Castianeira sp.</i>	
Clubionidae	<i>Castianeira variata</i>	
Clubionidae	<i>Clubiona excepta</i>	
Dysderidae	<i>Dysdera crocata</i>	
Gnaphosidae	<i>Callilepis pluto</i>	
Gnaphosidae	<i>Cesonia bilineata</i>	
Gnaphosidae	<i>Drassyllus novus</i>	
Gnaphosidae	<i>Haplodrassus sp.</i>	
Gnaphosidae	<i>Litopyllus temporarius</i>	
Hahniidae	<i>Neoantistae agilis</i>	
Leptonetidae	<i>Leptoneta sp.</i>	
Linyphiidae	<i>Tapinopa bilineata</i>	
Lycosidae	<i>Allocosa funerea</i>	
Lycosidae	<i>Arctosa virgo</i>	
Lycosidae	<i>Gladicosa gulosa</i>	
Lycosidae	<i>Pirata montanus</i>	
Lycosidae	<i>Pirata sedentarius</i>	
Lycosidae	<i>Schizocosa ocreata</i>	
Philodromidae	<i>Philodromus marxi</i>	
Philodromidae	<i>Philodromus exilis</i>	

Salticidae	<i>Neon nellii</i>	
Salticidae	<i>Zygoballus nervosus</i>	
Theridiidae	<i>Achaearana rupicola</i>	
Theridiidae	<i>Achaearana tepidarium</i>	
Theridiidae	<i>Dipoena nigra</i>	
Theridiidae	<i>sp.</i>	
Theridiidae	<i>Theridion albidum</i>	
Thomisidae	<i>Tmarus angulatus</i>	
Thomisidae	<i>Xysticus ferox</i>	

Class: Brachiopoda
Order: Cladocera

Specimen not identified beyond Order.

Class: Chilopoda
Order: Scolopendromorpha

Family	Scientific Name	Common Name
Cryptopidae	<i>Scolocryptops sexspinosus</i>	Centipede

Class: Diplopoda
Order: Polydesmida

Family	Scientific Name	Common Name
Xystodesmidae	<i>Gyalostethus monticolens</i>	Millipede
Xystodesmidae	<i>Nannaria ericacea</i>	Millipede

Class: Insecta
Order: Coleoptera

Family	Scientific Name	Common Name
Carabidae	<i>Agonum sp.</i>	ground beetle
Carabidae	<i>Amphasia interstitialis</i>	ground beetle
Carabidae	<i>Chlaenius aestivus</i>	ground beetle
Carabidae	<i>Chlaenius impunctifrons</i>	ground beetle
Carabidae	<i>Dicaelus elongatus</i>	ground beetle
Carabidae	<i>Dicaelus teter</i>	ground beetle
Carabidae	<i>Lebia analis</i>	ground beetle
Carabidae	<i>Lebia atriventris</i>	ground beetle
Carabidae	<i>Lebia fuscata</i>	ground beetle
Carabidae	<i>Lebia solea</i>	ground beetle
Carabidae	<i>Poecilus sp.</i>	ground beetle
Carabidae	<i>Pseudauphasia senicea</i>	ground beetle
Carabidae	<i>Pterostichus sp.</i>	ground beetle

Carabidae	<i>Steriolophus comma</i>	ground beetle
Lampyridae	<i>sp.</i>	firefly
Scarabaeidae	<i>Geotropes opacus</i>	scarab beetle
Scarabaeidae	<i>Phyllophaga sp.</i>	scarab beetle
Staphylinidae	<i>Geodromicus brunneus</i>	rove beetle
Staphylinidae	<i>Platydraeus sp.</i>	rove beetle

Class: Insecta
Order: Diptera

Family	Scientific Name	Common Name
Cecidomyiidae	<i>sp.</i>	gall gnat
Culicidae	<i>sp.</i>	mosquito
Ptychopteridae	<i>sp.</i>	phantom crane fly
Tachinidae	<i>sp.</i>	tachinid fly

Class: Insecta
Order: Heteroptera

Family	Scientific Name	Common Name
Lygalidae	<i>Myodocha serripes</i>	seed bug
Lygalidae	<i>Xestocoris nitens</i>	seed bug
Pentatomidae	<i>Acrosternum hilare</i>	stink bug
Pentatomidae	<i>Dendrocoris humeralis</i>	stink bug

Class: Insecta
Order: Hymenoptera

Family	Scientific Name	Common Name
Apidae	<i>sp.</i>	apidid bee
Formicidae	<i>Stenamma meridionale</i>	myrmicinae (ant)
Tenthredinidae	<i>sp.</i>	common sawfly

Class: Insecta
Order: Lepidoptera

Family	Scientific Name	Common Name
Arctiidae	<i>Halysidota tessellaris</i>	banded tussock moth
Arctiidae	<i>Haploa lecontei</i>	Leconte's haploa
Arctiidae	<i>Holomelina aurantiaca</i>	orange holomelina
Arctiidae	<i>Holomelina opella</i>	tawny holomelina
Arctiidae	<i>Holomelina sp.</i>	holomelina
Arctiidae	<i>Pyrrharctia isabella</i>	isabella tiger moth
Arctiidae	<i>Spilisoma virginica</i>	Virginian tiger moth
Geometridae	<i>Eulithis diversilineata</i>	lesser grapevine looper moth

Geometridae	<i>Nacophora quernaria</i>	oak beauty
Hesperiidae	<i>Epargyreus clarus</i>	silver-spotted skipper
Hesperiidae	<i>Erynnis baptisiae</i>	wild indigo duskywing
Hesperiidae	<i>Erynnis brizo</i>	sleepy duskywing
Hesperiidae	<i>Erynnis icelus</i>	dreamy duskywing
Hesperiidae	<i>Erynnis juvenalis</i>	Juvena's duskywing
Lasiocampidae	<i>Malacosoma disstria</i>	forest tent caterpillar moth
Lycaenidae	<i>Callophrys henrici</i>	Henry's elfin
Lycaenidae	<i>Celastrina l. ladon "neglecta"</i>	summer azure
Lycaenidae	<i>Celastrina l. ladon "violacea"</i>	spring azure
Lycaenidae	<i>Celastrina neglectamajor</i>	Appalachian azure
Lycaenidae	<i>Everes comyntas</i>	eastern tailed blue
Lycaenidae	<i>Satyrrium calanus</i>	banded hairstreak
Lycaenidae	<i>Satyrrium titus</i>	coral hairstreak
Noctuidae	<i>Abargrotis alternata</i>	greater red dart
Noctuidae	<i>Acronicta americana</i>	American dagger moth
Noctuidae	<i>Acronicta inclara</i>	unclear dagger moth
Noctuidae	<i>Acronicta sp.</i>	dagger moth
Noctuidae	<i>Anagrapha falcifera</i>	celery looper moth
Noctuidae	<i>Caenurgina erechtea</i>	forage looper moth
Noctuidae	<i>Cerma cerintha</i>	tufted bird-dropping moth
Noctuidae	<i>Leucania sp.</i>	wainscot sp.
Noctuidae	<i>Lithacodia carneola</i>	pink-barred lithacodia
Noctuidae	<i>Xestia dolosa</i>	greater black-letter dart
Notodontidae	<i>Nadata gibbosa</i>	white-dotted prominent
Notodontidae	<i>Symmerista albifrons</i>	white-headed prominent
Nymphalidae	<i>Cercyonis pegala</i>	common wood nymph
Nymphalidae	<i>Danaus plexippus</i>	monarch
Nymphalidae	<i>Limenitis arthemis astyanax</i>	red-spotted purple
Nymphalidae	<i>Megisto cymela</i>	little wood satyr
Nymphalidae	<i>Nymphalis antiopa</i>	mourning cloak
Nymphalidae	<i>Phyciodes tharos</i>	pearl crescent
Nymphalidae	<i>Polygonia comma</i>	eastern comma
Nymphalidae	<i>Polygonia interrogationis</i>	question mark
Nymphalidae	<i>Speyeria aphrodite</i>	aphrodite fritillary
Nymphalidae	<i>Speyeria cybele</i>	great spangled fritillary
Papilionidae	<i>Battus philenor</i>	pipevine swallowtail
Papilionidae	<i>Papilio glaucus</i>	eastern tiger swallowtail
Pieridae	<i>Anthocharis midea</i>	falcate orangetip
Pieridae	<i>Colias eurytheme</i>	orange sulfur
Pieridae	<i>Colias philodice</i>	clouded sulfur
Pieridae	<i>Pieris rapae</i>	cabbage white
Saturniidae	<i>Anisota stigma</i>	spiny oakworm moth
Saturniidae	<i>Drycampa rubicunda</i>	rosy maple moth

Class: Insecta
Order: Neuroptera

Family	Scientific Name	Common Name
Corydalidae	<i>Chauliodes sp.</i>	dobsonfly
Corydalidae	<i>Neohermis sp.</i>	dobsonfly
Corydalidae	<i>sp.</i>	dobsonfly
Sialidae	<i>sp.</i>	alderfly

Class: Insecta
Order: Odonata

Family	Scientific Name	Common Name
Gomphidae	<i>Ophiogomphus rupinsulensis</i>	rusty snaketail
Libellulidae	<i>Sympetrum vicinum</i>	yellow-legged meadowhawk

Class: Insecta
Order: Psocoptera

Specimen not identified beyond Order.

Class: Insecta
Order: Thysanura

Family	Scientific Name	Common Name
Machilidae	<i>Machilis sp.</i>	bristletail

Class: Malacostraca
Order: Isopoda

Family	Scientific Name	Common Name
Trichoniscidae	<i>Hyloniscus sp.</i>	pill bug

FISH

Family	Scientific Name	Common Name
Catostomidae	<i>Catostomus commersoni</i>	white sucker
Centrarchidae	<i>Micropterus dolomieu</i>	smallmouth bass
Cyprinidae	<i>Camptostoma anomalum</i>	central stoneroller
Cyprinidae	<i>Climostomus funduloides</i>	rosyside dace
Cyprinidae	<i>Luxilus albeolus</i>	white shiner
Cyprinidae	<i>Nocomis leptcephalus</i>	bluehead chub
Cyprinidae	<i>Notropis telescopus</i>	telescope shiner
Cyprinidae	<i>Phoxinus oreas</i>	mountain redbelly dace

Cyprinidae	<i>Rhinichthys atratulus</i>	blacknose dace
Ictaluridae	<i>Noturus insignis</i>	marginated madtom
Percidae	<i>Etheostoma flabellare</i>	fantail darter

REPTILES AND AMPHIBIANS

Family	Scientific Name	Common Name
Ambystomatidae	<i>Ambystoma jeffersonianum</i>	Jefferson salamander
Ambystomatidae	<i>Ambystoma maculatum</i>	spotted salamander
Bufo	<i>Bufo americanus</i>	American toad
Bufo	<i>Bufo woodhousii</i>	Fowler's toad
Colubridae	<i>Coluber constrictor</i>	northern black racer
Colubridae	<i>Elaphe obsoleta</i>	black rat snake
Colubridae	<i>Thamnophis sirtalis</i>	eastern garter snake
Emydidae	<i>Terrapene carolina</i>	eastern box turtle
Hylidae	<i>Hyla versicolor</i>	gray treefrog
Hylidae	<i>Pseudacris crucifer</i>	spring peeper
Phrynosomatidae	<i>Sceloporus undulatus</i>	fence lizard
Plethodontidae	<i>Desmognathus fuscus</i>	northern dusky salamander
Plethodontidae	<i>Eurycea cirrigera</i>	southern two-lined salamander
Plethodontidae	<i>Plethodon cinereus</i>	redback salamander
Plethodontidae	<i>Plethodon glutinosus</i>	slimy salamander
Plethodontidae	<i>Plethodon wehrlei</i>	Wehrle's salamander
Ranidae	<i>Rana sylvatica</i>	wood frog
Salamandridae	<i>Notophthalmus viridescens</i>	red-spotted newt

BIRDS: Status code definitions; B = breeding, M = migrant, R = resident, U = undetermined, and W = winter.

Family	Scientific name	Species	Status
Accipitridae	<i>Accipiter striatus</i>	sharp-shinned hawk	B
Accipitridae	<i>Buteo jamaicensis</i>	red-tailed hawk	R
Alcedinidae	<i>Ceryle alcyon</i>	belted kingfisher	R
Bombycillidae	<i>Bombycilla cedrorum</i>	cedar waxwing	R
Cathartidae	<i>Cathartes aura</i>	turkey vulture	R
Cathartidae	<i>Coragyps atratus</i>	black vulture	R
Columbidae	<i>Zenaida macroura</i>	mourning dove	R
Corvidae	<i>Corvus brachyrhynchos</i>	American crow	R
Corvidae	<i>Corvus corax</i>	common raven	W
Corvidae	<i>Cyanocitta cristata</i>	blue jay	R
Emberizidae	<i>Agelaius phoeniceus</i>	red-winged blackbird	B
Emberizidae	<i>Cardinalis cardinalis</i>	northern cardinal	R
Emberizidae	<i>Dendroica coronata</i>	yellow-rumped warbler	W
Emberizidae	<i>Dendroica magnolia</i>	magnolia warbler	M
Emberizidae	<i>Dendroica petechia</i>	yellow warbler	B

Emberizidae	<i>Dendroica trichas</i>	common yellowthroat	B
Emberizidae	<i>Dendroica virens</i>	black-throated green warbler	B
Emberizidae	<i>Helmitheros vermivorus</i>	worm-eating warbler	B
Emberizidae	<i>Icterus galbula</i>	northern oriole	B
Emberizidae	<i>Junco hyemalis</i>	northern junco	W
Emberizidae	<i>Melospiza georgiana</i>	swamp sparrow	U
Emberizidae	<i>Melospiza melodia</i>	song sparrow	R
Emberizidae	<i>Mniotilta varia</i>	black-and-white warbler	B
Emberizidae	<i>Molothrus ater</i>	brown-headed cowbird	B
Emberizidae	<i>Oporornis formosus</i>	Kentucky warbler	B
Emberizidae	<i>Parula americana</i>	northern parula	B
Emberizidae	<i>Passerina cyanea</i>	indigo bunting	B
Emberizidae	<i>Pipilo erythrophthalmus</i>	eastern towhee	B
Emberizidae	<i>Piranga olivacea</i>	scarlet tanager	B
Emberizidae	<i>Seiurus aurocapillus</i>	ovenbird	B
Emberizidae	<i>Seiurus motacilla</i>	Louisiana waterthrush	B
Emberizidae	<i>Setophaga ruticilla</i>	American redstart	B
Emberizidae	<i>Spizella passerina</i>	chipping sparrow	B
Emberizidae	<i>Spizella pusilla</i>	field sparrow	B
Emberizidae	<i>Zonotrichia albicollis</i>	white-throated sparrow	W
Fringillidae	<i>Carduelis tristis</i>	American goldfinch	R
Fringillidae	<i>Carpodacus purpureus</i>	purple finch	W
Hirundinidae	<i>Progne subis</i>	purple martin	B
Muscicapidae	<i>Catharus guttatus</i>	hermit thrush	M
Muscicapidae	<i>Hylocichla mustelina</i>	wood thrush	B
Muscicapidae	<i>Poliophtila caerulea</i>	blue-gray gnatcatcher	B
Muscicapidae	<i>Regulus satrapa</i>	golden-crowned kinglet	W
Muscicapidae	<i>Sialia sialis</i>	eastern bluebird	R
Muscicapidae	<i>Turdus migratorius</i>	American robin	R, M
Paridae	<i>Parus atricapillus</i>	black-capped chickadee	W
Paridae	<i>Parus bicolor</i>	tufted titmouse	R
Paridae	<i>Parus carolinensis</i>	carolina chickadee	R
Phasianidae	<i>Bonasa umbellus</i>	ruffed grouse	R
Phasianidae	<i>Meleagris gallopavo</i>	wild turkey	R
Picidae	<i>Colaptes auratus</i>	northern flicker	R
Picidae	<i>Dryocopus pileatus</i>	pileated woodpecker	R
Picidae	<i>Melanerpes carolinus</i>	red-bellied woodpecker	R
Picidae	<i>Picoides pubescens</i>	downy woodpecker	R
Picidae	<i>Picoides villosus</i>	hairy woodpecker	R
Picidae	<i>Sphyrapicus varius</i>	yellow-bellied sapsucker	U
Sittidae	<i>Sitta canadensis</i>	red-breasted nuthatch	W
Sittidae	<i>Sitta carolinensis</i>	white-breasted nuthatch	B
Strigidae	<i>Bubo virginianus</i>	great horned owl	R
Strigidae	<i>Otus asio</i>	eastern screech owl	R
Strigidae	<i>Strix varia</i>	barred owl	R

Sturnidae	<i>Sturnus vulgaris</i>	European starling	R
Troglodytidae	<i>Thryothorus ludovicianus</i>	carolina wren	B
Troglodytidae	<i>Troglodytes troglodytes</i>	winter wren	U
Tyrannidae	<i>Contopus virens</i>	eastern pewee	B
Tyrannidae	<i>Empidonax virescens</i>	acadian flycatcher	B
Tyrannidae	<i>Myiarchus crinitus</i>	great crested flycatcher	B
Tyrannidae	<i>Sayornis phoebe</i>	eastern phoebe	B
Tyrannidae	<i>Tyrannus tyrannus</i>	eastern kingbird	B
Vireonidae	<i>Vireo flavifrons</i>	yellow-throated vireo	B
Vireonidae	<i>Vireo gilvus</i>	warbling vireo	B
Vireonidae	<i>Vireo griseus</i>	white-eyed vireo	B
Vireonidae	<i>Vireo olivaceus</i>	red-eyed vireo	B

MAMMALS

Family	Scientific Name	Common Name
Cervidae	<i>Odocoileus virginianus</i>	white-tailed deer
Didelphidae	<i>Didelphis virginiana</i>	Virginia opossum
Dipodidae	<i>Zapus hudsonius</i>	meadow jumping mouse
Mephitidae	<i>Mephitis mephitis</i>	striped skunk
Muridae	<i>Microtis pennsylvanicus</i>	meadow vole
Muridae	<i>Microtis pinetorum</i>	woodland vole
Muridae	<i>Peromyscus leucopus</i>	white-footed mouse
Procyonidae	<i>Procyon lotor</i>	common raccoon
Sciuridae	<i>Marmota monax</i>	woodchuck
Sciuridae	<i>Sciurus carolinensis</i>	eastern gray squirrel
Sciuridae	<i>Sciurus niger</i>	eastern fox squirrel
Sciuridae	<i>Tamias striatus</i>	eastern chipmunk
Soricidae	<i>Blarina brevicauda</i>	northern short-tailed shrew
Soricidae	<i>Cryptotis parva</i>	least shrew
Soricidae	<i>Sorex fumeus</i>	smoky shrew
Talpidae	<i>Parascalops breweri</i>	hairy-tailed mole

Community Type: Limestone Barren

Acreage: Acres (Hectares) Total: 1.3 (0.5) Main: N/A New River: 1.3 (0.5)

Community Type Location Maps: Figure 2

Rare Species Site Maps for Flora: Figure 4

Rare Species Site Maps for Fauna: N/A

Sample Site Maps for Fauna: N/A

Rare and Unique Species & Communities					
SCIENTIFIC NAME	COMMON NAME	GLOBAL RANK	STATE RANK	FEDERAL STATUS	STATE STATUS
<u>Plants</u>					
<i>Carex meadii</i>	Mead's sedge	G4G5	S3	N/A	Watchlist
<i>Linum sulcatum</i>	Grooved yellow flax	G5T5	S3	N/A	Watchlist

COMMUNITY DESCRIPTION

This naturally open, grass-dominated community occurs at two places on the New River facility. Limestone underlies the community and weathers to a thin, gravelly soil, often barren in patches, with low scattered bedrock exposures often being present. It occurs on mid- and upper slopes with a southerly or westerly aspect. Typically this community develops in areas where bedrock is unusually high in magnesium (dolomitic), but whether or not this is the case at the Arsenal has not been determined. The openings are not completely open but rather have a scattering of red cedars, pines, and a few small hardwood trees or shrubs thus forming a mosaic of small openings interspersed among trees. Pines are the principal invaders and, due to fire suppression, threaten the continued existence of the community. Two features serve to distinguish this community from artificially open, grass-dominated sites that share many plant species. One feature is a greater diversity of species without any clear dominance of one or two species. The second is the presence of a number of rare species, which for whatever reason, haven't spread into the abundance of cleared pasturelands in the region. These species are testament to the presence of naturally open habitat prior to European settlement. Past history of these sites has complicated precise delineation of the community. The openings have been enhanced at both locations by the clearing of adjacent land that would previously have been transitional to forest. The effect is to create an abrupt border to adjacent forest thus giving the appearance of an old field to the entire area including the barren. Characteristic herbs include *Ophioglossum engelmannii*, *Andropogon gerardii*, *Bouteloua curtipendula*, *Muhlenbergia capillaris*, *Carex meadii*, *Linum sulcatum*, and *Scutellaria leonardii*. Invasive exotics are, for the most part, lacking. The

most frequent wide-ranging species are *Danthonia spicata*, *Panicum oligosanthos* var. *scribnerianum*, *Schizachyrium scoparium*, and *Tridens flavus*. Also frequent are *Carex hirsutella*, *Carex pensylvanica*, *Asclepias verticillata*, *Asclepias viridiflora*, *Aster undulatus*, *Kuhnia eupatorioides*, and *Solidago nemoralis*.

RARE SPECIES & COMMUNITY ACCOUNTS

Mead's Sedge (*Carex meadii*): Mead's sedge occurs only at the New River facility in or adjacent to the Limestone Barren natural communities. Two populations were found. One population occupied an area approximately 20 x 24 meters near the crest of a gentle South-facing slope. Only 2 fertile culms were present in the entire patch. Common associates were *Carex hirsutella*, *Carex umbellata*, and *Schizachyrium scoparium*. The second site is on a dry westerly slope in successional woodland where several subpopulations occur in proximity. This sedge occurs in dry or seasonally moist basic soils at scattered locations across Virginia. This is the first report of this species for the New River Valley. It is notable not only as a rare species, but also as an indicator of prairie or savanna-like conditions prior to European settlement.

Grooved Yellow Flax (*Linum sulcatum*): Grooved yellow flax was found only at the New River facility where it is restricted to the two Limestone Barren natural communities. The eastern site contains an estimated several dozen plants. This small annual species tends to occur in slightly eroded spots where space hasn't been preempted by perennial species. Only a few plants were noted at the western barren where cover is more uniform. This species is often considered a midwestern species, occurring locally in prairie-like habitats to the east.

MANAGEMENT RECOMMENDATIONS

General Recommendations

Limestone barrens are largely an edaphic climax community in which fire appears to play a significant role. However, fire frequency and intensity have not been fully researched, but it seems likely that an infrequent but hot fire is needed. Fuel loads probably accumulate rather slowly so it may take up to five years before a fire should be prescribed. To get back to the arrested succession stage, grazing animals should be removed so fuels can begin to accumulate. In addition, all the pines and some of the cedars within the barren should be cut and removed. Any large mature pines in immediately adjacent areas should be cut to prevent further seed dispersal in the barren. In this new condition, the barren may be restored and maintained by occasional fire.

Rare Species and Community Recommendations

Mead's Sedge (*Carex meadii*) and Grooved Yellow Flax (*Linum sulcatum*): Both of these plants are habitat dependent. Without the availability of barren-type habitat they probably won't persist. The general recommendations listed above should be sufficient to maintain these two rare plants.

TAXA LISTS

For a list of the animal taxa that may be associated with limestone barrens, see taxa lists under Early Successional community type.

PLANTS

Family	Scientific Name	Common Name
Asclepiadaceae	<i>Asclepias verticillata</i>	whorled milkweed
Asclepiadaceae	<i>Asclepias viridiflora</i>	green milkweed
Asteraceae	<i>Aster undulatus</i>	wavy-leaf aster
Asteraceae	<i>Kuhnia eupatorioides</i>	false boneset
Asteraceae	<i>Solidago nemoralis</i>	oldfield goldenrod
Cyperaceae	<i>Carex hirsutella</i>	hirsute sedge
Cyperaceae	<i>Carex meadii</i>	Mead's sedge
Cyperaceae	<i>Carex pensylvanica</i>	Pennsylvania sedge
Lamiaceae	<i>Scutellaria leonardii</i>	shale skullcap
Linaceae	<i>Linum sulcatum</i>	grooved yellow flax
Ophioglossaceae	<i>Ophioglossum engelmannii</i>	limestone adders-tongue
Poaceae	<i>Andropogon gerardii</i>	big bluestem
Poaceae	<i>Bouteloua curtipendula</i>	side-oats grama grass
Poaceae	<i>Danthonia spicata</i>	poverty oat-grass
Poaceae	<i>Muhlenbergia capillaris</i>	long-awn hairgrass
Poaceae	<i>Panicum oligosanthos</i> <i>var. scribnerianum</i>	Scribner's panic grass
Poaceae	<i>Schizachyrium scoparium</i>	little bluestem
Poaceae	<i>Tridens flavus</i>	redtop

Community Type: Xeric Calcareous Cliff

Acreage: Acres (Hectares) Total: 1.7 (0.7) Main: 1.7 (0.7) New River: N/A

Community Type Location Maps: Figure 1

Rare Species Site Maps for Flora: Figure 3

Rare Species Site Maps for Fauna: N/A

Sample Site Maps for Fauna: N/A

Rare and Unique Species & Communities					
SCIENTIFIC NAME	COMMON NAME	GLOBAL RANK	STATE RANK	FEDERAL STATUS	STATE STATUS
Plants					
<i>Clematis coactilis</i>	Virginia White-haired leatherflower	G2G3	S2S3	N/A	Rare List
<i>Pellaea glabella</i>	Smooth cliff-brake	G5T?	SU	N/A	Watchlist

COMMUNITY DESCRIPTION

This community type is found only at the Main facility where exposed limestone cliffs occur on steep south and west-facing bluffs of New River where erosion resistant strata outcrop to slope. Cliffs are generally on dry exposures high on the slope but may extend downslope diagonally following the bedding plane of the resistant rock strata. The community is distinguished by absence of a closed canopy, open exposures of bare rock, and plants being limited to crevices, ledges, soil pockets, and edges. Numerous other smaller cliffs occur under a forest canopy and are not included in this community due to their shaded and more mesic conditions. Scattered trees and shrubs (usually small) may occur around edges and in deeper crevices between outcrops. Typical woody species are *Quercus muhlenbergii*, *Fraxinus americana*, *Juniperus virginiana*, *Celtis occidentalis*, *Celtis tenuifolia*, *Cercis canadensis*, *Viburnum prunifolium*, *Toxicodendron radicans*, *Rhus aromatica*, and *Ostrya virginiana*. Characteristic herbaceous species are rock-loving heliophytes such as *Asplenium ruta-muraria*, *Pellaea glabella*, *Melica mutica*, *Muhlenbergia sobolifera*, *Carex eburnea*, *Aquilegia canadensis*, *Draba ramosissima*, *Sedum glaucophyllum*, *Aster oblongifolius*, and *Solidago sphacelata*.

Due to the open nature of the habitat and its being prone to disturbance from ice storms (tree fall and broken canopies), this habitat is often colonized by weedy native taxa in addition to exotics. Common examples are *Chenopodium album*, *Lepidium virginicum*, *Euphorbia nutans*, *Solanum ptycanthum*, *Bidens bipinnata*, and *Verbesina*

occidentalis. The most frequent invasive exotic species are *Marrubium vulgare*, *Nepeta cataria*, *Verbascum thapsus*, *Verbascum phlomoides*, *Lonicera maackii*, and *Carduus nutans*.

RARE SPECIES & COMMUNITY ACCOUNTS

Virginia White-haired Leatherflower (*Clematis coactilis*): This clematis is a Virginia endemic known from only 7 counties in the Ridge and Valley Province. It occurs at the Main facility near Pepper in the Dry Calcareous Forest/Woodland and Xeric Calcareous Cliff natural communities on the bluff above the railroad. A few plants occur on exposed ledges of the cliff, but many more occur over a larger area where low bedrock exposures support thin, dry, rocky woodland.

Smooth Cliffbrake (*Pellaea glabella*): Smooth cliffbrake was found at four places at the Main facility. Each population of only a few plants occurs on cliff faces, usually southerly facing and exposed to the sun. This species normally occurs in the most precipitous sites available. Undoubtedly, additional plants could be found with further exploration. *Pellaea glabella* occurs on quite a few other limestone cliffs along New River and was, therefore, expected at this Site.

MANAGEMENT RECOMMENDATIONS

General Recommendations

Due to the steep precipitous rocky slopes characterizing this community, we do not anticipate that disturbance will occur at these sites. Therefore, no management recommendations are prescribed for this site. The proximity of weed-dominated habitats such as railroad, roadsides, and open fields will, unfortunately, insure a continuous supply of seeds of exotic species for dispersal into this community.

Rare Species and Community Recommendations

Virginia White-haired Leatherflower (*Clematis coactilis*) and Smooth Cliffbrake (*Pellaea glabella*): Both plant species grow on rocks or in rocky soil and should persist as long as this habitat exist. Without disturbance, these sites and this community is self maintaining. No management recommendations are prescribed for these species.

TAXA LISTS

For a list of the animal taxa that may be associated with the xeric calcareous cliffs, see the taxa lists under the Upland Forest community type.

PLANTS

Family	Scientific Name	Common Name
Anacardiaceae	<i>Rhus aromatica</i>	fragrant sumac
Anacardiaceae	<i>Toxicodendron radicans</i>	poison ivy
Asteraceae	<i>Aster oblongifolius</i>	shale barren aster
Asteraceae	<i>Solidago sphacelata</i>	false goldenrod
Betulaceae	<i>Ostrya virginiana</i>	hop hornbeam
Brassicaceae	<i>Draba ramosissima</i>	rocktwist
Caprifoliaceae	<i>Viburnum prunifolium</i>	black haw
Crassulaceae	<i>Sedum glaucophyllum</i>	cliff stonecrop
Cupressaceae	<i>Juniperus virginiana</i>	red cedar
Cyperaceae	<i>Carex eburnea</i>	ebony sedge
Fabaceae	<i>Cercis canadensis</i>	redbud
Fagaceae	<i>Quercus muhlenbergii</i>	chinquapin oak
Oleaceae	<i>Fraxinus americana</i>	white ash
Poaceae	<i>Melica mutica</i>	two-flower melic
Poaceae	<i>Muhlenbergia sobolifera</i>	cliff muhly
Polypodiaceae	<i>Asplenium ruta-muraria</i>	rue spleenwort
Polypodiaceae	<i>Pellaea glabella</i>	smooth cliffbrake
Ranunculaceae	<i>Aquilegia canadensis</i>	wild columbine
Ulmaceae	<i>Celtis occidentalis</i>	hackberry
Ulmaceae	<i>Celtis tenuifolia</i>	dwarf hackberry

Community Type: Calcareous Fen

Acreage: Acres (Hectares) Total: 0.3 (0.1) Main: N/A New River: 0.3 (0.1)

Community Type Location Maps: Figure 2

Rare Species Site Maps for Flora: Figure 4

Rare Species Site Maps for Fauna: N/A

Sample Site Maps for Fauna: N/A

Rare and Unique Species & Communities

SCIENTIFIC NAME	COMMON NAME	GLOBAL RANK	STATE RANK	FEDERAL STATUS	STATE STATUS
<u>Plants</u>					
<i>Carex interior</i>	Inland sedge	G5	S1	N/A	Rare List
<i>Carex schweinitzii</i>	Schweinitz's sedge	G3	S1	N/A	Rare List
<i>Carex suberecta</i>	Prairie straw sedge	G4	S3	N/A	Watchlist
<i>Carex tetanica</i>	Rigid sedge	G4G5	S3	N/A	Watchlist
<i>Juncus brachycephalus</i>	Small-headed rush	G5	S2	N/A	Rare List

COMMUNITY DESCRIPTION

This community is known from only a single location at the New River facility. It is characterized by nearly flat topography, permanently to semi-permanently saturated soil fed by mineral rich water of relatively high pH. The site is slightly elevated from the adjacent stream thus protecting it from flooding and allowing drainage so that saturated conditions are maintained by continual replenishment by fresh groundwater. Vegetation is virtually completely herbaceous and strongly zonal depending on small variations in hydrology.

The flora is dominated by grasses, sedges, and rushes with an admixture of broad-leaved species. Characteristic species include several rare taxa as well as *Muhlenbergia sylvatica*, *Carex pellita*, *Carex stricta*, *Juncus dudleyi*, and *Rudbeckia fulgida*. The only invasive exotic noted was *Cirsium arvense* in areas transitional to meadow.

Note: Several other sites at the New River facility contain one or several of the species named above or others commonly associated with fens (*Liparis loeselii*, in particular), but these sites are too small and lack sufficient development to be considered fens in the community sense.

RARE SPECIES & COMMUNITY ACCOUNTS

Inland Sedge (*Carex interior*): This sedge was found only in the Calcareous Fen natural community at the New River facility. A scattering of plants occurs mixed with other sedges along rivulets and in a broad zone peripheral to the *Carex schweinitzii* patch. This occurrence in Pulaski County is one of only about 5 known populations in Virginia.

Schweinitz's Sedge (*Carex schweinitzii*): This sedge, so characteristic of intensely marly sites, was found only in the Calcareous Fen natural community at the New River facility. Here it occupies a single contiguous patch in the central wettest portion of the fen. Numerous fertile culms were observed at the site on June 18, 1997.

Prairie Straw Sedge (*Carex suberecta*): Prairie straw sedge is a species associated with fens and other alkaline wetland habitats. The species was found only at the New River facility at three locations. At the Calcareous Fen community, numerous plants co-occur with other prairie fen sedge species in the central portion of the wetland. The second population occurs in the small marsh area adjacent to Big Pond. The third population was comprised of scattered individuals along the small stream with *Spiranthes lucida*. A careful search of other streambanks at the New River facility would be likely to turn up additional locations for this species.

Rigid Sedge (*Carex tetanica*): This sedge occurs in a variety of open or shrubby, calcareous wetlands. It was found at the New River facility at the same locations as *Carex suberecta*. It too might be found elsewhere especially since it is often overlooked because of soon being overtopped by more robust species that typically occur with it.

Small-headed Rush (*Juncus brachycephalus*): This rush species was found at both facilities, one place at the Main facility and several at the New River facility. The Main facility population is in the shallows along the S shore of the manmade pond 2 kilometers NE of the Main Gate. At the New River facility, it occurs at the Calcareous Fen natural community, at Big Pond, and scattered along limy spring branches in several places. It prefers perennially wet ground with a fresh supply of highly alkaline water. It matures very late in the season and is difficult to identify until then, so there could be other populations that went undetected. Water with a high pH seems to be the critical factor for this species.

MANAGEMENT RECOMMENDATIONS

General Recommendations

The primary threat to this community type and associated species is hydrologic. Any factor that would unnaturally raise or lower the water table would be detrimental. The site is probably best managed in concert with the surrounding grassland community with woody vegetation being controlled by mowing. The fen, however, would need less frequent mowing and should be done only late in the season during dry years when the ground is firm. However, if woody plants are not invading, then mowing is unnecessary

since a dense thatch of herbaceous cover would naturally retard woody plant invasion. This community type in Virginia typically contains some shrubs and small trees, so some woody growth should not be viewed with alarm unless it threatens to close the community with a canopy cover. Currently, there are some shrub plantings that have been introduced and herbicide used around these plantings. It is recommended that these plantings be removed and that herbicide not be used in this area.

Rare Species and Community Recommendations

Inland Sedge (*Carex interior*), Schweinitz's Sedge (*Carex schweinitzii*), Prairie Straw Sedge (*Carex suberecta*), Rigid Sedge (*Carex tetanica*), and Small-headed Rush (*Juncus brachycephalus*): All of these species are habitat dependent with the primary factor being the need for a continuous supply of fresh groundwater and drainage such that stagnant conditions do not develop. These species are sun-loving and would benefit from management that maintains openness and reduces invasion of woody plants. The general recommendations made above will provide for the promotion of these species.

TAXA LISTS

For a list of the animal taxa that may be associated with calcareous fens, see the fauna taxa lists under the Grassland Community type.

PLANTS

Family	Scientific Name	Common Name
Asteraceae	<i>Cirsium arvense</i>	Canada thistle
Asteraceae	<i>Rudbeckia fulgida</i>	brilliant coneflower
Cyperaceae	<i>Carex interior</i>	inland sedge
Cyperaceae	<i>Carex pellita</i>	wooly sedge
Cyperaceae	<i>Carex schweinitzii</i>	Schweinitz's sedge
Cyperaceae	<i>Carex stricta</i>	tussock sedge
Cyperaceae	<i>Carex suberecta</i>	prairie straw sedge
Cyperaceae	<i>Carex tetanica</i>	rigid sedge
Juncaceae	<i>Juncus brachycephalus</i>	Small-headed rush
Juncaceae	<i>Juncus dudleyi</i>	Dudley's rush
Orchidaceae	<i>Liparis loeselii</i>	Loesel's twayblade
Poaceae	<i>Muhlenbergia sylvatica</i>	woodland muhly

Community Type: Piedmont/Mountain Bottomland Forest

Acreage: Acres (Hectares) Total: 151 (61) Main: 151 (61) New River: N/A

Community Type Location Maps: Figure 1

Rare Species Site Maps for Flora: Figure 3

Rare Species Site Maps for Fauna: N/A

Sample Site Maps for Fauna: Figures 7, 9, 11, 13, and 15

Rare and Unique Species & Communities					
SCIENTIFIC NAME	COMMON NAME	GLOBAL RANK	STATE RANK	FEDERAL STATUS	STATE STATUS
<u>Plants</u>					
<i>Carex cherokeensis</i> *	Cherokee sedge	N/A	N/A	N/A	N/A
<i>Carex conjuncta</i>	Soft fox sedge	G4G5	S3	N/A	Watchlist
<i>Hasteola suaveolens</i>	Sweet-scented Indian plantain	G3G4	S2	N/A	Rare List

* This is a new species to Virginia, therefore there is no state rank or status.

COMMUNITY DESCRIPTION

This community type occurs only at the Main facility along the New River and Stroubles Creek and is derived on alluvial deposits on floodplains, riverbanks, and creekbanks. Alluvium may be deep and well drained silt and sand or, closer to the stream level, rocky and seasonally wet. Floodplains vary from a few to many meters wide with the outer edge variously contoured from a high berm to being deeply channeled. The community typically has a mixed hardwood canopy and an open understory with a great diversity of herbaceous species. Character tree species are *Platanus occidentalis* and *Acer saccharinum* on the riverbank, and *Acer negundo*, *Prunus serotina*, *Celtis occidentalis*, *Ulmus rubra*, *Juglans nigra*, and occasionally *Carya cordiformis* on the floodplain. In one small area *Halesia carolina* grows, a species which is locally common but occurs only along the New River in Virginia. In Spring, *Poa trivialis* and *Senecio aureus* dominate the herb layer in some areas. By late in the season a rank weedy growth reaches head high or more with *Verbesina alternifolia* and *Laportea canadensis* being principal species. Characteristic herbs are *Bromus latiglumis*, *Chasmanthium latifolium*, *Cinna arundinacea*, *Elymus riparius*, *Elymus virginicus*, *Allium canadense*, *Urtica gracilis*, *Chaerophyllum procumbens*, *Stachys hispida*, and *Silphium perfoliatum* var. *connatum*.

This community type at the Arsenal has a relatively low diversity in the herbaceous flora and a great abundance of invasive exotics such as *Microstegium vimineum*, *Alliaria petiolata*, and *Cardamine hirsuta*. This is indicative of former disturbance and perhaps grazing. Aerial photos of the area prior to development show that the floodplain areas were almost entirely open farmland. Consequently, only small areas supported riparian forest and these would likely be subject to invasion of ruderal and alien species due to edge effects. Absence of many native bottomland species is evidence of the extremely limited extent of the community at an earlier time. Much of the bottomland is now in pine plantation or in various stages of old field and dominated by a few hardwood species that have seeded in from adjacent areas. Principal among these is *Acer negundo* which can almost totally dominate the canopy.

RARE SPECIES & COMMUNITY ACCOUNTS

Cherokee Sedge (*Carex cherokeensis*): As a new record for Virginia, this species is noteworthy, but may not warrant being on the rare plant list if its occurrence here is unnatural as would appear to be the case. Three clones 2-3 meters across were found at the Main facility in a shady flat just back of the top of the riverbank near gate 19-1. This plant is the only species in one section of what appears to be an old roadbed. The 1937 aerial photo shows this being the location of the state road that served the farm that previously occupied the Site. The rhizomes of this species vaguely show annual increments of persistent leaf bases. Comparing this with the size of the clones, it appears that the species has been growing here for quite a long time, perhaps several decades. How it got here originally can only be the subject of conjecture. The occurrence in Pulaski County, Virginia, is roughly 350 km from the next nearest location.

Soft Fox Sedge (*Carex conjuncta*): This sedge is a species of bottomland hardwood forests and was found only at one location along the New River. A single plant was found in wet ground a short distance back from the river shore in an area subject to flooding. This species occurs in widely scattered localities in Virginia, but this constitutes the first record for the New River drainage in Virginia. Although a thorough search for additional plants was not made, good quality habitat for this species is limited due to the farming history of the site and conversion to pine plantation.

Sweet-scented Indian Plantain (*Hasteola suaveolens*): A single patch of this species was found at the Main facility at the top of the floodplain levee opposite Whitethorne. The patch measured 10 meters long by 8 meters wide and consisted of 80-100 flowering stems on 26 August 1998. Despite this being a rare and localized native species, it grows in the midst of exotics here. It occurs in a small break in a canopy of *Populus alba*. Herbaceous associates on this date were limited almost entirely to three species: *Microstegium vimineum*, *Verbesina alternifolia*, and *Eupatorium rugosum*. The tall stature of *Hasteola* may be a significant factor in its ability to persist among other competitors. In the Spring, large basal leaves may give it an advantage over *Alliaria* and other early season exotics in this habitat.

MANAGEMENT RECOMMENDATIONS

General Recommendations

Bottomland hardwood forests have become a scarce community west of the Blue Ridge in Virginia. Because of the scarcity of this community type and the diversity it provides to the Arsenal's habitat types, we recommend the expansion and promotion of bottomland hardwood forests on the Arsenal. At present the existing bottomland forest is too small and narrow to achieve a representative and functional community. Much of the historical and potential habitat is either in pine plantation or open. It is recommended that the open areas and pine plantations be converted to bottomland hardwood forest. To achieve this, the following recommendations are provided.

The existing pine plantations are at an age that a harvest would be commercially beneficial. After harvest, these areas should be planted with bottomland hardwood species. This approach would initially cause the release of exotics that currently exists in the area. However, with plantings and control of exotics, a natural bottomland hardwood community can be developed.

Open areas should be planted in bottomland hardwood species. Plantings will need to be managed until they are established and free from competition.

In areas where hardwoods are coming in naturally, a selective cut that removes pines is recommended. Hardwood plantings should be incorporated as well as a control program for invasive exotics.

In the existing bottomland hardwood forest, physical removal of invasive woody shrubs (e.g., barberry, honeysuckle, privet, etc.) is recommended. Currently, because the existing bottomland forest is narrow, light is able to penetrate deep into the forest and promote establishment of exotics. A subcanopy planting at the forest edge would help reduce the overabundance of light getting into the interior.

Lastly, the establishment of a bottomland hardwood forest will take both time and an aggressive campaign to both promote bottomland species and control invasive exotics. However, the outcome of this effort would be the establishment of a unique community type that adds to the diversity found at the Arsenal.

Rare Species and Community Recommendations

Cherokee Sedge (*Carex cherokeensis*): Current knowledge of this species is limited and we don't know what is needed or preferred by this species. However, the absence of flowering culms suggests the site is too shady. A light overstory reduction could be applied to see if this promotes flowering.

Soft Fox Sedge (*Carex conjuncta*): This species requires forested wetlands where flooding provides early season moisture. The existence of Claytor Lake dam has

probably affected the normal flood regime in this area. Natural conditions will have to apply for the promotion of this species.

Sweet-scented Indian Plantain (*Hasteola suaveolens*): There appears to be an absence of new plants being recruited into the population. Like *Carex conjuncta*, the existence of Claytor Lake dam has probably affected the natural flood regime needed by these species. Both species require a natural disturbance to create the conditions these species like. Natural conditions will have to apply for the promotion of this species.

TAXA LISTS

PLANTS

Family	Scientific Name	Common Name
Aceraceae	<i>Acer negundo</i>	boxelder
Aceraceae	<i>Acer saccharinum</i>	sugar maple
Asteraceae	<i>Hasteola suaveolens</i>	sweet-scented Indian plantain
Asteraceae	<i>Senecio aureus</i>	golden ragwort
Asteraceae	<i>Silphium perfoliatum</i> var. <i>connatum</i>	cup-plant
Asteraceae	<i>Verbesina alternifolia</i>	wingstem
Brassicaceae	<i>Alliaria petiolata</i>	garlic mustard
Brassicaceae	<i>Cardamine hirsuta</i>	hairy bittercrest
Cyperaceae	<i>Carex cherokeensis</i>	Cherokee sedge
Cyperaceae	<i>Carex conjuncta</i>	soft fox sedge
Juglandaceae	<i>Carya cordiformis</i>	bitternut hickory
Juglandaceae	<i>Juglans nigra</i>	black walnut
Lamiaceae	<i>Stachys hispida</i>	bristly hedgenettle
Liliaceae	<i>Allium canadense</i>	meadow garlic
Platanaceae	<i>Platanus occidentalis</i>	sycamore
Poaceae	<i>Bromus latiglumis</i>	broad-glumed brome grass
Poaceae	<i>Chasmanthium latifolium</i>	river-oats
Poaceae	<i>Cinna arundinacea</i>	wood reedgrass
Poaceae	<i>Elymus riparius</i>	river wild rye
Poaceae	<i>Elymus virginicus</i>	Virginia wild rye
Poaceae	<i>Microstegium vimineum</i>	eulalia
Poaceae	<i>Poa trivialis</i>	rough bluegrass
Rosaceae	<i>Prunus serotina</i>	black cherry
Styracaceae	<i>Halesia carolina</i>	silverbell
Ulmaceae	<i>Celtis occidentalis</i>	hackberry
Ulmaceae	<i>Ulmus rubra</i>	slippery elm
Umbelliferae	<i>Chaerophyllum procumbens</i>	spreading chervil
Urticaceae	<i>Laportea canadensis</i>	wood nettle
Urticaceae	<i>Urtica gracilis</i>	stinging nettle

INVERTEBRATES

Class: Arachnida

Order: Araneae

Family	Scientific Name	Common Name
Araneidae	<i>sp.</i>	
Clubionidae	<i>Clubiona obesa</i>	

Clubionidae	<i>sp.</i>	
Dictynidae	<i>Dictyna sublata</i>	
Linyphiidae	<i>Nereine variabilis</i>	
Philodromidae	<i>Philodromus minutus</i>	
Philodromidae	<i>Philodromus rufus</i>	
Pisauridae	<i>Dolomedes sp.</i>	
Salticidae	<i>Eris marginata</i>	
Salticidae	<i>Hentzia mitrata</i>	
Salticidae	<i>Phidippus whitmanii</i>	
Salticidae	<i>sp.</i>	
Salticidae	<i>Thiodina sylvana</i>	
Tetragnathidae	<i>Pachygnatha autumnalis</i>	
Tetragnathidae	<i>Pachynatha furcillata</i>	
Tetragnathidae	<i>Tetragnatha elongata</i>	
Tetragnathidae	<i>Tetragnatha laboriosa</i>	
Tetragnathidae	<i>Tetragnatha straminea</i>	
Tetragnathidae	<i>Tetragnatha versicolor</i>	
Thomisidae	<i>Misumenops sp.</i>	

Class: Bivalvia
Order: Unionoida

Family	Scientific Name	Common Name
Unionidae	<i>Cyclonaias tuberculata</i>	Purple wartyback
Unionidae	<i>Eliptio dilitata</i>	Spike
Unionidae	<i>Lampsilis fasciola</i>	Wavy ray lampmussel
Unionidae	<i>Lampsilis ovata</i>	Pocketbook
Unionidae	<i>Lasmigona subviridis</i>	Green floater
Unionidae	<i>Tritogonia verrucosa</i>	Pistol grip

Class: Bivalvia
Order: Veneroida

Family	Scientific Name	Common Name
Corbiculidae	<i>Corbicula fluminea</i>	Asian clam

Class: Gastropoda
Order: Architaenioglossa

Family	Scientific Name	Common Name
Vivaparidae	<i>Campeloma decisum</i>	Aquatic snail

Class: Gastropoda

Order: Basommatophora

Family	<i>Scientific Name</i>	Common Name
Ancylidae	<i>Ferrissia rivularis</i>	Aquatic snail
Planorbidae	<i>Helisoma anceps</i>	Aquatic snail
Physidae	<i>Physella gyrina</i>	Aquatic snail

Class: Gastropoda

Order: Neotaenioglossa

Family	<i>Scientific Name</i>	Common Name
Pleuroceridae	<i>Leptoxis dilatata</i>	Aquatic snail

Class: Insecta

Order: Coleoptera

Family	Scientific Name	Common Name
Carabidae	<i>Chlaenius nemoralis</i>	ground beetle
Carabidae	<i>Clivina bipustulata</i>	ground beetle

Class: Insecta

Order: Diptera

Family	Scientific Name	Common Name
Anthomyiidae	<i>sp.</i>	anthomyiid fly
Asilidae	<i>sp.</i>	robber fly
Blephariceridae	<i>sp.</i>	net-winged midge
Curtonotidae	<i>sp.</i>	curtonotid fly
Lauxaniidae	<i>sp.</i>	lauxaniid fly
Muscidae	<i>sp.</i>	muscid fly
Rhagionidae	<i>sp.</i>	snipe fly
Scathophagidae	<i>sp.</i>	scathophagid fly
Sepsidae	<i>sp.</i>	scavenger fly
Tephritidae	<i>sp.</i>	fruit fly
Xylophagidae	<i>sp.</i>	xylophagid fly

Class: Insecta

Order: Heteroptera

Family	Scientific Name	Common Name
Psyllidae	<i>sp.</i>	stink bug

Class: Insecta

Order: Hymenoptera

Family	Scientific Name	Common Name
Pergidae	<i>sp.</i>	pergid sawfly
Sphecidae	<i>sp.</i>	sphecid wasp

Class: Insecta

Order: Lepidoptera

Family	Scientific Name	Common Name
Arctiidae	<i>Halysidota tessellaris</i>	banded tussock moth
Geometridae	<i>Biston betularia cognataria</i>	pepper-and-salt geometer
Geometridae	<i>Campaea perlata</i>	pale beauty
Geometridae	<i>Euchlaena amoenaria</i>	deep yellow euchlaena
Geometridae	<i>Eulithis diversilineata</i>	lesser grapevine looper moth
Geometridae	<i>Heliomata cycladata</i>	common spring moth
Geometridae	<i>Lambdina pellucidaria</i>	yellow-headed looper moth
Geometridae	<i>Pobole sp.</i>	
Geometridae	<i>Semiothisa promiscuata</i>	promiscuous angle
Hesperiidae	<i>Ancyloxypha numitor</i>	least skipper
Hesperiidae	<i>Atalopedes campestris</i>	sachem
Hesperiidae	<i>Epargyreus clarus</i>	silver-spotted skipper
Hesperiidae	<i>Lerema accius</i>	clouded skipper
Hesperiidae	<i>Panaquina ocola</i>	ocola skipper
Limacodidae	<i>Packardia geminata</i>	slug caterpillar moth
Lycaenidae	<i>Celastrina l. ladon "neglecta"</i>	summer azure
Lycaenidae	<i>Celastrina l. ladon "violacea"</i>	spring azure
Lycaenidae	<i>Everes comyntas</i>	eastern tailed blue
Noctuidae	<i>Lacinipolia renigera</i>	bristly cutworm moth
Noctuidae	<i>Mocis texana</i>	Texas mocis
Noctuidae	<i>Orthodes cynica</i>	cynical quaker
Noctuidae	<i>Xestia bicarnea</i>	pink-spotted dart
Noctuidae	<i>Xestia dolosa</i>	greater black-letter dart
Noctuidae	<i>Zale galbanata</i>	maple zale
Noctuidae	<i>Zale metatoides</i>	washed-out zale
Nymphalidae	<i>Asterocampa c. celtis</i>	hackberry emperor
Nymphalidae	<i>Asterocampa c. clyton</i>	tawny emperor
Nymphalidae	<i>Cercyonis pegala</i>	common wood nymph
Nymphalidae	<i>Chlosyne nycteis</i>	silvery checkerspot
Nymphalidae	<i>Danaus plexippus</i>	monarch
Nymphalidae	<i>Enodia anthedon</i>	northern pearly eye
Nymphalidae	<i>Limenitis arthemis astyanax</i>	red-spotted purple
Nymphalidae	<i>Megisto cymela</i>	little wood satyr
Nymphalidae	<i>Phyciodes tharos</i>	pearl crescent
Nymphalidae	<i>Polygonia comma</i>	eastern comma

Nymphalidae	<i>Polygonia interrogationis</i>	question mark
Nymphalidae	<i>Speyeria aphrodite</i>	aphrodite fritillary
Nymphalidae	<i>Speyeria cybele</i>	great spangled fritillary
Nymphalidae	<i>Vanessa atalanta</i>	red admiral
Papilionidae	<i>Battus philenor</i>	pipevine swallowtail
Papilionidae	<i>Papilio glaucus</i>	eastern tiger swallowtail
Pieridae	<i>Colias eurytheme</i>	orange sulfur
Pieridae	<i>Colias philodice</i>	clouded sulfur
Pieridae	<i>Phoebis sennae</i>	cloudless sulphur
Pieridae	<i>Pieris rapae</i>	cabbage white
Pyalidae	<i>Desmia funeralis</i>	grape leafroller moth
Saturniidae	<i>Dryocampa rubicunda</i>	rosy maple moth
Sphingidae	<i>Ceratomia catalpae</i>	catalpa sphinx
Tortricidae	<i>sp.</i>	tortricid moth
Yponomeutidae	<i>Atteva punctella</i>	ailanthus webworm moth

Class: Insecta

Order: Thysanoptera

Specimen not identified beyond Order.

Class: Malacostraca

Order: Decapoda

Family	Species	Common Name
Cambaridae	<i>Cambarus sciotensis</i>	
Cambaridae	<i>Orconectes chasmodactylus</i>	New River cray fish
Cambaridae	<i>Orconectes virilis</i>	virile crayfish

FISH

Family	Species	Common Name
Catastomidae	<i>Catostomus commersoni</i>	white sucker
Catastomidae	<i>Hypentelium nigricans</i>	northern hogsucker
Centrarchidae	<i>Ambloplites rupestris</i>	rock bass
Centrarchidae	<i>Lepomis auritus</i>	redbreast sunfish
Centrarchidae	<i>Lepomis macrochirus</i>	bluegill
Centrarchidae	<i>Micropterus dolomieu</i>	smallmouth bass
Centrarchidae	<i>Micropterus punctulatus</i>	spotted bass
Centrarchidae	<i>Micropterus salmoides</i>	largemouth bass
Cottidae	<i>Cottus bairdi</i>	mottled sculpin
Cyprinidae	<i>Campostoma anomalum</i>	central stoneroller
Cyprinidae	<i>Climostomus funduloides</i>	rosyside dace
Cyprinidae	<i>Cyprinella galactura</i>	whitetail shiner
Cyprinidae	<i>Luxilus albeolus</i>	white shiner

Cyprinidae	<i>Nocomis leptcephalus</i>	bluehead chub
Cyprinidae	<i>Nocomis micropogon</i>	river chub
Cyprinidae	<i>Nocomis platyrhynchus</i>	bigmouth chub
Cyprinidae	<i>Notropis hudsonius</i>	spottail shiner
Cyprinidae	<i>Notropis telescopus</i>	telescope shiner
Cyprinidae	<i>Pimephales notatus</i>	bluntnose minnow
Cyprinidae	<i>Rhinichthys atratulus</i>	blacknose dace
Esocidae	<i>Esox masquinongy</i>	muskellunge
Ictaluridae	<i>Noturus insignis</i>	marginated madtom
Ictaluridae	<i>Pylodictis olivaris</i>	flathead catfish
Percichthyidae	<i>Morone sp.</i>	bass
Percidae	<i>Etheostoma blennioides</i>	greenside darter
Percidae	<i>Etheostoma flabellare</i>	fantail darter
Percidae	<i>Perca flavescens</i>	yellow perch
Percidae	<i>Percina caprodes</i>	logperch
Percidae	<i>Percina gymnocephala</i>	Appalachia darter
Percidae	<i>Percina roanoka</i>	Roanoke darter

REPTILES AND AMPHIBIANS

Family	Scientific Name	Common Name
Bufo	<i>Bufo americanus</i>	American toad
Chelydridae	<i>Chelydra serpentina</i>	snapping turtle
Colubridae	<i>Nerodia sipedon</i>	northern water snake
Colubridae	<i>Regina septemvittata</i>	queen snake
Emydidae	<i>Pseudemys concinna concinna</i>	eastern river cooter
Plethodontidae	<i>Eurycea cirrigera</i>	southern two-lined salamander
Plethodontidae	<i>Desmognathus fuscus</i>	northern dusky salamander
Plethodontidae	<i>Desmognathus quadramaculatus</i>	backbelly salamander

BIRDS: Status code definitions; B = breeding, M = migrant, R = resident, U = undetermined, and W = winter.

Family	Scientific name	Species	Status
Accipitridae	<i>Accipiter striatus</i>	sharp-shinned hawk	B
Alcedinidae	<i>Ceryle alcyon</i>	belted kingfisher	R
Anatidae	<i>Aix sponsa</i>	wood duck	B
Anatidae	<i>Anas acuta</i>	northern pintail	W
Anatidae	<i>Anas americana</i>	American wigeon	W
Anatidae	<i>Anas platyrhynchos</i>	mallard duck	R
Anatidae	<i>Anas rubripes</i>	American black duck	R, M
Anatidae	<i>Anas strepera</i>	gadwall	W
Anatidae	<i>Branta canadensis</i>	Canada goose	R, M
Anatidae	<i>Bucephala albeola</i>	bufflehead	W
Anatidae	<i>Lophodytes cucullatus</i>	hooded merganser	W

Ardeidae	<i>Ardea herodias</i>	great blue heron	R
Ardeidae	<i>Casmerodius albus</i>	great egret	M
Charadriidae	<i>Charadrius vociferus</i>	killdeer	R
Columbidae	<i>Zenaida macroura</i>	mourning dove	R
Columbidae	<i>Columba livia</i>	rock dove	R
Corvidae	<i>Corvus brachyrhynchos</i>	American crow	R
Corvidae	<i>Cyanocitta cristata</i>	blue jay	R
Cuculidae	<i>Coccyzus americanus</i>	yellow-billed cuckoo	B
Cuculidae	<i>Coccyzus erythrophthalmus</i>	black-billed cuckoo	B
Emberizidae	<i>Cardinalis cardinalis</i>	northern cardinal	R
Emberizidae	<i>Dendroica donimica</i>	yellow-throated warbler	B
Emberizidae	<i>Dendroica palmarum</i>	palm warbler	M
Emberizidae	<i>Dendroica petechia</i>	yellow warbler	B
Emberizidae	<i>Dendroica striata</i>	blackpoll warbler	M
Emberizidae	<i>Geothlypis trichas</i>	common yellowthroat	B
Emberizidae	<i>Icterus galbula</i>	northern oriole	B
Emberizidae	<i>Icterus spurius</i>	orchard oriole	B
Emberizidae	<i>Melospiza melodia</i>	song sparrow	R
Emberizidae	<i>Molothrus ater</i>	brown-headed cowbird	B
Emberizidae	<i>Parula americana</i>	northern parula	B
Emberizidae	<i>Passerina cyanea</i>	indigo bunting	B
Emberizidae	<i>Pipilo erythrophthalmus</i>	eastern towhee	B
Emberizidae	<i>Piranga olivacea</i>	scarlet tanager	B
Emberizidae	<i>Quiscalus quiscula</i>	common grackle	B
Emberizidae	<i>Seiurus motacilla</i>	Louisiana waterthrush	B
Emberizidae	<i>Setophaga ruticilla</i>	American redstart	B
Fringillidae	<i>Carduelis tristis</i>	American goldfinch	R
Hirundinidae	<i>Hirundo rustica</i>	barn swallow	B
Hirundinidae	<i>Stelgidopteryx serripennis</i>	rough-winged swallow	B
Hirundinidae	<i>Tachycineta bicolor</i>	tree swallow	B
Laridae	<i>Larus delawarensis</i>	ring-billed gull	M
Muscicapidae	<i>Polioptila caerulea</i>	blue-gray gnatcatcher	B
Paridae	<i>Parus bicolor</i>	tufted titmouse	R
Paridae	<i>Parus carolinensis</i>	Carolina chickadee	R
Phalacrocoracidae	<i>Phalacrocorax auritus</i>	double-crested cormorant	M
Phasianidae	<i>Meleagris gallopavo</i>	wild turkey	R
Picidae	<i>Colaptes auratus</i>	northern flicker	R
Picidae	<i>Dryocopus pileatus</i>	pileated woodpecker	R
Picidae	<i>Picoides pubescens</i>	downy woodpecker	R
Picidae	<i>Picoides villosus</i>	hairy woodpecker	R
Podicipedidae	<i>Podilymbus podiceps</i>	pied-billed grebe	W
Rallidae	<i>Fulica americana</i>	American coot	W
Scolopacidae	<i>Actitis macularia</i>	spotted sandpiper	B
Troglodytidae	<i>Thryothorus ludovicianus</i>	carolina wren	B
Tyrannidae	<i>Contopus virens</i>	eastern pewee	B

Tyrannidae	<i>Empidonax virescens</i>	acadian flycatcher	B
Tyrannidae	<i>Sayornis phoebe</i>	eastern phoebe	B
Tyrannidae	<i>Tyrannus tyrannus</i>	eastern kingbird	B
Vireonidae	<i>Vireo gilvus</i>	warbling vireo	B
Vireonidae	<i>Vireo olivaceus</i>	red-eyed vireo	B

MAMMALS

Family	Scientific Name	Common Name
Cervidae	<i>Odocoileus virginianus</i>	white-tailed deer
Didelphidae	<i>Didelphis virginiana</i>	Virginia opossum
Soricidae	<i>Blarina brevicauda</i>	northern short-tailed shrew
Soricidae	<i>Cryptotis parva</i>	least shrew
Mephitidae	<i>Mephitis mephitis</i>	striped skunk
Muridae	<i>Peromyscus leucopus</i>	white-footed mouse
Procyonidae	<i>Procyon lotor</i>	common raccoon
Sciuridae	<i>Marmota monax</i>	woodchuck
Sciuridae	<i>Sciurus carolinensis</i>	eastern gray squirrel
Sciuridae	<i>Sciurus niger</i>	eastern fox squirrel
Sciuridae	<i>Tamias striatus</i>	eastern chipmunk

Community Type: Sand/Gravel/Mud Bar & Shore

Acreeage: Acreeage to small to calculate. Only located at the Main facility.

Community Type Location Maps: Figure 1

Rare Species Site Maps for Flora: Figure 3

Rare Species Site Maps for Fauna: N/A

Sample Site Maps for Fauna: N/A

Rare and Unique Species & Communities					
SCIENTIFIC NAME	COMMON NAME	GLOBAL RANK	STATE RANK	FEDERAL STATUS	STATE STATUS
<u>Plants</u>					
<i>Sagittaria rigida</i>	Sessile-fruited arrowhead	G5	S1	N/A	Rare List
<i>Eleocharis intermedia</i> *	Matted spikerush	G5	S1	N/A	Rare List

* Not found on Arsenal property along the New River, but may occur there some years as it was found nearby in this habitat.

COMMUNITY DESCRIPTION

This open shoreline habitat occurs only along the New River at the Main facility. The substrate is predominantly coarse to fine-grained alluvium although small bedrock exposures may be present. These habitats are occasionally exposed to intermittently flooded, but late season drawdown produces a diagnostic annual, herb-dominated flora within the river channel on newly exposed substrates. The community is a dynamic one in which flooding disturbs and shifts sediment and scours vegetation with enough frequency to maintain an open successional disclimax. Trees and shrubs are sparse to entirely absent. One distinctive subtype of this community is the waterwillow bar in which waterwillow, *Justicia americana*, occurs almost exclusively as an emergent species in shallows with a substrate of coarse gravel. A few other species such as *Schoenoplectus pungens* and *Schoenoplectus validus* are sparse but typical associates. Characteristic herbs of the drawdown flora are *Echinochloa muricata*, *Eragrostis frankii*, *Eragrostis hypnoides*, *Panicum capillare*, *Cyperus bipartitus*, *Cyperus esculentus*, *Cyperus flavescens*, *Cyperus tenuifolius*, *Eleocharis obtusa*, *Polygonum hydropiper*, *Gratiola neglecta*, *Mollugo verticillata*, *Chenopodium ambrosioides*, and *Rorippa sylvestris*.

Note: The disturbance and openness of this habitat lends it to invasion by weedy species, native and exotic. Typical native weeds include *Panicum dichotomiflorum*, *Solanum carolinense*, and *Datura stamonium*. Invasive exotics include *Arthraxon hispidus*, *Digitaria ischaemum*, *Microstegium vimineum*, *Murdannia keisak*, *Polygonum caespitosum*, and *Euphorbia maculata*.

RARE SPECIES & COMMUNITY ACCOUNTS

Sessile-fruited Arrowhead (*Sagittaria rigida*): A single small population was found on the shore of New River very close to the downstream end of the Arsenal property. Only a few plants flowered but none set seed. Several visits to the station revealed that plants had been uprooted by the turbulence of rising water released from Claytor Lake Dam. Plants were observed lying flat nearly uprooted but readily resprouting from small roots still lodged in the silt/sand substrate. This population is a range extension southward from Augusta County, Virginia. The failure to set seed may indicate the population may have grown vegetatively from a single individual. A second population was found about 14-15 km upstream (off Arsenal property) where the same phenomenon was observed.

Matted Spikerush (*Eleocharis intermedia*): Many hundreds of plants of this spikerush were found in the small manmade pond at the Main facility about 2 km NE of the Main Gate. In 1997 the pond dried out completely and this species nearly carpeted the normally shallow water section along the S and SE shore. In 1998, despite extreme drought, many fewer plants were evident. The only fruiting plants occupied a small delta of the feeding stream. Non-flowering emergent plants occupied a narrow zone to several inches water depth, but many fewer than in 1997. A few plants occurred in muddy places along the stream just above the pond.

MANAGEMENT RECOMMENDATIONS

General Recommendations

This community is self-maintaining as long as the river is free flowing and floods occasionally. No management recommendations are proposed.

Rare Species and Community Recommendations

No management recommendations are proposed.

TAXA LISTS

For a list of the animal species that may be associated with Sand/Gravel/Mud Bar & Shore habitat, see the fauna taxa lists under the Piedmont/Mountain Bottomland Forest Community type.

PLANTS

Family	Scientific Name	Common Name
Acanthaceae	<i>Justicia americana</i>	water willow
Aizoaceae	<i>Mollugo verticillata</i>	carpetweed
Alismataceae	<i>Sagittaria rigida</i>	sessile-fruited arrowhead
Brassicaceae	<i>Rorippa sylvestris</i>	creeping yellow cress
Chenopodiaceae	<i>Chenopodium ambrosioides</i>	Mexican tea
Commelinaceae	<i>Murdannia keisak</i>	marsh dewflower
Cyperaceae	<i>Cyperus bipartitus</i>	A flatsedge
Cyperaceae	<i>Cyperus esculentus</i>	yellow nut sedge
Cyperaceae	<i>Cyperus flavescens</i>	yellow flatsedge
Cyperaceae	<i>Cyperus tenuifolius</i>	
Cyperaceae	<i>Eleocharis intermedia</i>	matted spikerush
Cyperaceae	<i>Eleocharis obtusa</i>	blunt spikerush
Cyperaceae	<i>Schoenoplectus pungens</i>	common threesquare
Cyperaceae	<i>Schoenoplectus validus</i>	soft-stem bullrush
Euphorbiaceae	<i>Euphorbia maculata.</i>	spotted spurge
Poaceae	<i>Arthraxon hispidus</i>	joint-head arthraxon
Poaceae	<i>Digitaria ischaemum</i>	smooth crabgrass
Poaceae	<i>Echinochloa muricata</i>	rough barnyard grass
Poaceae	<i>Eragrostis frankii</i>	Frank's lovegrass
Poaceae	<i>Eragrostis hypnoides</i>	creeping lovegrass
Poaceae	<i>Microstegium vimineum</i>	eulalia
Poaceae	<i>Panicum capillare</i>	witch grass
Poaceae	<i>Panicum dichotomiflorum</i>	fall witch grass
Polygonaceae	<i>Polygonum caespitosum</i>	long-bristled smartweed
Polygonaceae	<i>Polygonum hydropiper</i>	common smartweed
Scrophulariaceae	<i>Gratiola neglecta</i>	clammy hedge-hyssop
Solanaceae	<i>Datura stamonium</i>	jimson weed
Solanaceae	<i>Solanum carolinense</i>	horse nettle

ARTIFICIAL COMMUNITIES

Grassland
Successional Woodland/Forest
Pine Plantation
Wet Meadow/Marsh and Ponds

Community Type: Grassland

Acreage: Acres (Hectares) Total: 4,379 (1,173) Main: 2,500 (1012) New River: 1,879 (761)

Community Type Location Maps: Figure 1 and Figure 2

Rare Species Site Maps for Flora: Figure 3 and Figure 4

Rare Species Site Maps for Fauna: Figure 5 and Figure 6

Sample Site Maps for Fauna: Figures 7 through 16

Rare and Unique Species & Communities					
SCIENTIFIC NAME	COMMON NAME	GLOBAL RANK	STATE RANK	FEDERAL STATUS	STATE STATUS
<u>Community Type</u>					
N/A	Calcareous Fen	N/A	N/A	N/A	N/A
<u>Plants:</u>					
<i>Carex mesochorea</i>	Midland Sedge	G4G5	SU	N/A	Watchlist
<i>Onosmodium hispidissimum</i>	Shaggy False Gromwell			N/A	Watchlist
<u>Invertebrates:</u>					
<i>Speyeria idalia</i>	Regal Fritillary	G3	S1	N/A	ST
<u>Birds:</u>					
<i>Ammodramus henslowii</i>	Henslow's Sparrow	G4	S1	N/A	ST
<i>Lanius ludovicianus</i>	Loggerhead Shrike	G5	S2	N/A	ST

COMMUNITY DESCRIPTION

The grassland community is an aggregation of several community types that are so intermingled delineation is impractical. Grassland may conveniently be subdivided into old field, meadow, and cultivated field. The term old field is used here to denote areas that were formerly open and subsequently abandoned but are still open. In most cases these areas were formerly pasture or hayfield. Trees or shrubs may be present individually or in small groups, but a canopy is lacking. Where shrub invasion has progressed to form larger patches, a shrubland subtype is recognizable. Old fields, in most cases, are dominated by native, warm-season species with a wide variety of other grasses, sedges, and herbs mixed in. The two dominants are little bluestem, *Schizachyrium scoparium*, and broomsedge, *Andropogon virginicus*, with others such as *Tridens flavus*, *Panicum oligosanthos*, *Panicum anceps*, *Eragrostis spectabilis*, *Setaria*

glauca, *Sorghastrum nutans*, and *Paspalum* being frequent. Much of the old field community is mowed infrequently to help keep woody plants in check.

Meadows are areas that are mowed regularly and, in most cases, have been planted in forage grasses for haying. These are typically non-native, cool-season species such as *Festuca elatior*, *Poa pratensis*, *Phleum pratense*, *Agrostis gigantea*, *Bromus inermis*, *Dactylis glomerata*, and *Arrhenatherum elatius*. These species may also be mixed with native species characteristic of old fields.

Cultivated fields are areas that have been plowed and seeded with various cover crops. These areas have a major ruderal component that persists after abandonment. Principal weed species are *Cirsium arvense*, *Carduus acanthoides*, *Carduus nutans*, *Erechtites hieracifolia*, *Hypochaeris radicata*, *Verbascum thapsus*, *Hieracium pilosella*, *Datura stramonium*, etc.

Past history of various segments of the grassland community greatly influences the composition of species occupying them today. This has created a blending of features and a complex mosaic. Being artificial communities, it is reasonable to consider this a large variable community type.

RARE SPECIES & COMMUNITY ACCOUNTS

Calcareous Fen: This is a unique natural community that is addressed separately in this report. This community type is recognized under the grassland community type because it is surrounded by grassland habitat and management in this area may affect the fen. Specific management recommendations for the fen and surrounding area are made under the community type, Calcareous Fen (page 24).

Midland Sedge (*Carex mesochorea*): The midland sedge is found only at the New River facility at widely separate locations. It occurs in grassland areas dominated by little bluestem (*Schizachyrium scoparium*) with a mixture of other grasses, sedges, and forbs. Although mapped at only two locations, the habitat is abundant and certainly the species exists elsewhere.

Shaggy False Gromwell (*Onosmodium hispidissimum*): Shaggy false gromwell is scattered in old fields at the Dublin Site where it occurs with sufficient frequency that mapping it was deemed impractical. The preferred habitat of this species is dry, open, grassy limestone hills, especially in the vicinity of bedrock outcrops. This habitat occurs in abundance at Dublin. The species occurs as scattered individuals or in small groups in areas that have not been seeded in cool season grasses and converted to hay meadow.

Regal Fritillary (*Speyeria idalia*): This is a large "brushfoot" butterfly belonging to the Nymphalidae family. The genus *Speyeria* refers to the "silver fritillaries" identified by silver spots on the underside of the hindwings. The regal fritillary is a rare butterfly that is declining in much of its range. The characteristic habitat of this species is tall-grass prairies and other open sites including damp meadows, marshes, wet fields, and mountain pastures.

Females have one brood per year between mid-June and mid-August. Females walk through vegetation and lay single eggs on various plants, usually near violets (bird's foot violet, *Viola pedata*, the host plant for the caterpillar). The caterpillars hatch in the fall (first-instar) and overwinter without feeding. In the spring they complete their development, feeding on the leaves of the host plant. Adults are often found at flowers, especially milkweeds, mints, and thistles.

Regal fritillaries were found at both the New River and Main facilities. A single population of approximately 20 individuals was observed at the Main facility (Figure 5). At the New River facility, two populations were observed with 4 and 6 individuals. Observed. In addition, regal fritillaries were observed at two other locations on the New River facility (Figure 6). The Arsenal appears to support the only remaining breeding sites for regal fritillaries in Virginia (Steve Roble, pers. comm.).

Henslow's Sparrow (*Ammodramus henslowii*): The Henslow's sparrow belongs to the Emberizidae family in the perching order, Passeriformes. This is a shy, secretive sparrow that is more frequently identified by song than by sight. It is not considered common anywhere within its range, with the exception of very localized colonies. This species is considered declining throughout its range due to loss and degradation of habitat.

Henslow's sparrows were observed only at the New River facility. Due to their rare status we spent additional time delineating the areas utilized by these. Four colonies representing approximately 16 males were delineated at the New River site (Figure # 6). These sites are close to each other and were determined by mapping interactions between singing males.

Loggerhead Shrike (*Lanius ludovicianus*): The loggerhead shrike belongs to the shrike family (Lanidae) in the order of perching birds, Passeriformes. The loggerhead shrike is a rare bird that is declining in the eastern United States. In Virginia the shrike is estimated to be declining at a rate of 10% per year. The characteristic habitat of this species includes pasture, savannah, and open brushland.

While we did not observe loggerhead shrikes during this survey period, loggerhead shrikes have been observed at the New River facility on several other occasions (Clyde Kessler and Betsy Stinson, pers. comm.).

MANAGEMENT RECOMMENDATIONS

General Grassland Habitat Management

With over 4,000 acres of grassland habitat, management for a variety of grassland species can be achieved. Initial emphasis should be placed on rare species management in areas where they occur. Specific management recommendations for rare species are listed below in the section Rare Species and Community Management.

The following grassland management recommendations emphasize bird species for several reasons. First, grassland bird species have demonstrated some of the greatest population declines among migratory birds. Second, there is little previous work that provides grassland management guidelines for other taxa. Third, management for grassland birds should provide appropriate habitat for other grassland associated taxa.

Several factors influence grassland bird diversity and populations including habitat fragmentation, vegetative composition, vegetative density, and vegetative height. Short grass monocultures (e.g. fescue) provide poor habitat and are not extensively used by grassland species. Heterogeneous fields of warm and cool season grasses provide a mix of vegetation height and density. In addition, a moderate to low percentage of forbs, mixed with the grasses, is preferred by most grassland birds. With the abundance of grassland habitat at each plant, management areas can be created in which vegetation height and density is configured for different grassland birds. Species that prefer short, sparse vegetation include killdeer, vesper sparrow, upland sandpiper, mourning dove, and horned lark. Species that prefer intermediate vegetation height and density include Northern bobwhite, savannah sparrow, Eastern meadowlark, grasshopper sparrow, field sparrow, and song sparrow. Species preferring tall, dense vegetation include red-winged blackbird, common yellowthroat, bobolink, Henslow's sparrow and sedge wren.

In general, we recommend the conversion of cool season grasses (K-31 fescue) back to native grasses and forbs. This effort would entail the killing of fescue through herbicides and possibly fire. Seeding with native grasses and forbs would follow. The native plants can and do provide adequate forage for both livestock and native wildlife.

Management units should be large, preferably more than 250 acres in area. Maintenance options for grassland habitats include periodic fire, grazing or mowing. Because of the explosive nature of the materials manufactured and stored at RAAP, mowing and grazing have historically been used to retain open habitat. However, use of prescribed fire may be a good option in some areas.

Fire can be utilized as an effective and often preferred method for managing grasslands. Fire should be applied in early spring (March to early April) or late fall (October and November). Management units should be burned on a rotational schedule with 20-30% of the area burned annually. Where grasslands border forest edge, allow the fire to burn into the edge. This will help to establish and maintain a "soft edge" between grassland and forest. Research has indicated that "sharp edges" have a higher nest predation rate than "soft edges."

Grazing, if properly controlled, can be an appropriate management tool. Depending on the species that is being managed for, grazing intensity and rotation can be varied. The most desirable grazing practice would be to keep grazing pressure light and use a rotation system where some sections are grazed and others are left idle. For example, an area could be divided into thirds, with the three subunits receiving light, moderate, and no grazing regimes on an annual rotation pattern.

Currently, mowing and haying are being used to control vegetation at both facilities. Management of these practices can provide and enhance habitat for grassland birds. There is a wide range of nesting dates for migratory and non-migratory grassland birds. In addition, several species can have multiple broods through the spring, summer and into the fall. However, most birds will be nesting and raising young from early April through late July and early August. With this in mind, mowing and haying of non-essential areas should be postponed until mid-August. This will allow nesting birds the opportunity to rear at least one and potentially two broods. Mowing and haying should be managed on a rotational basis (see recommendations under Henslow's sparrow, page 49).

In addition to the above practices, the VDGIF establishes and manages food plots for wildlife in cooperation with RAAP. While this is an appropriate management tool for grassland species and should continue, it should be done with caution. First, food plots will allow invasion of non-native plants and increase competition with native species. Second, placement of new food plots should avoid the locations of breeding Henslow's sparrow and regal fritillary sites until the effects of these practices can be evaluated. If food plots are utilized by either Henslow's sparrow or regal fritillary, then management should be geared to the life history needs of these species. It is recommended that food plots be limited to the meadows and cultivated fields that have been historically disturbed and are dominated by non-native plants. The establishment of food plots should be done on a limited basis and management rotated through established plots in lieu of creating new ones. In addition, food plots should emphasize establishing native grasses and forbs. The GIS maps will provide a valuable tool for managers to locate food plots and describe management areas.

In areas where the grassland adjoins forest, a "soft edge" should be created. To create a soft edge, a 60 to 100 foot buffer should be established. Within the first 30 to 50 feet of the edge, 75% of the trees should be removed. Within the next 30 to 50 feet, 50% of the trees should be removed to provide a gradual succession from grassland to forest.

Lastly, the use of broadcast herbicides and pesticides should be conducted on a limited basis and with the purpose of promoting native plants and wildlife. The thistle eradication program should be reviewed and limited to exotic thistles using spot treatment of individual plants. Thistles are an important nectar source for regal fritillaries and food source for grassland birds.

Rare Species and Community Management

Midland Sedge (*Carex mesochorea*): Management should include additional surveys to identify the overall distribution and locate areas supporting *Carex mesochorea*. Little is known of the management requirements for this plant and the general recommendations for grassland management are considered sufficient to maintain this species. However, food plots should be avoided in areas supporting *Carex mesochorea*.

Shaggy False Gromwell (*Onosmodium hispidissimum*): Current grassland management is sufficient for the maintenance of this species. No additional management is needed.

Regal Fritillary (*Speyeria idalia*): Management for regal fritillaries will require maintenance of grassland habitat that includes bird's foot violet, milkweeds, mints, and thistle. Field surveys should be conducted between June and July to determine the areas utilized by regal fritillaries. No vegetation removal should be conducted in these areas until after the brood season (late August). No broadcast herbicides or pesticides should be applied in these areas at any time.

Management for regal fritillaries should follow that described for Henslow's sparrow (see below). Mowing must be light, not conducted during the brood season, and based on a rotational schedule with the purpose of controlling woody vegetation. It is recommended that management areas be established with the existing known areas as the core area for the management units. An additional area equaling 20-30% of the core management unit should be managed around each core area. This will hopefully allow expansion of the populations.

Henslow's Sparrow (*Ammodramus henslowii*): Henslow's sparrow habitat is comprised of tall dense vegetation with little to no woody vegetation. In addition, these birds are sensitive to disturbance and will abandon nesting areas when disturbed. This was evident in both the 1997 and 1998 field seasons when singing males were displaced due to haying in June and July.

Maintenance of tall dense grassland habitat will be essential for maintaining Henslow's sparrow populations. Mowing, grazing or fire can be utilized to maintain and promote grassland habitat. It is recommended that field surveys be conducted in the spring (late April, May, and June) to determine areas where Henslow's sparrows will be breeding. Removal of vegetation in these areas should not commence until after the breeding season, mid to late August.

Fire and light grazing have limited benefit for Henslow's sparrow. While Henslow's sparrow has been documented using lightly grazed pastures, the species is generally not associated with grazed areas. Fire can be used as a management tool for Henslow's sparrow, but mixed results have been reported. Several authors have reported Henslow's sparrow not utilizing fields that have been burned in the spring. However, in North Carolina, two pocosin sites were utilized the following year after burning (the exact time of burn was not reported). If burning is used as a management tool, management areas should be established where only 20-30% of the area is burned per year on a rotational basis. Burn areas should be evaluated for Henslow's sparrow use before additional burning is prescribed.

Mowing appears to be the best management tool for maintaining grassland habitats for Henslow's sparrow. However, it has been noted that recently mowed areas are avoided like recently burned areas. Mowing must be light, not conducted during the nesting season, and based on a rotational schedule with the purpose of controlling woody vegetation. It is recommended that management areas be established with the existing known colonies as the core area for the management units. An additional area equaling 20-30% of the core management unit should be managed around each core area for Henslow's sparrows. This will hopefully allow expansion of the populations.

Management of these areas should include a rotational mowing schedule of 20-30% of the area per year in late August. This will allow sufficient time for the birds to raise their first brood undisturbed. In addition, this will leave enough time for regrowth to provide standing dead vegetation the following spring. If possible "sloppy mowing" (leaving patches of unmowed vegetation) or contour mowing (mowing in strips) should occur. Some success has been documented where patches in fields are left undisturbed.

Loggerhead Shrike (*Lanius ludovicianus*): Unlike the Henslow's sparrow, the loggerhead shrike requires short grass with trees and shrubs for nest placement and hunting perches. Luukkonen found that pastures with eastern red cedar or hawthorn provided the most important nesting habitat for Virginia shrikes. In addition, Luukkonen found that shrikes were twice as productive in grazed grasslands than in other habitats. This corresponds to the areas where shrikes have been observed at the New River facility. All observations have occurred in the eastern section of the facility outside the fenced area where cattle grazing occurs.

A behavioral characteristic of the loggerhead shrike is the impaling of prey on barbed wire or thorny bushes and trees. This behavior has resulted in the shrike being nicknamed the "butcher bird." The loss of barbed wire, thorny trees, and shrubs has been suggested as a reason for shrikes abandoning or not utilizing apparently adequate habitat.

Management for the loggerhead shrike should be conducted in the area where birds have been historically observed. Grazing in this area should continue, however, on a rotational basis. The area should be divided with barbed wire fence to create management units and provide potential perches and projections for impaling prey. Shrubby fence rows should be encouraged that include black locust, hawthorn, and red cedar. In addition, these trees should be allowed to establish in small groups intermixed throughout the management unit. Fencing and rotational grazing should help the establishment of shrub areas.

Lastly, while declining and degraded habitats are considered one reason for declining shrike populations, areas of "good shrike habitat" exist that do not support shrikes. The exact reasons for shrike declines are still not fully understood. Therefore, management for optimum shrike habitat may not result in shrike occupancy. However, habitat management for shrikes is still recommended until the reasons for shrike declines are better understood.

TAXA LISTS

PLANTS:

Family	Scientific Name	Common Name
Poaceae	<i>Schizachyrium scopariu</i>	little bluestem
Poaceae	<i>Andropogon virginicus</i>	broomsedge
Poaceae	<i>Tridens flavus</i>	purpletop
Poaceae	<i>Panicum oligosanthes scribnerianum</i>	Scribner's panic grass
Poaceae	<i>Panicum ancep</i>	flat-stemmed panic grass
Poaceae	<i>Eragrostis spectabilis</i>	purple lovegrass
Poaceae	<i>Setaria glauc</i>	yellow foxtail
Poaceae	<i>Sorghastrum nutans</i>	Indian grass
Poaceae	<i>Paspalum</i>	paspalum
Poaceae	<i>Festuca elatio</i>	tall fescue
Poaceae	<i>Poa pratensis</i>	Kentucky bluegrass
Poaceae	<i>Phleum pratense</i>	timothy
Poaceae	<i>Agrostis gigantea</i>	redtop
Poaceae	<i>Bromus inermis</i>	awnless brome grass
Poaceae	<i>Dactylis glomerata</i>	orchard grass
Poaceae	<i>Arrhenatherum elatius</i>	tall oatgrass
Asteraceae	<i>Cirsium arvense</i>	Canada thistle
Asteraceae	<i>Carduus acanthoides</i>	spine plumeless thistle
Asteraceae	<i>Carduus nutans</i>	nodding thistle
Asteraceae	<i>Erechtites hieracifolia</i>	fireweed
Asteraceae	<i>Hypochaeris radicata</i>	cat's-ear
Scrophulariaceae	<i>Verbascum thapsus</i>	common mullein
Asteraceae	<i>Hieracium pilosella</i>	mouse-eared hawkweed
Solanaceae	<i>Datura stramonium</i>	jimson weed

INVERTEBRATES:

Class: Arachnida Order: Araneae

Family	Scientific Name	Common Name
Agelenidae	<i>Cicurina robusta</i>	
Amaurobiidae	<i>sp.</i>	
Antrodiaetidae	<i>Antrodiaetus unicolor</i>	
Araneidae	<i>Acanthepeira sp.</i>	
Araneidae	<i>Araneus pratensis</i>	
Araneidae	<i>Argiope trifasciata</i>	
Araneidae	<i>Cyclosa conica</i>	

Araneidae	<i>Eustala anastera</i>	
Araneidae	<i>Mangora gibberosa</i>	
Araneidae	<i>Micrathena gracilis</i>	
Araneidae	<i>Micrathena mitrata</i>	
Araneidae	<i>Neoscona arabesca</i>	
Araneidae	<i>Neoscona pratensis</i>	
Atypidae	<i>Sphodros niger</i>	
Clubionidae	<i>Clubiona johnsoni</i>	
Clubionidae	<i>Clubiona sp.</i>	
Clubionidae	<i>Trachelas deceptus</i>	
Gnaphosidae	<i>Drassodes neglectus</i>	
Gnaphosidae	<i>Drassyllus creolus</i>	
Gnaphosidae	<i>Drassyllus depressus</i>	
Gnaphosidae	<i>Drassyllus sp.</i>	
Gnaphosidae	<i>Haplodrassus signifer</i>	
Gnaphosidae	<i>Zelotes hentzi</i>	
Linyphiidae	<i>Bathypantes pallida</i>	
Linyphiidae	<i>Centromerus persoluta</i>	
Linyphiidae	<i>Centromerus cornupalpis</i>	
Linyphiidae	<i>Ceraticelus unk.</i>	
Linyphiidae	<i>Grammonata inornata</i>	
Linyphiidae	<i>sp.</i>	
Linyphiidae	<i>Stemonyphantes blauveltae</i>	
Lycosidae	<i>Allocosa fenerea</i>	
Lycosidae	<i>Hogna frondicola</i>	
Lycosidae	<i>Hogna helluo</i>	
Lycosidae	<i>Hogna punctulata</i>	
Lycosidae	<i>Hogna rabida</i>	
Lycosidae	<i>Hogna sp.</i>	
Lycosidae	<i>Pardosa milvina</i>	
Lycosidae	<i>Pirata insularis</i>	
Lycosidae	<i>Pirata sp.</i>	
Lycosidae	<i>Schizocosa avida</i>	
Lycosidae	<i>Schizocosa bilineata</i>	
Lycosidae	<i>Schizocosa saltatrix</i>	
Lycosidae	<i>sp.</i>	
Lycosidae	<i>Varacosa avara</i>	
Mimetidae	<i>Mimetus epeiroides</i>	
Oxyopidae	<i>Oxyopes salticus</i>	

Philodromidae	<i>Philodromus sp.</i>	
Philodromidae	<i>Thanatus formicinus</i>	
Philodromidae	<i>Thanatus rubicellus</i>	
Philodromidae	<i>Tibellus duttoni</i>	
Pisauridae	<i>Dolomedes triton</i>	
Pisauridae	<i>Pisaurina mira</i>	
Salticidae	<i>Eris sp.</i>	
Salticidae	<i>Evarcha hoyi</i>	
Salticidae	<i>Habrocestum pulex</i>	
Salticidae	<i>Marpissa pikei</i>	
Salticidae	<i>Metaphidippus galathea</i>	
Salticidae	<i>Metaphidippus protervus</i>	
Salticidae	<i>Phidippus audax</i>	
Salticidae	<i>Phidippus clarus</i>	
Tetragnathidae	<i>Pachygnatha tristriata</i>	
Tetragnathidae	<i>Tetragnatha pallescens</i>	
Tetragnathidae	<i>Tetragnatha sp.</i>	
Theridiidae	<i>Achaeearanea globosa</i>	
Theridiidae	<i>Theridion sp.</i>	
Theridiidae	<i>Thymoites sp.</i>	
Thomisidae	<i>Misumena vatia</i>	
Thomisidae	<i>Ozyptila monroensis</i>	
Thomisidae	<i>Xysticus ferox</i>	
Thomisidae	<i>Xysticus gulosus</i>	
Thomisidae	<i>Xysticus luctans</i>	
Thomisidae	<i>Xysticus sp.</i>	

Class: Diplopoda

Order: Callipodida

Family	Scientific Name	Common Name
Abacionidae	<i>Abacion tessellatum</i>	millipede

Class: Diplopoda

Order: Julida

Family	Scientific Name	Common Name
Julidae	<i>Ophiulus pilosus</i>	millipede

Class: Diplopoda

Order: Polydesmida

Family	Scientific Name	Common Name
Xystodesmidae	<i>Brachoria separanda calcaria</i>	millipede
Xystodesmidae	<i>Nannari sp.</i>	millipede

Class: Insecta

Order: Coleoptera

Family	Scientific Name	Common Name
Cantharidae	<i>sp.</i>	soldier beetle
Carabidae	<i>Chlaenius lithophilus</i>	ground beetle
Carabidae	<i>Cyclotrachelus iuveus</i>	ground beetle
Carabidae	<i>Lebia grandis</i>	ground beetle
Carabidae	<i>Lebia viridis</i>	ground beetle
Carabidae	<i>Pterostichus trinaris</i>	ground beetle
Carabidae	<i>Rhadine caudata</i>	ground beetle
Carabidae	<i>Scaphinotus elevatus</i>	ground beetle
Carabidae	<i>Scarites subterraneus</i>	ground beetle
Carabidae	<i>Sphaeroderus stenostomus</i>	ground beetle
Chrysomelidae	<i>Chrysolina inornata</i>	leaf beetle
Chrysomelidae	<i>sp.</i>	leaf beetle
Chrysomelidae	<i>Stenospa metallica</i>	leaf beetle
Coccinellidae	<i>sp.</i>	ladybird beetle
Dytiscidae	<i>sp.</i>	predaceous diving beetle
Elateridae	<i>sp.</i>	click beetle
Endomychidae	<i>Stenotarsus hispidus</i>	handsome fungus beetle
Meloidae	<i>Meloe angusticollis</i>	blister beetle
Scarabaeidae	<i>Copris minutus</i>	scarab beetle
Scarabaeidae	<i>Copris tullius</i>	scarab beetle
Scarabaeidae	<i>Euphoria inda</i>	scarab beetle
Staphylinidae	<i>Olophrum obtectum</i>	rove beetle
Staphylinidae	<i>Pinophilus laticeps</i>	rove beetle

Class: Insecta

Order: Collembola

Family	Scientific Name	Common Name
Entomobryidae	<i>sp.</i>	springtail
Isotomidae	<i>sp.</i>	springtail

Class: Insecta
Order: Diptera

Family	Scientific Name	Common Name
Acroceridae	<i>sp.</i>	small-headed fly
Chironomidae	<i>sp.</i>	midge
Chloropidae	<i>sp.</i>	frit fly
Dolichopodidae	<i>sp.</i>	long-legged fly
Drosophilidae	<i>sp.</i>	pomace fly
Mycetophilidae	<i>sp.</i>	fungus gnat
Otitidae	<i>sp.</i>	picture-winged fly
Sciomyzidae	<i>sp.</i>	marsh fly
Stratiomyiidae	<i>sp.</i>	soldier fly
Tabanidae	<i>sp.</i>	deer fly

Class: Insecta
Order: Ephemeroptera

Family	Scientific Name	Common Name
Heptageniidae	<i>sp.</i>	mayfly

Class: Insecta
Order: Heteroptera

Family	Scientific Name	Common Name
Lygalidae	<i>Cryphula trimaculata</i>	seed bug
Lygalidae	<i>Cymus angustatus</i>	seed bug
Lygalidae	<i>Melaiiocorypha bicrucis</i>	seed bug
Lygalidae	<i>Oedancala dorsalis</i>	seed bug
Lygalidae	<i>Phlegyas abbreviatus</i>	seed bug
Lygalidae	<i>Pseudopachybrachius basilis</i>	seed bug
Miridae	<i>Lopidea robiniae</i>	leaf bug
Miridae	<i>Megaloceraea recticornis</i>	leaf bug
Pentatomidae	<i>Mosmidea lergeus</i>	stink bug
Pentatomidae	<i>sp.</i>	stink bug
Reduviidae	<i>Fitchia aptera</i>	assassin bug
Reduviidae	<i>Melanolestes abdominalis</i>	assassin bug
Reduviidae	<i>sp.</i>	assassin bug

Class: Insecta
Order: Homoptera

Family	Scientific Name	Common Name
Aphididae	<i>sp.</i>	aphid
Cicadellidae	<i>sp.</i>	leaf hopper

Class: Insecta
Order: Hymenoptera

Family	Scientific Name	Common Name
Anthoporidae	<i>sp.</i>	apidid bee
Braconidae	<i>sp.</i>	brachonid
Chalcidoidea	<i>sp.</i>	chalsid
Formicidae	<i>Campanotus sp.</i>	formicinae (ant)
Formicidae	<i>Crematogastor sp.</i>	myrmicinae (ant)
Formicidae	<i>Formica sp.</i>	formicinae (ant)
Formicidae	<i>sp.</i>	ponerinae (ant)
Halictidae	<i>sp.</i>	halictid bee
Ichneumonidae	<i>sp.</i>	ichneumon
Ichneumonidae	<i>sp.</i>	ichneumon bee
Megachilidae	<i>sp.</i>	leafcutting bee
Mutillidae	<i>sp.</i>	velvet ant
Proctotrupeoidea	<i>sp.</i>	proctotrupids
Vespidae	<i>sp.</i>	vespid wasp

Class: Insecta
Order: Lepidoptera

Family	Scientific Name	Common Name
Arctiidae	<i>Ecpantheria scribonia</i>	giant leopard moth
Arctiidae	<i>Haploa lecontei</i>	Leconte's haploa
Geometridae	<i>Euchlaena amoenaria</i>	deep yellow euchlaena
Geometridae	<i>Orthonama centrostrigaria</i>	bent-line carpet
Geometridae	<i>Patalene olyzonaria puber</i>	juniper geometer
Geometridae	<i>Synchlora aerata</i>	wavy-lined emerald
Geometridae	<i>Trichodezia albovittata</i>	white-striped black
Geometridae	<i>Xanthotype urticaria</i>	false crocus geometer
Hesperiidae	<i>Ancyloxypha numitor</i>	least skipper
Hesperiidae	<i>Atalopedes campestris</i>	sachem
Hesperiidae	<i>Atrytone logan</i>	Delaware skipper
Hesperiidae	<i>Atrytonopsis hianna</i>	dusted skipper
Hesperiidae	<i>Epargyreus clarus</i>	silver-spotted skipper
Hesperiidae	<i>Erynnis baptisiae</i>	wild indigo duskywing

Hesperiidae	<i>Erynnis horatius</i>	Horace's duskywing
Hesperiidae	<i>Erynnis icelus</i>	dreamy duskywing
Hesperiidae	<i>Erynnis juvenalis</i>	Juvenal's duskywing
Hesperiidae	<i>Euphyes vestris</i>	dun skipper
Hesperiidae	<i>Lerema accius</i>	clouded skipper
Hesperiidae	<i>Nastra iherminier</i>	swarthy skipper
Hesperiidae	<i>Panaquina ocola</i>	ocola skipper
Hesperiidae	<i>Pholisora catullus</i>	common sootywing
Hesperiidae	<i>Poanes hobomok</i>	hobomok skipper
Hesperiidae	<i>Poanes zabulon</i>	zabulon skipper
Hesperiidae	<i>Polites origenes</i>	crossline skipper
Hesperiidae	<i>Polites peckius</i>	Peck's skipper
Hesperiidae	<i>Polites themistocles</i>	tawny-edged skipper
Hesperiidae	<i>Pompeius verna</i>	little glassywing
Hesperiidae	<i>Pyrgus communis</i>	common checkered skipper
Hesperiidae	<i>Thorybes bathyllus</i>	southern cloudywing
Hesperiidae	<i>Thorybes pylades</i>	northern cloudywing
Hesperiidae	<i>Thymelicus lineola</i>	European skipper
Hesperiidae	<i>Wallengrenia egeremet</i>	northern broken dash
Lasiocampidae	<i>Artace cribraria</i>	dot-lined white
Lycaenidae	<i>Callophrys gryneus</i>	olive hairstreak
Lycaenidae	<i>Everes comyntas</i>	eastern tailed blue
Lycaenidae	<i>Feniseca tarquinius</i>	harvester
Lycaenidae	<i>Lycaena Phlaeas</i>	American copper
Lycaenidae	<i>Satyrium titus</i>	coral hairstreak
Lycaenidae	<i>Strymon melinus humuli</i>	gray hairstreak
Noctuidae	<i>Acronicta lithospila</i>	streaked dagger moth
Noctuidae	<i>Agrostis venerabilis</i>	venerable dart
Noctuidae	<i>Caenurgina crassiuscula</i>	clover looper moth
Noctuidae	<i>Euparthenos nubilis</i>	locust underwing
Noctuidae	<i>Heliothis zea</i>	corn earworm moth
Noctuidae	<i>Pseudaletia unipuncta</i>	armyworm moth
Noctuidae	<i>Spodoptera ornithogalli</i>	yellow-striped armyworm moth
Noctuidae	<i>Spodoptera frugiperda</i>	fall armyworm moth
Noctuidae	<i>Xestia badinodis</i>	pale-banded dart
Noctuidae	<i>Zanclognatha sp.</i>	
Nymphalidae	<i>Asterocampa c. celtis</i>	hackberry emperor
Nymphalidae	<i>Boloria bellona</i>	meadow fritillary
Nymphalidae	<i>Cercyonis pegala</i>	common wood nymph
Nymphalidae	<i>Chlosyne nycteis</i>	silvery checkerspot
Nymphalidae	<i>Danaus plexippus</i>	monarch
Nymphalidae	<i>Euptoieta claudia</i>	variegated fritillary
Nymphalidae	<i>Junonia coenia</i>	common buckeye
Nymphalidae	<i>Libytheana carinenta</i>	American snout
Nymphalidae	<i>Limenitis arthemis astyanax</i>	red-spotted purple

Nymphalidae	<i>Megisto cymela</i>	little wood satyr
Nymphalidae	<i>Phyciodes tharos</i>	pearl crescent
Nymphalidae	<i>Speyeria aphrodite</i>	aphrodite fritillary
Nymphalidae	<i>Speyeria cybele</i>	great spangled fritillary
Nymphalidae	<i>Speyeria idalia</i>	regal fritillary
Nymphalidae	<i>Vanessa virginiensis</i>	American lady
Nymphalidae	<i>Vanessa cardui</i>	painted lady
Papilionidae	<i>Battus philenor</i>	pipevine swallowtail
Papilionidae	<i>Papilio cresphontes</i>	giant swallowtail
Papilionidae	<i>Papilio glaucus</i>	eastern tiger swallowtail
Papilionidae	<i>Papilio polyxenes</i>	black swallowtail
Papilionidae	<i>Papilio troilus</i>	spicebush swallowtail
Pieridae	<i>Colias eurytheme</i>	orange sulfur
Pieridae	<i>Colias philodice</i>	clouded sulfur
Pieridae	<i>Eurema nicippi</i>	sleepy orange
Pieridae	<i>Pieris rapae</i>	cabbage white
Sphingidae	<i>Manduca sexta</i>	Carolina sphinx
Sphingidae	<i>Hemaris diffinis</i>	snowberry clearwing
Yponomeutidae	<i>Atteva punctella</i>	ailanthus webworm moth

Class Insecta:

Order: Odonata

Family	Scientific Name	Common Name
Aeshnidae	<i>Anax junius</i>	common green darner
Aeshnidae	<i>Anax longipes</i>	comet darner
Calopterygidae	<i>Calopteryx maculata</i>	ebony jewelwing
Coenagrionidae	<i>Amphiagrion saucium</i>	eastern red damselfly
Coenagrionidae	<i>Argia fumipennis violacea</i>	variable dancer
Coenagrionidae	<i>Enallagma aspersum</i>	azure bluet
Coenagrionidae	<i>Enallagma civile</i>	familiar bluet
Coenagrionidae	<i>Ischnura hastata</i>	citrine forktail
Coenagrionidae	<i>Ischnura verticalis</i>	eastern forktail
Gomphidae	<i>Dromogomphus spinosus</i>	black-shouldered spinyleg
Gomphidae	<i>Lanthus vernalis</i>	southern pygmy clubtail
Gomphidae	<i>Stylurus spiniceps</i>	arrow clubtail
Lestidae	<i>Lestes disjunctus australis</i>	common spreadwing
Lestidae	<i>Lestes eurinus</i>	amber-winged spreadwing
Lestidae	<i>Lestes rectangularis</i>	slender spreadwing
Libellulidae	<i>Celithemis elisa</i>	calico pennant
Libellulidae	<i>Libellula pulchella</i>	twelve-spotted skimmer
Libellulidae	<i>Perithemis tenera</i>	eastern amberwing

Libellulidae	<i>Sumpetrum vicinum</i>	yellow-legged meadowhawk
Libellulidae	<i>Sympetrum rubicundulum</i>	ruby meadowhawk
Libellulidae	<i>Tramea lacerata</i>	black saddlebags
Libellulidae	<i>Sympetrum rubicundulum</i>	ruby meadowhawk
Macromiidae	<i>Macromia illinoisensis illinoisensis</i>	Illinois river cruiser

Class: Insecta
Order: Orthoptera

Family	Scientific Name	Common Name
Blatellidae	<i>Parcoblatta sp.</i>	cockroach
Mantidae	<i>sp.</i>	mantis

Class: Insecta
Order: Plecoptera

Specimen not identified beyond order.

Class: Insecta
Order: Siphonoptera

Specimen not identified beyond order.

Class: Insecta
Order: Trichoptera

Family	Scientific Name	Common Name
Leptoceridae	<i>Mystacides sp.</i>	caddisfly
Limnephilidae		caddisfly
Polycentropodidae	<i>Polycentropus sp.</i>	caddisfly

Class: Malacostraca
Order: Isopoda

Family	Scientific Name	Common Name
Asellidae	<i>Caecidotea sp.</i>	isopod
Oniscidae	<i>Cylisticus sp.</i>	pill bug
Oniscidae	<i>Trachelipus sp.</i>	pill bug

Class: Malacostraca
Order: Amphipoda

Family	Scientific Name	Common Name
--------	-----------------	-------------

Crangonyctidae	<i>Gammarus minus</i>	amphipod
Crangonyctidae	<i>Stygobromus abditus</i>	amphipod

REPTILES AND AMPHIBIANS:

Family	Scientific Name	Common Name
Ambystomatidae	<i>Ambystoma jeffersonianum</i>	Jefferson salamander
Ambystomatidae	<i>Ambystoma maculatum</i>	spotted salamander
Bufo	<i>Bufo americanus</i>	American toad
Chelydridae	<i>Chelydra serpentina</i>	snapping turtle
Colubridae	<i>Coluber constrictor</i>	northern black racer
Colubridae	<i>Diadophis punctatus</i>	ringneck snake
Colubridae	<i>Elaphe obsoleta</i>	black rat snake
Colubridae	<i>Lampropeltis triangulum</i>	eastern milk snake
Colubridae	<i>Nerodia sipedon</i>	northern water snake
Colubridae	<i>Regina septemvittata</i>	queen snake
Colubridae	<i>Thamnophis sirtalis</i>	eastern garter snake
Emydidae	<i>Chrysemys picta</i>	eastern painted turtle
Emydidae	<i>Terrapene carolina</i>	eastern box turtle
Hylidae	<i>Pseudacris crucifer</i>	spring peeper
Hylidae	<i>Pseudacris triseriata</i>	upland chorus frog
Plethodontidae	<i>Eurycea cirrigera</i>	southern two-lined salamander
Plethodontidae	<i>Eurycea longicauda</i>	longtail salamander
Plethodontidae	<i>Desmognathus fuscus</i>	northern dusky salamander
Salamandridae	<i>Notophthalmus viridescens</i>	red-spotted newt
Plethodontidae	<i>Plethodon wehrlei</i>	Wehrle's salamander
Plethodontidae	<i>Pseudotriton ruber</i>	northern red salamander
Ranidae	<i>Rana catesbeiana</i>	bullfrog
Ranidae	<i>Rana clamitans</i>	green frog
Ranidae	<i>Rana sylvatica</i>	wood frog

FISH:

Family	Scientific Name	Common Name
Centrarchidae	<i>Lepomis cyanellus</i>	green sunfish
Centrarchidae	<i>Lepomis macrochirus</i>	bluegill
Centrarchidae	<i>Lepomis cyanellus</i> x <i>L. macrochirus</i>	green sunfish x bluegill
Centrarchidae	<i>Micropterus salmoides</i>	largemouth bass
Cyprinidae	<i>Camptostoma anomalum</i>	central stoneroller
Cyprinidae	<i>Syrprinus carpio</i>	common carp
Cyprinidae	<i>Nocomis leptcephalus</i>	bluehead chub
Cyprinidae	<i>Phoxinus oreas</i>	mountain redbelly dace
Cyprinidae	<i>Rhinichthys atratulus</i>	blacknose dace
Ictaluridae	<i>Noturus insignis</i>	marginated madtom

Salmonidae	<i>Oncorhynchus mykiss</i>	rainbow trout
Salmonidae	<i>Salmo trutta</i>	brown trout

BIRDS: Status code definitions; B = breeding, M = migrant, R = resident, U = undetermined, and W = winter.

Family	Scientific name	Species	Status
Accipitridae	<i>Accipiter cooperii</i>	cooper's hawk	M
Accipitridae	<i>Buteo jamaicensis</i>	red-tailed hawk	R
Accipitridae	<i>Buteo lagopus</i>	rough-legged hawk	M
Accipitridae	<i>Circus cyaneus</i>	northern harrier	M
Accipitridae	<i>Falco sparverius</i>	American kestrel	R
Alaudidae	<i>Eremophila alpestris</i>	horned lark	B
Anatidae	<i>Anas platyrhynchos</i>	mallard duck	R
Anatidae	<i>Aythya collaris</i>	ring-necked duck	W
Anatidae	<i>Lophodytes cucullatus</i>	hooded merganser	W
Apodidae	<i>Chaetura pelagica</i>	chimney swift	B
Ardeidae	<i>Ardea herodias</i>	great blue heron	R
Ardeidae	<i>Butorides striatus</i>	green heron	R
Bombycillidae	<i>Bombycilla cedrorum</i>	cedar waxwing	R
Cathartidae	<i>Cathartes aura</i>	turkey vulture	R
Cathartidae	<i>Coragyps atratus</i>	black vulture	R
Charadriidae	<i>Charadrius vociferus</i>	killdeer	R
Columbidae	<i>Zenaida macroura</i>	mourning dove	R
Corvidae	<i>Corvus brachyrhynchos</i>	American crow	R
Corvidae	<i>Cyanocitta cristata</i>	blue jay	R
Cuculidae	<i>Coccyzus erythrophthalmus</i>	black-billed cuckoo	B
Emberizidae	<i>Agelaius phoeniceus</i>	red-winged blackbird	B
Emberizidae	<i>Ammodramus henslowii</i>	Henslow's sparrow	B
Emberizidae	<i>Ammodramus savannarum</i>	grasshopper sparrow	B
Emberizidae	<i>Cardinalis cardinalis</i>	northern cardinal	R
Emberizidae	<i>Dendroica coronata</i>	yellow-rumped warbler	W
Emberizidae	<i>Dendroica discolor</i>	prairie warbler	B
Emberizidae	<i>Dendroica palmarum</i>	palm warbler	M
Emberizidae	<i>Dolichonyx oryzivorus</i>	bobolink	M
Emberizidae	<i>Geothlypis trichas</i>	common yellowthroat	B
Emberizidae	<i>Guiraca caerulea</i>	blue grosbeak	B
Emberizidae	<i>Icteria virens</i>	yellow-breasted chat	B
Emberizidae	<i>Icterus galbula</i>	northern oriole	B

Emberizidae	<i>Icterus spurius</i>	orchard oriole	B
Emberizidae	<i>Junco hyemalis</i>	northern junco	W
Emberizidae	<i>Melospiza georgiana</i>	swamp sparrow	U
Emberizidae	<i>Melospiza melodia</i>	song sparrow	R
Emberizidae	<i>Molothrus ater</i>	brown-headed cowbird	B
Emberizidae	<i>Passerculus sandwichensis</i>	savannah sparrow	B
Emberizidae	<i>Passerina cyanea</i>	indigo bunting	B
Emberizidae	<i>Pipilo erythrophthalmus</i>	eastern towhee	B
Emberizidae	<i>Piranga olivacea</i>	scarlet tanager	B
Emberizidae	<i>Pooecetes gramineus</i>	vesper sparrow	B
Emberizidae	<i>Quiscalus quiscula</i>	common grackle	B
Emberizidae	<i>Setophaga ruticilla</i>	American redstart	B
Emberizidae	<i>Spizella arborea</i>	American tree sparrow	W
Emberizidae	<i>Spizella passerina</i>	chipping sparrow	B
Emberizidae	<i>Spizella pusilla</i>	field sparrow	B
Emberizidae	<i>Sturnella magna</i>	eastern meadowlark	R
Emberizidae	<i>Zonotrichia albicollis</i>	white-throated sparrow	W
Fringillidae	<i>Carduelis tristis</i>	American goldfinch	R
Fringillidae	<i>Carpodacus mexicanus</i>	house finch	R
Hirundinidae	<i>Hirundo rustica</i>	barn swallow	B
Hirundinidae	<i>Riparia riparia</i>	bank swallow	B
Hirundinidae	<i>Stelgidopteryx serripennis</i>	rough-winged swallow	B
Hirundinidae	<i>Tachycineta bicolor</i>	tree swallow	B
Lanidae	<i>Lanius ludovicianus</i>	loggerhead shrike	R
Mimidae	<i>Mimus polyglottos</i>	northern mockingbird	R
Mimidae	<i>Toxostoma rufum</i>	brown thrasher	B
Muscicapidae	<i>Poliophtila caerulea</i>	blue-gray gnatcatcher	B
Muscicapidae	<i>Sialia sialis</i>	eastern bluebird	R
Muscicapidae	<i>Turdus migratorius</i>	American robin	R, M
Paridae	<i>Parus bicolor</i>	tufted titmouse	R
Paridae	<i>Parus carolinensis</i>	carolina chickadee	R
Phasianidae	<i>Colinus virginianus</i>	northern bobwhite	R
Phasianidae	<i>Meleagris gallopavo</i>	wild turkey	R
Picidae	<i>Colaptes auratus</i>	northern flicker	R
Picidae	<i>Dryocopus pileatus</i>	pileated woodpecker	R
Picidae	<i>Picoides pubescens</i>	downy woodpecker	R
Picidae	<i>Picoides villosus</i>	hairy woodpecker	R
Scolopacidae	<i>Actitis macularia</i>	spotted sandpiper	B
Scolopacidae	<i>Gallinago gallinago</i>	common snipe	B

Scolopacidae	<i>Scolopax minor</i>	American woodcock	B
Scolopacidae	<i>Tringa solitaria</i>	solitary sandpiper	M
Sittidae	<i>Sitta carolinensis</i>	white-breasted nuthatch	R
Strigidae	<i>Asio flammeus</i>	short-eared owl	M
Sturnidae	<i>Sturnus vulgaris</i>	European starling	R
Trochilidae	<i>Archilochus colubris</i>	ruby-throated hummingbird	B
Troglodytidae	<i>Thryothorus ludovicianus</i>	carolina wren	B
Troglodytidae	<i>Troglodytes aedon</i>	house wren	B
Tyrannidae	<i>Contopus virens</i>	eastern pewee	B
Tyrannidae	<i>Empidonax minimus</i>	least flycatcher	B
Tyrannidae	<i>Sayornis phoebe</i>	eastern phoebe	B
Tyrannidae	<i>Tyrannus tyrannus</i>	eastern kingbird	B

MAMMALS:

Family	Scientific Name	Common Name
Canidae	<i>Vulpes vulpes</i>	red fox
Cervidae	<i>Odocoileus virginianus</i>	white-tailed deer
Didelphidae	<i>Didelphis virginiana</i>	Virginia opossum
Soricidae	<i>Blarina brevicauda</i>	northern short-tailed shrew
Soricidae	<i>Cryptotis parva</i>	least shrew
Mephitidae	<i>Mephitis mephitis</i>	striped skunk
Muridae	<i>Peromyscus leucopus</i>	white-footed mouse
Muridae	<i>Microtus pennsylvanicus</i>	meadow vole
Muridae	<i>Zapus hudsonicus</i>	meadow jumping mouse
Procyonidae	<i>Procyon lotor</i>	common raccoon
Sciuridae	<i>Marmota monax</i>	woodchuck
Vespertilionidae	<i>Eptesicus fuscus</i>	big-brown bat
Vespertilionidae	<i>Lasiurus borealis</i>	red bat

Community Type: Successional Woodland/Forest

Acreage: Acres (Hectares) Total: 669 (271) Main: 323 (131) New River: 346 (140)

Community Type Location Maps: Figure 1 and Figure 2

Rare Species Site Maps for Flora: N/A

Rare Species Site Maps for Fauna: N/A

Sample Site Maps for Fauna: N/A

Rare and Unique Species & Communities					
SCIENTIFIC NAME	COMMON NAME	GLOBAL RANK	STATE RANK	FEDERAL STATUS	STATE STATUS
<u>Community Type</u> N/A	Limestone Barren	N/A	N/A	N/A	N/A

COMMUNITY DESCRIPTION

This artificial community is a heterogeneous mixture of woodland and forest. It is difficult to characterize other than by the presence of a few colonizing woody species and a diverse assemblage of weedy herbaceous species. Old field communities, if left undisturbed, eventually develop a woody canopy. The composition varies considerably depending on many factors. At the Arsenal, past history is particularly important since most of the area is geologically similar. A common type of successional woodland develops when old fields are colonized by red cedar and pines. These typically occupy dry exposures and areas where bedrock is shallow. Old field herbs persist until heavy shade favors bryophytes and lichens. Common bryophytes are *Thuidium* and *Rhytidium rugosum* which may nearly carpet the ground.

More mesic sites with greater soil development typically develop a hardwood canopy with the composition dependent on what colonizing species are nearby and whether or not the site had been grazed. Herbaceous composition is too variable to characterize but weedy and exotic species often predominate. Principal woody colonizers include *Robinia pseudoacacia*, *Ailanthus altissima*, *Prunus serotina*, *Rosa multiflora*, *Berberis thunbergii*, and *Viburnum prunifolium*, and sometimes *Juglans nigra*. Herbaceous species are highly variable from one place to another. At the Arsenal, *Poa trivialis*, *Eupatorium rugosum*, and *Verbesina occidentalis* are somewhat universally present but the community otherwise lacks consistent characteristic species.

RARE SPECIES AND COMMUNITY ACCOUNTS

Limestone Barren: This is a unique natural community that is addressed separately in this report. This community type is recognized under the successional woodland/forest community because it is surrounded by successional habitat and management in this area may affect the barren.

MANAGEMENT RECOMMENDATIONS

General Recommendations

This is a transitional habitat that supports species that are not found in some of the other community types. Although these species are not rare, they do add to the diversity found at the Arsenal. Maintenance of these areas is recommended and will require physical management to maintain their condition.

The primary recommendation is to remove the livestock that are grazing in these habitats. Grazed woodlands don't make good pasture or good woodlands. Grazing causes soil compaction and introduction of exotic woody species that degrade the woodland quality.

Successional woodlands will need to be thinned as trees mature. This can be applied on an as needed basis. In addition to thinning, the creation of a soft edge next to grassland habitats is recommended. To create a soft edge, a 60 to 100 foot buffer should be established. Within the first 30 to 50 feet of the edge, 75% of the trees should be removed. Within the next 30 to 50 feet, 50% of the trees should be removed to provide a soft succession from grassland to forest.

Rare Species and Community Recommendations

Limestone Barren: Specific management recommendations for the limestone barren and surrounding area are made under the community type, Limestone Barren (page 18).

TAXA LISTS

PLANTS

Family	Scientific Name	common name
Asteraceae	<i>Eupatorium rugosum</i>	white snakeroot
Asteraceae	<i>Verbesina occidentalis</i>	small yellow crownbeard
Berberidaceae	<i>Berberis thunbergii</i>	Japanese barberry
Caprifoliaceae	<i>Viburnum prunifolium</i>	black haw
Fabaceae	<i>Robinia pseudoacacia</i>	black locust
Hylocomiaceae	<i>Rhytidium rugosum</i>	
Juglandaceae	<i>Juglans cinerea</i>	butternut
Poaceae	<i>Poa trivialis</i>	rough bluegrass
Rosaceae	<i>Prunus serotina</i>	black cherry
Rosaceae	<i>Rosa multiflora</i>	multiflora rose
Simarubaceae	<i>Ailanthus altissima</i>	tree of heaven
Thuidiaceae	<i>Thuidium sp.</i>	

INVERTEBRATES

Class: Arachnidae

Order: Araneae

Family	Scientific Name	Common Name
Agelenidae	<i>Cicurina sp.</i>	
Anyphaenidae	<i>Anyphaena celer</i>	
Anyphaenidae	<i>Anyphaena sp.</i>	
Hahniidae	<i>Neoantistea magna</i>	
Linyphiidae	<i>Pityohyphantes costatus</i>	
Lycosidae	<i>Allocosa funerea</i>	
Lycosidae	<i>Pardosa sexatilis</i>	
Lycosidae	<i>Pardosa sp.</i>	
Lycosidae	<i>Pirata minutus</i>	
Lycosidae	<i>Schizocosa avida</i>	
Lycosidae	<i>Schizocosa duplex</i>	
Salticidae	<i>Phidippus sp.</i>	
Theridiidae	<i>Achaearanea porteri</i>	

Class: Insecta

Order: Coleoptera

Family	Scientific Name	Common Name
--------	-----------------	-------------

Carabidae	<i>Pterostichus mutus</i>	Ground beetle
Endomychidae	<i>Lycoperdina ferroginea</i>	Handsome fungus beetle
Lucanidae	<i>sp.</i>	Stag beetle
Psephenidae	<i>sp.</i>	Water-penny beetle
Staphylinidae	<i>Arpedium schwarzi</i>	Rove beetle

Class: Insecta
Order: Diptera

Family	Scientific Name	Common Name
Empididae	<i>sp.</i>	Dance fly
Simuliidae	<i>sp.</i>	Black fly
Tipulidae	<i>sp.</i>	Crane fly

Class: Insecta
Order: Heteroptera

Family	Scientific Name	Common Name
Belostomatidae	<i>Belostoma fluminea</i>	Giant water bug

Class: Insecta
Order: Hymenoptera

Family	Scientific Name	Common Name
Colletidae	<i>sp.</i>	Colletid bee

Class: Insecta
Order: Lepidoptera

Family	Scientific Name	Common Name
Arctiidae	<i>sp.</i>	Tiger moth
Hesperiidae	<i>Ancyloxypha numitor</i>	Least skipper
Hesperiidae	<i>Atalopedes campestris</i>	Sachem
Hesperiidae	<i>Atrytonopsis hianna</i>	Dusted skipper
Hesperiidae	<i>Thorybes bathyllus</i>	Southern cloudywing
Hesperiidae	<i>Thorybes pylades</i>	Northern cloudywing
Lycaenidae	<i>Celastrina l. ladon "neglecta"</i>	Summer azure
Lycaenidae	<i>Celastrina l. ladon "violacea"</i>	Spring azure
Lycaenidae	<i>Everes comyntas</i>	Eastern tailed blue
Nymphalidae	<i>Cercyonis pegala</i>	Common wood nymph
Nymphalidae	<i>Danaus plexippus</i>	Monarch
Nymphalidae	<i>Limenitis arthemis astyanax</i>	Red-spotted purple
Nymphalidae	<i>Megisto cymela</i>	Little wood satyr
Nymphalidae	<i>Phyciodes tharos</i>	Pearl crescent

Nymphalidae	<i>Speyeria aphrodite</i>	Aphrodite fritillary
Nymphalidae	<i>Speyeria cybele</i>	Great spangled fritillary
Papilionidae	<i>Battus philenor</i>	Pipevine swallowtail
Papilionidae	<i>Papilio glaucus</i>	Eastern tiger swallowtail
Papilionidae	<i>Papilio troilus</i>	Spicebush swallowtail
Pieridae	<i>Colias eurytheme</i>	Orange sulfur
Pieridae	<i>Colias philodice</i>	Clouded sulfur
Pieridae	<i>Pieris rapae</i>	Cabbage white

Class: Insecta

Order: Neuroptera

Family	Scientific Name	Common Name
Corydalidae	<i>Nigronia sp.</i>	Dobsonfly

Class: Insecta

Order: Trichoptera

Family	Scientific Name	Common Name
Hydropsychidae	<i>Cheumatopsyche sp.</i>	Caddisfly
Hydropsychidae	<i>Hydropsyche sp.</i>	Caddisfly
Hydropsychidae	<i>Potomyia sp.</i>	Caddisfly
Philopotamidae	<i>Chimarra sp.</i>	Caddisfly
Psychomyiidae	<i>Lype diversa</i>	Caddisfly

FISH

No available habitat.

REPTILES AND AMPHIBIANS

Family	Scientific Name	Common Name
Bufonidae	<i>Bufo americanus</i>	American toad
Colubridae	<i>Carphophis a. amoenus</i>	eastern worm snake
Emydidae	<i>Terrapene carolina</i>	eastern box turtle
Hylidae	<i>Pseudacris crucifer</i>	spring peeper
Plethodontidae	<i>Desmognathus fuscus</i>	northern dusky salamander
Plethodontidae	<i>Eurycea cirrigera</i>	southern two-lined salamander
Ranidae	<i>Rana sylvatica</i>	wood frog

BIRDS: Status code definitions; B = breeding, M = migrant, R = resident, U = undetermined, and W = winter.

Family	Scientific name	Species	Status
Columbidae	<i>Zenaida macroura</i>	mourning dove	R

Corvidae	<i>Corvus brachyrhynchos</i>	American crow	R
Corvidae	<i>Cyanocitta cristata</i>	blue jay	R
Cuculidae	<i>Coccyzus americanus</i>	yellow-billed cuckoo	B
Emberizidae	<i>Cardinalis cardinalis</i>	northern cardinal	R
Emberizidae	<i>Dendroica coronata</i>	yellow-rumped warbler	W
Emberizidae	<i>Dendroica fusca</i>	blackburnian warbler	M
Emberizidae	<i>Dendroica pensylvanica</i>	chestnut-sided warbler	B
Emberizidae	<i>Dendroica virens</i>	black-throated green	B
Emberizidae	<i>Icterus galbula</i>	northern oriole	B
Emberizidae	<i>Junco hyemalis</i>	northern junco	W
Emberizidae	<i>Melospiza melodia</i>	song sparrow	R
Emberizidae	<i>Mniotilta varia</i>	black-and-white warbler	B
Emberizidae	<i>Parula americana</i>	northern parula	B
Emberizidae	<i>Passerina cyanea</i>	indigo bunting	B
Emberizidae	<i>Pheucticus ludovicianus</i>	rose-breasted grosbeak	B
Emberizidae	<i>Pipilo erythrophthalmus</i>	eastern towhee	B
Emberizidae	<i>Piranga olivacea</i>	scarlet tanager	B
Emberizidae	<i>Quiscalus quiscula</i>	common grackle	B
Emberizidae	<i>Setophaga ruticilla</i>	American redstart	B
Emberizidae	<i>Spizella pusilla</i>	field sparrow	B
Emberizidae	<i>Zonotrichia albicollis</i>	white-throated sparrow	W
Fringillidae	<i>Carduelis tristis</i>	American goldfinch	R
Mimidae	<i>Dumetella carolinensis</i>	gray catbird	B
Mimidae	<i>Mimus polyglottos</i>	northern mockingbird	R
Mimidae	<i>Toxostoma rufum</i>	brown thrasher	B
Muscicapidae	<i>Hylocichla mustelina</i>	wood thrush	B
Muscicapidae	<i>Poliophtila caerulea</i>	blue-gray gnatcatcher	B
Muscicapidae	<i>Turdus migratorius</i>	American robin	R, M
Paridae	<i>Parus atricapillus</i>	black-capped chickadee	W
Paridae	<i>Parus bicolor</i>	tufted titmouse	R
Paridae	<i>Parus carolinensis</i>	carolina chickadee	R
Phasianidae	<i>Meleagris gallopavo</i>	wild turkey	R
Picidae	<i>Colaptes auratus</i>	northern flicker	R
Picidae	<i>Melanerpes carolinus</i>	red-bellied woodpecker	R
Picidae	<i>Picoides pubescens</i>	downy woodpecker	R
Picidae	<i>Picoides villosus</i>	hairy woodpecker	R
Picidae	<i>Sphyrapicus varius</i>	yellow-bellied sapsucker	W
Scolopacidae	<i>Scolopax minor</i>	American woodcock	B
Sittidae	<i>Sitta carolinensis</i>	white-breasted nuthatch	R
Troglodytidae	<i>Thryothorus ludovicianus</i>	carolina wren	B
Troglodytidae	<i>Troglodytes aedon</i>	house wren	B
Tyrannidae	<i>Contopus virens</i>	eastern pewee	B
Tyrannidae	<i>Empidonax virens</i>	acadian flycatcher	B
Tyrannidae	<i>Myiarchus crinitus</i>	great crested flycatcher	B
Vireonidae	<i>Vireo flavifrons</i>	yellow-throated vireo	B
Vireonidae	<i>Vireo olivaceus</i>	red-eyed vireo	B

MAMMALS

Family	Scientific Name	Common Name
Canidae	<i>Vulpes vulpes</i>	red fox
Cervidae	<i>Odocoileus virginianus</i>	white-tailed deer
Diedelphidae	<i>Didelphis virginiana</i>	Virginia opossum
Soricidae	<i>Blarina brevicauda</i>	northern short-tailed shrew
Soricidae	<i>Cryptotis parva</i>	least shrew
Mephitidae	<i>Mephitis mephitis</i>	striped skunk
Muridae	<i>Microtus pennsylvanicus</i>	meadow vole
Muridae	<i>Microtus pinetorum</i>	woodland vole
Muridae	<i>Peromyscus leucopus</i>	white-footed mouse
Muridae	<i>Zapus hudsonicus</i>	meadow jumping mouse
Procyonidae	<i>Procyon lotor</i>	common raccoon
Sciuridae	<i>Marmota monax</i>	woodchuck

Community Type: Pine Plantation

Acreage: Acres (Hectares) Total: 771 (313) Main: 357 (145) New River: 414 (168)

Community Type Location Maps: Figure 1 and Figure 2

Rare Species Site Maps for Flora: N/A

Rare Species Site Maps for Fauna: N/A

Sample Site Maps for Fauna: Figures 7 through 16

Rare and Unique Species & Communities

SCIENTIFIC NAME	COMMON NAME	GLOBAL RANK	STATE RANK	FEDERAL STATUS	STATE STATUS
--------------------	----------------	----------------	---------------	-------------------	-----------------

No rare and unique species or communities were found.

COMMUNITY DESCRIPTION

Large acreages of once open land at the Main and New River facilities are now maturing pine forests. Three species of pines are involved, *Pinus strobus* (white pine), *Pinus echinata* (shortleaf pine), and *Pinus taeda* (loblolly pine). White pine stands provide the deepest shade and are nearly devoid of other species, herbaceous or woody. Loblolly and shortleaf are sometimes interplanted elsewhere and support a more diverse but still very meager flora. Numerous dead trees (bark beetle damage) have opened up these stands and allowed invasion and proliferation of woody, especially exotic woody, species. Principal invaders are *Berberis thunbergii*, *Rubus phoenicolasius*, *Lonicera japonica*, *Symphoricarpos orbiculatus*, *Verbesina occidentalis*, and some *Ailanthus altissima*. The most frequent herbs are *Asplenium platyneuron*, *Diphasiastrum digitatum*, *Polystichum acrostichoides*, *Dactylis glomerata*, *Festuca elatior*, *Stellaria media*, *Cardamine hirsuta*, and *Satureja vulgaris*. Herbaceous species are very patchy and vary from place to place but are overwhelmingly exotic species. The invasion of exotic woody species is a major concern for future management.

RARE SPECIES AND COMMUNITY ACCOUNTS

No rare or unique species or communities were found.

MANAGEMENT RECOMMENDATIONS

General Recommendations

This is an artificial habitat type that does not contain any rare or unique species. However, pines do provide habitat cover for some wildlife. Pine stands are successional and will eventually be replaced by hardwoods unless measures to reverse this trend are taken. The pine plantations can be managed on a rotational basis such that young pines are available as wildlife cover. Creating clearings in the pines that will regenerate pine will provide a supply of young pine for wildlife cover. These clearings will require ground disturbance that exposes mineral soil in order for pines to become established. If these areas are invaded by hardwoods, then no management is recommended in order to maintain the pines. In general, hardwood forests are preferred by wildlife over pine plantations.

As mentioned in the management recommendations for the Bottomland Hardwood community type, the pine plantation along the New River should be converted to bottomland hardwoods.

TAXA LISTS

PLANTS

Family	Scientific Name	Common Name
Lycopodiaceae	<i>Diphasiastrum digitatum</i>	southern running-pine
Dryopteridaceae	<i>Polystichum acrostichoides</i>	Christmas fern
Asteraceae	<i>Verbesina occidentalis</i>	small yellow crownbeard
Berberidaceae	<i>Berberis thunbergii</i>	Japanese barberry
Brassicaceae	<i>Cardamine hirsuta</i>	Hairy bittercrest
Caprifoliaceae	<i>Lonicera japonica</i>	Japanese honeysuckle
Caprifoliaceae	<i>Symphoricarpos orbiculatus</i>	coral-berry
Caryophyllaceae	<i>Stellaria media</i>	common chickweed
Lamiaceae	<i>Satureja vulgaris</i>	field basil
Pinaceae	<i>Pinus echinata</i>	shortleaf pine
Pinaceae	<i>Pinus strobus</i>	white pine
Pinaceae	<i>Pinus taeda</i>	loblolly pine
Poaceae	<i>Dactylis glomerata</i>	orchard grass
Poaceae	<i>Festuca elatior</i>	tall fescue
Aspleniaceae	<i>Asplenium platyneuron</i>	ebony spleenwort
Rosaceae	<i>Rubus phoenicolasius</i>	wine berry
Simarubaceae	<i>Ailanthus altissima</i>	tree of heaven

INVERTEBRATES

Class: Arachnidae

Order: Araneae

Family	Scientific Name	Common Name
Agelenidae	<i>Coras medicinalis</i>	
Agelenidae	<i>Wadotes hybridus</i>	
Agelenidae	<i>Wadotes sp.</i>	
Araneidae	<i>Mangora placida</i>	
Clubionidae	<i>Castianeira longipalpus</i>	
Clubionidae	<i>Clubiona abboti</i>	
Dictynidae	<i>Dictyna sp.</i>	
Gnaphosidae	<i>Drassyllus aprilinus</i>	
Gnaphosidae	<i>Drassyllus eremitis</i>	
Gnaphosidae	<i>Drassyllus fallens</i>	
Gnaphosidae	<i>Zelotes duplex</i>	
Gnaphosidae	<i>Zelotes hentzi</i>	
Linyphiidae	<i>Cornicularia sp.</i>	
Linyphiidae	<i>Lepthyphantes zebra</i>	
Linyphiidae	<i>Prolinyphia marginata</i>	

Linyphiidae	<i>Tapinopa bilineata</i>	
Lycosidae	<i>Hogna frondicola</i>	
Lycosidae	<i>Pirata sedentarius</i>	
Lycosidae	<i>Schizocosa ocreata</i>	
Lycosidae	<i>Schizocosa sp.</i>	
Lycosidae	<i>Trabea aurantiaca</i>	
Mimetidae	<i>Ero leonina</i>	
Philodromidae	<i>Philodromus minutus</i>	
Pisauridae	<i>Dolomedes albineus</i>	
Tetragnathidae	<i>Leucauge venusta</i>	
Theridiidae	<i>Argyrodes trigona</i>	
Theridiidae	<i>Enoplognatha marmorata</i>	
Theridiidae	<i>Steatoda americana</i>	
Theridiidae	<i>Thymoites marxi</i>	
Thomisidae	<i>Xysticus bicuspis</i>	
Thomisidae	<i>Xysticus elegans</i>	

Class: Diploda

Order: Polydesmida

Family	Scientific Name	Common Name
Polydesmidae	<i>Pseudopolydesmus collinus</i>	millipede

Class: Insecta

Order: Coleoptera

Family	Scientific Name	Common Name
Carabidae	<i>Apenes lucidula</i>	ground beetle
Carabidae	<i>Arisodactylus nigerrimus</i>	ground beetle
Carabidae	<i>Arisodactylus nigerrinus</i>	ground beetle
Carabidae	<i>Chlaenius emarginatus</i>	ground beetle
Carabidae	<i>Dicaelus dilatatus</i>	ground beetle
Carabidae	<i>Dicaelus politus</i>	ground beetle
Carabidae	<i>Oligthopus parmatum</i>	ground beetle
Chrysomelidae	<i>Glyptoscelis pubescens</i>	leaf beetle
Cucujidae	<i>sp.</i>	flat bark beetle
Endomychidae	<i>Aphorista vittata</i>	handsome fungus beetle
Endomychidae	<i>Mycetina perpulchra</i>	handsome fungus beetle
Haliplidae	<i>sp.</i>	crawling water beetle

Class: Insecta

Order: Collembola

Family	Scientific Name	Common Name
Hypogastridae	<i>sp.</i>	springtail

Sminthuridae	<i>sp.</i>	springtail
--------------	------------	------------

Class: Insecta
Order: Diptera

Family	Scientific Name	Common Name
Ceratopogonidae	<i>sp.</i>	biting midge
Ephydriidae	<i>sp.</i>	shore fly
Heleomyzidae	<i>sp.</i>	heleomyzid fly
Phoridae	<i>sp.</i>	humpbacked fly
Pipunculidae	<i>sp.</i>	big-headed fly
Sciaridae	<i>sp.</i>	dark-winged fungus gnat
Syrphidae	<i>sp.</i>	syrphid fly

Class: Insecta
Order: Heteroptera

Family	Scientific Name	Common Name
Gerridae	<i>Gerris argenticollis</i>	water strider
Hebridae	<i>Merragotta sp.</i>	velvet water bug

Class: Insecta
Order: Hymenoptera

Family	Scientific Name	Common Name
Formicidae	<i>Ambylopone pallipes</i>	ponerinae (ant)
Formicidae	<i>sp.</i>	formicinae (ant)
Formicidae	<i>sp.</i>	myrmicinae (ant)
Vespidae	<i>Dolichovespula maculata</i>	vespinae (vespid wasp)

Class: Insecta
Order: Neuroptera

Family	Scientific Name	Common Name
Chrysopidae	<i>sp.</i>	green lacewing
Hemerobiidae	<i>sp.</i>	lacewing

Class: Insecta
Order: Odonata

Family	Scientific Name	Common Name
Coenagrionidae	<i>Agria fumipennis violacea</i>	variable dancer
Coenagrionidae	<i>Enallagma signatum</i>	orange bluet
Coenagrionidae	<i>Ishnura Hastata</i>	citrine forktail
Coenagrionidae	<i>Ishnura verticalis</i>	eastern forktail

Corduliida	<i>Epithea cynosura</i>	common baskettail
Gomphidae	<i>Gomphus exilis</i>	lancet clubtail
Lestidae	<i>Lestes vigilax</i>	swamp spreadwing
Libellulidae	<i>Erythemis simplicicollis</i>	eastern pondhawk
Libellulidae	<i>Pachydiplax longipennis</i>	blue dasher
Gryllacrididae	<i>sp.</i>	camel cricket

Class: Insecta

Order: Lepidoptera

Family	Scientific Name	Common Name
Arctiidae	<i>Estigmene acrea</i>	salt marsh moth
Arctiidae	<i>Grammia virgo</i>	virgin tiger moth
Arctiidae	<i>Haploa lecontei</i>	leconte's haploa
Arctiidae	<i>Holomelina opella</i>	tawny holomelina
Geometridae	<i>Epimecis hortaria</i>	tulip-tree beauty
Geometridae	<i>Eubaphe mendica</i>	the beggar
Geometridae	<i>Eutrapela clemataria</i>	curve-toothed geometer
Geometridae	<i>Heterophleps trigutteria</i>	three-spotted fillip
Geometridae	<i>Metarranthis hypochraria</i>	common metarranthis
Geometridae	<i>Nepytia canosaria</i>	false hemlock looper moth
Geometridae	<i>Patalene olyzonaria puber</i>	juniper geometer
Geometridae	<i>Scopula inductata</i>	soft-lined wave
Geometridae	<i>Scopula limboundata</i>	large lace-border
Hesperiidae	<i>Ancyloxypha numitor</i>	least skipper
Hesperiidae	<i>Atalopedes campestris</i>	sachem
Hesperiidae	<i>Epargyreus clarus</i>	silver-spotted skipper
Hesperiidae	<i>Erynnis baptisiae</i>	wild indigo duskywing
Hesperiidae	<i>Erynnis juvenalis</i>	Juvenal's duskywing
Lasiocampidae	<i>Malacosoma americanum</i>	tent caterpillar
Lasiocampidae	<i>Malacosoma sp.</i>	tent caterpillar
Limacodidae	<i>Packardia geminata</i>	slug catterpillar moth
Lycaenidae	<i>Callophrys niphon</i>	eastern pine elfin
Lycaenidae	<i>Everes comyntas</i>	eastern tailed blue
Noctuidae	<i>Caenurgina erechtea</i>	forage looper moth
Noctuidae	<i>Feltia jaculifera</i>	dingy cutworm moth
Noctuidae	<i>Galgula partita</i>	the wedgeling
Noctuidae	<i>Leucania sp.</i>	armyworm moth
Noctuidae	<i>Mocis texana</i>	texas mocis
Noctuidae	<i>Panthea furcilla</i>	eastern panthea
Noctuidae	<i>Plathypena scabra</i>	green cloverworm moth
Noctuidae	<i>sp.</i>	noctuid moth
Noctuidae	<i>Xestia elimata</i>	
Nymphalidae	<i>Cercyonis pegala</i>	common wood nymph

Nymphalidae	<i>Chlosyne nycteis</i>	silvery checkerspot
Nymphalidae	<i>Danaus plexippus</i>	monarch
Nymphalidae	<i>Limenitis arthemis astyanax</i>	red-spotted purple
Nymphalidae	<i>Megisto cymela</i>	little wood satyr
Nymphalidae	<i>Phyciodes tharos</i>	pearl crescent
Nymphalidae	<i>Speyeria aphrodite</i>	aphrodite fritillary
Nymphalidae	<i>Speyeria cybele</i>	great spangled fritillary
Nymphalidae	<i>Vanessa atalanta</i>	red admiral
Nymphalidae	<i>Vanessa virginiensis</i>	American lady
Papilionidae	<i>Battus philenor</i>	pipevine swallowtail
Papilionidae	<i>Papilio glaucus</i>	eastern tiger swallowtail
Pieridae	<i>Colias eurytheme</i>	orange sulfur
Pieridae	<i>Colias philodice</i>	clouded sulfur
Pieridae	<i>Pieris rapae</i>	cabbage white
Sphingidae	<i>Hemaris thysbe</i>	hummingbird clearwing

Class: Malacostraca
Order: Isopoda

Family	Scientific Name	Common Name
Ligiidae	<i>Ligidium sp.</i>	pill bug

FISH

REPTILES AND AMPHIBIANS

Family	Scientific Name	Common Name
Ambystomatidae	<i>Ambystoma jeffersonianum</i>	Jefferson salamander
Bufo	<i>Bufo americanus</i>	American toad
Chelydridae	<i>Chelydra serpentina</i>	snapping turtle
Colubridae	<i>Carphophis a. amoenus</i>	eastern worm snake
Colubridae	<i>Diadophis punctatus</i>	ringneck snake
Colubridae	<i>Elaphe obsoleta</i>	black rat snake
Colubridae	<i>Lampropeltis triangulum</i>	eastern milk snake
Colubridae	<i>Thamnophis sirtalis</i>	eastern garter snake
Emydidae	<i>Chrysemys picta</i>	eastern painted turtle
Emydidae	<i>Terrapene c. carolina</i>	eastern box turtle
Hylidae	<i>Hyla versicolor</i>	gray treefrog
Hylidae	<i>Pseudacris crucifer</i>	spring peeper
Hylidae	<i>Pseudacris triseriata</i>	upland chorus frog
Plethodontidae	<i>Eurycea cirrigera</i>	southern two-lined salamander
Plethodontidae	<i>Eurycea longicauda</i>	longtail salamander

Plethodontidae	<i>Plethodon cinereus</i>	redback salamander
Plethodontidae	<i>Pseudotriton ruber</i>	northern red salamander
Ranidae	<i>Rana catesbeiana</i>	bullfrog
Ranidae	<i>Rana clamitans</i>	green frog

BIRDS: Status code definitions; B = breeding, M = migrant, R = resident, U = undetermined, and W = winter.

Family	Scientific Name	Common Name	Status
Accipitridae	<i>Buteo jamaicensis</i>	red-tailed hawk	R
Accipitridae	<i>Circus cyaneus</i>	northern harrier	M
Alcedinidae	<i>Cerule alcyon</i>	belted kingfisher	B
Anatidae	<i>Anas crecca</i>	Green-winged teal	W
Anatidae	<i>Anas discors</i>	Blue-winged teal	W
Anatidae	<i>Anas platyrhynchos</i>	Mallard duck	R
Anatidae	<i>Anas rubripes</i>	American black duck	R, M
Anatidae	<i>Anas strepera</i>	Gadwall	W
Anatidae	<i>Aythya collaris</i>	Ring-necked duck	W
Anatidae	<i>Bucephala albeola</i>	bufflehead	W
Anatidae	<i>Lophodytes cucullatus</i>	hooded merganser	W
Apodidae	<i>Chaetura pelagica</i>	chimney swift	B
Ardeidae	<i>Adea herodias</i>	great blue heron	R
Bombycillidae	<i>Bombycilla cedrorum</i>	cedar waxwing	R
Caprimulgidae	<i>Chordeiles minor</i>	common nighthawk	B
Certhiidae	<i>Certhia americana</i>	brown creeper	
Columbidae	<i>Zenaida macroura</i>	mourning dove	R
Corvidae	<i>Corvus brachyrhynchos</i>	American crow	R
Corvidae	<i>Cyanocitta cristata</i>	blue jay	R
Emberizidae	<i>Agelaius phoeniceus</i>	red-winged blackbird	B
Emberizidae	<i>Cardinalis cardinalis</i>	northern cardinal	R
Emberizidae	<i>Dendroica coronata</i>	yellow-rumped warbler	W
Emberizidae	<i>Dendroica palmarum</i>	palm warbler	M
Emberizidae	<i>Dendroica pinus</i>	pine warbler	B
Emberizidae	<i>Dendroica virens</i>	black-throated green warbler	B
Emberizidae	<i>Geothlypis trichas</i>	common yellowthroat	B
Emberizidae	<i>Junco hyemalis</i>	northern junco	W
Emberizidae	<i>Melospiza melodia</i>	song sparrow	R
Emberizidae	<i>Molothrus ater</i>	brown-headed cowbird	B
Emberizidae	<i>Passerina cyanea</i>	indigo bunting	B

Emberizidae	<i>Pipilo erythrophthalmus</i>	eastern towhee	B
Emberizidae	<i>Piranga olivacea</i>	scarlet tanager	B
Emberizidae	<i>Quiscalus quiscula</i>	common grackle	B
Emberizidae	<i>Spizella passerina</i>	chipping sparrow	B
Emberizidae	<i>Spizella pusilla</i>	field sparrow	B
Emberizidae	<i>Zonotrichia albicollis</i>	white-throated sparrow	W
Fringillidae	<i>Carduelis tristis</i>	American goldfinch	R
Fringillidae	<i>Carpodacus mexicanus</i>	house finch	R
Hirundinidae	<i>Hirundo rustica</i>	barn swallow	B
Hirundinidae	<i>Stelgidopteryx serripennis</i>	rough-winged swallow	B
Mimidae	<i>Dumetella carolinensis</i>	gray catbird	B
Mimidae	<i>Mimus polyglottos</i>	northern mockingbird	R
Muscicapidae	<i>Hylocichla mustelina</i>	wood thrush	B
Muscicapidae	<i>Poliophtila caerulea</i>	blue-gray gnatcatcher	B
Muscicapidae	<i>Regulus calendula</i>	ruby-crowned kniglet	W
Muscicapidae	<i>Regulus satrapa</i>	golden-crowned kinglet	W
Muscicapidae	<i>Sialia sialis</i>	eastern bluebird	B
Muscicapidae	<i>Turdus migratorius</i>	American robin	B, M
Paridae	<i>Parus bicolor</i>	tufted titmouse	R
Paridae	<i>Parus carolinensis</i>	carolina chickadee	R
Phasianidae	<i>Meleagris gallopavo</i>	wild turkey	R
Picidae	<i>Colaptes auratus</i>	northern flicker	R
Picidae	<i>Dryocopus pileatus</i>	pileated woodpecker	R
Picidae	<i>Melanerpes carolinus</i>	red-bellied woodpecker	R
Picidae	<i>Picoides pubescens</i>	downy woodpecker	R
Picidae	<i>Picoides villosus</i>	hairy woodpecker	R
Podicipedidae	<i>Podilymbus podiceps</i>	pied-billed grebe	W
Rallidae	<i>Fulica americana</i>	American coot	W
Scolopacidae	<i>Tringa melanoleuca</i>	greater yellowlegs	W
Sittidae	<i>Sitta canadensis</i>	red-breasted nuthatch	W
Sittidae	<i>Sitta carolinensis</i>	white-breasted nuthatch	R
Sittidae	<i>Sitta pusilla</i>	brown-headed nuthatch	B
Strigidae	<i>Otus asio</i>	eastern screech owl	R
Sturnidae	<i>Sturnus vulgaris</i>	European starling	R
Troglodytidae	<i>Thryothorus ludovicianus</i>	carolina wren	B
Troglodytidae	<i>Troglodytes aedon</i>	house wren	B
troglodytidae	<i>Troglodytes troglodytes</i>	winter wren	U
Tyrannidae	<i>Contopus virens</i>	eastern pewee	B

Tyrannidae	<i>Myiarchus crinitus</i>	great crested flycatcher	B
Tyrannidae	<i>Sayornis phoebe</i>	eastern phoebe	B
Tyrannidae	<i>Tyrannus tyrannus</i>	eastern kingbird	B
Vireonidae	<i>Vireo flavifrons</i>	yellow-throated vireo	B
Vireonidae	<i>Vireo olivaceus</i>	red-eyed vireo	B
Vireonidae	<i>Vireo solitarius</i>	solitary vireo	M

MAMMALS

Family	Scientific Name	Common Name
Canidae	<i>Vulpes vulpes</i>	red fox
Cervidae	<i>Odocoileus virginianus</i>	white-tailed deer
Didelphidae	<i>Didelphis virginiana</i>	Virginia opossum
Soricidae	<i>Blarina brevicauda</i>	northern short-tailed shrew
Soricidae	<i>Cryptotis parva</i>	least shrew
Mephitidae	<i>Mephitis mephitis</i>	striped skunk
Muridae	<i>Microtus pennsylvanicus</i>	meadow vole
Muridae	<i>Peromyscus leucopus</i>	white-footed mouse
Muridae	<i>Reithrodontomys humilllis</i>	eastern harvest mouse
Muridae	<i>Zapus hudsonicus</i>	meadow jumping mouse
Procyonidae	<i>Procyon lotor</i>	common raccoon
Sciuridae	<i>Marmota monax</i>	woodchuck

Community Type: Wet Meadow/Marsh and Ponds

Acreeage: Acres (Hectares) Total:4.2 (0.2) Main: not calculated New River: 4.2 (0.2)

Community Type Location Maps: Figure 1 and Figure 2

Rare Species Site Maps for Flora: Figure 3 and Figure 4

Rare Species Site Maps for Fauna: N/A

Sample Site Maps for Fauna: N/A

Rare and Unique Species & Communities					
SCIENTIFIC NAME	COMMON NAME	GLOBAL RANK	STATE RANK	FEDERAL STATUS	STATE STATUS
<u>Plants</u>					
<i>Carex suberecta</i>	Prairie straw sedge	G4	S3	N/A	Watchlist
<i>Juncus brachycephalus</i>	Small-headed rush	G5	S2	N/A	Rare List
<i>Liparis loeselii</i>	Bog Twayblade	G5	S2	N/A	Rare List
<i>Spiranthes lucida</i>	Shining ladies'-tresses	G5	S1	N/A	Rare List
<i>Sporobolus asper</i>	Tall Dropseed				

COMMUNITY DESCRIPTIONS

Wetmeadow/Marsh

Small areas of saturated soil conditions bordering spring branches, streams, and ponds support a wetland flora distinct from the upland vegetation. These are mostly too small or linear to map. Groundwater or poor drainage create marshy conditions which support a few unusual species but lack either the specialized species or community structure of the Calcareous Fen community. Typical species of this habitat are *Typha latifolia*, *Sparganium americanum*, *Glyceria striata*, *Leersia oryzoides*, *Carex frankii*, *Carex lurida*, *Carex vulpinoidea*, *Schoenoplectus validus*, *Scirpus atrovirens*, *Scirpus pendulus*, *Acorus calamus*, *Juncus dudleyi*, *Boehmeria cylindrica*, *Impatiens capensis*, *Epilobium coloratum*, *Lycopus uniflorus*, *Mimulus ringens*, *Veronica anagalis-aquatica*, *Eupatorium perfoliatum*, *Helenium autumnale*, etc. All of these are wide-ranging species that occur in a variety of wetland habitats.

Rare species: *Sporobolus asper*
Carex suberecta
Juncus brachycephalus
Liparis loeselii
Spiranthes lucida

Note: Although these habitats are artificially maintained now, they are significant in providing habitat for these rare species.

Pond

Several artificial ponds provide habitat for submersed aquatic plants and certain animal species that might not otherwise be present on the Site. The emergent flora of this habitat is essentially identical to that of the wetmeadow/marsh community but that habitat lacks submersed species such as *Potamogeton crispus*, *Potamogeton foliosus*, and *Callitriche heterophylla*. This habitat, however, is conspicuously lacking in species diversity.

Rare Species: None

RARE SPECIES AND COMMUNITY ACCOUNTS

Prairie Straw Sedge (*Carex suberecta*): Prairie straw sedge is a species associated with fens and other alkaline wetland habitats. The species was found only at the New River facility at three locations. At the Calcareous Fen community, numerous plants co-occur with other prairie fen sedge species in the central portion of the wetland. The second population occurs in the small marsh area adjacent to Big Pond. The third population was comprised of scattered individuals along the small stream with *Spiranthes lucida*. A careful search of other streambanks at the New River facility would be likely to turn up additional locations for this species.

Small-headed Rush (*Juncus brachycephalus*): This rush species was found at both Sites, one place at the Main facility and several at the New River facility. The population at the Main facility is in the shallows along the S shore of the manmade pond 2 kilometers NE of the Main Gate. At the New River facility, it occurs at the Calcareous Fen natural community, at Big Pond, and scattered along limy spring branches in several places. It prefers perennially wet ground with a fresh supply of highly alkaline water. It matures very late in the season and is difficult to identify until then, so there could be other populations that went undetected. Water with a high pH seems to be the critical factor for this species.

Bog Twayblade (*Liparis loeselii*): Loesel's twayblade was found at two sites at the New River facility. Both were grass and sedge-dominated damp ground along spring branches. Surprisingly, the species wasn't found at the Calcareous Fen which would seem to be an ideal site. This diminutive orchid is very difficult to see when flowering among its graminoid associates. In fruit, its pale yellow-green color aids in spotting it. On August 14, 1997, about 20 fruiting plants were found along about 100 meters of the branch. In 1998, the species was in full flower on June 16 at which time a second small population of only 3 plants was found at another location. This second station may have been destroyed when heavy rains washed out a dam just upstream.

Shining Ladies'-tresses (*Spiranthes lucida*): Shining ladies-tresses was found only at New River as scattered plants along a spring branch through open meadows. Ninety-seven (97) flowering stems (many with one per plant) were counted either when flowering began on June 3 or at its peak on June 16, 1998. Most plants occurred on or around small limestone bedrock exposures in or beside the branch. Other plants occurred in graminoid cover on the very lip of the streambank. Elsewhere, a dense thatch of competing vegetation may not allow this orchid to grow.

Tall Dropseed (*Sporobolus asper*): Tall dropseed was found at a single location at the New River facility where numerous plants were found on seasonally damp flats along a small stream. Although most plants were found in several denser patches, others occurred individually or in small groups over a 300 meter distance. Most plants occurred laterally to an area disturbed for sewer line construction and subsequently seeded in tall fescue. Some plants had established and were competing reasonably well with the fescue. This disturbance certainly very much reduced the original population.

MANAGEMENT RECOMMENDATIONS

General Recommendations

These communities require management that maintains an open or partial shade environment. These areas should be managed in concert with grassland management (as historically managed) and follow the management recommendations found under that community type (page 44).

Rare Species and Community Recommendations

Prairie Straw Sedge (*Carex suberecta*), Small-headed Rush (*Juncus brachycephalus*), Bog Twayblade (*Liparis loeselii*), Shining Ladies'-tresses (*Spiranthes lucida*), and Tall Dropseed (*Sporobolus asper*): These are all wetland plants that require seasonally wet soils and open sun or partial shade. Disruption of hydrology, either draining or damming, would be detrimental to these species. A dense thatch of cool-season grasses may be limiting expansion of these species with the exception of *Sporobolus*. This area of cool-season grasses can be spot treated with herbicide or manually removed. Management should follow that prescribed for grasslands.

TAXA LISTS

PLANTS

Family	Scientific Name	common name
Arceae	<i>Acorus calamus</i>	sweet flag
Balsaminaceae	<i>Impatiens capensis</i>	jewelweed
Callitrichaceae	<i>Callitriche heterophylla</i>	larger water starwort
Compositae	<i>Eupatorium perfoliatum</i>	boneset
Compositae	<i>Helenium autumnale</i>	yellow sneezeweed
Cyperaceae	<i>Carex frankii</i>	Frank's sedge
Cyperaceae	<i>Carex lurida</i>	sallow sedge
Cyperaceae	<i>Carex suberecta</i>	prairie straw sedge
Cyperaceae	<i>Carex vulpinoidea</i>	fox sedge
Cyperaceae	<i>Schoenoplectus validus</i>	soft-stem sedge
Cyperaceae	<i>Scirpus atrovirens</i>	woolgrass bulrush
Cyperaceae	<i>Scirpus pendulus</i>	reddish bulrush
Juncaceae	<i>Juncus brachycephalus</i>	small-headed rush
Juncaceae	<i>Juncus dudleyi</i>	
Labiatae	<i>Lycopus uniflorus</i>	northern bugleweed
Onograceae	<i>Epilobium coloratum</i>	purple-leaved willow-herb
Orchidaceae	<i>Liparis loeselii</i>	Loesel's twayblade
Orchidaceae	<i>Spiranthes lucida</i>	shining ladies' - tresses
Poaceae	<i>Glyceria striata</i>	fowl mannagrass
Poaceae	<i>Leersia oryzoides</i>	rice cutgrass
Poaceae	<i>Sporobolus asper</i>	tall dropseed
Scropulariaceae	<i>Mimulus ringens</i>	common monkey-flower
Scropulariaceae	<i>Veronica anagalis-aquatica</i>	water speedwell
Sparganiaceae	<i>Sparganium americanum</i>	American burreed
Thyphaceae	<i>Typha latifolia</i>	broad-leaved cattail
Urticaceae	<i>Boehmeria cylindrica</i>	false nettle
Zosteraceae	<i>Potamogeton crispus</i>	curly pondweed
Zosteraceae	<i>Potamogeton foliosus,</i>	leafy pondweed

References:

- Belden, A. Jr., comp. 1998. Natural heritage resources of Virginia: rare vascular plants. Natural Heritage Technical Report 98-2. Virginia Department of Conservation and Recreation, Division of Natural Heritage, Richmond, Virginia. Unpublished report. January 1998. 36 pages plus appendices.
- Brennan, L.A. 1991. How can we reverse the northern bobwhite population decline. *Wildlife Soc. Bull.* 19:544-555.
- Bollinger, E.K., P.B. Bollinger, and T.A. Gavin. 1990. Effects of hay-cropping on eastern populations of the bobolink. *Wildlife Soc. Bull.* 19:142-150.
- Conant, R. and J.T. Collins. 1991. *Reptiles and Amphibians of Eastern and Central North America*. Houghton Mifflin Company. Boston, Massachusetts. 450 pages.
- Covell, C.V., Jr. 1984. *Eastern Moths, Peterson Field Guide*. Houghton Mifflin Company. Boston, Massachusetts. 496 pages.
- Dunkle, S.W. 1989. *Dragonflies of the Florida Peninsula, Bermuda and the Bahamas*. Scientific Publishers. Gainesville, Florida. 154 pages.
- Dunkle, S.W. 1990. *Damselflies of Florida, Bermuda and the Bahamas*. Scientific Publishers. Gainesville, Florida. 148 pages.
- Flora of North American Editorial Committee. 1993. *Flora of North America*. Vol. 2 Pteridophytes and Gymnosperms. Oxford University Press. New York. 475 pages.
- Gleason, H.A. and A. Cronquist. 1991. *Manual of Vascular Plants of Northeastern United States and Adjacent Canada*. Second Edition. The New York Botanical Garden. N.Y. 910 pages.
- Herkert, J.R. 1994. Status and habitat selection of the Henslow's sparrow in Illinois. *Wilson Bull.* 106(1):35-45.
- Herkert, J.R. 1994. The effects of habitat fragmentation on midwestern grassland bird communities. *Ecol. Appl.* 4:461-471.
- Mitchell, J.C. 1994. *The Reptiles of Virginia*. Smithsonian Institutional Press. Washington and London. 352 pages.
- Opler, P.A. and V. Malikul. 1992. *A Field Guide to Eastern Butterflies*. Peterson Field Guides. Houghton Mifflin Company. Boston, Massachusetts. 396 pages.
- Radford, A.E., H.E. Ahles, and C.R. Bell. 1983. *Manual of the Vascular Flora of the Carolinas*. The University of North Carolina Press, Chapel Hill, N.C. 1,183 pages.

Roble, S. M. 1996. Natural heritage resources of Virginia: rare animal species. Natural Heritage Technical Report 96-11. Virginia Department of Conservation and Recreation, Division of Natural Heritage, Richmond, Virginia. Unpublished report. 23 pages plus appendices.

Schafale, M.P. and A.S. Weakley. 1990. Classification of the natural communities of North Carolina. Third Approximation. N.C. Natural Heritage Program, Division of Parks and Recreation, N.C. Department of Environment, Health, and Natural Resources. 325 pages.

Terwilliger, K.T. (editor). 1991. Virginia's Endangered Species. McDonald and Woodward Publishing Co., Blacksburg, Virginia. 672 pages.

Turgeon, D.D., et.al. 1998. Common and Scientific Names of Aquatic Invertebrates from the United States and Canada. American Fisheries Society Special Publication 26. Bethesda, Maryland. 526 pages.

Wengel, S.R. In Preparation. Management responses of three declining tallgrass prairie sparrows.

Whitaker, J.O. Jr. and W.J. Hamilton, Jr. 1998. Mammals of the Eastern United States, Third Edition. Comstock Publishing Associates. Ithaca, New York. 583 pages.

Zimmerman, J.L. 1988. Breeding season habitat selection by the Henslow's sparrow (*Ammodramus henslowii*) in Kansas. Wilson Bull. 100:17-24.

Zimmerman, J.L. 1992. Density-independent factors affecting the avian diversity of the tallgrass prairie community. Wilson Bull. 104 (1):85-94.

Appendix A: Figures



-  Roads
-  Streams
- Community Type
 -  Bottomland Forest
 -  Calcareous Forest
 -  Cliffs
 -  Grasslands
 -  Oak Forest
 -  Pine Plantation
 -  Successional Forest
 -  Water

0.5 0 0.5 1 1.5 Kilometers



Figure 1. Community Types of the Main Facility, RAAP.



Figure 2. Community Types of the New River Facility, RAAP.

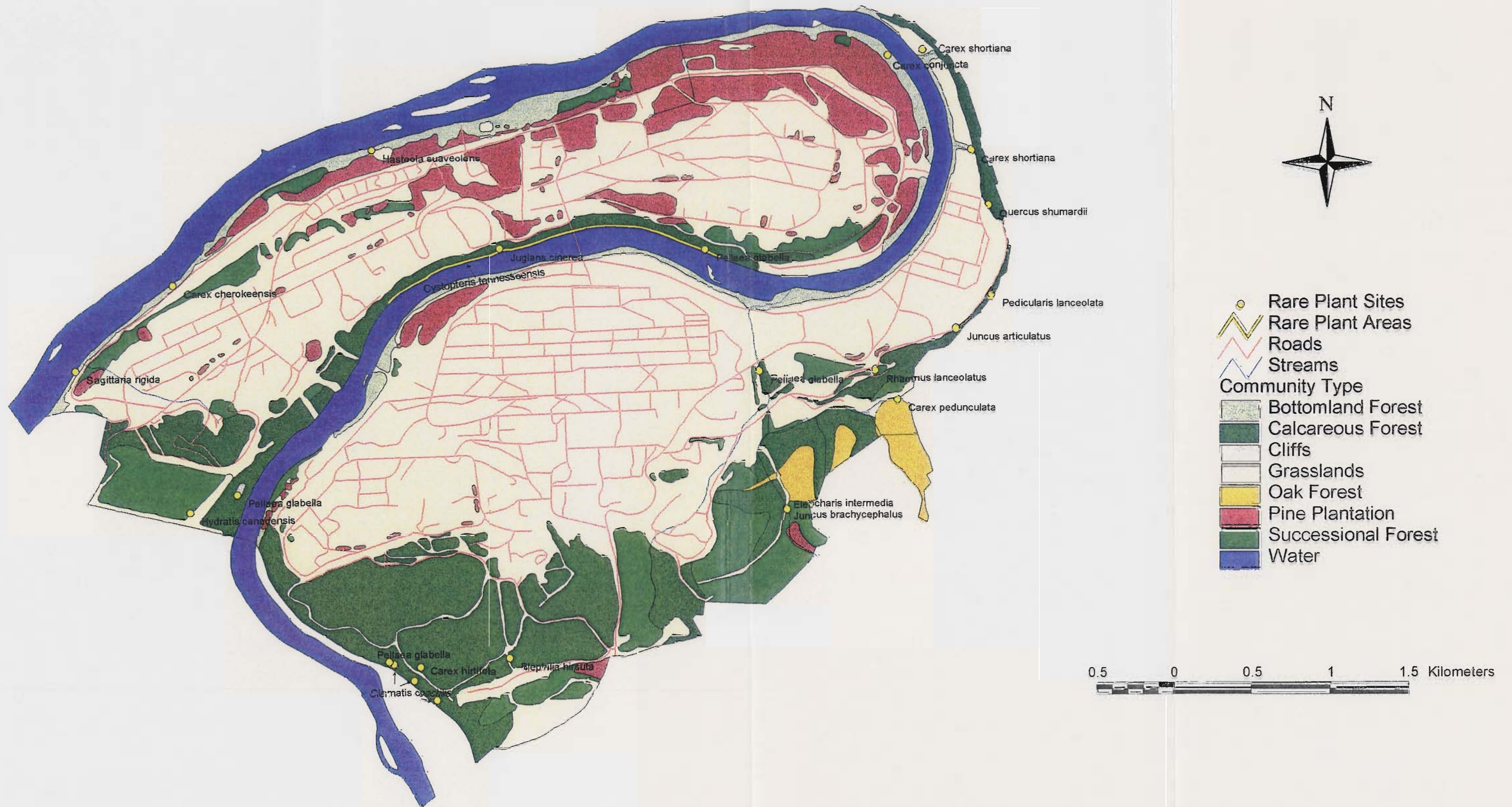


Figure 3. Rare Plant Locations at the Main Facility, RAAP.

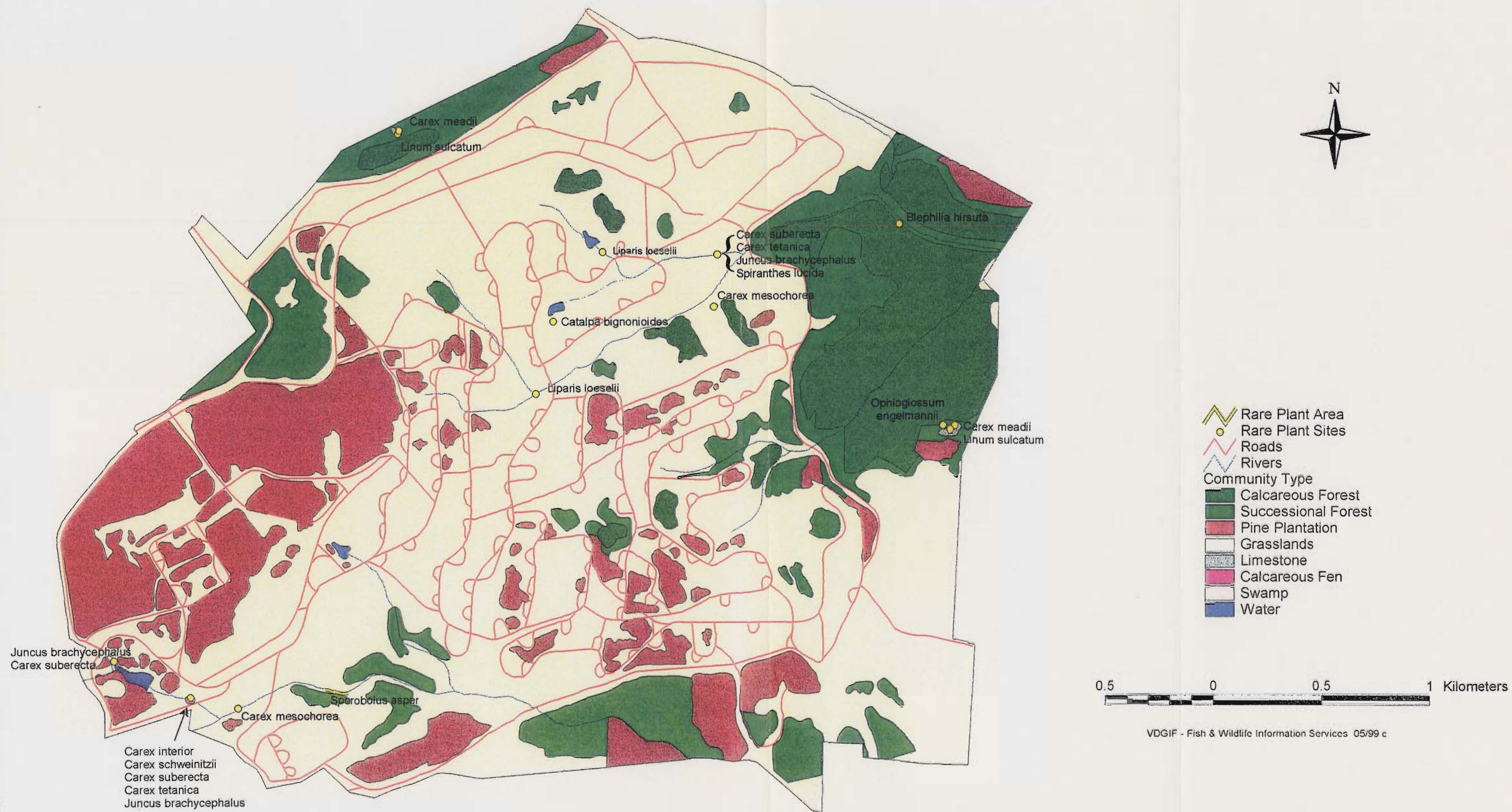


Figure 4. Rare Plant Locations at the New River Facility, RAAP.



Figure 5. Regal Fritillary Site at the Main Facility, RAAP.

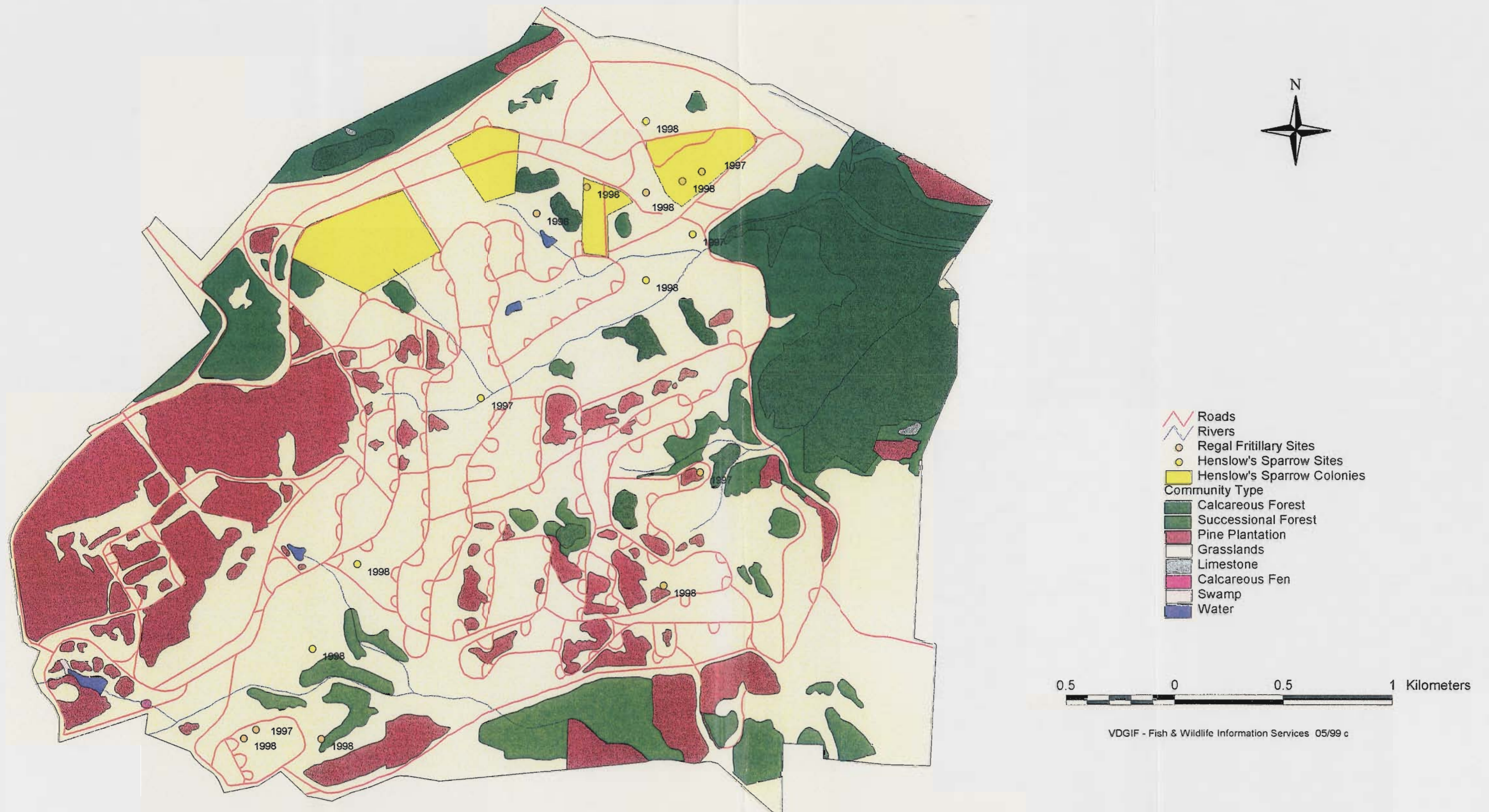


Figure 6. Rare Animal Locations at the New River Facility, RAAP.

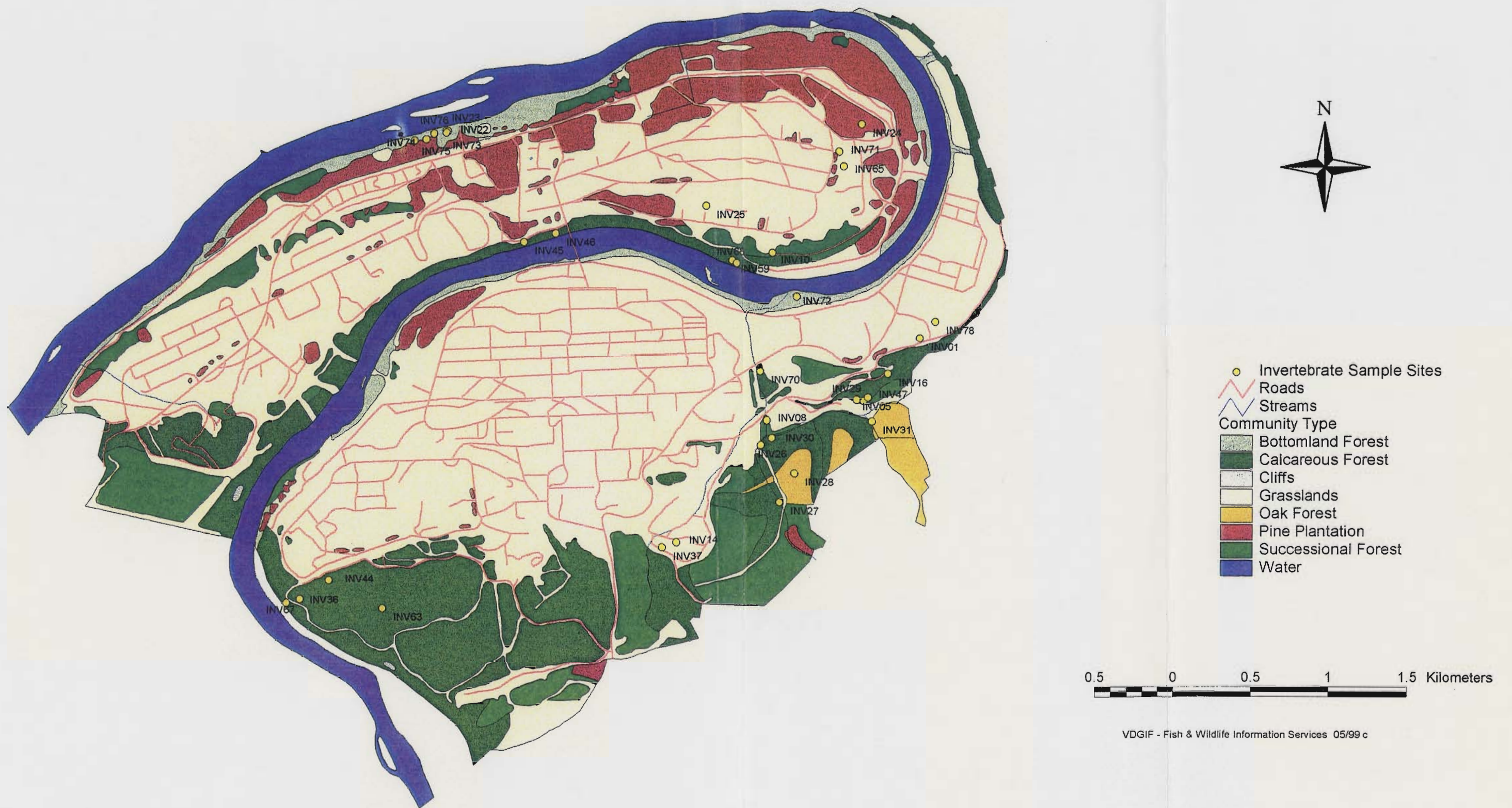


Figure 7. Invertebrate Sample Sites at the Main Facility, RAAP.

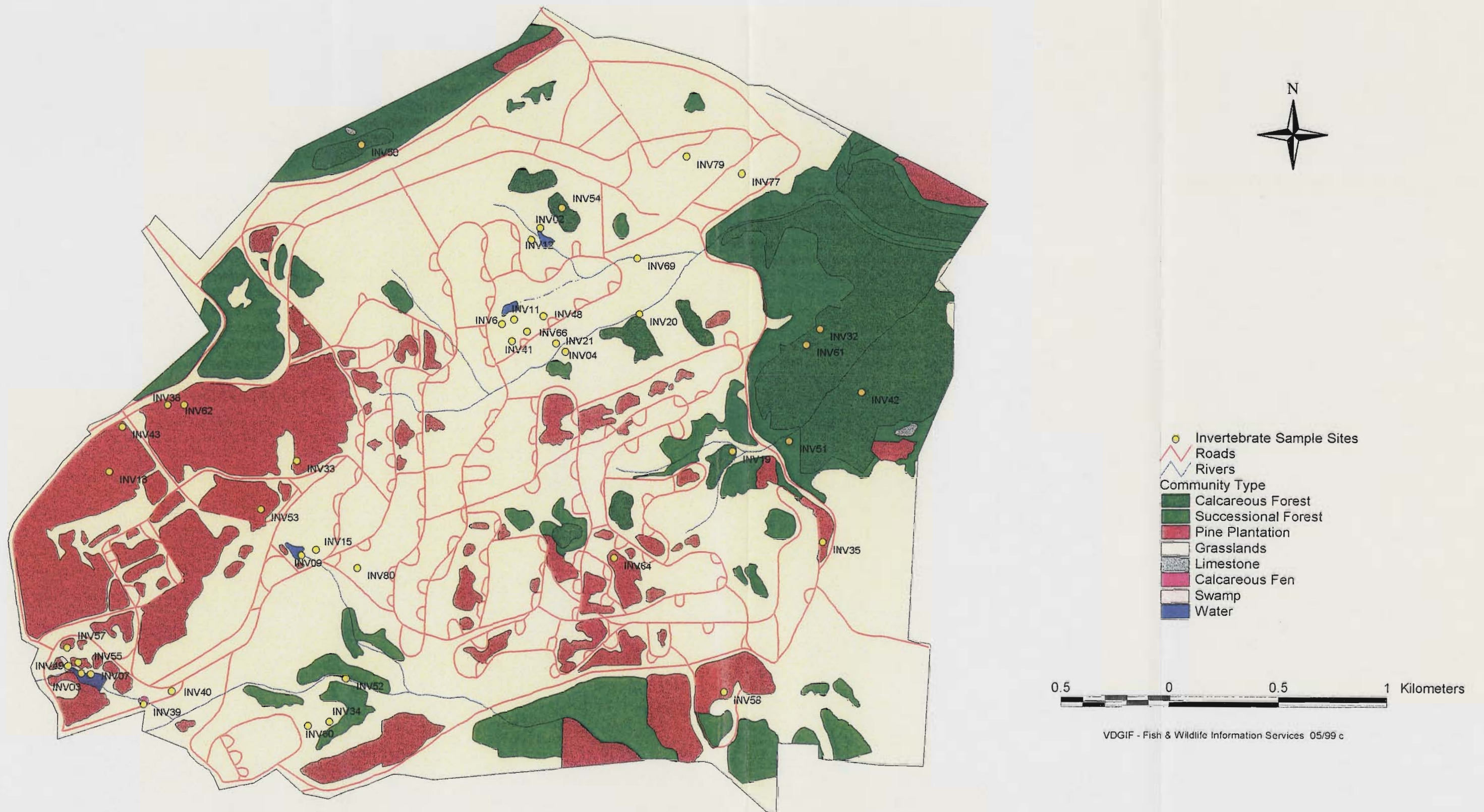


Figure 8. Invertebrate Sampling Sites at the New River Facility, RAAP.



- Fish Sample Sites
- Roads
- Streams
- Community Type
- Bottomland Forest
- Calcareous Forest
- Cliffs
- Grasslands
- Oak Forest
- Pine Plantation
- Successional Forest
- Water

0.5 0 0.5 1 1.5 Kilometers

Figure 9. Fish Sample Sites at the Main Facility, RAAP.



Figure 10. Fish Sample Sites at the New River Facility, RAAP.

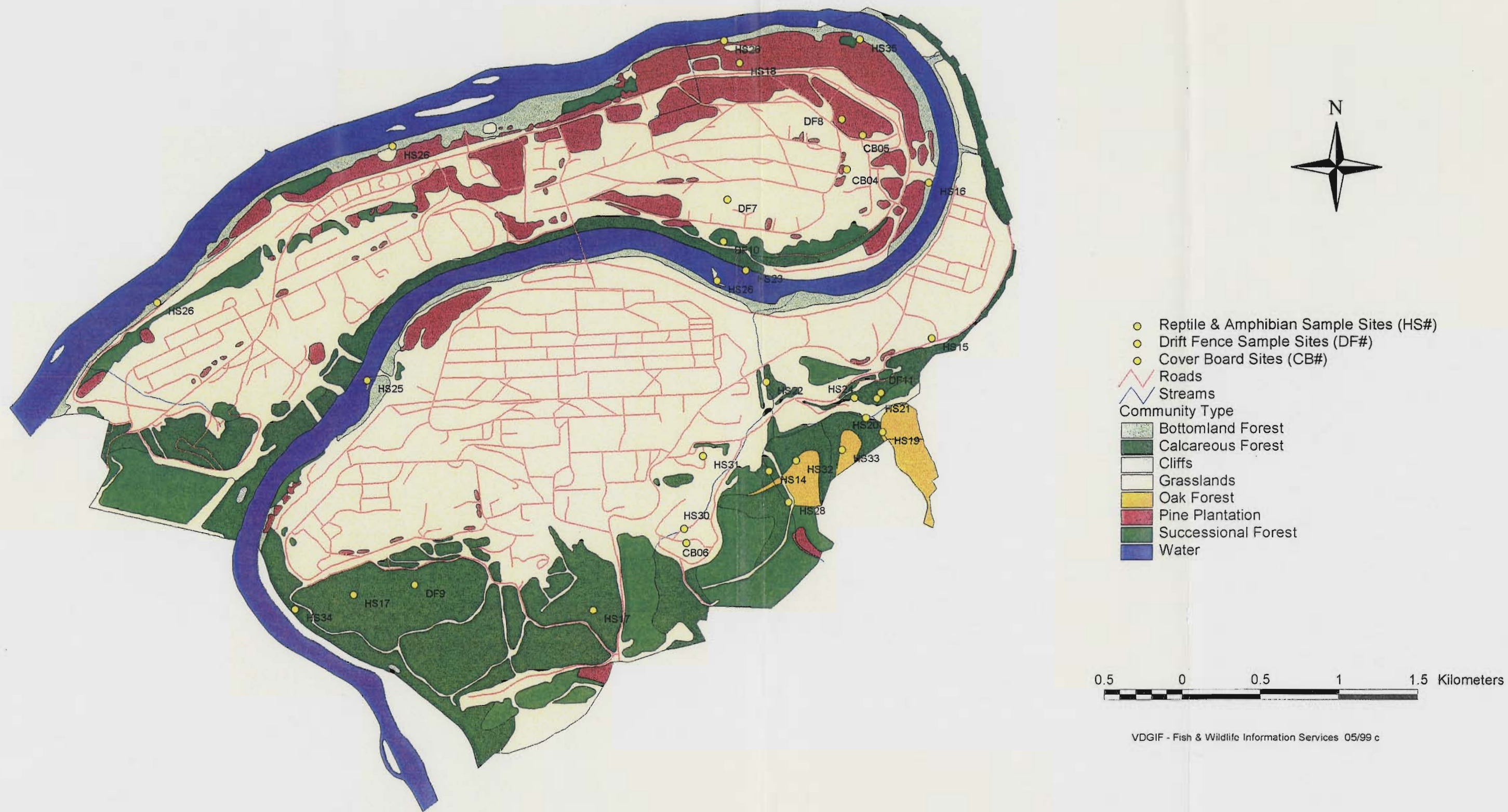


Figure 11. Reptile and Amphibian Sample Sites at the Main Facility, RAAP.

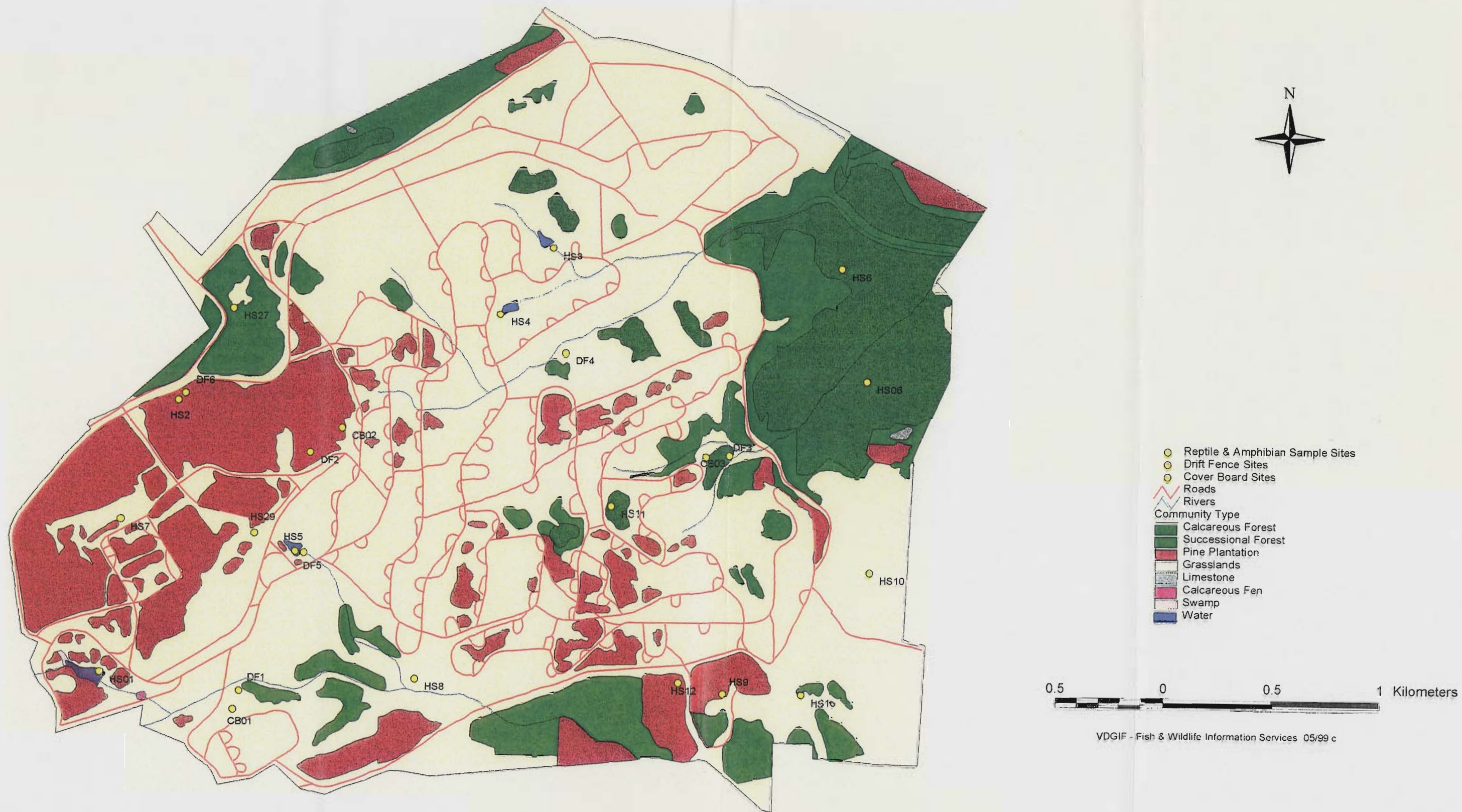


Figure 12. Reptile and Amphibian Sample Sites at the New River Facility, RAAP.



VDGIF - Fish & Wildlife Information Services 05/99 c

Figure 13. Bird Sample Sites at the Main Facility, RAAP.



Figure 14. Bird Sample Sites at the New River Facility, RAAP.



Figure 15. Mammal Sample Sites at the Main Facility, RAAP.

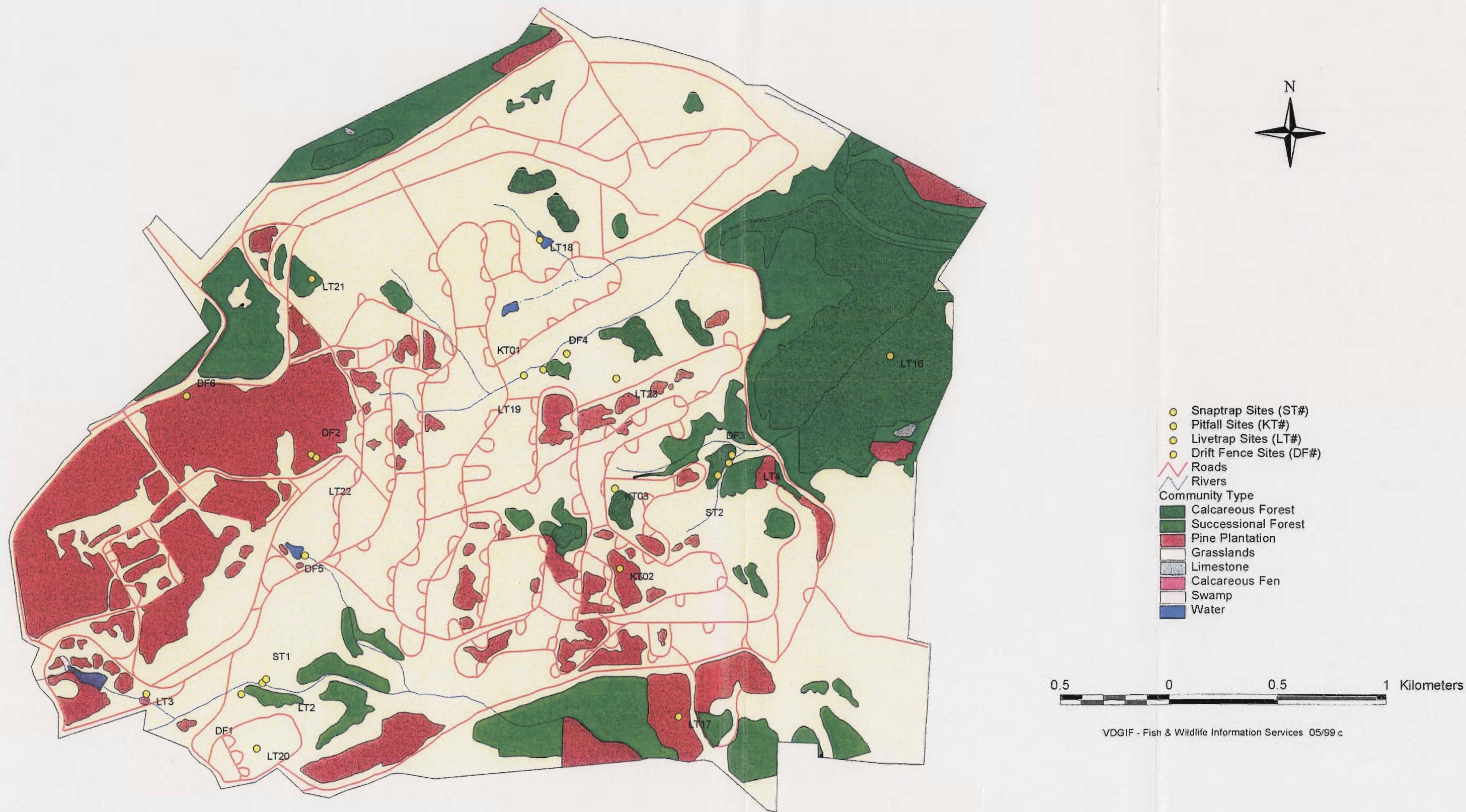


Figure 16. Mammal Sample Sites at the New River Facility, RAAP.

Appendix B: Taxa Lists By Facility

TAXA LISTS FOR THE MAIN FACILITY, RAAP

PLANTS

General Groups	Family	Scientific Name
Pteridophytes		<i>Adiantum pedatum</i>
Pteridophytes		<i>Asplenium platyneuron</i>
Pteridophytes		<i>Asplenium resiliens</i>
Pteridophytes		<i>Asplenium rhizophyllum</i>
Pteridophytes		<i>Asplenium ruta-muraria</i>
Pteridophytes		<i>Asplenium trichomanes</i>
Pteridophytes		<i>Athyrium felix-femina</i>
Pteridophytes		<i>Botrychium dissectum</i>
Pteridophytes		<i>Botrychium virginianum</i>
Pteridophytes		<i>Cystopteris bulbifera</i>
Pteridophytes		<i>Cystopteris protrusa</i>
Pteridophytes		<i>Cystopteris tennesseensis</i>
Pteridophytes		<i>Dennstaedtia punctilobula</i>
Pteridophytes		<i>Deparia acrostichoides</i>
Pteridophytes		<i>Diphasiastrum digitatum</i>
Pteridophytes		<i>Diplazium pycnocarpon</i>
Pteridophytes		<i>Dryopteris carthusiana</i>
Pteridophytes		<i>Dryopteris intermedia</i>
Pteridophytes		<i>Dryopteris marginalis</i>
Pteridophytes		<i>Equisetum arvense</i>
Pteridophytes		<i>Equisetum hyemale</i>
Pteridophytes		<i>Huperzia lucidula</i>
Pteridophytes		<i>Onoclea sensibilis</i>
Pteridophytes		<i>Osmunda cinnamomea</i>
Pteridophytes		<i>Osmunda claytoniana</i>
Pteridophytes		<i>Pellaea atropurpurea</i>
Pteridophytes		<i>Pellaea glabella</i>
Pteridophytes		<i>Phegopteris hexagonoptera</i>
Pteridophytes		<i>Polypodium appalachianum</i>
Pteridophytes		<i>Polypodium virginianum</i>
Pteridophytes		<i>Polystichum acrostichoides</i>
Pteridophytes		<i>Pteridium aquilinum</i>
Pteridophytes		<i>Thelypteris noveboracensis</i>
Pteridophytes		<i>Woodsia obtusa</i>
Monocots	Typhaceae	<i>Typha latifolia</i>
Monocots	Potamogetonaceae	<i>Potamogeton illinoensis</i>
Monocots	Potamogetonaceae	<i>Potamogeton nodosus</i>
Monocots	Potamogetonaceae	<i>Potamogeton pusillus</i>
Monocots	Alismataceae	<i>Sagittaria latifolia</i>
Monocots	Alismataceae	<i>Sagittaria rigida</i>
Monocots	Hydrocharitaceae	<i>Elodea canadensis</i>

Monocots	Poaceae	<i>Agrostis perennans</i>
Monocots	Poaceae	<i>Andropogon virginicus</i>
Monocots	Poaceae	<i>Aristida oligantha</i>
Monocots	Poaceae	<i>Aristida purpurascens</i>
Monocots	Poaceae	<i>Arrhenatherum elatius</i>
Monocots	Poaceae	<i>Arthraxon hispidus</i>
Monocots	Poaceae	<i>Bouteloua curtipendula</i>
Monocots	Poaceae	<i>Brachyelytrum erectum</i>
Monocots	Poaceae	<i>Bromus latiglumis</i>
Monocots	Poaceae	<i>Bromus nottowayanus</i>
Monocots	Poaceae	<i>Bromus pubescens</i>
Monocots	Poaceae	<i>Bromus racemosus</i>
Monocots	Poaceae	<i>Bromus sterilis</i>
Monocots	Poaceae	<i>Bromus tectorum</i>
Monocots	Poaceae	<i>Chasmanthium latifolium</i>
Monocots	Poaceae	<i>Cinna arundinacea</i>
Monocots	Poaceae	<i>Cynodon dactylon</i>
Monocots	Poaceae	<i>Danthonia compressa</i>
Monocots	Poaceae	<i>Danthonia spicata</i>
Monocots	Poaceae	<i>Dichanthelium acuminatum</i>
Monocots	Poaceae	<i>Dichanthelium boscii</i>
Monocots	Poaceae	<i>Dichanthelium clandestinum</i>
Monocots	Poaceae	<i>Dichanthelium commutatum</i>
Monocots	Poaceae	<i>Dichanthelium depauperatum</i>
Monocots	Poaceae	<i>Dichanthelium dichotomum</i> var.
Monocots	Poaceae	<i>Dichanthelium linearifolium</i>
Monocots	Poaceae	<i>Dichanthelium oligosanthos</i> var.
Monocots	Poaceae	<i>Digitaria ischaemum</i>
Monocots	Poaceae	<i>Digitaria sanguinalis</i>
Monocots	Poaceae	<i>Echinochloa crusgali</i>
Monocots	Poaceae	<i>Echinochloa muricata</i>
Monocots	Poaceae	<i>Eleusine indica</i>
Monocots	Poaceae	<i>Elymus hystrix</i>
Monocots	Poaceae	<i>Elymus riparius</i>
Monocots	Poaceae	<i>Elymus villosus</i>
Monocots	Poaceae	<i>Elymus virginicus</i>
Monocots	Poaceae	<i>Eragrostis capillaris</i>
Monocots	Poaceae	<i>Eragrostis cilianensis</i>
Monocots	Poaceae	<i>Eragrostis frankii</i>
Monocots	Poaceae	<i>Eragrostis hypnoides</i>
Monocots	Poaceae	<i>Eragrostis pectinacea</i>
Monocots	Poaceae	<i>Eragrostis spectabilis</i>
Monocots	Poaceae	<i>Festuca elatior</i>
Monocots	Poaceae	<i>Festuca obtusa</i>
Monocots	Poaceae	<i>Glyceria striata</i>
Monocots	Poaceae	<i>Leersia oryzoides</i>
Monocots	Poaceae	<i>Leersia virginica</i>

Monocots	Poaceae	<i>Leptoloma cognata</i>
Monocots	Poaceae	<i>Melica mutica</i>
Monocots	Poaceae	<i>Microstegium vimineum</i>
Monocots	Poaceae	<i>Muhlenbergia frondosa</i>
Monocots	Poaceae	<i>Muhlenbergia schreberi</i>
Monocots	Poaceae	<i>Muhlenbergia sobolifera</i>
Monocots	Poaceae	<i>Muhlenbergia sylvatica</i>
Monocots	Poaceae	<i>Muhlenbergia tenuiflora</i>
Monocots	Poaceae	<i>Oryzopsis racemosa</i>
Monocots	Poaceae	<i>Panicum anceps</i>
Monocots	Poaceae	<i>Panicum capillare</i> var. <i>sylvaticum</i>
Monocots	Poaceae	<i>Panicum dichotomiflorum</i>
Monocots	Poaceae	<i>Paspalum laeve</i>
Monocots	Poaceae	<i>Paspalum pubiflorum</i>
Monocots	Poaceae	<i>Paspalum setaceum</i>
Monocots	Poaceae	<i>Phalaris arundinacea</i>
Monocots	Poaceae	<i>Poa compressa</i>
Monocots	Poaceae	<i>Poa cuspidata</i>
Monocots	Poaceae	<i>Poa pratensis</i>
Monocots	Poaceae	<i>Poa sylvestris</i>
Monocots	Poaceae	<i>Poa trivialis</i>
Monocots	Poaceae	<i>Schizachyrium scoparium</i>
Monocots	Poaceae	<i>Setaria faberi</i>
Monocots	Poaceae	<i>Setaria geniculata</i>
Monocots	Poaceae	<i>Setaria glauca</i>
Monocots	Poaceae	<i>Setaria viridis</i>
Monocots	Poaceae	<i>Sorghastrum nutans</i>
Monocots	Poaceae	<i>Sorghum halepense</i>
Monocots	Poaceae	<i>Sphenopholis intermedia</i>
Monocots	Poaceae	<i>Sphenopholis nitida</i>
Monocots	Poaceae	<i>Sporobolus vaginiflorus</i> (incl.
Monocots	Poaceae	<i>Tridens flavus</i>
Monocots	Cyperaceae	<i>Carex aggregata</i>
Monocots	Cyperaceae	<i>Carex albicans</i>
Monocots	Cyperaceae	<i>Carex albursina</i>
Monocots	Cyperaceae	<i>Carex annectens</i>
Monocots	Cyperaceae	<i>Carex appalachica</i>
Monocots	Cyperaceae	<i>Carex blanda</i>
Monocots	Cyperaceae	<i>Carex cephalophora</i>
Monocots	Cyperaceae	<i>Carex cherokeeensis</i>
Monocots	Cyperaceae	<i>Carex communis</i>
Monocots	Cyperaceae	<i>Carex conjuncta</i>
Monocots	Cyperaceae	<i>Carex copulata</i>
Monocots	Cyperaceae	<i>Carex digitalis</i>
Monocots	Cyperaceae	<i>Carex eburnea</i>
Monocots	Cyperaceae	<i>Carex frankii</i>
Monocots	Cyperaceae	<i>Carex granularis</i>

Monocots	Cyperaceae	<i>Carex grisea</i>
Monocots	Cyperaceae	<i>Carex hirsutella</i>
Monocots	Cyperaceae	<i>Carex hirtifolia</i>
Monocots	Cyperaceae	<i>Carex hitchcockiana</i>
Monocots	Cyperaceae	<i>Carex hystericina</i>
Monocots	Cyperaceae	<i>Carex jamesii</i>
Monocots	Cyperaceae	<i>Carex laevivaginata</i>
Monocots	Cyperaceae	<i>Carex laxiculmis</i>
Monocots	Cyperaceae	<i>Carex laxiflora</i>
Monocots	Cyperaceae	<i>Carex leptalea</i>
Monocots	Cyperaceae	<i>Carex lurida</i>
Monocots	Cyperaceae	<i>Carex nigromarginata</i>
Monocots	Cyperaceae	<i>Carex normalis</i>
Monocots	Cyperaceae	<i>Carex oligocarpa</i>
Monocots	Cyperaceae	<i>Carex pedunculata</i>
Monocots	Cyperaceae	<i>Carex pensylvanica</i>
Monocots	Cyperaceae	<i>Carex platyphylla</i>
Monocots	Cyperaceae	<i>Carex prasina</i>
Monocots	Cyperaceae	<i>Carex radiata</i>
Monocots	Cyperaceae	<i>Carex rosea</i>
Monocots	Cyperaceae	<i>Carex rugosperma</i>
Monocots	Cyperaceae	<i>Carex scoparia</i>
Monocots	Cyperaceae	<i>Carex shortiana</i>
Monocots	Cyperaceae	<i>Carex sparganioides</i>
Monocots	Cyperaceae	<i>Carex spicata</i>
Monocots	Cyperaceae	<i>Carex swanii</i>
Monocots	Cyperaceae	<i>Carex torta</i>
Monocots	Cyperaceae	<i>Carex tribuloides</i>
Monocots	Cyperaceae	<i>Carex umbellata</i>
Monocots	Cyperaceae	<i>Carex virescens</i>
Monocots	Cyperaceae	<i>Carex vulpinoidea</i>
Monocots	Cyperaceae	<i>Carex willdenowii</i>
Monocots	Cyperaceae	<i>Carex woodii</i>
Monocots	Cyperaceae	<i>Cyperus bipartitus</i>
Monocots	Cyperaceae	<i>Cyperus esculentus</i>
Monocots	Cyperaceae	<i>Cyperus flavescens</i>
Monocots	Cyperaceae	<i>Cyperus lancastricensis</i>
Monocots	Cyperaceae	<i>Cyperus lupulinus</i>
Monocots	Cyperaceae	<i>Cyperus odoratus</i>
Monocots	Cyperaceae	<i>Cyperus squarrosus</i>
Monocots	Cyperaceae	<i>Cyperus strigosus</i>
Monocots	Cyperaceae	<i>Cyperus tenuifolius</i>
Monocots	Cyperaceae	<i>Eleocharis erythropoda</i>
Monocots	Cyperaceae	<i>Eleocharis intermedia</i>
Monocots	Cyperaceae	<i>Eleocharis obtusa</i>
Monocots	Cyperaceae	<i>Schoenoplectus pungens</i>
Monocots	Cyperaceae	<i>Schoenoplectus validus</i>

Monocots	Cyperaceae	<i>Scirpus atrovirens</i>
Monocots	Cyperaceae	<i>Scirpus cyperinus</i>
Monocots	Cyperaceae	<i>Scirpus pendulus</i>
Monocots	Cyperaceae	<i>Trichophorum planifolium</i>
Monocots	Araceae	<i>Acorus calamus</i>
Monocots	Araceae	<i>Arisaema dracontium</i>
Monocots	Araceae	<i>Arisaema triphyllum</i>
Monocots	Araceae	<i>Symplocarpus foetidus</i>
Monocots	Lemnaceae	<i>Lemna minor</i>
Monocots	Commelinaceae	<i>Commelina communis</i>
Monocots	Commelinaceae	<i>Murdannia keisak</i>
Monocots	Commelinaceae	<i>Tradescantia ohiensis</i>
Monocots	Pontederiaceae	<i>Heteranthera dubia</i>
Monocots	Juncaceae	<i>Juncus articulatus</i>
Monocots	Juncaceae	<i>Juncus biflorus</i>
Monocots	Juncaceae	<i>Juncus brachycephalus</i>
Monocots	Juncaceae	<i>Juncus dudleyi</i>
Monocots	Juncaceae	<i>Juncus effusus</i>
Monocots	Juncaceae	<i>Juncus tenuis</i>
Monocots	Juncaceae	<i>Luzula acuminata</i>
Monocots	Juncaceae	<i>Luzula echinata</i>
Monocots	Liliaceae	<i>Allium canadense</i>
Monocots	Liliaceae	<i>Allium cernuum</i>
Monocots	Liliaceae	<i>Allium vineale</i>
Monocots	Liliaceae	<i>Asparagus officinalis</i>
Monocots	Liliaceae	<i>Disporum lanuginosum</i>
Monocots	Liliaceae	<i>Erythronium umbilicatum</i>
Monocots	Liliaceae	<i>Heimerocallis fulva</i>
Monocots	Liliaceae	<i>Lilium michauxii?</i> (vegetative)
Monocots	Liliaceae	<i>Melanthium hybridum?</i> (vegetative)
Monocots	Liliaceae	<i>Ornithogalum umbellatum</i>
Monocots	Liliaceae	<i>Polygonatum biflorum</i>
Monocots	Liliaceae	<i>Smilacina racemosa</i>
Monocots	Liliaceae	<i>Smilax glauca</i>
Monocots	Liliaceae	<i>Smilax herbacea</i>
Monocots	Liliaceae	<i>Smilax pulverulenta</i>
Monocots	Liliaceae	<i>Smilax rotundifolia</i>
Monocots	Liliaceae	<i>Smilax tamnoides</i>
Monocots	Liliaceae	<i>Trillium grandiflorum</i>
Monocots	Liliaceae	<i>Uvularia grandifolia</i>
Monocots	Liliaceae	<i>Uvularia perfoliata</i>
Monocots	Liliaceae	<i>Yucca filamentosa</i>
Monocots	Amaryllidaceae	<i>Hypoxis hirsuta</i>
Monocots	Dioscoreaceae	<i>Dioscorea batatas</i>
Monocots	Dioscoreaceae	<i>Dioscorea villosa</i>
Monocots	Iridaceae	<i>Iris pseudacorus</i>
Monocots	Iridaceae	<i>Sisyrinchium angustifolium</i>

Monocots	Iridaceae	<i>Sisyrinchium atlanticum</i>
Monocots	Orchidaceae	<i>Aplectrum hyemale</i>
Monocots	Orchidaceae	<i>Cypripedium acaule</i>
Monocots	Orchidaceae	<i>Goodyera pubescens</i>
Monocots	Orchidaceae	<i>Isotria verticillata</i>
Monocots	Orchidaceae	<i>Orchis spectabilis</i>
Monocots	Orchidaceae	<i>Spiranthes gracilis</i>
Dicots	Urticaceae	<i>Boehmeria cylindrica</i>
Dicots	Urticaceae	<i>Laportea canadensis</i>
Dicots	Urticaceae	<i>Parietaria pensylvanica</i>
Dicots	Urticaceae	<i>Pilea pumila</i>
Dicots	Urticaceae	<i>Urtica gracilis</i>
Dicots	Aristolochiaceae	<i>Aristolochia macrophylla</i>
Dicots	Aristolochiaceae	<i>Aristolochia serpentaria</i>
Dicots	Aristolochiaceae	<i>Asarum canadense</i>
Dicots	Polygonaceae	<i>Polygonum cespitosum</i>
Dicots	Polygonaceae	<i>Polygonum hydropiper</i>
Dicots	Polygonaceae	<i>Polygonum persicaria</i>
Dicots	Polygonaceae	<i>Polygonum punctatum</i>
Dicots	Polygonaceae	<i>Polygonum scandens</i>
Dicots	Polygonaceae	<i>Polygonum virginianum</i>
Dicots	Polygonaceae	<i>Rumex obtusifolius</i>
Dicots	Chenopodiaceae	<i>Chenopodium album</i>
Dicots	Chenopodiaceae	<i>Chenopodium ambrosoides</i>
Dicots	Chenopodiaceae	<i>Chenopodium standleyum</i>
Dicots	Phytolaccaceae	<i>Phytolacca americana</i>
Dicots	Aizoaceae	<i>Mollugo verticillata</i>
Dicots	Portulacaceae	<i>Claytonia virginica</i>
Dicots	Caryophyllaceae	<i>Arenaria serpyllifolia</i>
Dicots	Caryophyllaceae	<i>Cerastium fontanum</i>
Dicots	Caryophyllaceae	<i>Cerastium nutans</i>
Dicots	Caryophyllaceae	<i>Dianthus armeria</i>
Dicots	Caryophyllaceae	<i>Myosoton aquaticum</i>
Dicots	Caryophyllaceae	<i>Paronychia canadensis</i>
Dicots	Caryophyllaceae	<i>Saponaria officinalis</i>
Dicots	Caryophyllaceae	<i>Silene antirrhina</i>
Dicots	Caryophyllaceae	<i>Silene stellata</i>
Dicots	Caryophyllaceae	<i>Silene virginica</i>
Dicots	Caryophyllaceae	<i>Stellaria longifolia</i>
Dicots	Caryophyllaceae	<i>Stellaria media</i>
Dicots	Caryophyllaceae	<i>Stellaria pubera</i>
Dicots	Ranunculaceae	<i>Anemone lancifolia</i>
Dicots	Ranunculaceae	<i>Anemone quinquefolia</i>
Dicots	Ranunculaceae	<i>Anemone virginiana</i>
Dicots	Ranunculaceae	<i>Aquilegia canadensis</i>
Dicots	Ranunculaceae	<i>Cimicifuga racemosa</i>
Dicots	Ranunculaceae	<i>Clematis coactilis</i>

Dicots	Ranunculaceae	<i>Clematis viorna</i>
Dicots	Ranunculaceae	<i>Clematis virginiana</i>
Dicots	Ranunculaceae	<i>Delphinium tricornis</i>
Dicots	Ranunculaceae	<i>Hepatica acutiloba</i>
Dicots	Ranunculaceae	<i>Hepatica americana</i>
Dicots	Ranunculaceae	<i>Hydrastis canadensis</i>
Dicots	Ranunculaceae	<i>Ranunculus abortivus</i>
Dicots	Ranunculaceae	<i>Ranunculus alleghaniensis</i>
Dicots	Ranunculaceae	<i>Ranunculus recurvatus</i>
Dicots	Ranunculaceae	<i>Ranunculus repens</i>
Dicots	Ranunculaceae	<i>Thalictrum coriaceum</i>
Dicots	Ranunculaceae	<i>Thalictrum dioicum</i>
Dicots	Ranunculaceae	<i>Thalictrum thalictroides</i>
Dicots	Berberidaceae	<i>Caulophyllum thalictroides</i>
Dicots	Berberidaceae	<i>Jeffersonia diphylla</i>
Dicots	Berberidaceae	<i>Podophyllum peltatum</i>
Dicots	Menispermaceae	<i>Menispermum canadense</i>
Dicots	Fumariaceae	<i>Corydalis flavula</i>
Dicots	Papaveraceae	<i>Sanguinaria canadensis</i>
Dicots	Brassicaceae	<i>Alliaria petiolata</i>
Dicots	Brassicaceae	<i>Alyssum alyssoides</i>
Dicots	Brassicaceae	<i>Arabis canadensis</i>
Dicots	Brassicaceae	<i>Arabis laevigata</i>
Dicots	Brassicaceae	<i>Barbarea vulgaris</i>
Dicots	Brassicaceae	<i>Camelina microcarpa</i>
Dicots	Brassicaceae	<i>Cardamine hirsuta</i>
Dicots	Brassicaceae	<i>Cardamine pennsylvanica</i>
Dicots	Brassicaceae	<i>Dentaria laciniata</i>
Dicots	Brassicaceae	<i>Draba ramosissima</i>
Dicots	Brassicaceae	<i>Hesperis matronalis</i>
Dicots	Brassicaceae	<i>Lepidium campestre</i>
Dicots	Brassicaceae	<i>Lepidium virginicum</i>
Dicots	Brassicaceae	<i>Nasturtium officinale</i>
Dicots	Brassicaceae	<i>Rorippa palustris</i>
Dicots	Brassicaceae	<i>Rorippa sylvestris</i>
Dicots	Brassicaceae	<i>Sisymbrium altissimum</i>
Dicots	Brassicaceae	<i>Thlaspi perfoliata</i>
Dicots	Podostemonaceae	<i>Podostemon ceratophyllum</i>
Dicots	Crassulaceae	<i>Penthorum sedoides</i>
Dicots	Crassulaceae	<i>Sedum glaucophyllum</i>
Dicots	Crassulaceae	<i>Sedum ternatum</i>
Dicots	Saxifragaceae	<i>Heuchera americana</i>
Dicots	Saxifragaceae	<i>Heuchera villosa</i>
Dicots	Saxifragaceae	<i>Mitella diphylla</i>
Dicots	Saxifragaceae	<i>Saxifraga virginiana</i>
Dicots	Rosaceae	<i>Agrimonia parviflora</i>
Dicots	Rosaceae	<i>Agrimonia pubescens</i>

Dicots	Rosaceae	<i>Agrimonia rostellata</i>
Dicots	Rosaceae	<i>Duchesnia indica</i>
Dicots	Rosaceae	<i>Geum canadense</i>
Dicots	Rosaceae	<i>Potentilla canadensis</i>
Dicots	Rosaceae	<i>Potentilla simplex</i>
Dicots	Rosaceae	<i>Rubus alleghaniensis</i>
Dicots	Rosaceae	<i>Rubus flagellaris</i>
Dicots	Rosaceae	<i>Rubus occidentalis</i>
Dicots	Rosaceae	<i>Rubus phoenicalasius</i>
Dicots	Fabaceae	<i>Amphicarpa bracteata</i>
Dicots	Fabaceae	<i>Apios americana</i>
Dicots	Fabaceae	<i>Cassia marilandica</i>
Dicots	Fabaceae	<i>Desmodium canescens?</i> (vegetative)
Dicots	Fabaceae	<i>Desmodium paniculatum</i>
Dicots	Fabaceae	<i>Desmodium rotundifolium</i>
Dicots	Fabaceae	<i>Galactia volubilis</i>
Dicots	Fabaceae	<i>Kummerowia stipulacea</i>
Dicots	Fabaceae	<i>Kummerowia striata</i>
Dicots	Fabaceae	<i>Lespedeza cuneata</i>
Dicots	Fabaceae	<i>Lespedeza hirta</i>
Dicots	Fabaceae	<i>Lespedeza intermedia</i>
Dicots	Fabaceae	<i>Lespedeza procumbens</i>
Dicots	Fabaceae	<i>Lespedeza repens</i>
Dicots	Fabaceae	<i>Lespedeza virginica</i>
Dicots	Fabaceae	<i>Melilotus alba</i>
Dicots	Fabaceae	<i>Melilotus officinalis</i>
Dicots	Fabaceae	<i>Trifolium campestre</i>
Dicots	Fabaceae	<i>Trifolium pratense</i>
Dicots	Fabaceae	<i>Trifolium repens</i>
Dicots	Fabaceae	<i>Vicia caroliniana</i>
Dicots	Geraniaceae	<i>Geranium maculatum</i>
Dicots	Oxalidaceae	<i>Oxalis corniculata</i>
Dicots	Oxalidaceae	<i>Oxalis dillenii</i>
Dicots	Oxalidaceae	<i>Oxalis grandis</i>
Dicots	Oxalidaceae	<i>Oxalis stricta</i>
Dicots	Oxalidaceae	<i>Oxalis violacea</i>
Dicots	Polygalaceae	<i>Polygala pauciflora</i>
Dicots	Polygalaceae	<i>Polygala verticillata</i>
Dicots	Euphorbiaceae	<i>Acalypha rhomboidea</i>
Dicots	Euphorbiaceae	<i>Euphorbia commutata</i>
Dicots	Euphorbiaceae	<i>Euphorbia maculata</i>
Dicots	Euphorbiaceae	<i>Euphorbia nutans</i>
Dicots	Anacardiaceae	<i>Toxicodendron radicans</i>
Dicots	Celastraceae	<i>Celastrus orbiculatus</i>
Dicots	Celastraceae	<i>Celastrus scandens</i>
Dicots	Balsaminaceae	<i>Impatiens capensis</i>
Dicots	Balsaminaceae	<i>Impatiens pallida</i>

Dicots	Vitaceae	<i>Parthenocissus quinquifolius</i>
Dicots	Vitaceae	<i>Vitis aestivalis</i>
Dicots	Vitaceae	<i>Vitis riparia</i>
Dicots	Malvaceae	<i>Sida spinosa</i>
Dicots	Clusiaceae	<i>Hypericum perforatum</i>
Dicots	Clusiaceae	<i>Hypericum punctatum</i>
Dicots	Violaceae	<i>Hybanthus concolor</i>
Dicots	Violaceae	<i>Viola affinis</i>
Dicots	Violaceae	<i>Viola canadensis</i>
Dicots	Violaceae	<i>Viola eriocarpa</i>
Dicots	Violaceae	<i>Viola fimbriatula</i>
Dicots	Violaceae	<i>Viola hirsutella</i>
Dicots	Violaceae	<i>Viola palmata</i>
Dicots	Violaceae	<i>Viola rafinesquii</i>
Dicots	Violaceae	<i>Viola striata</i>
Dicots	Lythraceae	<i>Cuphea viscosissima</i>
Dicots	Lythraceae	<i>Rotala ramosior</i>
Dicots	Onagraceae	<i>Circaea lutetiana</i>
Dicots	Onagraceae	<i>Epilobium coloratum</i>
Dicots	Onagraceae	<i>Ludwigia palustris</i>
Dicots	Onagraceae	<i>Oenothera biennis</i>
Dicots	Onagraceae	<i>Oenothera fruticosa</i>
Dicots	Araliaceae	<i>Aralia racemosa</i>
Dicots	Apiaceae	<i>Conium maculatum</i>
Dicots	Apiaceae	<i>Cryptotaenia canadensis</i>
Dicots	Apiaceae	<i>Daucus carota</i>
Dicots	Apiaceae	<i>Osmorhiza claytonii</i>
Dicots	Apiaceae	<i>Osmorhiza longistylis</i>
Dicots	Apiaceae	<i>Sanicula canadensis</i>
Dicots	Apiaceae	<i>Sanicula odorata</i>
Dicots	Apiaceae	<i>Taenidia integerrima</i>
Dicots	Apiaceae	<i>Thaspium barbinode</i>
Dicots	Apiaceae	<i>Torilis arvensis</i>
Dicots	Apiaceae	<i>Zizia aptera</i>
Dicots	Apiaceae	<i>Zizia aurea? (vegetative)</i>
Dicots	Apiaceae	<i>Zizia trifoliata</i>
Dicots	Ericaceae	<i>Chimaphila maculata</i>
Dicots	Ericaceae	<i>Epigaea repens</i>
Dicots	Ericaceae	<i>Gaultheria procumbens</i>
Dicots	Ericaceae	<i>Monotropa hypopithys</i>
Dicots	Ericaceae	<i>Monotropa uniflora</i>
Dicots	Diapensiaceae	<i>Galax aphylla</i>
Dicots	Primulaceae	<i>Lysimachia ciliata</i>
Dicots	Primulaceae	<i>Lysimachia nummularia</i>
Dicots	Primulaceae	<i>Lysimachia quadrifolia</i>
Dicots	Primulaceae	<i>Samolus parviflorus</i>
Dicots	Gentianaceae	<i>Gentiana quinquifolia</i>

Dicots	Gentianaceae	<i>Sabatia angularis</i>
Dicots	Apocynaceae	<i>Apocynum cannabinum</i>
Dicots	Asclepiadaceae	<i>Asclepias incarnata</i>
Dicots	Asclepiadaceae	<i>Asclepias quadrifolia</i>
Dicots	Asclepiadaceae	<i>Asclepias syriaca</i>
Dicots	Asclepiadaceae	<i>Asclepias tuberosa</i>
Dicots	Asclepiadaceae	<i>Matelea obliqua</i>
Dicots	Convolvulaceae	<i>Calystegia sepium</i>
Dicots	Convolvulaceae	<i>Calystegia spithamea</i>
Dicots	Convolvulaceae	<i>Cuscuta gronovii</i>
Dicots	Convolvulaceae	<i>Ipomoea pandurata</i>
Dicots	Polemoniaceae	<i>Phlox ovata</i>
Dicots	Hydrophyllaceae	<i>Hydrophyllum canadense</i>
Dicots	Hydrophyllaceae	<i>Hydrophyllum virginianum</i>
Dicots	Hydrophyllaceae	<i>Phacelia dubia</i>
Dicots	Boraginaceae	<i>Cynoglossum officinale</i>
Dicots	Boraginaceae	<i>Cynoglossum virginianum</i>
Dicots	Boraginaceae	<i>Echium vulgare</i>
Dicots	Boraginaceae	<i>Hackelia virginiana</i>
Dicots	Boraginaceae	<i>Myosotis macrosperma</i>
Dicots	Verbenaceae	<i>Verbena hastata</i>
Dicots	Verbenaceae	<i>Verbena simplex</i>
Dicots	Verbenaceae	<i>Verbena urticifolia</i>
Dicots	Lamiaceae	<i>Blephilia hirsuta</i>
Dicots	Lamiaceae	<i>Collinsonia canadensis</i>
Dicots	Lamiaceae	<i>Cunila origanoides</i>
Dicots	Lamiaceae	<i>Glechoma hederacea</i>
Dicots	Lamiaceae	<i>Hedeoma pulegioides</i>
Dicots	Lamiaceae	<i>Lamium purpureum</i>
Dicots	Lamiaceae	<i>Leonurus cardiaca</i>
Dicots	Lamiaceae	<i>Lycopus americanus</i>
Dicots	Lamiaceae	<i>Lycopus uniflorus</i>
Dicots	Lamiaceae	<i>Lycopus virginicus</i>
Dicots	Lamiaceae	<i>Marrubium vulgare</i>
Dicots	Lamiaceae	<i>Mentha arvensis</i>
Dicots	Lamiaceae	<i>Mentha piperita</i>
Dicots	Lamiaceae	<i>Mentha spicata</i>
Dicots	Lamiaceae	<i>Monarda fistulosa</i>
Dicots	Lamiaceae	<i>Nepeta cataria</i>
Dicots	Lamiaceae	<i>Prunella vulgaris</i>
Dicots	Lamiaceae	<i>Salvia lyrata</i>
Dicots	Lamiaceae	<i>Satureja vulgaris</i>
Dicots	Lamiaceae	<i>Scutellaria elliptica</i>
Dicots	Lamiaceae	<i>Scutellaria lateriflora</i>
Dicots	Lamiaceae	<i>Scutellaria leonardii</i>
Dicots	Lamiaceae	<i>Scutellaria nervosa</i>
Dicots	Lamiaceae	<i>Scutellaria ovata</i> var. <i>ovata</i>

Dicots	Lamiaceae	<i>Scutellaria saxatilis</i>
Dicots	Lamiaceae	<i>Scutellaria serrata</i>
Dicots	Lamiaceae	<i>Stachys hispida</i>
Dicots	Lamiaceae	<i>Teucrium canadense</i>
Dicots	Lamiaceae	<i>Trichostema dichotomum</i>
Dicots	Solanaceae	<i>Datura stramonium</i>
Dicots	Solanaceae	<i>Physalis heterophylla</i>
Dicots	Solanaceae	<i>Physalis longifolia</i> var. <i>subglabrata</i>
Dicots	Solanaceae	<i>Solanum carolinense</i>
Dicots	Solanaceae	<i>Solanum dulcamara</i>
Dicots	Solanaceae	<i>Solanum ptycanthum</i>
Dicots	Scrophulariaceae	<i>Agalinis tenuifolia</i>
Dicots	Scrophulariaceae	<i>Chaenorrhinum minus</i>
Dicots	Scrophulariaceae	<i>Gratiola neglecta</i>
Dicots	Scrophulariaceae	<i>Lindernia dubia</i>
Dicots	Scrophulariaceae	<i>Mimulus alatus</i>
Dicots	Scrophulariaceae	<i>Mimulus ringens</i>
Dicots	Scrophulariaceae	<i>Pedicularis lanceolata</i>
Dicots	Scrophulariaceae	<i>Penstemon laevigatus</i>
Dicots	Scrophulariaceae	<i>Scrophularia marilandica</i>
Dicots	Scrophulariaceae	<i>Verbascum blattaria</i>
Dicots	Scrophulariaceae	<i>Verbascum phlomoides</i>
Dicots	Scrophulariaceae	<i>Verbascum thapsus</i>
Dicots	Scrophulariaceae	<i>Veronica americana</i>
Dicots	Scrophulariaceae	<i>Veronica anagalis-aquatica</i>
Dicots	Scrophulariaceae	<i>Veronica arvensis</i>
Dicots	Scrophulariaceae	<i>Veronica hederifolia</i>
Dicots	Scrophulariaceae	<i>Veronica officinalis</i>
Dicots	Scrophulariaceae	<i>Veronica serpyllifolia</i>
Dicots	Bignoniaceae	<i>Campsis radicans</i>
Dicots	Orobanchaceae	<i>Conopholis americana</i>
Dicots	Orobanchaceae	<i>Epifagus virginiana</i>
Dicots	Acanthaceae	<i>Justicia americana</i>
Dicots	Plantaginaceae	<i>Plantago aristata</i>
Dicots	Plantaginaceae	<i>Plantago lanceolata</i>
Dicots	Plantaginaceae	<i>Plantago rugelii</i>
Dicots	Plantaginaceae	<i>Plantago virginica</i>
Dicots	Rubiaceae	<i>Galium aparine</i>
Dicots	Rubiaceae	<i>Galium circaezans</i>
Dicots	Rubiaceae	<i>Galium concinnum</i>
Dicots	Rubiaceae	<i>Galium parisiense</i>
Dicots	Rubiaceae	<i>Galium pedemontanum</i>
Dicots	Rubiaceae	<i>Galium pilosum</i>
Dicots	Rubiaceae	<i>Galium triflorum</i>
Dicots	Rubiaceae	<i>Houstonia longifolia</i>
Dicots	Rubiaceae	<i>Mitchella repens</i>
Dicots	Caprifoliaceae	<i>Lonicera japonica</i>

Dicots	Caprifoliaceae	<i>Triosteum perfoliatum</i>
Dicots	Dipsacaceae	<i>Dipsacus fullonum</i>
Dicots	Cucurbitaceae	<i>Sicyos angulatus</i>
Dicots	Campanulaceae	<i>Campanula americana</i>
Dicots	Campanulaceae	<i>Campanula divaricata</i>
Dicots	Campanulaceae	<i>Lobelia inflata</i>
Dicots	Campanulaceae	<i>Lobelia siphilitica</i>
Dicots	Campanulaceae	<i>Lobelia spicata</i> var. <i>scaposa</i>
Dicots	Campanulaceae	<i>Specularia perfoliata</i>
Dicots	Asteraceae	<i>Achillea millefolium</i>
Dicots	Asteraceae	<i>Ambrosia artemisiifolia</i>
Dicots	Asteraceae	<i>Antennaria parlinii</i> ssp. <i>Fallax</i>
Dicots	Asteraceae	<i>Antennaria parlinii</i> ssp. <i>parlinii</i>
Dicots	Asteraceae	<i>Antennaria plantaginifolia</i>
Dicots	Asteraceae	<i>Artemisia vulgaris</i>
Dicots	Asteraceae	<i>Aster cordifolius</i> var. <i>cordifolius</i>
Dicots	Asteraceae	<i>Aster cordifolius</i> var. <i>sagittifolius</i>
Dicots	Asteraceae	<i>Aster divaricatus</i>
Dicots	Asteraceae	<i>Aster laevis</i>
Dicots	Asteraceae	<i>Aster lanceolatus</i>
Dicots	Asteraceae	<i>Aster lateriflorus</i>
Dicots	Asteraceae	<i>Aster oblongifolius</i>
Dicots	Asteraceae	<i>Aster pilosus</i>
Dicots	Asteraceae	<i>Aster puniceus</i>
Dicots	Asteraceae	<i>Aster undulatus</i>
Dicots	Asteraceae	<i>Bidens bipinnata</i>
Dicots	Asteraceae	<i>Bidens cernua</i>
Dicots	Asteraceae	<i>Bidens frondosa</i>
Dicots	Asteraceae	<i>Bidens tripartita</i>
Dicots	Asteraceae	<i>Cacalia atriplicifolia</i>
Dicots	Asteraceae	<i>Carduus acanthoides</i>
Dicots	Asteraceae	<i>Carduus nutans</i>
Dicots	Asteraceae	<i>Centaurea dubia</i>
Dicots	Asteraceae	<i>Centaurea maculosa</i>
Dicots	Asteraceae	<i>Chrysanthemum leucanthemum</i>
Dicots	Asteraceae	<i>Cichorium intybus</i>
Dicots	Asteraceae	<i>Cirsium arvense</i>
Dicots	Asteraceae	<i>Cirsium discolor</i>
Dicots	Asteraceae	<i>Cirsium vulgare</i>
Dicots	Asteraceae	<i>Conoclinium coelestinum</i>
Dicots	Asteraceae	<i>Conyza canadensis</i>
Dicots	Asteraceae	<i>Coreopsis lanceolata</i>
Dicots	Asteraceae	<i>Coreopsis major</i>
Dicots	Asteraceae	<i>Crepis capillaris</i>
Dicots	Asteraceae	<i>Erechtites hieracifolia</i>
Dicots	Asteraceae	<i>Erigeron annuus</i>
Dicots	Asteraceae	<i>Erigeron philadelphicus</i>

Dicots	Asteraceae	<i>Erigeron pulchellus</i>
Dicots	Asteraceae	<i>Erigeron strigosus</i>
Dicots	Asteraceae	<i>Eupatorium fistulosum</i>
Dicots	Asteraceae	<i>Eupatorium perfoliatum</i>
Dicots	Asteraceae	<i>Eupatorium purpureum</i>
Dicots	Asteraceae	<i>Eupatorium rugosum</i>
Dicots	Asteraceae	<i>Eupatorium serotinum</i>
Dicots	Asteraceae	<i>Eupatorium sessilifolium</i>
Dicots	Asteraceae	<i>Galinsoga quadriradiata</i>
Dicots	Asteraceae	<i>Gnaphalium obtusifolium</i>
Dicots	Asteraceae	<i>Gnaphalium purpureum</i>
Dicots	Asteraceae	<i>Hasteola suaveolens</i>
Dicots	Asteraceae	<i>Helenium autumnale</i>
Dicots	Asteraceae	<i>Helianthus divaricatus</i>
Dicots	Asteraceae	<i>Heliopsis helianthoides</i>
Dicots	Asteraceae	<i>Hieracium pilosella</i>
Dicots	Asteraceae	<i>Hieracium pratense</i>
Dicots	Asteraceae	<i>Hieracium venosum</i>
Dicots	Asteraceae	<i>Hypochoeris radicata</i>
Dicots	Asteraceae	<i>Kuhnia eupatorioides</i>
Dicots	Asteraceae	<i>Lactuca canadensis</i>
Dicots	Asteraceae	<i>Lapsana communis</i>
Dicots	Asteraceae	<i>Polymnia canadensis</i>
Dicots	Asteraceae	<i>Polymnia uvedalia</i>
Dicots	Asteraceae	<i>Rudbeckia triloba</i>
Dicots	Asteraceae	<i>Rudbeckia laciniata</i>
Dicots	Asteraceae	<i>Senecio anonymus</i>
Dicots	Asteraceae	<i>Senecio aureus</i>
Dicots	Asteraceae	<i>Senecio obovatus</i>
Dicots	Asteraceae	<i>Senecio plattensis</i>
Dicots	Asteraceae	<i>Silphium perfoliatum</i> var. <i>connatum</i>
Dicots	Asteraceae	<i>Silphium trifoliatum</i>
Dicots	Asteraceae	<i>Solidago altissima</i>
Dicots	Asteraceae	<i>Solidago arguta</i>
Dicots	Asteraceae	<i>Solidago bicolor</i>
Dicots	Asteraceae	<i>Solidago canadensis</i> var. <i>hargerii</i>
Dicots	Asteraceae	<i>Solidago curtisii</i>
Dicots	Asteraceae	<i>Solidago flexicaulis</i>
Dicots	Asteraceae	<i>Solidago gigantea</i>
Dicots	Asteraceae	<i>Solidago nemoralis</i>
Dicots	Asteraceae	<i>Solidago rugosa</i>
Dicots	Asteraceae	<i>Solidago sphacelata</i>
Dicots	Asteraceae	<i>Solidago ulmifolia</i>
Dicots	Asteraceae	<i>Taraxacum officinale</i>
Dicots	Asteraceae	<i>Tragopogon dubius</i>
Dicots	Asteraceae	<i>Tussilago farfara</i>
Dicots	Asteraceae	<i>Verbesina alternifolia</i>

Dicots	Asteraceae	<i>Verbesina occidentalis</i>
Dicots	Asteraceae	<i>Vernonia noveboracensis</i>
Trees		<i>Juniperus virginiana</i>
Trees		<i>Pinus pungens</i>
Trees		<i>Pinus strobus</i>
Trees		<i>Pinus taeda</i>
Trees		<i>Pinus virginiana</i>
Trees		<i>Tsuga canadensis</i>
Trees	Salicaceae	<i>Populus alba</i>
Trees	Salicaceae	<i>Salix nigra</i>
Trees	Juglandaceae	<i>Carya cordiformis</i>
Trees	Juglandaceae	<i>Carya glabra</i>
Trees	Juglandaceae	<i>Carya ovata</i>
Trees	Juglandaceae	<i>Carya tomentosa</i>
Trees	Juglandaceae	<i>Juglans cinerea</i>
Trees	Juglandaceae	<i>Juglans nigra</i>
Trees	Betulaceae	<i>Betula lenta</i>
Trees	Betulaceae	<i>Carpinus caroliniana</i>
Trees	Betulaceae	<i>Ostrya virginiana</i>
Trees	Fagaceae	<i>Castanea dentata</i>
Trees	Fagaceae	<i>Fagus grandifolia</i>
Trees	Fagaceae	<i>Quercus alba</i>
Trees	Fagaceae	<i>Quercus coccinea</i>
Trees	Fagaceae	<i>Quercus falcata</i>
Trees	Fagaceae	<i>Quercus muhlenbergii</i>
Trees	Fagaceae	<i>Quercus prinus</i>
Trees	Fagaceae	<i>Quercus rubra</i>
Trees	Fagaceae	<i>Quercus shumardii</i>
Trees	Fagaceae	<i>Quercus velutina</i>
Trees	Ulmaceae	<i>Celtis occidentalis</i>
Trees	Ulmaceae	<i>Celtis tenuifolia</i>
Trees	Ulmaceae	<i>Ulmus americana</i>
Trees	Ulmaceae	<i>Ulmus rubra</i>
Trees	Moraceae	<i>Morus alba</i>
Trees	Magnoliaceae	<i>Liriodendron tulipifera</i>
Trees	Magnoliaceae	<i>Magnolia acuminata</i>
Trees	Lauraceae	<i>Sassafras albidum</i>
Trees	Platanaceae	<i>Platanus occidentalis</i>
Trees	Rosaceae	<i>Amelanchier arborea</i>
Trees	Rosaceae	<i>Crataegus crusgali</i>
Trees	Rosaceae	<i>Prunus avium</i>
Trees	Rosaceae	<i>Prunus serotina</i>
Trees	Fabaceae	<i>Gleditsia triacanthos</i>
Trees	Fabaceae	<i>Robinia pseudoacacia</i>
Trees	Simarubaceae	<i>Ailanthus altissima</i>
Trees	Aceraceae	<i>Acer negundo</i>
Trees	Aceraceae	<i>Acer nigrum</i>

Trees	Aceraceae	<i>Acer rubrum</i>
Trees	Aceraceae	<i>Acer saccharinum</i>
Trees	Aceraceae	<i>Acer saccharum</i>
Trees	Hippocastanaceae	<i>Aesculus flava</i>
Trees	Tiliaceae	<i>Tilia heterophylla</i>
Trees	Cornaceae	<i>Cornus florida</i>
Trees	Cornaceae	<i>Nyssa sylvatica</i>
Trees	Ericaceae	<i>Oxydendron arboreum</i>
Trees	Oleaceae	<i>Fraxinus americana</i>
Trees	Oleaceae	<i>Fraxinus pennsylvanica</i>
Trees	Scrophulariaceae	<i>Paulownia tomentosa</i>
Shrubs	Salicaceae	<i>Salix eriocephala</i>
Shrubs	Betulaceae	<i>Corylus americana</i>
Shrubs	Betulaceae	<i>Corylus cornuta</i>
Shrubs	Fagaceae	<i>Castanea pumila</i>
Shrubs	Berberidaceae	<i>Berberis canadensis</i>
Shrubs	Berberidaceae	<i>Berberis thunbergii</i>
Shrubs	Annonaceae	<i>Asimina triloba</i>
Shrubs	Lauraceae	<i>Lindera benzoin</i>
Shrubs	Saxifragaceae	<i>Hydrangea arborescens</i>
Shrubs	Hamamelidaceae	<i>Hamamelis virginiana</i>
Shrubs	Rosaceae	<i>Crataegus uniflora</i>
Shrubs	Rosaceae	<i>Physocarpus opulifolius</i>
Shrubs	Rosaceae	<i>Prunus alleghiensis/americana?</i>
Shrubs	Rosaceae	<i>Rosa carolina</i>
Shrubs	Rosaceae	<i>Rosa multiflora</i>
Shrubs	Fabaceae	<i>Cercis canadensis</i>
Shrubs	Rutaceae	<i>Ptelea trifoliata</i>
Shrubs	Anacardiaceae	<i>Rhus aromatica</i>
Shrubs	Anacardiaceae	<i>Rhus copalina</i>
Shrubs	Anacardiaceae	<i>Rhus glabra</i>
Shrubs	Anacardiaceae	<i>Rhus typhina</i>
Shrubs	Staphyleaceae	<i>Staphylea trifolia</i>
Shrubs	Rhamnaceae	<i>Rhamnus lanceolata</i>
Shrubs	Elaeagnaceae	<i>Elaeagnus umbellata</i>
Shrubs	Cornaceae	<i>Cornus alternifolia</i>
Shrubs	Cornaceae	<i>Cornus amomum</i>
Shrubs	Ericaceae	<i>Gaylussacia baccata</i>
Shrubs	Ericaceae	<i>Kalmia latifolia</i>
Shrubs	Ericaceae	<i>Rhododendron maximum</i>
Shrubs	Ericaceae	<i>Rhododendron periclymenoides</i>
Shrubs	Ericaceae	<i>Vaccinium pallidum</i>
Shrubs	Ericaceae	<i>Vaccinium stamineum</i>
Shrubs	Styracaceae	<i>Halesia carolina</i>
Shrubs	Oleaceae	<i>Chionanthus virginicus</i>
Shrubs	Caprifoliaceae	<i>Deutzia scabra</i>
Shrubs	Caprifoliaceae	<i>Lonicera maackii</i>

Shrubs	Caprifoliaceae	<i>Lonicera morrowii</i>
Shrubs	Caprifoliaceae	<i>Sambucus canadensis</i>
Shrubs	Caprifoliaceae	<i>Symphoricarpos orbiculatus</i>
Shrubs	Caprifoliaceae	<i>Viburnum acerifolium</i>
Shrubs	Caprifoliaceae	<i>Viburnum prunifolium</i>
Shrubs	Caprifoliaceae	<i>Viburnum rafinesquianum</i>
Shrubs	Caprifoliaceae	<i>Viburnum rufidulum</i>

INVERTEBRATES

Class: Arachnida

Order: Araneae

Family	Scientific Name	Common Name
Agelenidae	<i>Cicurina pallida</i>	
Agelenidae	<i>Cicurina robusta</i>	
Agelenidae	<i>Cicurina sp.</i>	
Agelenidae	<i>Coras medicinalis</i>	
Agelenidae	<i>Cryphoeca montana</i>	
Agelenidae	<i>Cybaeus sp.</i>	
Agelenidae	<i>Cybaeus unk.</i>	
Agelenidae	<i>sp.</i>	
Agelenidae	<i>Wadotes bimucronatus</i>	
Agelenidae	<i>Wadotes calcaratus</i>	
Agelenidae	<i>Wadotes hybridus</i>	
Agelenidae	<i>Wadotes sp</i>	
Agelenidae	<i>Wadotes sp.</i>	
Amaurobiidae	<i>sp.</i>	
Antrodiaetidae	<i>Antrodiaetus unicolor</i>	
Anyphaenidae	<i>Anyphaena celer</i>	
Anyphaenidae	<i>Anyphaena sp.</i>	
Araneidae	<i>Acanthepeira sp.</i>	
Araneidae	<i>Araneus pratensis</i>	
Araneidae	<i>Araneus marmoreus</i>	
Araneidae	<i>Cyclosa conica</i>	
Araneidae	<i>Eustala anastera</i>	
Araneidae	<i>Meta menardi</i>	
Araneidae	<i>Micrathena gracilis</i>	
Araneidae	<i>Micrthema mitrata</i>	
Araneidae	<i>Neoscona arabesca</i>	
Araneidae	<i>sp.</i>	
Araneidae	<i>Verrucosa arenata</i>	
Atypidae	<i>Sphodros niger</i>	
Clubionidae	<i>Agroeca minuta</i>	
Clubionidae	<i>Castianeira cingulata</i>	
Clubionidae	<i>Castianeira longipalpus</i>	
Clubionidae	<i>Castianeira variata</i>	

Clubionidae	<i>Clubiona obesa</i>	
Clubionidae	<i>Clubiona excepta</i>	
Clubionidae	<i>Clubiona sp.</i>	
Clubionidae	<i>sp.</i>	
Clubionidae	<i>Trachelas deceptus</i>	
Dictynidae	<i>Dictyna sp.</i>	
Dictynidae	<i>Dictyna sublata</i>	
Dysderidae	<i>Dysdera crocata</i>	
Gnaphosidae	<i>Callilepis pluto</i>	
Gnaphosidae	<i>Cesonia bilineata</i>	
Gnaphosidae	<i>Drassyllus aprilinus</i>	
Gnaphosidae	<i>Drassyllus creolus</i>	
Gnaphosidae	<i>Drassyllus depressus</i>	
Gnaphosidae	<i>Drassyllus fallens</i>	
Gnaphosidae	<i>Drassyllus novus</i>	
Gnaphosidae	<i>Drassyllus sp.</i>	
Gnaphosidae	<i>Haplodrassus sp.</i>	
Gnaphosidae	<i>Litopyllus temporarius</i>	
Gnaphosidae	<i>sp.</i>	
Gnaphosidae	<i>Zelotes duplex</i>	
Gnaphosidae	<i>Zelotes hentzi</i>	
Hahniidae	<i>Neoantistae agilis</i>	
Hahniidae	<i>Neoantistea magna</i>	
Linyphiidae	<i>Bathyphantes pallida</i>	
Linyphiidae	<i>Centromerus cornupalpis</i>	
Linyphiidae	<i>Lepthyphantes zebra</i>	
Linyphiidae	<i>Nereine variabilis</i>	
Linyphiidae	<i>Pityohyphantes costatus</i>	
Linyphiidae	<i>sp.</i>	
Linyphiidae	<i>Stemonyphantes blauveltae</i>	
Linyphiidae	<i>Stemonyphantes blauveltae</i>	
Linyphiidae	<i>Tapinopa bilineata</i>	
Lycosidae	<i>Allocosa funerea</i>	
Lycosidae	<i>Arctosa virgo</i>	
Lycosidae	<i>Gladicosa gulosa</i>	
Lycosidae	<i>Hogna frondicola</i>	
Lycosidae	<i>Hogna punctulata</i>	
Lycosidae	<i>Hogna rabida</i>	
Lycosidae	<i>Hogna sp.</i>	
Lycosidae	<i>Pardosa sexatilis</i>	
Lycosidae	<i>Pardosa sp.</i>	
Lycosidae	<i>Pirata minutus</i>	
Lycosidae	<i>Pirata montanus</i>	
Lycosidae	<i>Pirata sedentarius</i>	
Lycosidae	<i>Schizocosa avida</i>	
Lycosidae	<i>Schizocosa bilineata</i>	
Lycosidae	<i>Schizocosa ocreata</i>	

Lycosidae	<i>Schizocosa ocreata</i>	
Lycosidae	<i>Schizocosa saltatrix</i>	
Lycosidae	<i>sp.</i>	
Lycosidae	<i>Varascosa avara</i>	
Mimetidae	<i>Mimetus epeiroides</i>	
Oxyopidae	<i>Oxyopes salticus</i>	
Philodromidae	<i>Ebo Latithorax</i>	
Philodromidae	<i>Philodromus minutus</i>	
Philodromidae	<i>Philodromus rufus</i>	
Philodromidae	<i>Thanatus rubicellus</i>	
Pisauridae	<i>Dolomedes sp.</i>	
Pisauridae	<i>Dolomedes triton</i>	
Pisauridae	<i>Pisaurina mira</i>	
Salticidae	<i>Eris marginata</i>	
Salticidae	<i>Eris sp.</i>	
Salticidae	<i>Evarcha hoyi</i>	
Salticidae	<i>Habrocestum pulex</i>	
Salticidae	<i>Hentzia mitrata</i>	
Salticidae	<i>Marpissa pikei</i>	
Salticidae	<i>Metaphidippus protervus</i>	
Salticidae	<i>Neon nellii</i>	
Salticidae	<i>Phidippus audax</i>	
Salticidae	<i>Phidippus sp.</i>	
Salticidae	<i>Phidippus whitmanii</i>	
Salticidae	<i>sp.</i>	
Salticidae	<i>Thiodina sylvana</i>	
Salticidae	<i>Zygoballus nervosus</i>	
Tetragnathidae	<i>Leucauge venusta</i>	
Tetragnathidae	<i>Pachygnatha autumnalis</i>	
Tetragnathidae	<i>Pachynatha furcillata</i>	
Tetragnathidae	<i>Tetragnatha elongata</i>	
Tetragnathidae	<i>Tetragnatha laboriosa</i>	
Tetragnathidae	<i>Tetragnatha sp.</i>	
Tetragnathidae	<i>Tetragnatha straminea</i>	
Tetragnathidae	<i>Tetragnatha unkl</i>	
Tetragnathidae	<i>Tetragnatha versicolor</i>	
Theridiidae	<i>Achaeearanea globosa</i>	
Theridiidae	<i>Achaeearanea porteri</i>	
Theridiidae	<i>Achaeearanea rupicola</i>	
Theridiidae	<i>Achaeearanea tepidariorum</i>	
Theridiidae	<i>Dipoena nigra</i>	
Theridiidae	<i>Enoplognatha marmorata</i>	
Theridiidae	<i>sp.</i>	
Theridiidae	<i>Steatoda americana</i>	
Theridiidae	<i>Theridion sp.</i>	
Theridiidae	<i>Thymoites sp.</i>	
Thomisidae	<i>Misumenops sp.</i>	

Thomisidae	<i>Xysticus bicuspis</i>	
Thomisidae	<i>Xysticus elegans</i>	
Thomisidae	<i>Xysticus ferox</i>	
Thomisidae	<i>Xysticus sp.</i>	
Thomisidae	<i>Xysticus unk.</i>	

Class: Bivalvia
Order: Unionoida

Family	Scientific Name	Common Name
Unionidae	<i>Cyclonaias tuberculata</i>	Purple wartyback
Unionidae	<i>Eliptio dilitata</i>	Spike
Unionidae	<i>Lampsilis fasciola</i>	Wavy ray lampmussel
Unionidae	<i>Lampsilis ovata</i>	Pocketbook
Unionidae	<i>Lasmigona subviridis</i>	Green floater
Unionidae	<i>Tritogonia verrucosa</i>	Pistol grip

Class: Bivalvia
Order: Veneroida

Family	Scientific Name	Common Name
Corbiculidae	<i>Corbicula fluminea</i>	Asian clam

Class Branchipoda
Order Cladocera

Specimen not identified beyond order.

Class: Chilopoda
Order: Scolopendro

Family	Scientific Name	Common Name
Cryptopidae	<i>Scolocryptops sexspinosus</i>	Centipede

Class: Diplopoda
Order: Julida

Family	Scientific Name	Common Name
Julidae	<i>Ophiulus pilosus</i>	Millipede

Class: Diplopoda
Order Polydesmida

Family	Scientific Name	Common Name
Xystodesmidae	<i>Gyalostethus monticolens</i>	Millipede
Xystodesmidae	<i>Nannaria ericacea</i>	Millipede

Class: Gastropoda
Order: Architaenioglossa

Family	Scientific Name	Common Name
Vivaparidae	<i>Campeloma decisum</i>	Aquatic snail

Class: Gastropoda
Order: Basommatophora

Family	Scientific Name	Common Name
Ancylidae	<i>Ferrissia rivularis</i>	Aquatic snail
Planorbidae	<i>Helisoma anceps</i>	Aquatic snail
Physidae	<i>Physella gyrina</i>	Aquatic snail

Class: Gastropoda
Order: Neotaenioglossa

Family	Scientific Name	Common Name
Pleuroceridae	<i>Leptoxis dilatata</i>	Aquatic snail

Class: Insecta
Order: Coleoptera

Family	Scientific Name	Common Name
Cantharidae	<i>sp.</i>	Soldier beetle
Carabidae	<i>Agonum sp.</i>	Ground beetle
Carabidae	<i>Amphasia interstitialis</i>	Ground beetle
Carabidae	<i>Apenes lucidula</i>	Ground beetle
Carabidae	<i>Arisodactylus nigerrimus</i>	Ground beetle
Carabidae	<i>Chlaenius aestivus</i>	Ground beetle
Carabidae	<i>Chlaenius emarginatus</i>	Ground beetle
Carabidae	<i>Chlaenius impunctifrons</i>	Ground beetle
Carabidae	<i>Chlaenius nemoralis</i>	Ground beetle
Carabidae	<i>Clivina bipustulata</i>	Ground beetle
Carabidae	<i>Cyclotrachelus iuveus</i>	Ground beetle
Carabidae	<i>Dicaelus dilatatus</i>	Ground beetle
Carabidae	<i>Dicaelus elongatus</i>	Ground beetle
Carabidae	<i>Dicaelus teter</i>	Ground beetle
Carabidae	<i>Lebia grandis</i>	Ground beetle
Carabidae	<i>Lebia viridis</i>	Ground beetle
Carabidae	<i>Oligthopus parmatus</i>	Ground beetle
Carabidae	<i>Poecilus sp.</i>	Ground beetle
Carabidae	<i>Pterostichus mutus</i>	Ground beetle
Carabidae	<i>Pterostichus sp.</i>	Ground beetle
Carabidae	<i>Pterostichus trinarius</i>	Ground beetle

Carabidae	<i>Rhadine caudata</i>	Ground beetle
Carabidae	<i>Scarites subterraneus</i>	Ground beetle
Carabidae	<i>Sphaeroderus stenostomus</i>	Ground beetle
Chrysomelidae	<i>Stenispa metallica</i>	Leaf beetle
Endomychidae	<i>Aphorista vittata</i>	Handsome fungus beetle
Lampyridae	<i>sp.</i>	Firefly
Lucanidae	<i>sp.</i>	Stag beetle
Meloidae	<i>Meloe angusticollis</i>	Blister beetle
Psephenidae	<i>sp.</i>	Water-penny beetle
Scarabaeidae	<i>Copris minutus</i>	Scarab beetle
Scarabaeidae	<i>Euphoria inda</i>	Scarab beetle
Scarabaeidae	<i>Phyllophaga sp.</i>	Scarab beetle
Staphylinidae	<i>Geodromicus brunneus</i>	Rove beetle
Staphylinidae	<i>Olophrum obtectum</i>	Rove beetle
Staphylinidae	<i>Pinophilus laticeps</i>	Rove beetle
Staphylinidae	<i>Platydraeus sp.</i>	Rove beetle

Class: Insecta

Order: Collembola

Family	Scientific Name	Common Name
Entomobryidae	<i>sp.</i>	Springtail
Hypogastridae	<i>sp.</i>	Springtail
Sminthuridae	<i>sp.</i>	Springtail

Class: Insecta

Order: Diptera

Family	Scientific Name	Common Name
Acroceridae	<i>sp.</i>	Small-headed fly
Anthomyiidae	<i>sp.</i>	Anthomyiid fly
Asilidae	<i>sp.</i>	Robber fly
Blephariceridae	<i>sp.</i>	Net-winged midge
Cecidomyiidae	<i>sp.</i>	Gall gnat
Chironomidae	<i>sp.</i>	Midge
Chloropidae	<i>sp.</i>	Frit fly
Culicidae	<i>sp.</i>	Mosquito
Curtonotidae	<i>sp.</i>	Curtonotid fly
Dolichopodidae	<i>sp.</i>	Long-legged fly
Drosophilidae	<i>sp.</i>	Pomace fly
Empididae	<i>sp.</i>	Dance fly
Lauxaniidae	<i>sp.</i>	Lauxaniid fly
Muscidae	<i>sp.</i>	Muscid fly
Mycetophilidae	<i>sp.</i>	Fungus gnat
Phoridae	<i>sp.</i>	Humpbacked fly
Ptychopteridae	<i>sp.</i>	Phantom crane fly

Rhagionidae	<i>sp.</i>	Snipe fly
Scathophagidae	<i>sp.</i>	Scathophagid fly
Sciaridae	<i>sp.</i>	Dark-winged fungus gnat
Sepsidae	<i>sp.</i>	Scavenger fly
Simuliidae	<i>sp.</i>	Black fly
Syrphidae	<i>sp.</i>	Syrphid fly
Tabanidae	<i>sp.</i>	Deer fly
Tachinidae	<i>sp.</i>	Tachinid fly
Tephritidae	<i>sp.</i>	Fruit fly
Tipulidae	<i>sp.</i>	Crane fly
Xylophagidae	<i>sp.</i>	Xylophagid fly

Class: Insecta

Order: Ephemeroptera

Specimen not identified beyond order.

Class: Insecta

Order: Heteroptera

Family	Scientific Name	Common Name
Belostomatidae	<i>Belostoma fluminea</i>	Giant water bug
Lygalidae	<i>Cryphula trimaculata</i>	Seed bug
Miridae	<i>Lopidea robiniae</i>	Leaf bug
Pentatomidae	<i>Dendrocoris humeralis</i>	Stink bug
Psyllidae	<i>sp.</i>	Stink bug

Class: Insecta

Order: Homoptera

Family	Scientific Name	Common Name
Aphididae	<i>sp.</i>	Aphid
Cicadellidae	<i>sp.</i>	Leaf hopper

Class: Insecta

Order: Hymenoptera

Family	Scientific Name	Common Name
Braconidae	<i>sp.</i>	Brachonid
Chalcidoidea	<i>sp.</i>	Chalsid
Colletidae	<i>sp.</i>	Colletid bee
Formicidae	<i>Ambylopone pallipes</i>	Ponerinae (Ant)
Formicidae	<i>Campanotus sp.</i>	Formicinae (Ant)
Formicidae	<i>Formica sp.</i>	Formicinae (Ant)
Formicidae	<i>sp.</i>	Formicinae (Ant)
Formicidae	<i>sp.</i>	Myrmicinae (Ant)

Halictidae	<i>sp.</i>	Halictid bee
Ichneumonidae	<i>sp.</i>	Ichneumon
Pergidae	<i>sp.</i>	Pergid sawfly
Proctotrupoidea	<i>sp.</i>	Proctotrupids
Sphecidae	<i>sp.</i>	Sphecid wasp
Tenthredinidae	<i>sp.</i>	Common sawfly

Class: Insecta

Order: Lepidoptera

Family	Scientific Name	Common Name
Arctiidae	<i>Ecpantheria scribonia</i>	Giant Leopard Moth
Arctiidae	<i>Halysidota tessellaris</i>	Banded tussock moth
Arctiidae	<i>Haploa lecontei</i>	Leconte's haploa
Arctiidae	<i>Holomelina aurantiaca</i>	Orange holomelina
Arctiidae	<i>Holomelina opella</i>	Tawny Holomelina
Arctiidae	<i>Holomelina sp.</i>	Holomelina
Arctiidae	<i>Hypoprepia miniata</i>	Scarlet-winged lichen moth
Arctiidae	<i>Pyrrharctia isabella</i>	Isabella tiger moth
Arctiidae	<i>sp.</i>	Tiger moth
Arctiidae	<i>Spilisoma virginica</i>	Virginian tiger moth
Geometridae	<i>Biston betularia cognataria</i>	Pepper-and-Salt Geometer
Geometridae	<i>Campaea perlata</i>	Pale Beauty
Geometridae	<i>Ennomos magnaria</i>	Maple Spanworm Moth
Geometridae	<i>Euchlaena amoenaria</i>	Deep yellow euchlaena
Geometridae	<i>Eulithis diversilineata</i>	Lesser grapevine looper moth
Geometridae	<i>Heliomata cycladata</i>	Common spring moth
Geometridae	<i>Heterophleps triguttaria</i>	Three-spotted Fillip
Geometridae	<i>Lambdina pellucidaria</i>	Yellow-headed Looper Moth
Geometridae	<i>Nacophora quernaria</i>	Oak Beauty
Geometridae	<i>Orthonama centrostrigaria</i>	Bent-line Carpet
Geometridae	<i>Pobole sp.</i>	
Geometridae	<i>Semiothisa promiscuata</i>	Promiscuous angle
Geometridae	<i>Synchlora aerata</i>	Wavy-lined Emerald
Geometridae	<i>Trichodezia albovittata</i>	White-striped black
Geometridae	<i>Xanthotype sp.</i>	Crocus geometer
Hesperiidae	<i>Amblyscirtes vialis</i>	Common roadside skipper
Hesperiidae	<i>Ancyloxypha numitor</i>	Least skipper
Hesperiidae	<i>Atalopedes campestris</i>	Sachem
Hesperiidae	<i>Atrytone logan</i>	Delaware skipper
Hesperiidae	<i>Atrytonopsis hianna</i>	Dusted skipper
Hesperiidae	<i>Epargyreus clarus</i>	Silver-spotted skipper
Hesperiidae	<i>Erynnis baptisiae</i>	Wild indigo duskywing
Hesperiidae	<i>Erynnis brizo</i>	Sleepy duskywing
Hesperiidae	<i>Erynnis horatius</i>	Horace's duskywing
Hesperiidae	<i>Erynnis icelus</i>	Dreamy duskywing
Hesperiidae	<i>Erynnis juvenalis</i>	Juvena's duskywing

Hesperiidae	<i>Euphyes vestris</i>	Dun skipper
Hesperiidae	<i>Hylephila phyleus</i>	Fiery skipper
Hesperiidae	<i>Lerema accius</i>	Clouded skipper
Hesperiidae	<i>Nastra iherminier</i>	Swarthy skipper
Hesperiidae	<i>Panaquina ocola</i>	Ocola skipper
Hesperiidae	<i>Poanes hobomok</i>	Hobomok skipper
Hesperiidae	<i>Poanes zabulon</i>	Zabulon skipper
Hesperiidae	<i>Polites origenes</i>	Crossline skipper
Hesperiidae	<i>Polites peckius</i>	Peck's skipper
Hesperiidae	<i>Polites themistocles</i>	Tawny-edged skipper
Hesperiidae	<i>Pompeius verna</i>	Little glassywing
Hesperiidae	<i>Pyrgus communis</i>	Common checkered skipper
Hesperiidae	<i>Thorybes bathyllus</i>	Southern cloudywing
Hesperiidae	<i>Thorybes pylades</i>	Northern cloudywing
Hesperiidae	<i>Thymelicus lineola</i>	European skipper
Hesperiidae	<i>Wallengrenia egeremet</i>	Northern broken dash
Lasiocampidae	<i>Artace cribraria</i>	Dot-lined White
Lasiocampidae	<i>Malacosoma americanum</i>	Tent caterpillar
Lasiocampidae	<i>Malacosoma disstria</i>	Forest tent caterpillar moth
Limacodidae	<i>Packardia geminata</i>	Slug caterpillar moth
Lycaenidae	<i>Callophrys gryneus</i>	Olive hairstreak
Lycaenidae	<i>Callophrys niphon</i>	Eastern pine elfin
Lycaenidae	<i>Celastrina l. ladon "neglecta"</i>	Summer azure
Lycaenidae	<i>Celastrina l. ladon "violacea"</i>	Spring azure
Lycaenidae	<i>Everes comyntas</i>	Eastern tailed blue
Lycaenidae	<i>Feniseca tarquinius</i>	Harvester
Lycaenidae	<i>Lycaena Phlaeas</i>	American copper
Lycaenidae	<i>Satyrium calanus</i>	Banded hairstreak
Lycaenidae	<i>Satyrium titus</i>	Coral hairstreak
Lycaenidae	<i>Strymon melinus humuli</i>	Gray hairstreak
Noctuidae	<i>Abargrotis alternata</i>	Greater red dart
Noctuidae	<i>Acronicta americana</i>	American dagger moth
Noctuidae	<i>Acronicta inclara</i>	Unclear dagger moth
Noctuidae	<i>Acronicta lithospila</i>	Streaked Dagger Moth
Noctuidae	<i>Acronicta sp.</i>	Dagger moth
Noctuidae	<i>Agrostis venerabilis</i>	Venerable Dart
Noctuidae	<i>Anagrapha falcifera</i>	Celery looper moth
Noctuidae	<i>Caenurgina crassiuscula</i>	Clover Looper Moth
Noctuidae	<i>Caenurgina erechtea</i>	Forage looper moth
Noctuidae	<i>Cerma cerintha</i>	Tufted bird-dropping moth
Noctuidae	<i>Euparthenos nubilis</i>	Locust Underwing
Noctuidae	<i>Heliothis zea</i>	Corn Earworm Moth
Noctuidae	<i>Lacinipolia renigera</i>	Bristly Cutworm Moth
Noctuidae	<i>Lithacodia carneola</i>	Pink-barred lithacodia
Noctuidae	<i>Mocis texana</i>	Texas mocis
Noctuidae	<i>Orthodes cynica</i>	Cynical Quaker
Noctuidae	<i>Spodoptera ornithogalli</i>	Yellow-striped Armyworm Moth

Noctuidae	<i>Spodoptera frugiperda</i>	Fall Armyworm Moth
Noctuidae	<i>Xestia badinodis</i>	Pale-banded Dart
Noctuidae	<i>Xestia bicarnea</i>	Pink-spotted Dart
Noctuidae	<i>Xestia dolosa</i>	Greater black-letter dart
Noctuidae	<i>Zale galbanata</i>	Maple Zale
Noctuidae	<i>Zale metatoides</i>	Washed-out zale
Noctuidae	<i>Zanclognatha sp.</i>	
Notodontidae	<i>Nadata gibbosa</i>	White-dotted prominent
Notodontidae	<i>Symmerista albifrons</i>	White-headed prominent
Nymphalidae	<i>Asterocampa c. celtis</i>	Hackberry emperor
Nymphalidae	<i>Asterocampa c. clyton</i>	Tawny emperor
Nymphalidae	<i>Cercyonis pegala</i>	Common wood nymph
Nymphalidae	<i>Chlosyne nycteis</i>	Silvery checkerspot
Nymphalidae	<i>Danaus plexippus</i>	Monarch
Nymphalidae	<i>Enodia anthedon</i>	Northern pearly eye
Nymphalidae	<i>Euptoieta claudia</i>	Variegated fritillary
Nymphalidae	<i>Junonia coenia</i>	Common buckeye
Nymphalidae	<i>Libytheana carinenta</i>	American snout
Nymphalidae	<i>Limenitis arthemis astyanax</i>	Red-spotted purple
Nymphalidae	<i>Megisto cymela</i>	Little wood satyr
Nymphalidae	<i>Nymphalis antiopa</i>	Mourning cloak
Nymphalidae	<i>Phyciodes tharos</i>	Pearl crescent
Nymphalidae	<i>Polygonia comma</i>	Eastern comma
Nymphalidae	<i>Polygonia interrogationis</i>	Question mark
Nymphalidae	<i>Speyeria aphrodite</i>	Aphrodite fritillary
Nymphalidae	<i>Speyeria cybele</i>	Great spangled fritillary
Nymphalidae	<i>Speyeria idalia</i>	Regal fritillary
Nymphalidae	<i>Vanessa virginiensis</i>	American lady
Nymphalidae	<i>Vanessa atalanta</i>	Red admiral
Papilionidae	<i>Battus philenor</i>	Pipevine swallowtail
Papilionidae	<i>Papilio glaucus</i>	Eastern tiger swallowtail
Papilionidae	<i>Papilio polyxenes</i>	Black swallowtail
Papilionidae	<i>Papilio troilus</i>	Spicebush swallowtail
Pieridae	<i>Anthocharis midea</i>	Falcate orangetip
Pieridae	<i>Colias eurytheme</i>	Orange sulfur
Pieridae	<i>Colias philodice</i>	Clouded sulfur
Pieridae	<i>Eurema lisa</i>	Little yellow
Pieridae	<i>Eurema nicippi</i>	Sleepy orange
Pieridae	<i>Phoebis sennae</i>	Cloudless sulphur
Pieridae	<i>Pieris rapae</i>	Cabbage white
Pyrilidae	<i>Desmia funeralis</i>	Grape Leafroller Moth
Pyrilidae	<i>Desmia maculalis</i>	
Saturniidae	<i>Anisota stigma</i>	Spiny oakworm moth
Saturniidae	<i>Dryocampa rubicunda</i>	Rosy Maple Moth
Saturniidae	<i>Dryocampa rubicunda</i>	Rosy maple moth
Sphingidae	<i>Ceratomia catalpae</i>	Catalpa Sphinx
Tortricidae	<i>sp.</i>	Tortricid moth

Yponomeutidae	<i>Atteva punctella</i>	Ailanthus Webworm Moth
---------------	-------------------------	------------------------

Class: Insecta
Order: Neuroptera

Family	Scientific Name	Common Name
Chrysopidae	<i>sp.</i>	Green lacewing
Corydalidae	<i>Chauliodes sp.</i>	Dobsonfly
Corydalidae	<i>Neohermis sp.</i>	Dobsonfly
Corydalidae	<i>Nigronia sp.</i>	Dobsonfly
Corydalidae	<i>sp.</i>	Dobsonfly
Hemerobiidae	<i>sp.</i>	Lacewing
Sialidae	<i>sp.</i>	Alderfly

Class: Insecta
Order: Odonata

Family	Scientific Name	Common Name
Aeshnidae	<i>Aeshna umbrosa</i>	Shadow Darner
Aeshnidae	<i>Boyeria vinosa</i>	Fawn Darner
Coenagrionidae	<i>Argia moesta</i>	Powdered Dancer
Gomphidae	<i>Dromogomphus spinosus</i>	Black-shouldered Spinyleg
Gomphidae	<i>Ophiogomphus rupinsulensis</i>	Rusty Snaketail
Gomphidae	<i>Stylurus spiniceps</i>	Arrow Clubtail
Lestidae	<i>Lestes rectangularis</i>	Slender Spreadwing
Libellulidae	<i>Erythemis simplicicollis</i>	Eastern Pondhawk
Libellulidae	<i>Libellula pulchella</i>	Twelve-spotted Skimmer
Libellulidae	<i>Libellula semifasciata</i>	Painted Skimmer
Libellulidae	<i>Pachydiplax longipennis</i>	Blue Dasher
Libellulidae	<i>Sumpetrum vicinum</i>	Yellow-legged Meadowhawk
Macromiidae	<i>Macromia illinoisensis illinoisensis</i>	Illinois River Cruiser

Class: Insecta
Order: Orthoptera

Family	Scientific Name	Common Name
Blattellidae	<i>Parcoblatta sp.</i>	Cockroach
Gryllacrididae	<i>sp.</i>	Camel cricket
Mantidae	<i>sp.</i>	Mantis

Class: Insecta
Order: Plecoptera

Specimen not identified beyond order.

Class: Insecta
Order: Pscoptera

Specimen not identified beyond order.

Class: Insecta
Order: Thysanoptera

Specimen not identified beyond order.

Class: Insecta
Order: Thysanura

Family	Scientific Name	Common Name
Machilidae	<i>Machilis sp.</i>	Bristletail

Class: Insecta
Order: Trichoptera

Family	Scientific Name	Common Name
Hydropsychidae	<i>Cheumatopsyche sp.</i>	Caddisfly
Hydropsychidae	<i>Hydropsyche sp.</i>	Caddisfly
Hydropsychidae	<i>Potomyia sp.</i>	Caddisfly

Class: Insecta
Order: Trichoptera

Family	Scientific Name	Common Name
Philopotamidae	<i>Chimarra sp.</i>	Caddisfly
Psychomyiida	<i>Lype diversa</i>	Caddisfly

Class: Malacostraca
Order: Decapoda

Family	Species	Common Name
Cambaridae	<i>Cambarus sciotensis</i>	
Cambaridae	<i>Orconectes chasmodactylus</i>	New River cray fish
Cambaridae	<i>Orconectes virilis</i>	virile crayfish

Class: Malacostraca
Order: Isopoda

Family	Scientific Name	Common Name
Ligiidae	<i>Ligidium sp.</i>	Pill bug
Oniscidae	<i>Cylisticus sp.</i>	Pill bug
Oniscidae	<i>Trachelipus sp.</i>	Pill bug
Trichoniscidae	<i>Hyloniscus sp.</i>	Pill bug

FISH

Family	Species	Common Name
Catastomidae	<i>Catostomus commersoni</i>	white sucker
Catastomidae	<i>Hypentelium nigricans</i>	northern hogsucker
Centrarchidae	<i>Ambloplites rupestris</i>	rock bass
Centrarchidae	<i>Lepomis auritus</i>	redbreast sunfish
Centrarchidae	<i>Lepomis macrochirus</i>	bluegill
Centrarchidae	<i>Micropterus dolomieu</i>	smallmouth bass
Centrarchidae	<i>Micropterus punctulatus</i>	spotted bass
Centrarchidae	<i>Micropterus salmoides</i>	largemouth bass
Cottidae	<i>Cottus bairdi</i>	mottled sculpin
Cyprinidae	<i>Campostoma anomalum</i>	central stoneroller
Cyprinidae	<i>Climostomus funduloides</i>	rosyside dace
Cyprinidae	<i>Cyprinella galactura</i>	whitetail shiner
Cyprinidae	<i>Cyprinus carpio</i>	common carp
Cyprinidae	<i>Luxilus albeolus</i>	white shiner
Cyprinidae	<i>Nocomis leptcephalus</i>	bluehead chub
Cyprinidae	<i>Nocomis micropogon</i>	river chub
Cyprinidae	<i>Nocomis platyrhynchus</i>	bigmouth chub
Cyprinidae	<i>Notropis hudsonius</i>	spottail shiner
Cyprinidae	<i>Notropis telescopus</i>	telescope shiner
Cyprinidae	<i>Phoxinus oreas</i>	mountain redbelly dace
Cyprinidae	<i>Pimephales notatus</i>	bluntnose minnow
Cyprinidae	<i>Rhinichthys atratulus</i>	blacknose dace
Esocidae	<i>Esox masquinongy</i>	muskellunge
Ictaluridae	<i>Noturus insignis</i>	marginated madtom
Ictaluridae	<i>Pylodictis olivaris</i>	flathead catfish
Percichthyidae	<i>Morone sp.</i>	bass
Percidae	<i>Etheostoma blennioides</i>	greenside darter
Percidae	<i>Etheostoma flabellare</i>	fantail darter
Percidae	<i>Perca flavescens</i>	yellow perch
Percidae	<i>Percina caprodes</i>	logperch
Percidae	<i>Percina gymnocephala</i>	Appalachia darter
Percidae	<i>Percina roanoka</i>	Roanoke darter

REPTILES AND AMPHIBIANS

Family	Scientific Name	Common Name
Ambystomatidae	<i>Ambystoma jeffersonianum</i>	Jefferson salamander
Ambystomatidae	<i>Ambystoma maculatum</i>	spotted salamander
Bufo	<i>Bufo americanus</i>	American toad
Bufo	<i>Bufo woodhousii</i>	Fowler's toad
Chelydridae	<i>Chelydra serpentina</i>	snapping turtle
Colubridae	<i>Carphophis amoenus</i>	eastern worm snake
Colubridae	<i>Diadophis punctatus</i>	ringneck snake
Colubridae	<i>Elaphe obsoleta</i>	black rat snake

Colubridae	<i>Nerodia sipedon</i>	northern water snake
Colubridae	<i>Regina septemvittata</i>	queen snake
Colubridae	<i>Thamnophis sirtalis</i>	eastern garter snake
Emydidae	<i>Chrysemys picta</i>	eastern painted turtle
Hylidae	<i>Hyla versicolor</i>	gray treefrog
Plethodontidae	<i>Desmognathus fuscus</i>	northern dusky salamander
Plethodontidae	<i>Desmognathus quadramaculatus</i>	blackbelly salamander
Plethodontidae	<i>Eurycea cirrigera</i>	southern two-lined salamander
Plethodontidae	<i>Plethodon cinereus</i>	redback salamander
Plethodontidae	<i>Plethodon glutinosus</i>	slimy salamander
Plethodontidae	<i>Plethodon wehrlei</i>	Wehrle's salamander
Ranidae	<i>Rana sylvatica</i>	wood frog
Salamandridae	<i>Notophthalmus viridescens</i>	red-spotted newt

BIRDS

Family	Scientific Name	Common Name
Accipitridae	<i>Accipiter striatus</i>	sharp-shinned hawk
Accipitridae	<i>Buteo jamaicensis</i>	red-tailed hawk
Accipitridae	<i>Circus cyaneus</i>	northern harrier
Accipitridae	<i>Falco sparverius</i>	American kestrel
Alcedinidae	<i>Ceryle alcyon</i>	belted kingfisher
Anatidae	<i>Aix sponsa</i>	wood duck
Anatidae	<i>Anas americana</i>	American wigeon
Anatidae	<i>Anas platyrhynchos</i>	mallard duck
Anatidae	<i>Anas rubripes</i>	American black duck
Anatidae	<i>Anas strepera</i>	gadwall
Anatidae	<i>Branta canadensis</i>	Canada goose
Anatidae	<i>Bucephala albeola</i>	bufflehead
Anatidae	<i>Lophodytes cucullatus</i>	hooded merganser
Apodidae	<i>Chaetura pelagica</i>	chimney swift
Ardeidae	<i>Ardea herodias</i>	great blue heron
Ardeidae	<i>Butorides striatus</i>	green heron
Ardeidae	<i>Casmerodius albus</i>	great egret
Ardeidae	<i>Nycticorax nycticorax</i>	black-crowned night-heron
Bombycillidae	<i>Bombycilla cedrorum</i>	cedar waxwing
Cathartidae	<i>Cathartes aura</i>	turkey vulture
Cathartidae	<i>Coragyps atratus</i>	black vulture
Certhiidae	<i>Certhia americana</i>	brown creeper
Charadriidae	<i>Charadrius vociferus</i>	killdeer
Columbidae	<i>Columba livia</i>	rock dove
Columbidae	<i>Zenaida macroura</i>	mourning dove
Corvidae	<i>Corvus brachyrhynchos</i>	American crow
Corvidae	<i>Corvus corax</i>	common raven
Corvidae	<i>Cyanocitta cristata</i>	blue jay
Cuculidae	<i>Coccyzus americanus</i>	yellow-billed cuckoo
Cuculidae	<i>Coccyzus erythrophthalmus</i>	black-billed cuckoo

Emberizidae	<i>Agelaius phoeniceus</i>	red-winged blackbird
Emberizidae	<i>Cardinalis cardinalis</i>	northern cardinal
Emberizidae	<i>Dendroica coronata</i>	yellow-rumped warbler
Emberizidae	<i>Dendroica donimica</i>	yellow-throated warbler
Emberizidae	<i>Dendroica magnolia</i>	magnolia warbler
Emberizidae	<i>Dendroica palmarum</i>	palm warbler
Emberizidae	<i>Dendroica pensylvanica</i>	chestnut-sided warbler
Emberizidae	<i>Dendroica petechia</i>	yellow warbler
Emberizidae	<i>Dendroica pinus</i>	pine warbler
Emberizidae	<i>Dendroica striata</i>	blackpoll warbler
Emberizidae	<i>Dendroica virens</i>	black-throated green warbler
Emberizidae	<i>Geothlypis trichas</i>	common yellowthroat
Emberizidae	<i>Helmitheros vermivorus</i>	worm-eating warbler
Emberizidae	<i>Icterus galbula</i>	northern oriole
Emberizidae	<i>Icterus spurius</i>	orchard oriole
Emberizidae	<i>Junco hyemalis</i>	northern junco
Emberizidae	<i>Melospiza georgiana</i>	swamp sparrow
Emberizidae	<i>Melospiza melodia</i>	song sparrow
Emberizidae	<i>Mniotilta varia</i>	black-and-white warbler
Emberizidae	<i>Molothrus ater</i>	brown-headed cowbird
Emberizidae	<i>Oporornis formosus</i>	kentucky warbler
Emberizidae	<i>Parula americana</i>	northern parula
Emberizidae	<i>Passer domesticus</i>	house sparrow
Emberizidae	<i>Passerina cyanea</i>	indigo bunting
Emberizidae	<i>Pheucticus ludovicianus</i>	rose-breasted grosbeak
Emberizidae	<i>Pipilo erythrophthalmus</i>	eastern towhee
Emberizidae	<i>Piranga olivacea</i>	scarlet tanager
Emberizidae	<i>Pooecetes gramineus</i>	vesper sparrow
Emberizidae	<i>Quiscalus quiscula</i>	common grackle
Emberizidae	<i>Seiurus aurocapillus</i>	ovenbird
Emberizidae	<i>Seiurus motacilla</i>	Louisiana waterthrush
Emberizidae	<i>Seiurus noveboracensis</i>	northern waterthrush
Emberizidae	<i>Setophaga ruticilla</i>	American redstart
Emberizidae	<i>Spizella passerina</i>	chipping sparrow
Emberizidae	<i>Spizella pusilla</i>	field sparrow
Emberizidae	<i>Sturnella magna</i>	eastern meadowlark
Emberizidae	<i>Zonotrichia albicollis</i>	white-throated sparrow
Fringillidae	<i>Carduelis tristis</i>	American goldfinch
Fringillidae	<i>Carpodacus mexicanus</i>	house finch
Fringillidae	<i>Carpodacus purpureus</i>	purple finch
Hirundinidae	<i>Hirundo rustica</i>	barn swallow
Hirundinidae	<i>Progne subis</i>	purple martin
Hirundinidae	<i>Riparia riparia</i>	bank swallow
Hirundinidae	<i>Stelgidopteryx serripennis</i>	rough-winged swallow
Hirundinidae	<i>Tachycineta bicolor</i>	tree swallow
Laridae	<i>Larus delawarensis</i>	ring-billed gull
Mimidae	<i>Dumetella carolinensis</i>	gray catbird

Mimidae	<i>Mimus polyglottos</i>	northern mockingbird
Muscicapidae	<i>Catharus guttatus</i>	hermit thrush
Muscicapidae	<i>Hylocichla mustelina</i>	wood thrush
Muscicapidae	<i>Polioptila caerulea</i>	blue-gray gnatcatcher
Muscicapidae	<i>Regulus satrapa</i>	golden-crowned kinglet
Muscicapidae	<i>Sialia sialis</i>	eastern bluebird
Muscicapidae	<i>Turdus migratorius</i>	American robin
Paridae	<i>Parus bicolor</i>	tufted titmouse
Paridae	<i>Parus carolinensis</i>	carolina chickadee
Phalacrocoracidae	<i>Phalacrocorax auritus</i>	double-crested cormorant
Phasianidae	<i>Bonasa umbellus</i>	ruffed grouse
Phasianidae	<i>Meleagris gallopavo</i>	wild turkey
Picidae	<i>Colaptes auratus</i>	northern flicker
Picidae	<i>Dryocopus pileatus</i>	pileated woodpecker
Picidae	<i>Melanerpes carolinus</i>	red-bellied woodpecker
Picidae	<i>Picoides pubescens</i>	downy woodpecker
Picidae	<i>Picoides villosus</i>	hairy woodpecker
Picidae	<i>Sphyrapicus varius</i>	yellow-bellied sapsucker
Podicipedidae	<i>Podilymbus podiceps</i>	pie-billed grebe
Rallidae	<i>Fulica americana</i>	American coot
Scolopacidae	<i>Actitis macularia</i>	spotted sandpiper
Scolopacidae	<i>Scolopax minor</i>	American woodcock
Sittidae	<i>Sitta canadensis</i>	red-breasted nuthatch
Sittidae	<i>Sitta carolinensis</i>	white-breasted nuthatch
Strigidae	<i>Otus asio</i>	eastern screech owl
Sturnidae	<i>Sturnus vulgaris</i>	European starling
Trochilidae	<i>Archilochus colubris</i>	ruby-throated hummingbird
Troglodytidae	<i>Thryothorus ludovicianus</i>	carolina wren
Troglodytidae	<i>Troglodytes aedon</i>	house wren
Troglodytidae	<i>Troglodytes troglodytes</i>	winter wren
Tyrannidae	<i>Contopus virens</i>	eastern pewee
Tyrannidae	<i>Empidonax virens</i>	acadian flycatcher
Tyrannidae	<i>Myiarchus crinitus</i>	great crested flycatcher
Tyrannidae	<i>Sayornis phoebe</i>	eastern phoebe
Tyrannidae	<i>Sturnella magna</i>	eastern kingbird
Tyrannidae	<i>Tyrannus tyrannus</i>	eastern kingbird
Vireonidae	<i>Vireo flavifrons</i>	yellow-throated vireo
Vireonidae	<i>Vireo gilvus</i>	warbling vireo
Vireonidae	<i>Vireo griseus</i>	white-eyed vireo
Vireonidae	<i>Vireo olivaceus</i>	red-eyed vireo

MAMMALS

Family	Scientific Name	Common Name
Cervidae	<i>Odocoileus virginianus</i>	white-tailed deer
Didelphidae	<i>Didelphis virginiana</i>	Virginia opossum
Dipodidae	<i>Zapus hudsonius</i>	meadow jumping mouse

Mephitidae	<i>Mephitis mephitis</i>	striped skunk
Muridae	<i>Microtus pennsylvanicus</i>	meadow vole
Muridae	<i>Peromyscus leucopus</i>	white-footed mouse
Procyonidae	<i>Procyon lotor</i>	common raccoon
Sciuridae	<i>Marmota monax</i>	woodchuck
Sciuridae	<i>Sciurus carolinensis</i>	eastern gray squirrel
Sciuridae	<i>Sciurus niger</i>	eastern fox squirrel
Sciuridae	<i>Tamias striatus</i>	eastern chipmunk
Soricidae	<i>Blarina brevicauda</i>	northern short-tailed shrew
Soricidae	<i>Cryptotis parva</i>	least shrew
Soricidae	<i>Sorex fumeus</i>	smoky shrew
Talpidae	<i>Parascalops breweri</i>	hairy-tailed mole

TAXA LISTS FOR THE NEW RIVER FACILITY, RAAP

PLANTS

Group Name	Family	Scientific Name
Pteridophytes		<i>Adiantum pedatum</i>
Pteridophytes		<i>Asplenium platyneuron</i>
Pteridophytes		<i>Asplenium rhizophyllum</i>
Pteridophytes		<i>Athyrium felix-femina</i>
Pteridophytes		<i>Botrychium virginianum</i>
Pteridophytes		<i>Deparia acrostichoides</i>
Pteridophytes		<i>Diphasiastrum digitatum</i>
Pteridophytes		<i>Diplazium pycnocarpon</i>
Pteridophytes		<i>Dryopteris carthusiana</i>
Pteridophytes		<i>Dryopteris intermedia</i>
Pteridophytes		<i>Dryopteris marginalis</i>
Pteridophytes		<i>Equisetum arvense</i>
Pteridophytes		<i>Ophioglossum engelmannii</i>
Pteridophytes		<i>Osmunda claytoniana</i>
Pteridophytes		<i>Pellaea atropurpurea</i>
Pteridophytes		<i>Phegopteris hexagonoptera</i>
Pteridophytes		<i>Polystichum acrostichoides</i>
Pteridophytes		<i>Woodsia obtusa</i>
Monocots	Typhaceae	<i>Typha latifolia</i>
Monocots	Sparganiaceae	<i>Sparganium americanum</i>
Monocots	Potamogetonaceae	<i>Potamogeton crispus</i>
Monocots	Potamogetonaceae	<i>Potamogeton foliosus</i>
Monocots	Poaceae	<i>Agropyron repens</i>
Monocots	Poaceae	<i>Agrostis gigantea</i>
Monocots	Poaceae	<i>Agrostis perennans</i>
Monocots	Poaceae	<i>Andropogon gerardii</i>
Monocots	Poaceae	<i>Andropogon ternarius</i>
Monocots	Poaceae	<i>Andropogon virginicus</i>
Monocots	Poaceae	<i>Anthoxanthum odoratum</i>
Monocots	Poaceae	<i>Aristida dichotoma</i> var. <i>curtisii</i>
Monocots	Poaceae	<i>Aristida oligantha</i>
Monocots	Poaceae	<i>Aristida purpurascens</i>
Monocots	Poaceae	<i>Arrhenatherum elatius</i>
Monocots	Poaceae	<i>Bouteloua curtipendula</i>
Monocots	Poaceae	<i>Bromus commutatus</i>
Monocots	Poaceae	<i>Bromus inermis</i>
Monocots	Poaceae	<i>Bromus japonicus</i>
Monocots	Poaceae	<i>Bromus nottowayanus</i>
Monocots	Poaceae	<i>Bromus pubescens</i>
Monocots	Poaceae	<i>Bromus racemosus</i>
Monocots	Poaceae	<i>Bromus sterilis</i>

Monocots	Poaceae	<i>Bromus tectorum</i>
Monocots	Poaceae	<i>Dactylis glomeratus</i>
Monocots	Poaceae	<i>Danthonia spicata</i>
Monocots	Poaceae	<i>Dichanthelium acuminatum</i> var.
Monocots	Poaceae	<i>Dichanthelium boscii</i>
Monocots	Poaceae	<i>Dichanthelium clandestinum</i>
Monocots	Poaceae	<i>Dichanthelium dichotomum</i> var.
Monocots	Poaceae	<i>Dichanthelium latifolium</i>
Monocots	Poaceae	<i>Dichanthelium laxiflorum</i>
Monocots	Poaceae	<i>Dichanthelium linearifolium</i>
Monocots	Poaceae	<i>Dichanthelium oligosanthes</i> var.
Monocots	Poaceae	<i>Digitaria ischaemum</i>
Monocots	Poaceae	<i>Elymus hystrix</i>
Monocots	Poaceae	<i>Elymus villosus</i>
Monocots	Poaceae	<i>Elymus virginicus</i>
Monocots	Poaceae	<i>Eragrostis pectinacea</i>
Monocots	Poaceae	<i>Eragrostis spectabilis</i>
Monocots	Poaceae	<i>Festuca elatior</i>
Monocots	Poaceae	<i>Festuca obtusa</i>
Monocots	Poaceae	<i>Festuca rubra</i>
Monocots	Poaceae	<i>Glyceria striata</i>
Monocots	Poaceae	<i>Holcus lanatus</i>
Monocots	Poaceae	<i>Leersia oryzoides</i>
Monocots	Poaceae	<i>Leersia virginica</i>
Monocots	Poaceae	<i>Muhlenbergia capillaris</i>
Monocots	Poaceae	<i>Muhlenbergia schreberi</i>
Monocots	Poaceae	<i>Muhlenbergia sobolifera</i>
Monocots	Poaceae	<i>Muhlenbergia sylvatica</i>
Monocots	Poaceae	<i>Panicum anceps</i>
Monocots	Poaceae	<i>Panicum dichotomiflorum</i>
Monocots	Poaceae	<i>Panicum flexile</i>
Monocots	Poaceae	<i>Paspalum laeve</i>
Monocots	Poaceae	<i>Paspalum setaceum</i>
Monocots	Poaceae	<i>Phleum pratense</i>
Monocots	Poaceae	<i>Poa compressa</i>
Monocots	Poaceae	<i>Poa cuspidata</i>
Monocots	Poaceae	<i>Poa pratensis</i>
Monocots	Poaceae	<i>Poa sylvestris</i>
Monocots	Poaceae	<i>Poa trivialis</i>
Monocots	Poaceae	<i>Schizachyrium scoparium</i>
Monocots	Poaceae	<i>Setaria faberi</i>
Monocots	Poaceae	<i>Setaria geniculata</i>
Monocots	Poaceae	<i>Setaria glauca</i>
Monocots	Poaceae	<i>Sorghastrum nutans</i>
Monocots	Poaceae	<i>Sorghum halepense</i>
Monocots	Poaceae	<i>Sphenopholis intermedia</i>
Monocots	Poaceae	<i>Sphenopholis nitida</i>

Monocots	Poaceae	<i>Sphenopholis pensylvanica</i>
Monocots	Poaceae	<i>Sporobolus asper</i>
Monocots	Poaceae	<i>Sporobolus vaginiflorus</i> (incl.
Monocots	Poaceae	<i>Tridens flavus</i>
Monocots	Cyperaceae	<i>Carex aggregata</i>
Monocots	Cyperaceae	<i>Carex blanda</i>
Monocots	Cyperaceae	<i>Carex cephalophora</i>
Monocots	Cyperaceae	<i>Carex digitalis</i>
Monocots	Cyperaceae	<i>Carex flaccosperma</i>
Monocots	Cyperaceae	<i>Carex frankii</i>
Monocots	Cyperaceae	<i>Carex granularis</i>
Monocots	Cyperaceae	<i>Carex grisea</i>
Monocots	Cyperaceae	<i>Carex hirsutella</i>
Monocots	Cyperaceae	<i>Carex hystericina</i>
Monocots	Cyperaceae	<i>Carex interior</i>
Monocots	Cyperaceae	<i>Carex laevivaginata</i>
Monocots	Cyperaceae	<i>Carex laxiflora</i>
Monocots	Cyperaceae	<i>Carex laxiflora</i> var. <i>serrulata</i>
Monocots	Cyperaceae	<i>Carex lurida</i>
Monocots	Cyperaceae	<i>Carex meadii</i>
Monocots	Cyperaceae	<i>Carex mesochorea</i>
Monocots	Cyperaceae	<i>Carex muhlenbergii</i>
Monocots	Cyperaceae	<i>Carex oligocarpa</i>
Monocots	Cyperaceae	<i>Carex pelita</i>
Monocots	Cyperaceae	<i>Carex pensylvanica</i>
Monocots	Cyperaceae	<i>Carex rosea</i>
Monocots	Cyperaceae	<i>Carex schweinitzii</i>
Monocots	Cyperaceae	<i>Carex sparganioides</i>
Monocots	Cyperaceae	<i>Carex stipata</i>
Monocots	Cyperaceae	<i>Carex stricta</i>
Monocots	Cyperaceae	<i>Carex suberecta</i>
Monocots	Cyperaceae	<i>Carex tetanica</i>
Monocots	Cyperaceae	<i>Carex umbellata</i>
Monocots	Cyperaceae	<i>Carex vulpinoides</i>
Monocots	Cyperaceae	<i>Carex willdenowii</i>
Monocots	Cyperaceae	<i>Cyperus flavescens</i>
Monocots	Cyperaceae	<i>Cyperus strigosus</i>
Monocots	Cyperaceae	<i>Eleocharis engelmannii</i>
Monocots	Cyperaceae	<i>Eleocharis erythropoda</i>
Monocots	Cyperaceae	<i>Eleocharis obtusa</i>
Monocots	Cyperaceae	<i>Schoenoplectus pungens</i>
Monocots	Cyperaceae	<i>Schoenoplectus validus</i>
Monocots	Cyperaceae	<i>Scirpus atrovirens</i>
Monocots	Cyperaceae	<i>Scirpus cyperinus</i>
Monocots	Cyperaceae	<i>Scirpus pendulus</i>
Monocots	Cyperaceae	<i>Trichophorum planifolium</i>
Monocots	Araceae	<i>Acorus calamus</i>

Monocots	Araceae	<i>Arisaema triphyllum</i>
Monocots	Lemnaceae	<i>Lemna sp.</i>
Monocots	Lemnaceae	<i>Wolffia brasiliensis</i>
Monocots	Juncaceae	<i>Juncus brachycephalus</i>
Monocots	Juncaceae	<i>Juncus dudleyi</i>
Monocots	Juncaceae	<i>Juncus effusus</i>
Monocots	Juncaceae	<i>Juncus tenuis</i>
Monocots	Juncaceae	<i>Luzula bulbosa</i>
Monocots	Liliaceae	<i>Allium cernuum</i>
Monocots	Liliaceae	<i>Allium vineale</i>
Monocots	Liliaceae	<i>Asparagus officinalis</i>
Monocots	Liliaceae	<i>Lilium superbum?</i> (vegetative)
Monocots	Liliaceae	<i>Polygonatum biflorum</i>
Monocots	Liliaceae	<i>Smilacina racemosa</i>
Monocots	Liliaceae	<i>Smilax herbacea</i>
Monocots	Liliaceae	<i>Smilax pulverulenta</i>
Monocots	Liliaceae	<i>Smilax rotundifolia</i>
Monocots	Liliaceae	<i>Smilax tamnoides</i>
Monocots	Liliaceae	<i>Trillium grandiflorum</i>
Monocots	Liliaceae	<i>Uvularia perfoliata</i>
Monocots	Liliaceae	<i>Uvularia puberula</i>
Monocots	Amaryllidaceae	<i>Hypoxis hirsuta</i>
Monocots	Iridaceae	<i>Sisyrinchium angustifolium</i>
Monocots	Iridaceae	<i>Sisyrinchium atlanticum</i>
Monocots	Orchidaceae	<i>Aplectrum hyemale</i>
Monocots	Orchidaceae	<i>Goodyera pubescens</i>
Monocots	Orchidaceae	<i>Habenaria lacera</i>
Monocots	Orchidaceae	<i>Liparis lilifolia</i>
Monocots	Orchidaceae	<i>Liparis loeselii</i>
Monocots	Orchidaceae	<i>Orchis spectabilis</i>
Monocots	Orchidaceae	<i>Spiranthes gracilis</i>
Monocots	Orchidaceae	<i>Spiranthes lucida</i>
Dicots	Urticaceae	<i>Boehmeria cylindrica</i>
Dicots	Urticaceae	<i>Laportea canadensis</i>
Dicots	Urticaceae	<i>Parietaria pensylvanica</i>
Dicots	Aristolochiaceae	<i>Aristolochia macrophylla</i>
Dicots	Aristolochiaceae	<i>Aristolochia serpentaria</i>
Dicots	Aristolochiaceae	<i>Asarum canadense</i>
Dicots	Polygonaceae	<i>Polygonum hydropiper</i>
Dicots	Polygonaceae	<i>Polygonum scandens</i>
Dicots	Polygonaceae	<i>Polygonum virginianum</i>
Dicots	Polygonaceae	<i>Rumex acetosella</i>
Dicots	Polygonaceae	<i>Rumex obtusifolius</i>
Dicots	Phytolaccaceae	<i>Phytolacca americana</i>
Dicots	Caryophyllaceae	<i>Arenaria serpyllifolia</i>
Dicots	Caryophyllaceae	<i>Cerastium fontanum</i>
Dicots	Caryophyllaceae	<i>Cerastium glomeratum</i>

Dicots	Caryophyllaceae	<i>Dianthus armeria</i>
Dicots	Caryophyllaceae	<i>Holosteum umbellatum</i>
Dicots	Caryophyllaceae	<i>Silene virginica</i>
Dicots	Caryophyllaceae	<i>Stellaria graminea</i>
Dicots	Caryophyllaceae	<i>Stellaria media</i>
Dicots	Caryophyllaceae	<i>Stellaria pubera</i>
Dicots	Ranunculaceae	<i>Aconitum uncinatum</i>
Dicots	Ranunculaceae	<i>Anemone lancifolia</i>
Dicots	Ranunculaceae	<i>Anemone virginiana</i>
Dicots	Ranunculaceae	<i>Cimicifuga racemosa</i>
Dicots	Ranunculaceae	<i>Clematis virginiana</i>
Dicots	Ranunculaceae	<i>Hepatica americana</i>
Dicots	Ranunculaceae	<i>Ranunculus abortivus</i>
Dicots	Ranunculaceae	<i>Ranunculus alleghiensis</i>
Dicots	Ranunculaceae	<i>Ranunculus bulbosus</i>
Dicots	Ranunculaceae	<i>Ranunculus fascicularis?</i>
Dicots	Ranunculaceae	<i>Ranunculus recurvatus</i>
Dicots	Ranunculaceae	<i>Thalictrum dioicum</i>
Dicots	Ranunculaceae	<i>Thalictrum revolutum</i>
Dicots	Ranunculaceae	<i>Thalictrum thalictroides</i>
Dicots	Berberidaceae	<i>Caulophyllum thalictroides</i>
Dicots	Berberidaceae	<i>Podophyllum peltatum</i>
Dicots	Fumariaceae	<i>Corydalis flavula</i>
Dicots	Papaveraceae	<i>Sanguinaria canadensis</i>
Dicots	Brassicaceae	<i>Alliaria petiolata</i>
Dicots	Brassicaceae	<i>Arabis canadensis</i>
Dicots	Brassicaceae	<i>Barbarea vulgaris</i>
Dicots	Brassicaceae	<i>Capsella bursa-pastoris</i>
Dicots	Brassicaceae	<i>Cardamine hirsuta</i>
Dicots	Brassicaceae	<i>Dentaria laciniata</i>
Dicots	Brassicaceae	<i>Draba verna</i>
Dicots	Brassicaceae	<i>Lepidium campestre</i>
Dicots	Brassicaceae	<i>Lepidium virginicum</i>
Dicots	Brassicaceae	<i>Nasturtium officinale</i>
Dicots	Brassicaceae	<i>Rorippa palustris</i>
Dicots	Crassulaceae	<i>Sedum ternatum</i>
Dicots	Saxifragaceae	<i>Heuchera americana</i>
Dicots	Rosaceae	<i>Agrimonia pubescens</i>
Dicots	Rosaceae	<i>Agrimonia rostellata</i>
Dicots	Rosaceae	<i>Fragaria virginiana</i>
Dicots	Rosaceae	<i>Geum canadense</i>
Dicots	Rosaceae	<i>Potentilla canadensis</i>
Dicots	Rosaceae	<i>Potentilla recta</i>
Dicots	Rosaceae	<i>Potentilla simplex</i>
Dicots	Rosaceae	<i>Rubus argutus</i>
Dicots	Rosaceae	<i>Rubus flagellaris</i>
Dicots	Rosaceae	<i>Rubus occidentalis</i>

Dicots	Rosaceae	<i>Rubus phoenicolasius</i>
Dicots	Fabaceae	<i>Amphicarpa bracteata</i>
Dicots	Fabaceae	<i>Cassia marilandica</i>
Dicots	Fabaceae	<i>Desmodium glutinosum</i>
Dicots	Fabaceae	<i>Desmodium marilandicum</i>
Dicots	Fabaceae	<i>Desmodium nudiflorum</i>
Dicots	Fabaceae	<i>Desmodium paniculatum</i>
Dicots	Fabaceae	<i>Desmodium perplexum</i>
Dicots	Fabaceae	<i>Desmodium rotundifolium</i>
Dicots	Fabaceae	<i>Galactia volubilis</i>
Dicots	Fabaceae	<i>Kummerowia stipulacea</i>
Dicots	Fabaceae	<i>Kummerowia striata</i>
Dicots	Fabaceae	<i>Lespedeza cuneata</i>
Dicots	Fabaceae	<i>Lespedeza procumbens</i>
Dicots	Fabaceae	<i>Lespedeza repens</i>
Dicots	Fabaceae	<i>Lespedeza violacea</i>
Dicots	Fabaceae	<i>Lespedeza virginica</i>
Dicots	Fabaceae	<i>Medicago lupulina</i>
Dicots	Fabaceae	<i>Stylosanthes biflora</i>
Dicots	Fabaceae	<i>Trifolium campestre</i>
Dicots	Fabaceae	<i>Trifolium pratense</i>
Dicots	Fabaceae	<i>Vicia angustifolia</i>
Dicots	Fabaceae	<i>Vicia caroliniana</i>
Dicots	Geraniaceae	<i>Geranium columbinum</i>
Dicots	Geraniaceae	<i>Geranium maculatum</i>
Dicots	Oxalidaceae	<i>Oxalis dillenii</i>
Dicots	Oxalidaceae	<i>Oxalis stricta</i>
Dicots	Oxalidaceae	<i>Oxalis violacea</i>
Dicots	Linaceae	<i>Linum medium var. texanum</i>
Dicots	Linaceae	<i>Linum sulcatum</i>
Dicots	Linaceae	<i>Linum virginianum</i>
Dicots	Polygalaceae	<i>Polygala senega</i>
Dicots	Polygalaceae	<i>Polygala verticillata</i>
Dicots	Euphorbiaceae	<i>Acalypha rhomboidea</i>
Dicots	Euphorbiaceae	<i>Euphorbia corollata</i>
Dicots	Euphorbiaceae	<i>Euphorbia maculata</i>
Dicots	Euphorbiaceae	<i>Euphorbia nutans</i>
Dicots	Callitrichaceae	<i>Callitriche heterophylla</i>
Dicots	Anacardiaceae	<i>Toxicodendron radicans</i>
Dicots	Celastraceae	<i>Celastrus orbiculatus</i>
Dicots	Balsaminaceae	<i>Impatiens capensis</i>
Dicots	Vitaceae	<i>Parthenocissus quinquefolia</i>
Dicots	Vitaceae	<i>Vitis aestivalis var. argentea</i>
Dicots	Vitaceae	<i>Vitis vulpina</i>
Dicots	Clusiaceae	<i>Hypericum gentianoides</i>
Dicots	Clusiaceae	<i>Hypericum mutilum</i>
Dicots	Clusiaceae	<i>Hypericum perforatum</i>

Dicots	Clusiaceae	<i>Hypericum punctatum</i>
Dicots	Clusiaceae	<i>Hypericum stragulum</i>
Dicots	Violaceae	<i>Viola canadensis</i>
Dicots	Violaceae	<i>Viola cucullata</i>
Dicots	Violaceae	<i>Viola hirsutella</i>
Dicots	Violaceae	<i>Viola palmata</i>
Dicots	Violaceae	<i>Viola rafinesquii</i>
Dicots	Violaceae	<i>Viola sororia</i>
Dicots	Violaceae	<i>Viola striata</i>
Dicots	Lythraceae	<i>Cuphea viscosissima</i>
Dicots	Onagraceae	<i>Circaea lutetiana</i>
Dicots	Onagraceae	<i>Epilobium coloratum</i>
Dicots	Onagraceae	<i>Ludwigia alternifolia</i>
Dicots	Onagraceae	<i>Ludwigia palustris</i>
Dicots	Araliaceae	<i>Panax quinquefolius</i>
Dicots	Apiaceae	<i>Anthriscus caucalis</i>
Dicots	Apiaceae	<i>Cryptotaenia canadensis</i>
Dicots	Apiaceae	<i>Daucus carota</i>
Dicots	Apiaceae	<i>Osmorhiza claytoniana</i>
Dicots	Apiaceae	<i>Osmorhiza longistylis</i>
Dicots	Apiaceae	<i>Sanicula canadensis</i>
Dicots	Apiaceae	<i>Zizia trifoliata</i>
Dicots	Ericaceae	<i>Chimaphila maculata</i>
Dicots	Primulaceae	<i>Anagalis arvensis</i>
Dicots	Primulaceae	<i>Lysimachia lanceolata</i>
Dicots	Primulaceae	<i>Lysimachia quadrifolia</i>
Dicots	Primulaceae	<i>Samolus parviflorus</i>
Dicots	Gentianaceae	<i>Gentiana quinquefolia</i>
Dicots	Gentianaceae	<i>Sabatia angularis</i>
Dicots	Apocynaceae	<i>Apocynum cannabinum</i>
Dicots	Apocynaceae	<i>Vinca minor</i>
Dicots	Asclepiadaceae	<i>Asclepias quadrifolia</i>
Dicots	Asclepiadaceae	<i>Asclepias syriaca</i>
Dicots	Asclepiadaceae	<i>Asclepias variegata</i>
Dicots	Asclepiadaceae	<i>Asclepias verticillata</i>
Dicots	Asclepiadaceae	<i>Asclepias viridiflora</i>
Dicots	Convolvulaceae	<i>Calystegia spithamea</i>
Dicots	Convolvulaceae	<i>Ipomoea pandurata</i>
Dicots	Polemoniaceae	<i>Phlox ovata</i>
Dicots	Polemoniaceae	<i>Polemonium reptans</i>
Dicots	Hydrophyllaceae	<i>Hydrophyllum virginianum</i>
Dicots	Boraginaceae	<i>Cynoglossum virginianum</i>
Dicots	Boraginaceae	<i>Echium vulgare</i>
Dicots	Boraginaceae	<i>Hackelia virginiana</i>
Dicots	Boraginaceae	<i>Lithospermum canescens</i>
Dicots	Boraginaceae	<i>Myosotis macrosperma</i>
Dicots	Boraginaceae	<i>Onosmodium molle</i> var.

Dicots	Verbenaceae	<i>Verbena hastata</i>
Dicots	Verbenaceae	<i>Verbena simplex</i>
Dicots	Verbenaceae	<i>Verbena urticifolia</i>
Dicots	Lamiaceae	<i>Blephilia hirsuta</i>
Dicots	Lamiaceae	<i>Collinsonia canadensis</i>
Dicots	Lamiaceae	<i>Cunila origanoides</i>
Dicots	Lamiaceae	<i>Glechoma hederacea</i>
Dicots	Lamiaceae	<i>Hedeoma pulegioides</i>
Dicots	Lamiaceae	<i>Isanthus brachiata</i>
Dicots	Lamiaceae	<i>Lycopus americanus</i>
Dicots	Lamiaceae	<i>Lycopus uniflorus</i>
Dicots	Lamiaceae	<i>Lycopus virginicus</i>
Dicots	Lamiaceae	<i>Mentha piperita</i>
Dicots	Lamiaceae	<i>Monarda fistulosa</i>
Dicots	Lamiaceae	<i>Nepeta cataria</i>
Dicots	Lamiaceae	<i>Prunella vulgaris</i>
Dicots	Lamiaceae	<i>Pycnanthemum pycnanthemoides</i>
Dicots	Lamiaceae	<i>Pycnanthemum tenuifolium</i>
Dicots	Lamiaceae	<i>Pycnanthemum verticillatum</i>
Dicots	Lamiaceae	<i>Salvia lyrata</i>
Dicots	Lamiaceae	<i>Salvia urticifolia</i>
Dicots	Lamiaceae	<i>Satureja vulgaris</i>
Dicots	Lamiaceae	<i>Scutellaria elliptica</i>
Dicots	Lamiaceae	<i>Scutellaria lateriflora</i>
Dicots	Lamiaceae	<i>Scutellaria leonardii</i>
Dicots	Lamiaceae	<i>Scutellaria nervosa</i>
Dicots	Lamiaceae	<i>Scutellaria serrata</i>
Dicots	Lamiaceae	<i>Teucrium canadense</i>
Dicots	Solanaceae	<i>Datura stramonium</i>
Dicots	Solanaceae	<i>Physalis heterophylla</i>
Dicots	Solanaceae	<i>Solanum carolinense</i>
Dicots	Scrophulariaceae	<i>Agalinis tenuifolia</i>
Dicots	Scrophulariaceae	<i>Aureolaria virginica</i>
Dicots	Scrophulariaceae	<i>Chaenorrhinum minus</i>
Dicots	Scrophulariaceae	<i>Mimulus ringens</i>
Dicots	Scrophulariaceae	<i>Penstemon laevigatus</i>
Dicots	Scrophulariaceae	<i>Scrophularia marilandica</i>
Dicots	Scrophulariaceae	<i>Verbascum blattaria</i>
Dicots	Scrophulariaceae	<i>Verbascum thapsus</i>
Dicots	Scrophulariaceae	<i>Veronica americana</i>
Dicots	Scrophulariaceae	<i>Veronica anagalis-aquatica</i>
Dicots	Scrophulariaceae	<i>Veronica arvensis</i>
Dicots	Scrophulariaceae	<i>Veronica officinalis</i>
Dicots	Scrophulariaceae	<i>Veronica serpyllifolia</i>
Dicots	Bignoniaceae	<i>Campsis radicans</i>
Dicots	Phrymaceae	<i>Phryma leptostachya</i>
Dicots	Plantaginaceae	<i>Plantago aristata</i>

Dicots	Plantaginaceae	<i>Plantago lanceolata</i>
Dicots	Plantaginaceae	<i>Plantago virginica</i>
Dicots	Rubiaceae	<i>Diodia teres</i>
Dicots	Rubiaceae	<i>Galium aparine</i>
Dicots	Rubiaceae	<i>Galium circaezans</i>
Dicots	Rubiaceae	<i>Galium latifolium</i>
Dicots	Rubiaceae	<i>Galium pedemontanum</i>
Dicots	Rubiaceae	<i>Galium pilosum</i>
Dicots	Rubiaceae	<i>Galium triflorum</i>
Dicots	Rubiaceae	<i>Galium verum</i>
Dicots	Rubiaceae	<i>Houstonia caerulea</i>
Dicots	Rubiaceae	<i>Houstonia longifolia</i>
Dicots	Rubiaceae	<i>Sherardia arvensis</i>
Dicots	Caprifoliaceae	<i>Lonicera japonica</i>
Dicots	Caprifoliaceae	<i>Triosteum aurantiacum ?</i>
Dicots	Dipsacaceae	<i>Dipsacus fullonum</i>
Dicots	Campanulaceae	<i>Campanula americana</i>
Dicots	Campanulaceae	<i>Lobelia inflata</i>
Dicots	Campanulaceae	<i>Lobelia siphilitica</i>
Dicots	Campanulaceae	<i>Lobelia spicata</i> var. <i>leptostachya</i>
Dicots	Asteraceae	<i>Achillea millefolium</i>
Dicots	Asteraceae	<i>Ambrosia artemisiifolia</i>
Dicots	Asteraceae	<i>Antennaria parlinii</i> ssp. <i>fallax</i>
Dicots	Asteraceae	<i>Antennaria parlinii</i> ssp. <i>parlinii</i>
Dicots	Asteraceae	<i>Antennaria plantaginifolia</i>
Dicots	Asteraceae	<i>Aster lateriflorus</i>
Dicots	Asteraceae	<i>Aster phlogifolius</i>
Dicots	Asteraceae	<i>Aster pilosus</i>
Dicots	Asteraceae	<i>Aster undulatus</i>
Dicots	Asteraceae	<i>Bidens bipinnata</i>
Dicots	Asteraceae	<i>Bidens frondosa</i>
Dicots	Asteraceae	<i>Cacalia atriplicifolia</i>
Dicots	Asteraceae	<i>Carduus acanthoides</i>
Dicots	Asteraceae	<i>Carduus nutans</i>
Dicots	Asteraceae	<i>Centaurea jacea</i>
Dicots	Asteraceae	<i>Centaurea maculosa</i>
Dicots	Asteraceae	<i>Chrysanthemum leucanthemum</i>
Dicots	Asteraceae	<i>Chrysogonum virginianum</i>
Dicots	Asteraceae	<i>Cichorium intybus</i>
Dicots	Asteraceae	<i>Cirsium arvense</i>
Dicots	Asteraceae	<i>Cirsium discolor</i>
Dicots	Asteraceae	<i>Cirsium vulgare</i>
Dicots	Asteraceae	<i>Conyza canadensis</i>
Dicots	Asteraceae	<i>Crepis capillaris</i>
Dicots	Asteraceae	<i>Srechtites hieracifolia</i>
Dicots	Asteraceae	<i>Erigeron annuus</i>
Dicots	Asteraceae	<i>Erigeron philadelphicus</i>

Dicots	Asteraceae	<i>Erigeron pulchellus</i>
Dicots	Asteraceae	<i>Erigeron strigosus</i>
Dicots	Asteraceae	<i>Eupatorium fistulosum</i>
Dicots	Asteraceae	<i>Eupatorium perfoliatum</i>
Dicots	Asteraceae	<i>Eupatorium rotundifolium</i> var.
Dicots	Asteraceae	<i>Eupatorium rugosum</i>
Dicots	Asteraceae	<i>Eupatorium serotinum</i>
Dicots	Asteraceae	<i>Gnaphalium obtusifolium</i>
Dicots	Asteraceae	<i>Helianthus microcephalus</i>
Dicots	Asteraceae	<i>Heliopsis helianthoides</i>
Dicots	Asteraceae	<i>Hieracium pilosella</i>
Dicots	Asteraceae	<i>Hieracium pratense</i>
Dicots	Asteraceae	<i>Hieracium venosum</i>
Dicots	Asteraceae	<i>Hypochaeris radicata</i>
Dicots	Asteraceae	<i>Kuhnia eupatorioides</i>
Dicots	Asteraceae	<i>Polymnia uvedalia</i>
Dicots	Asteraceae	<i>Rudbeckia fulgida</i>
Dicots	Asteraceae	<i>Rudbeckia triloba</i>
Dicots	Asteraceae	<i>Senecio anonymous</i>
Dicots	Asteraceae	<i>Senecio aureus</i>
Dicots	Asteraceae	<i>Senecio plattensis</i> x <i>obovatus</i>
Dicots	Asteraceae	<i>Silphium trifoliatum</i>
Dicots	Asteraceae	<i>Solidago altissima</i>
Dicots	Asteraceae	<i>Solidago arguta</i>
Dicots	Asteraceae	<i>Solidago bicolor</i>
Dicots	Asteraceae	<i>Solidago nemoralis</i>
Dicots	Asteraceae	<i>Solidago rugosa</i>
Dicots	Asteraceae	<i>Solidago ulmifolia</i>
Dicots	Asteraceae	<i>Taraxacum officinale</i>
Dicots	Asteraceae	<i>Tragopogon dubius</i>
Dicots	Asteraceae	<i>Tussilago farfara</i>
Dicots	Asteraceae	<i>Verbesina alternifolia</i>
Dicots	Asteraceae	<i>Verbesina occidentalis</i>
Dicots	Asteraceae	<i>Vernonia noveboracensis</i>
Trees		<i>Juniperus virginiana</i>
Trees		<i>Pinus echinata</i>
Trees		<i>Pinus pungens</i>
Trees		<i>Pinus rigida</i>
Trees		<i>Pinus strobus</i>
Trees		<i>Pinus taeda</i>
Trees		<i>Pinus virginiana</i>
Trees	Salicaceae	<i>Salix nigra</i>
Trees	Juglandaceae	<i>Carya cordiformis</i>
Trees	Juglandaceae	<i>Carya ovata</i>
Trees	Juglandaceae	<i>Carya tomentosa</i>
Trees	Juglandaceae	<i>Juglans nigra</i>
Trees	Fagaceae	<i>Quercus alba</i>

Trees	Fagaceae	<i>Quercus coccinea</i>
Trees	Fagaceae	<i>Quercus muhlenbergii</i>
Trees	Fagaceae	<i>Quercus rubra</i>
Trees	Fagaceae	<i>Quercus stellata</i>
Trees	Fagaceae	<i>Quercus velutina</i>
Trees	Ulmaceae	<i>Celtis occidentalis</i>
Trees	Ulmaceae	<i>Ulmus rubra</i>
Trees	Moraceae	<i>Morus rubra</i>
Trees	Magnoliaceae	<i>Liriodendron tulipifera</i>
Trees	Magnoliaceae	<i>Magnolia acuminata</i>
Trees	Rosaceae	<i>Amelanchier arborea</i>
Trees	Rosaceae	<i>Crataegus crusgali</i>
Trees	Rosaceae	<i>Crataegus flabellata</i>
Trees	Rosaceae	<i>Malus coronaria</i>
Trees	Rosaceae	<i>Malus pumilus</i>
Trees	Rosaceae	<i>Prunus serotina</i>
Trees	Rosaceae	<i>Pyrus communis</i>
Trees	Fabaceae	<i>Robinia pseudoacacia</i>
Trees	Simarubaceae	<i>Ailanthus altissima</i>
Trees	Aceraceae	<i>Acer rubrum</i>
Trees	Aceraceae	<i>Acer saccharinum</i>
Trees	Aceraceae	<i>Acer saccharum</i>
Trees	Hippocastanaceae	<i>Aesculus flava</i>
Trees	Cornaceae	<i>Cornus florida</i>
Trees	Cornaceae	<i>Nyssa sylvatica</i>
Trees	Oleaceae	<i>Fraxinus americana</i>
Trees	Scrophulariaceae	<i>Paulownia tomentosa</i>
Shrubs	Betulaceae	<i>Alnus serrulata</i>
Shrubs	Betulaceae	<i>Corylus americana</i>
Shrubs	Berberidaceae	<i>Berberia canadensis</i>
Shrubs	Berberidaceae	<i>Berberis thunbergii</i>
Shrubs	Lauraceae	<i>Lindera benzoin</i>
Shrubs	Saxifragaceae	<i>Hydrangea arborescens</i>
Shrubs	Rosaceae	<i>Prunus americana</i>
Shrubs	Rosaceae	<i>Rosa multiflora</i>
Shrubs	Rosaceae	<i>Rosa palustris</i>
Shrubs	Anacardiaceae	<i>Rhus glabra</i>
Shrubs	Elaeagnaceae	<i>Elaeagnus umbellatus</i>
Shrubs	Cornaceae	<i>Cornus amomum</i>
Shrubs	Ericaceae	<i>Gaylussacia baccata</i>
Shrubs	Ericaceae	<i>Vaccinium pallidum</i>
Shrubs	Ericaceae	<i>Vaccinium stamineum</i>
Shrubs	Oleaceae	<i>Ligustrum obtusifolium</i>
Shrubs	Caprifoliaceae	<i>Lonicera maackii</i>
Shrubs	Caprifoliaceae	<i>Lonicera morrowii</i>
Shrubs	Caprifoliaceae	<i>Symphoricarpos orbiculatus</i>
Shrubs	Caprifoliaceae	<i>Viburnum prunifolium</i>

INVERTEBRATES

Class: Arachnida

Order: Araneae

Family	Scientific Name	Common Name
Agelenidae	<i>Cicurina pallida</i>	
Agelenidae	<i>Cicurina robusta</i>	
Agelenidae	<i>Cicurina sp.</i>	
Agelenidae	<i>Coras medicinalis</i>	
Agelenidae	<i>sp.</i>	
Agelenidae	<i>Wadotes bimucronatus</i>	
Agelenidae	<i>Wadotes hybridus</i>	
Agelenidae	<i>Wadotes sp.</i>	
Antrodiaetidae	<i>Antrodiaetus unicolor</i>	
Anyphaenidae	<i>Anyphaena celer</i>	
Anyphaenidae	<i>Anyphaena fraterna</i>	
Araneidae	<i>Araneus sp.</i>	
Araneidae	<i>Araneus pratensis</i>	
Araneidae	<i>Argipe trifasciata</i>	
Araneidae	<i>Mangora gibberosa</i>	
Araneidae	<i>Mangora placida</i>	
Araneidae	<i>Micrathena gracilis</i>	
Araneidae	<i>Micrathena mitrata</i>	
Araneidae	<i>Neoscona arabesca</i>	
Araneidae	<i>Neoscona pratensis</i>	
Araneidae	<i>sp.</i>	
Araneidae	<i>Verrucosa arenata</i>	
Atypidae	<i>Sphodros niger</i>	
Clubionidae	<i>Castianeira longipalpus</i>	
Clubionidae	<i>Castianeira sp.</i>	
Clubionidae	<i>Castianeira variata</i>	
Clubionidae	<i>Clubiona abboti</i>	
Clubionidae	<i>Clubiona johnsoni</i>	
Gnaphosidae	<i>Drassodes neglectus</i>	
Gnaphosidae	<i>Drassyllus creolus</i>	
Gnaphosidae	<i>Drassyllus depressus</i>	
Gnaphosidae	<i>Drassyllus eremitis</i>	
Gnaphosidae	<i>Drassyllus fallens</i>	
Gnaphosidae	<i>Drassyllus sp.</i>	
Gnaphosidae	<i>Haplodrassus signifer</i>	
Gnaphosidae	<i>Zelotes duplex</i>	
Gnaphosidae	<i>Zelotes hentzi</i>	
Hahniidae	<i>Neoantistae agilis</i>	
Leptonetidae	<i>Leptoneta sp.</i>	
Linyphiidae	<i>Bathyphantes pallida</i>	

Linyphiidae	<i>Centromerus persoluta</i>	
Linyphiidae	<i>Centromerus cornupalpis</i>	
Linyphiidae	<i>Cornicularia sp.</i>	
Linyphiidae	<i>Grammonata inornata</i>	
Linyphiidae	<i>Lepthyphantes zebra</i>	
Linyphiidae	<i>Prolinyphia marginata</i>	
Linyphiidae	<i>sp.</i>	
Linyphiidae	<i>Stemonyphantes blauveltae</i>	
Linyphiidae	<i>Tapinopa bilineata</i>	
Lycosidae	<i>Allocosa funerea</i>	
Lycosidae	<i>Gladicosa gulosa</i>	
Lycosidae	<i>Hogna frondicola</i>	
Lycosidae	<i>Hogna fronticola</i>	
Lycosidae	<i>Hogna helluo</i>	
Lycosidae	<i>Hogna punctulata</i>	
Lycosidae	<i>Hogna rabida</i>	
Lycosidae	<i>Pardosa milvina</i>	
Lycosidae	<i>Pardosa sp.</i>	
Lycosidae	<i>Pirata insularis</i>	
Lycosidae	<i>Pirata minutus</i>	
Lycosidae	<i>Pirata sedentarius</i>	
Lycosidae	<i>Pirata sp.</i>	
Lycosidae	<i>Schizocosa avida</i>	
Lycosidae	<i>Schizocosa bilineata</i>	
Lycosidae	<i>Schizocosa duplex</i>	
Lycosidae	<i>Schizocosa ocreata</i>	
Lycosidae	<i>Schizocosa ocreate</i>	
Lycosidae	<i>Schizocosa saltatrix</i>	
Lycosidae	<i>Schizocosa sp.</i>	
Lycosidae	<i>Schizocosa unk.</i>	
Lycosidae	<i>sp.</i>	
Lycosidae	<i>Trabea aurantiaca</i>	
Lycosidae	<i>Varacosa avara</i>	
Mimetidae	<i>Ero leonina</i>	
Oxyopidae	<i>Oxyopes salticus</i>	
Oxyopidae	<i>Oxyopes salticus</i>	
Philodromidae	<i>Philodromus marxi</i>	
Philodromidae	<i>Philodromus exilis</i>	
Philodromidae	<i>Philodromus minutus</i>	
Philodromidae	<i>Philodromus sp.</i>	
Philodromidae	<i>Thanatus formicinus</i>	
Philodromidae	<i>Thanatus rubicellus</i>	
Philodromidae	<i>Tibellus duttoni</i>	
Pisauridae	<i>Dolomedes albineus</i>	
Pisauridae	<i>Dolomedes sp.</i>	
Pisauridae	<i>Dolomedes triton</i>	
Pisauridae	<i>Pisaurina mira</i>	

Class: Insecta
Order: Collembola

Family	Scientific Name	Common Name
Entomobryidae	<i>sp.</i>	Springtail
Hypogastruidae	<i>sp.</i>	Springtail
Isotomidae	<i>sp.</i>	Springtail
Sminthuridae	<i>sp.</i>	Springtail

Class: Insecta
Order: Diptera

Family	Scientific Name	Common Name
Cecidomyiidae	<i>sp.</i>	Gall gnat
Ceratopogonidae	<i>sp.</i>	Biting midge
Chironomidae	<i>sp.</i>	Midge
Drosophilidae	<i>sp.</i>	Pomace fly
Ephydriidae	<i>sp.</i>	Shore fly
Heleomyzidae	<i>sp.</i>	Heleomyzid fly
Lauxaniidae	<i>sp.</i>	Lauxaniid fly
Muscidae	<i>sp.</i>	Muscid fly
Mycetophilidae	<i>sp.</i>	Fungus gnat
Otitidae	<i>sp.</i>	Picture-winged fly
Phoridae	<i>sp.</i>	Humpbacked fly
Pipunculidae	<i>sp.</i>	Big-headed fly
Sciaridae	<i>sp.</i>	Dark-winged fungus gnat
Sciomyzidae	<i>sp.</i>	Marsh fly
Simuliidae	<i>sp.</i>	Black fly
Stratiomyiidae	<i>sp.</i>	Soldier fly
Syrphidae	<i>sp.</i>	Syrphid fly
Tabanidae	<i>sp.</i>	Deer fly
Tachinidae	<i>sp.</i>	Tachinid fly
Tipulidae	<i>sp.</i>	Crane fly

Class: Insecta
Order: Ephemeroptera

Specimen not identified beyond order.

Class: Insecta
Order: Heteroptera

Family	Scientific Name	Common Name
Belostomatidae	<i>Belostoma fluminea</i>	Giant water bug
Gerridae	<i>Gerris argenticollis</i>	Water strider
Hebridae	<i>Merragotta sp.</i>	Velvet water bug
Lygalidae	<i>Cryphula trimaculata</i>	Seed bug

Salticidae	<i>Eris marginata</i>	
Salticidae	<i>Eris sp.</i>	
Salticidae	<i>Habrocestum pulex</i>	
Salticidae	<i>Marpissa pikei</i>	
Salticidae	<i>Metaphidippus galathea</i>	
Salticidae	<i>Phidippus clarus</i>	
Salticidae	<i>Phidippus sp.</i>	
Salticidae	<i>Thiodina sylvana</i>	
Tetragnathidae	<i>Leucauge venusta</i>	
Tetragnathidae	<i>Pachygnatha autumnalis</i>	
Tetragnathidae	<i>Pachygnatha tristriata</i>	
Tetragnathidae	<i>Tetragnatha elongata</i>	
Tetragnathidae	<i>Tetragnatha pallescens</i>	
Tetragnathidae	<i>Tetragnatha straminea</i>	
Tetragnathidae	<i>Tetragnatha versicolor</i>	
Theridiidae	<i>Achaeearanea globosa</i>	
Theridiidae	<i>Argyrodes trigona</i>	
Theridiidae	<i>Enoplognatha marmorata</i>	
Theridiidae	<i>Steatoda americana</i>	
Theridiidae	<i>Theridion albidum</i>	
Theridiidae	<i>Thymoites marxi</i>	
Theridiidae	<i>Thymoites sp.</i>	
Thomisidae	<i>Misumena vatia</i>	
Thomisidae	<i>Misumenops sp.</i>	
Thomisidae	<i>Ozyptila monroensis</i>	
Thomisidae	<i>Tmarus angulatus</i>	
Thomisidae	<i>Xysticus bicuspis</i>	
Thomisidae	<i>Xysticus elegans</i>	
Thomisidae	<i>Xysticus ferox</i>	
Thomisidae	<i>Xysticus gulosus</i>	
Thomisidae	<i>Xysticus luctans</i>	
Thomisidae	<i>Xysticus sp.</i>	

Class: Diplopoda
Order: Callipodida

Family	Scientific Name	Common Name
Abacionidae	<i>Abacion tessellatum</i>	Millipede

Class: Diplopoda
Order: Julida

Family	Scientific Name	Common Name
Julidae	<i>Ophiulus pilosus</i>	Millipede

Class: Diplopoda
Order: Polydesmida

Family	Scientific Name	Common Name
Polydesmidae	<i>Pseudopolydesmus collinus</i>	Millipede
Xystodesmidae	<i>Brachoria separanda calcaria</i>	Millipede
Xystodesmidae	<i>Nannari sp.</i>	Millipede

Class: Insecta

Order: Coleoptera

Family	Scientific Name	Common Name
Cantharidae	<i>sp.</i>	Soldier beetle
Carabidae	<i>Amphasia interstitialis</i>	Ground beetle
Carabidae	<i>Apenes lucidula</i>	Ground beetle
Carabidae	<i>Arisodactylus nigerrinus</i>	Ground beetle
Carabidae	<i>Chlaenius lithophilus</i>	Ground beetle
Carabidae	<i>Dicaelus politus</i>	Ground beetle
Carabidae	<i>Lebia analis</i>	Ground beetle
Carabidae	<i>Lebia atriventris</i>	Ground beetle
Carabidae	<i>Lebia fuscata</i>	Ground beetle
Carabidae	<i>Lebia solea</i>	Ground beetle
Carabidae	<i>Oligthopus parmatius</i>	Ground beetle
Carabidae	<i>Pseudauphasia senicea</i>	Ground beetle
Carabidae	<i>Scaphinotus elevatus</i>	Ground beetle
Carabidae	<i>Scarites subterraneus</i>	Ground beetle
Carabidae	<i>Sphaeroderus stenostomus</i>	Ground beetle
Carabidae	<i>Sterioloophus comma</i>	Ground beetle
Chrysomelidae	<i>Chrysolina inornata</i>	Leaf beetle
Chrysomelidae	<i>Glyptoscelis pubescens</i>	Leaf beetle
Chrysomelidae	<i>sp.</i>	Leaf beetle
Coccinellidae	<i>sp.</i>	Ladybird beetle
Cucujidae	<i>sp.</i>	Flat bark beetle
Dytiscidae	<i>sp.</i>	Predaceous diving beetle
Elateridae	<i>sp.</i>	Click beetle
Endomychidae	<i>Lycoperdina ferroginea</i>	Handsome fungus beetle
Endomychidae	<i>Mycetina perpulchra</i>	Handsome fungus beetle
Endomychidae	<i>Stenotarsus hispidus</i>	Handsome fungus beetle
Haliplidae	<i>sp.</i>	Crawling water beetle
Lampyridae	<i>sp.</i>	Firefly
Meloidae	<i>Meloe angusticollis</i>	Blister beetle
Psephenidae	<i>sp.</i>	Water-penny beetle
Scarabaeidae	<i>Copris minutus</i>	Scarab beetle
Scarabaeidae	<i>Copris tullius</i>	Scarab beetle
Scarabaeidae	<i>Geotrope opacus</i>	Scarab beetle
Staphylinidae	<i>Arpedium schwarzi</i>	Rove beetle
Staphylinidae	<i>Olophrum obtectum</i>	Rove beetle

Lygalidae	<i>Cymus angustatus</i>	Seed bug
Lygalidae	<i>Melaiiocorypha bicrucis</i>	Seed bug
Lygalidae	<i>Myodocha serripes</i>	Seed bug
Lygalidae	<i>Oedancala dorsalis</i>	Seed bug
Lygalidae	<i>Phlegyas abbreviatus</i>	Seed bug
Lygalidae	<i>Pseudopachybrachius basilis</i>	Seed bug
Lygalidae	<i>Xestocoris nitens</i>	Seed bug
Miridae	<i>Lopidea robiniae</i>	Leaf bug
Miridae	<i>Megaloceraea recticornis</i>	Leaf bug
Pentatomidae	<i>Acrosternum hilare</i>	Stink bug
Pentatomidae	<i>Mosmidea lergeus</i>	Stink bug
Pentatomidae	<i>sp.</i>	Stink bug
Reduviidae	<i>Fitchia aptera</i>	Assassin bug
Reduviidae	<i>Melanolestes abdominalis</i>	Assassin bug
Reduviidae	<i>sp.</i>	Assassin bug

Class: Insecta

Order: Homoptera

Family	Scientific Name	Common Name
Aphididae	<i>sp.</i>	Aphid
Cicadellidae	<i>sp.</i>	Leaf hopper

Class: Insecta

Order: Hymenoptera

Family	Scientific Name	Common Name
Anthoporidae	<i>sp.</i>	Apidid bee
Apidae	<i>sp.</i>	Apidid bee
Braconidae	<i>sp.</i>	Brachonid
Chalcidoidea	<i>sp.</i>	Chalsid
Formicidae	<i>Campanotus sp.</i>	Formicinae (Ant)
Formicidae	<i>Crematogastor sp.</i>	Myrmicinae (Ant)
Formicidae	<i>Formica sp.</i>	Formicinae (Ant)
Formicidae	<i>sp.</i>	Myrmicinae (Ant)
Formicidae	<i>sp.</i>	Ponerinae (Ant)
Formicidae	<i>Stenamma meridionale</i>	Myrmicinae (Ant)
Halictidae	<i>sp.</i>	Halictid bee
Ichneumonidae	<i>sp.</i>	Ichneumon
Ichneumonidae	<i>sp.</i>	Ichneumon bee
Megachilidae	<i>sp.</i>	Leafcutting bee
Mutillidae	<i>sp.</i>	Velvet ant
Proctotrupoidea	<i>sp.</i>	Proctotrupids
Tenthredinidae	<i>sp.</i>	Common sawfly
Vespidae	<i>Dolichovespula maculata</i>	Vespinae (Vespid wasp)
Vespidae	<i>sp.</i>	Vespid wasp

Class: Insecta
Order: Isoptera

Family	Scientific Name	Common Name
Rhinotermitidae	<i>sp.</i>	

Class: Insecta
Order: Lepidoptera

Family	Scientific Name	Common Name
Arctidae	<i>Grammia virgo</i>	Virgin Tiger Moth
Arctiidae	<i>Cisseps fulvicollis</i>	Yellow-collared Scape Moth
Arctiidae	<i>Estigmene acrea</i>	Salt marsh moth
Arctiidae	<i>Haploa lecontei</i>	Leconte's haploa
Arctiidae	<i>Holomelina opella</i>	Tawny Holomelina
Arctiidae	<i>sp.</i>	Tiger moth
Geometridae	<i>Epimecis hortaria</i>	Tulip-tree beauty
Geometridae	<i>Eubaphe mendica</i>	The beggar
Geometridae	<i>Eutrapela clemataria</i>	Curve-toothed Geometer
Geometridae	<i>Heterophleps trigutteria</i>	Three-spotted fillip
Geometridae	<i>Metarranthis hypochraria</i>	Common metarranthis
Geometridae	<i>Nepytia canosaria</i>	False Hemlock Looper Moth
Geometridae	<i>Patalene olyzonaria puber</i>	Juniper geometer
Geometridae	<i>Scopula inductata</i>	Soft-lined wave
Geometridae	<i>Scopula limboundata</i>	Large lace-border
Hesperiidae	<i>Ancyloxypha numitor</i>	Least skipper
Hesperiidae	<i>Atalopedes campestris</i>	Sachem
Hesperiidae	<i>Atrytone logan</i>	Delaware skipper
Hesperiidae	<i>Atrytonopsis hianna</i>	Dusted skipper
Hesperiidae	<i>Epargyreus clarus</i>	Silver-spotted skipper
Hesperiidae	<i>Erynnis baptisiae</i>	Wild indigo duskywing
Hesperiidae	<i>Erynnis brizo</i>	Sleepy duskywing
Hesperiidae	<i>Erynnis icelus</i>	Dreamy duskywing
Hesperiidae	<i>Erynnis juvenalis</i>	Juvena's duskywing
Hesperiidae	<i>Euphyes vestris</i>	Dun skipper
Hesperiidae	<i>Lerema accius</i>	Clouded skipper
Hesperiidae	<i>Nastra iherminier</i>	Swarthy skipper
Hesperiidae	<i>Panaquina ocola</i>	Ocola skipper
Hesperiidae	<i>Pholisora catullus</i>	Common sootywing
Hesperiidae	<i>Poanes hobomok</i>	Hobomok skipper
Hesperiidae	<i>Poanes zabulon</i>	Zabulon skipper
Hesperiidae	<i>Polites origenes</i>	Crossline skipper
Hesperiidae	<i>Polites peckius</i>	Peck's skipper
Hesperiidae	<i>Polites themistocles</i>	Tawny-edged skipper
Hesperiidae	<i>Pompeius verna</i>	Little glassywing
Hesperiidae	<i>Pyrgus communis</i>	Common checkered skipper
Hesperiidae	<i>Thorybes bathyllus</i>	Southern cloudywing

Hesperiidae	<i>Thorybes pylades</i>	Northern cloudywing
Hesperiidae	<i>Thymelicus lineola</i>	European skipper
Hesperiidae	<i>Wallengrenia egeremet</i>	Northern broken dash
Lasiocampidae	<i>Malacosoma sp.</i>	Tent caterpillar
Limacodidae	<i>Packardia geminata</i>	Slug caterpillar moth
Lycaenidae	<i>Callophrys gryneus</i>	Olive hairstreak
Lycaenidae	<i>Callophrys henrici</i>	Henry's elfin
Lycaenidae	<i>Callophrys niphon</i>	Eastern pine elfin
Lycaenidae	<i>Celastrina l. ladon "neglecta"</i>	Summer azure
Lycaenidae	<i>Celastrina l. ladon "violacea"</i>	Spring azure
Lycaenidae	<i>Celastrina neglectamajor</i>	Appalachian azure
Lycaenidae	<i>Everes comyntas</i>	Eastern tailed blue
Lycaenidae	<i>Feniseca tarquinius</i>	Harvester
Lycaenidae	<i>Lycaena Phlaeas</i>	American copper
Lycaenidae	<i>Satyrrium calanus</i>	Banded hairstreak
Lycaenidae	<i>Satyrrium titus</i>	Coral hairstreak
Lycaenidae	<i>Strymon melinus humuli</i>	Gray hairstreak
Noctuidae	<i>Caenurgina erechtea</i>	Forage looper moth
Noctuidae	<i>Feltia jaculifera</i>	Dingy cutworm moth
Noctuidae	<i>Galgula partita</i>	The wedgeling
Noctuidae	<i>Leucania sp.</i>	Armyworm moth
Noctuidae	<i>Leucania sp.</i>	Wainscot sp.
Noctuidae	<i>Mocis texana</i>	Texas mocis
Noctuidae	<i>Panthea furcilla</i>	Eastern panthea
Noctuidae	<i>Plathypena scabra</i>	Green cloverworm moth
Noctuidae	<i>Pseudaletia unipuncta</i>	Armyworm moth
Noctuidae	<i>sp.</i>	Noctuid moth
Noctuidae	<i>Spodoptera ornithogalli</i>	Yellow-striped Armyworm Moth
Noctuidae	<i>Xestia dolosa</i>	Greater Black-letter Dart
Noctuidae	<i>Xestia elimata</i>	
Nymphalidae	<i>Asterocampa c. celtis</i>	Hackberry emperor
Nymphalidae	<i>Boloria bellona</i>	Meadow fritillary
Nymphalidae	<i>Cercyonis pegala</i>	Common wood nymph
Nymphalidae	<i>Chlosyne nycteis</i>	Silvery checkerspot
Nymphalidae	<i>Danaus plexippus</i>	Monarch
Nymphalidae	<i>Enodia anthedon</i>	Northern pearly eye
Nymphalidae	<i>Euptoieta claudia</i>	Variegated fritillary
Nymphalidae	<i>Junonia coenia</i>	Common buckeye
Nymphalidae	<i>Limenitis arthemis astyanax</i>	Red-spotted purple
Nymphalidae	<i>Megisto cymela</i>	Little wood satyr
Nymphalidae	<i>Nymphalis antiopa</i>	Mourning cloak
Nymphalidae	<i>Phyciodes tharos</i>	Pearl crescent
Nymphalidae	<i>Polygonia comma</i>	Eastern comma
Nymphalidae	<i>Polygonia interrogationis</i>	Question mark
Nymphalidae	<i>Speyeria aphrodite</i>	Aphrodite fritillary
Nymphalidae	<i>Speyeria cybele</i>	Great spangled fritillary
Nymphalidae	<i>Speyeria idalia</i>	Regal fritillary

Nymphalidae	<i>Vanessa virginiensis</i>	American lady
Nymphalidae	<i>Vanessa atalanta</i>	Red admiral
Nymphalidae	<i>Vanessa cardui</i>	Painted lady
Papilionidae	<i>Battus philenor</i>	Pipevine swallowtail
Papilionidae	<i>Papilio cresphontes</i>	Giant swallowtail
Papilionidae	<i>Papilio glaucus</i>	Eastern tiger swallowtail
Papilionidae	<i>Papilio polyxenes</i>	Black swallowtail
Papilionidae	<i>Papilio troilus</i>	Spicebush swallowtail
Pieridae	<i>Anthocharis midea</i>	Falcate orangetip
Pieridae	<i>Colias eurytheme</i>	Orange sulfur
Pieridae	<i>Colias philodice</i>	Clouded sulfur
Pieridae	<i>Eurema nicippi</i>	Sleepy orange
Pieridae	<i>Phoebis sennae</i>	Cloudless sulphur
Pieridae	<i>Pieris rapae</i>	Cabbage white
Sphingidae	<i>Hemaris diffinis</i>	Snowberry Clearwing
Sphingidae	<i>Hemaris thysbe</i>	Hummingbird clearwing
Sphingidae	<i>Manduca sexta</i>	Carolina Sphinx
Yponomeutidae	<i>Atteva punctella</i>	Ailanthus webworm moth

Class: Insecta

Order: Neuroptera

Family	Scientific Name	Common Name
Corydalidae	<i>Nigrionia sp.</i>	Dobsonfly
Hemerobiidae	<i>sp.</i>	Lacewing

Class: Insecta

Order: Odonata

Family	Scientific Name	Common Name
Aeshnidae	<i>Aeshna umbrosa</i>	Shadow Darner
Aeshnidae	<i>Anax junius</i>	Common Green Darner
Calopterygidae	<i>Calopteryx maculata</i>	Ebony Jewelwing
Calopterygidae	<i>Calopteryx maculata</i>	Ebony Jewelwing
Coenagrionidae	<i>Argia moesta</i>	Powdered Dancer
Coenagrionidae	<i>Argia fumipennis violacea</i>	Variable Dancer
Coenagrionidae	<i>Amphiagrion saucium</i>	Eastern Red Damsel
Coenagrionidae	<i>Argia fumipennis violacea</i>	Variable Dancer
Coenagrionidae	<i>Enallagma aspersum</i>	Azure Bluet
Coenagrionidae	<i>Enallagma civile</i>	Familiar Bluet
Coenagrionidae	<i>Enallagma signatum</i>	Orange Bluet
Coenagrionidae	<i>Ischnura hastata</i>	Citrine Forktail
Coenagrionidae	<i>Ischnura verticalis</i>	Eastern Forktail
Coenagrionidae	<i>Ischnura Hastata</i>	Citrine Forktail
Coenagrionidae	<i>Ischnura verticalis</i>	Eastern Forktail
Corduliida	<i>Epithea cynosura</i>	Common Baskettail
Gomphidae	<i>Gomphus exilis</i>	Lancet Clubtail

Gomphidae	<i>Gomphus lividus</i>	Ashy Clubtail
Gomphidae	<i>Lanthus vernalis</i>	Southern Pygmy Clubtail
Lestidae	<i>lestes disjunctus asutralis</i>	Common Spreadwing
Lestidae	<i>Lestes disjunctus australis</i>	Common Spreadwing
Lestidae	<i>Lestes eurinus</i>	Amber-winged Spreadwing
Lestidae	<i>Lestes rectangularis</i>	Slender Spreadwing
Lestidae	<i>Lestes vigilax</i>	Swamp Spreadwing
Libellulidae	<i>Celithemis elisa</i>	Calico Pennant
Libellulidae	<i>Erythemis simplicicollis</i>	Eastern Pondhawk
Libellulidae	<i>Libellula lydia</i>	Common Whitetail
Libellulidae	<i>Libellula semifasciata</i>	Painted Skimmer
Libellulidae	<i>Pachydiplax longipennis</i>	Blue Dasher
Libellulidae	<i>Perithemis tenera</i>	Eastern Amberwing
Libellulidae	<i>Sympetrum rubicundulum</i>	Ruby Meadowhawk
Libellulidae	<i>Tramea lacerata</i>	Black Saddlebags
Libellulidae	<i>Sympetrum rubicundulum</i>	Ruby Meadowhawk

Class: Insecta

Order: Orthoptera

Family	Scientific Name	Common Name
Blattellidae	<i>Parcoblatta sp.</i>	Cockroach

Class: Insecta

Order: Siphonoptera

Specimen not identified beyond order.

Class: Insecta

Order: Thysanura

Family	Scientific Name	Common Name
Machilidae	<i>Machilis sp.</i>	Bristletail

Class: Insecta

Order: Trichoptera

Family	Scientific Name	Common Name
Hydropsychidae	<i>Cheumatopsyche sp.</i>	Caddisfly
Hydropsychidae	<i>Hydropsyche sp.</i>	Caddisfly
Hydropsychidae	<i>Potomyia sp.</i>	Caddisfly
Leptoceridae	<i>Mystacides sp.</i>	Caddisfly
Limnephilidae		Caddisfly
Philopotamidae	<i>Chimarra sp.</i>	Caddisfly
Polycentropodidae	<i>Polycentropus sp.</i>	Caddisfly

Class: Malacostraca
Order: Isopoda

Family	Scientific Name	Common Name
Asellidae	<i>Caecidotea sp.</i>	Isopod
Oniscidae	<i>Cylisticus sp.</i>	Pill bug
Oniscidae	<i>Trachelipus sp.</i>	Pill bug

Class: Malacostraca
Order: Amphipoda

Family	Scientific Name	Common Name
Crangonyctidae	<i>Gammarus minus</i>	Amphipod
Crangonyctidae	<i>Stygobromus abditus</i>	Amphipod

FISH

Family	Scientific Name	Common Name
Centrarchidae	<i>Lepomis cyanellus</i>	green sunfish
Centrarchidae	<i>Lepomis macrochirus</i>	bluegill
Centrarchidae	<i>Lepomis macrochirus x Lepomis</i>	bluegill x green sunfish
Centrarchidae	<i>Micropterus salmoides</i>	largemouth bass
Cyprinidae	<i>Camptostoma anomalum</i>	central stoneroller
Cyprinidae	<i>Cyprinus carpio</i>	common carp
Cyprinidae	<i>Nocomis leptcephalus</i>	bluehead chub
Cyprinidae	<i>Phoxinus oreas</i>	mountain redbelly dace
Cyprinidae	<i>Rhinichthys atratulus</i>	blacknose dace
Ictaluridae	<i>Noturus insignis</i>	marginated madtom
Salmonidae	<i>Oncorhynchus mykiss</i>	rainbow trout
Salmonidae	<i>Salmo trutta</i>	brown trout

REPTILES AND AMPHIBIANS

Family	Scientific Name	Common Name
	<i>Ambystoma jeffersonianum</i>	Jefferson salamander
	<i>Bufo americanus</i>	American toad
	<i>Bufo woodhousii</i>	Fowler's toad
	<i>Chelydra serpentina</i>	snapping turtle
	<i>Chrysemys picta</i>	eastern painted turtle
	<i>Coluber constrictor</i>	northern black racer
	<i>Desmognathus fuscus</i>	northern dusky salamander
	<i>Diadophis punctatus</i>	ringneck snake
	<i>Elaphe obsoleta</i>	black rat snake
	<i>Eurycea cirrigera</i>	southern two-lined salamander
	<i>Eurycea longicauda</i>	longtail salamander
	<i>Hyla versicolor</i>	gray treefrog

	<i>Lampropeltis triangulum</i>	eastern milk snake
	<i>Plethodon cinereus</i>	redback salamander
	<i>Plethodon glutinosus</i>	slimy salamander
	<i>Pseudacris crucifer</i>	spring peeper
	<i>Pseudacris triseriata</i>	upland chorus frog
	<i>Pseudotriton ruber</i>	northern red salamander
	<i>Rana catesbeiana</i>	bullfrog
	<i>Rana clamitans</i>	green frog
	<i>Rana sylvatica</i>	wood frog
	<i>Terrapene carolina</i>	eastern box turtle
	<i>Thamnophis sirtalis</i>	eastern garter snake

BIRDS

Family	Scientific Name	Common name
Accipitridae	<i>Accipiter cooperii</i>	cooper's hawk
Accipitridae	<i>Accipiter striatus</i>	sharp-shinned hawk
Accipitridae	<i>Buteo jamaicensis</i>	red-tailed hawk
Accipitridae	<i>Buteo lagopus</i>	rough-legged hawk
Accipitridae	<i>Circus cyaneus</i>	northern harrier
Accipitridae	<i>Falco sparverius</i>	American kestrel
Accipitridae	<i>Pandion haliaetus</i>	osprey
Alaudidae	<i>Eremophila alpestris</i>	horned lark
Alcedinidae	<i>Ceryle alcyon</i>	belted kingfisher
Anatidae	<i>Aix sponsa</i>	wood duck
Anatidae	<i>Anas acuta</i>	northern pintail
Anatidae	<i>Anas crecca</i>	green-winged teal
Anatidae	<i>Anas discors</i>	blue-winged teal
Anatidae	<i>Anas platyrhynchos</i>	mallard duck
Anatidae	<i>Anas rubripes</i>	American black duck
Anatidae	<i>Anas strepera</i>	gadwall
Anatidae	<i>Aythya collaris</i>	ring-necked duck
Anatidae	<i>Bucephala albeola</i>	bufflehead
Anatidae	<i>Lophodytes cucullatus</i>	hooded merganser
Apodidae	<i>Chaetura pelagica</i>	chimney swift
Ardeidae	<i>Ardea herodias</i>	great blue heron
Ardeidae	<i>Butorides striatus</i>	green heron
Bombycillidae	<i>Bombycilla cedrorum</i>	cedar waxwing
Caprimulgidae	<i>Chordeiles minor</i>	common nighthawk
Columbidae	<i>Zenaida macroura</i>	mourning dove
Corvidae	<i>Corvus brachyrhynchos</i>	American crow
Corvidae	<i>Corvus corax</i>	common raven
Corvidae	<i>Cyanocitta cristata</i>	blue jay
Cuculidae	<i>Coccyzus americanus</i>	yellow-billed cuckoo
Cuculidae	<i>Coccyzus erythrophthalmus</i>	black-billed cuckoo
Emberizidae	<i>Agelaius phoeniceus</i>	red-winged blackbird
Emberizidae	<i>Agelaius phoeniceus</i>	red-winged blackbird

Emberizidae	<i>Ammodramus henslowii</i>	Henslow's sparrow
Emberizidae	<i>Ammodramus savannarum</i>	grasshopper sparrow
Emberizidae	<i>Cardinalis cardinalis</i>	northern cardinal
Emberizidae	<i>Dendroica coronata</i>	yellow-rumped warbler
Emberizidae	<i>Dendroica discolor</i>	prairie warbler
Emberizidae	<i>Dendroica fusca</i>	blackburnian warbler
Emberizidae	<i>Dendroica magnolia</i>	magnolia warbler
Emberizidae	<i>Dendroica palmarum</i>	palm warbler
Emberizidae	<i>Dendroica pensylvanica</i>	chestnut-sided warbler
Emberizidae	<i>Dendroica pinus</i>	pine warbler
Emberizidae	<i>Dendroica virens</i>	black-throated green warbler
Emberizidae	<i>Dolichonyx oryzivorus</i>	bobolink
Emberizidae	<i>Geothlypis trichas</i>	common yellowthroat
Emberizidae	<i>Guiraca caerulea</i>	blue grosbeak
Emberizidae	<i>Icteria virens</i>	yellow-breasted chat
Emberizidae	<i>Icterus galbula</i>	northern oriole
Emberizidae	<i>Icterus spurius</i>	orchard oriole
Emberizidae	<i>Junco hyemalis</i>	northern junco
Emberizidae	<i>Melospiza georgiana</i>	swamp sparrow
Emberizidae	<i>Melospiza melodia</i>	song sparrow
Emberizidae	<i>Mniotilta varia</i>	black-and-white warbler
Emberizidae	<i>Molothrus ater</i>	brown-headed cowbird
Emberizidae	<i>Oporornis formosus</i>	kentucky warbler
Emberizidae	<i>Passerculus sandwichensis</i>	savannah sparrow
Emberizidae	<i>Passerina cyanea</i>	indigo bunting
Emberizidae	<i>Pipilo erythrophthalmus</i>	eastern towhee
Emberizidae	<i>Piranga olivacea</i>	scarlet tanager
Emberizidae	<i>Quiscalus quiscula</i>	common grackle
Emberizidae	<i>Seiurus aurocapillus</i>	ovenbird
Emberizidae	<i>Setophaga ruticilla</i>	American redstart
Emberizidae	<i>Spizella arborea</i>	American tree sparrow
Emberizidae	<i>Spizella passerina</i>	chipping sparrow
Emberizidae	<i>Spizella pusilla</i>	field sparrow
Emberizidae	<i>Sturnella magna</i>	eastern meadowlark
Emberizidae	<i>Zonotrichia albicollis</i>	white-throated sparrow
Fringillidae	<i>Carduelis tristis</i>	American goldfinch
Fringillidae	<i>Carpodacus mexicanus</i>	house finch
Hirundinidae	<i>Hirundo rustica</i>	barn swallow
Hirundinidae	<i>Stelgidopteryx serripennis</i>	rough-winged swallow
Hirundinidae	<i>Tachycineta bicolor</i>	tree swallow
Lanidae	<i>Lanius ludovicianus</i>	loggerhead shrike
Mimidae	<i>Dumetella carolinensis</i>	gray catbird
Mimidae	<i>Mimus polyglottos</i>	northern mockingbird
Mimidae	<i>Toxostoma rufum</i>	brown thrasher
Muscicapidae	<i>Catharus guttatus</i>	hermit thrush
Muscicapidae	<i>Hylocichla mustelina</i>	wood thrush
Muscicapidae	<i>Poliophtila caerulea</i>	blue-gray gnatcatcher

Muscicapidae	<i>Regulus calendula</i>	ruby-crowned kniglet
Muscicapidae	<i>Regulus satrapa</i>	golden-crowned kinglet
Muscicapidae	<i>Sialia sialis</i>	eastern bluebird
Muscicapidae	<i>Turdus migratorius</i>	American robin
Paridae	<i>Parus atricapillus</i>	black-capped chickadee
Paridae	<i>Parus bicolor</i>	tufted titmouse
Paridae	<i>Parus carolinensis</i>	carolina chickadee
Phasianidae	<i>Colinus virginianus</i>	northern bobwhite
Phasianidae	<i>Meleagris gallopavo</i>	wild turkey
Picidae	<i>Colaptes auratus</i>	northern flicker
Picidae	<i>Dryocopus pileatus</i>	pileated woodpecker
Picidae	<i>Melanerpes carolinus</i>	red-bellied woodpecker
Picidae	<i>Picoides pubescens</i>	downy woodpecker
Picidae	<i>Picoides villosus</i>	hairy woodpecker
Picidae	<i>Sphyrapicus varius</i>	yellow-bellied sapsucker
Podicipedidae	<i>Podilymbus podiceps</i>	pied-billed grebe
Rallidae	<i>Fulica americana</i>	American coot
Scolopacidae	<i>Actitis macularia</i>	spotted sandpiper
Scolopacidae	<i>Gallinago gallinago</i>	common snipe
Scolopacidae	<i>Scolopax minor</i>	American woodcock
Scolopacidae	<i>Tringa melanoleuca</i>	greater yellowlegs
Scolopacidae	<i>Tringa solitaria</i>	solitary sandpiper
Sittidae	<i>Sitta canadensis</i>	red-breasted nuthatch
Sittidae	<i>Sitta carolinensis</i>	white-breasted nuthatch
Sittidae	<i>Sitta pusilla</i>	brown-headed nuthatch
Strigidae	<i>Asio flammeus</i>	short-eared owl
Strigidae	<i>Bubo virginianus</i>	great horned owl
Strigidae	<i>Otus asio</i>	eastern screech owl
Strigidae	<i>Strix varia</i>	barred owl
Sturnidae	<i>Sturnus vulgaris</i>	European starling
Trochilidae	<i>Archilochus colubris</i>	ruby-throated hummingbird
Troglodytidae	<i>Thryothorus ludovicianus</i>	carolina wren
Troglodytidae	<i>Troglodytes aedon</i>	house wren
troglodytidae	<i>Troglodytes troglodytes</i>	winter wren
Tyrannidae	<i>Contopus virens</i>	eastern pewee
Tyrannidae	<i>Empidonax minimus</i>	least flycatcher
Tyrannidae	<i>Empidonax virescens</i>	acadian flycatcher
Tyrannidae	<i>Myiarchus crinitus</i>	great crested flycatcher
Tyrannidae	<i>Sayornis phoebe</i>	eastern phoebe
Tyrannidae	<i>Tyrannus tyrannus</i>	eastern kingbird
Vireonidae	<i>Vireo flavifrons</i>	yellow-throated vireo
Vireonidae	<i>Vireo olivaceus</i>	red-eyed vireo
Vireonidae	<i>Vireo solitarius</i>	solitary vireo

MAMMALS

Family	Scientific Name	Common Name
--------	-----------------	-------------

Cervidae	<i>Odocoileus virginianus</i>	white-tailed deer
Didelphidae	<i>Didelphis virginiana</i>	Virginia opossum
Dipodidae	<i>Zapus hudsonius</i>	meadow jumping mouse
Mephitidae	<i>Mephitis mephitis</i>	striped skunk
Muridae	<i>Microtis pennsylvanicus</i>	meadow vole
Muridae	<i>Microtis pinetorum</i>	woodland vole
Muridae	<i>Mus musculus</i>	house mouse
Muridae	<i>Peromyscus leucopus</i>	white-footed mouse
Muridae	<i>Rethrodontomys humulis</i>	eastern harvest mouse
Procyonidae	<i>Procyon lotor</i>	common raccoon
Sciuridae	<i>Marmota monax</i>	woodchuck
Sciuridae	<i>Sciurus carolinensis</i>	eastern gray squirrel
Sciuridae	<i>Sciurus niger</i>	eastern fox squirrel
Sciuridae	<i>Tamias striatus</i>	eastern chipmunk
Soricidae	<i>Blarina brevicauda</i>	northern short-tailed shrew
Soricidae	<i>Cryptotis parva</i>	least shrew
Talpidae	<i>Parascalops breweri</i>	hairy-tailed mole