

REFERENCES

- Brown, M.T. and J. Schaefer et al. 1987. Buffer Zones for Water, Wetlands and Wildlife. Center for Wetlands. University of Florida. Gainesville, FL. 163 pp., plus appendices.
- Bryant, Constance M., William G. Kimmel, C. Allen Miller and Thomas C. Moon. 1982. A floristic community survey of the Pine Swamp Natural Area, Mercer County, Pennsylvania. Proceedings of the Pennsylvania Academy of Science 56:175-180.
- Coxe, R.B. 2002. Lawrence County Natural Heritage Inventory. Western Pennsylvania Conservancy, 164 pp.
- Crossley, Gary J. 1999. Important Bird Areas in Pennsylvania. Pennsylvania Audubon Society, Signal Graphics Printing: Mechanicsburg, PA.
- Dewolf, F.W. 1929. Topographic and Geologic Atlas of Pennsylvania No. 5 New Castle Quadrangle. (PA Geol. Surv IV series: in co-op with USGS). 238 p..
- Grice, Darrell G., Robert G. Grubb and Orin E. Jacquish. 1971. Soil Survey of Mercer Pennsylvania. (Washington: USDA Soil Conservation Service). 73 pp.
- Kline, N.L. 1993. Erie County Natural Heritage Inventory. Western Pennsylvania Conservancy. Pittsburgh, PA.
- Love, Gilbert. "New Lake" The Pittsburgh Press. July 28, 1967.
- Ortman, A.E. 1909. The destruction of the freshwater fauna in Western Pennsylvania. Proc. of the American Philos. Soc. 48:90-110.
- Sampsell, Todd. 2002. French Creek Watershed Conservation Plan. (Western Pennsylvania Conservancy and French Creek Project), 272 pp.
- Shaw, L.C. and W.F. Busch. 1970. Pennsylvania Gazetteer of Streams Part I (DER in co-op with USGS: Harrisburg, PA), 280 p.
- Smith, L.L., J.D. Wagner, et al. 1997. Windber Area Natural Heritage Inventory. Western Pennsylvania Conservancy. Pittsburgh, PA. 67 pp.
- Smith, L.L., et al. 1994. Allegheny County Natural Heritage Inventory. Western Pennsylvania Conservancy. Pittsburgh, PA 229 pp.
- Smith, L.L. 1993. Beaver County Natural Heritage Inventory. Western Pennsylvania Conservancy. Pittsburgh, PA. 189 pp.
- _____. 1991. Butler County Natural Heritage Inventory. Western Pennsylvania Conservancy. Pittsburgh, PA. 152 pp.

Wagner, J.D. 1994. Washington County Natural Heritage Inventory. Western Pennsylvania Conservancy. Pittsburgh, PA. 217 pp.

Wagner, J.D., et al. 1993. Clinton County Natural Heritage Inventory. Western Pennsylvania Conservancy. Pittsburgh, PA. 212 pp.

APPENDICES

APPENDIX I

SIGNIFICANCE RANKS

The Natural Heritage Areas that have qualified for inclusion in this report are ranked according to their significance as areas of importance to the biological diversity and ecological integrity of Mercer County. The three significance ranks are: **Excellent**, **High**, and **Notable** significance. These ranks have been used to prioritize all identified sites and suggest the relative attention that sites should receive for the amount, degree and rate of protection.

Significance

<u>Rank</u>	<u>Explanation</u>
EXCEPTIONAL	<u>Exceptional significance</u> Sites that of exceptional importance for the biological diversity and ecological integrity of the county or region. Sites in this category contain one or more occurrences of state or national species of special concern or a rare natural community type that are of a good size and extent and are in a relatively undisturbed condition. Sites of exceptional significance merit quick, strong and complete protection.
HIGH	<u>High significance</u> Sites that are of high importance for the biological diversity and ecological integrity of the county or region. These sites contain species of special concern or natural communities that are highly ranked, and because of their size or extent, relatively undisturbed setting, or a combination of these factors, rate as areas with high potential for protecting ecological resources in the county. Sites of high significance merit strong protection in the future.
NOTABLE	<u>Notable significance</u> Sites that are important for the biological diversity and ecological integrity of the county or region. Sites in this category contain occurrences of species of special concern or natural communities that are either of lower rank (G and S rank) or smaller size and extent than exceptional or high ranked areas, or are compromised in quality by activity or disturbance. Sites of notable significance merit protection within the context of their quality and degree of disturbance.
COUNTY	<u>County significance</u> Sites that have great potential for protecting biodiversity in the county but are not, as yet, known to contain species of special concern or state significant natural communities. Often recognized because of their size, undisturbed character, or proximity to areas of known significance, these sites invite further survey and investigation. In some cases, these sites could be revealed as high or exceptional sites.

APPENDIX II

PENNSYLVANIA NATURAL DIVERSITY INVENTORY (PNDI)

The Pennsylvania Natural Heritage Program (PNHP) was established in 1982 as a joint effort of the Western Pennsylvania Conservancy, the Pennsylvania Department of Conservation and Natural Resources (formerly the Pennsylvania Department of Environmental Resources (D.E.R.)), Bureau of Forestry, and the Pennsylvania Science Office of The Nature Conservancy. PNHP is part of a network of "Natural Heritage Programs" that utilize common methodology developed by The Nature Conservancy and refined through NatureServe – the organization that represents the network of Natural Heritage Programs – and the individual programs themselves. Natural Heritage Programs are established in each of the 50 United States, as well as in Canada and Latin America.

PNHP collects and stores locational and baseline ecological information about rare plants, rare animals, unique plant communities, significant habitats and geologic features in Pennsylvania. Presently, the PNHP database is Pennsylvania's chief storehouse of such information with approximately 9,000 detailed occurrence records that are stored as computer files. Additional data are stored in extensive manual files covering over 150 natural community types, over 800 plant and animal species, and about 1100 managed areas. As part of its function, PNHP provides reviews of projects that require permits as issued by the Pennsylvania Department of Environmental Protection (DEP). This environmental review function of PNHP is referred to as PNDI or the Pennsylvania Natural Diversity Inventory.

As part of the information maintained by PNHP, a system of "global ranks" and "state ranks" is used to describe the relative degree of rarity for species and natural communities. This system is especially useful in understanding how imperiled a resource is throughout its range, as well as understanding the state rarity for resources that do not have official state status such as invertebrate animals and natural communities of organisms. A summary of global and state ranks can be found in Appendix V.

PNHP is valuable for its ability to supply technically sound data that can be applied in making natural resource decisions, thereby streamlining the decision making process. Information on the occurrences of elements (species and natural communities) of special concern gathered from museums, universities, colleges, and recent fieldwork by professionals throughout the state is used by Western Pennsylvania Conservancy to identify the areas of highest natural integrity and significance in Mercer County.

APPENDIX III

MERCER COUNTY NATURAL HERITAGE INVENTORY SITE SURVEY FORM

Site Name:

County: _____ Municipality:

Quad Name: _____ Quad Code: _____ 10,10: _____

Reference:

Land Owners (include best method of contact, date contacted, and method of permission):

Directions to Site:

Site Elevation: _____ Site Size: _____ Aspect: _____

Aerial Photo Int. Air Photo #: _____ Photo Type: _____

Comments from Aerial Photo Interpretation:

Aerial Reconnaissance Date: _____ Team: _____

Comments from Aerial Survey:

Ground Survey Date: _____ Team: _____

Community(s) Type:

Setting of Community(s):

Conditions:

Description of site (quality, vegetation, significant species, aquatic features, notable landforms, natural hazards, age, etc.):

APPENDIX III (CONT.)

Evidence of Disturbance (logging, grazing, mining, past agriculture, erosion, sedimentation, filling, draining, exotic flora, etc.):

Recovery Potential:

Surrounding Land Use:

Threats to Site and Management/Protection:

Previously Identified EO's:

Species:

Accepted for inclusion in report: _____ Rejected: _____ Date: _____
Reason:

APPENDIX IV

CLASSIFICATION OF NATURAL COMMUNITIES IN PENNSYLVANIA

CNHIs and the status of natural community classification in Pennsylvania:

Terrestrial & Palustrine Plant Communities of Pennsylvania (Fike 1999) is the most current community classification system for Pennsylvania's palustrine and terrestrial plant communities. This report was developed by the Pennsylvania Natural Diversity Inventory (PNDI) to update and refine Smith's 1983 report Classification of natural communities in Pennsylvania (draft), the first effort dedicated specifically to the classification of natural communities in Pennsylvania. Work is ongoing to improve the current classification system. Future editions may define new community types or alter currently defined types. Aquatic communities (lakes, streams, and rivers), communities where vegetation is absent or not a definitive characteristic (caves, scree slopes), and communities resulting from extensive human disturbance (early stages of forest regrowth, old agricultural fields, manmade wetlands, etc.), are not addressed in this classification. Until more extensive classification work can be completed to define these types of communities and incorporate them into a single state-wide framework, the County Natural Heritage Inventory reports will provisionally refer to features of ecological interest that fall outside the Fike 1999 system using categories described in Smith 1983.

Community Ranks

As with species that are of concern, ranks have been assigned to rate the rarity of each natural community type identified for Pennsylvania. In most cases, the global extent of these communities has yet to be fully evaluated, and no global rarity rank has been assigned. Work is ongoing to refine these ranks and to further develop the ranking system to rate the relative quality of communities within a type.

FIKE 1999 TYPES

COMMUNITY NAME	GLOBAL RANK	STATE RANK
<u>TERRESTRIAL FORESTS</u>		
Hemlock (white pine) forest	G5	S3S4
Serpentine pitch pine – oak forest	G2	S1
Serpentine Virginia pine – oak forest	G2	S1
Pitch Pine – mixed oak forest	G?	S3S4
Virginia pine – mixed hardwood forest	G?	S5
Dry white pine (hemlock) – oak forest	G?	S5
Hemlock (white pine) – northern hardwood forest	G?	S5

APPENDIX IV (CONT.)

COMMUNITY NAME	GLOBAL RANK	STATE RANK
Hemlock (white pine) – red oak – mixed hardwood forest	G?	S4
Hemlock – tuliptree – birch forest	G?	S4
Rich hemlock – mesic hardwoods forest	G?	S2S3
Dry oak –heath forest	G?	S5
Dry oak – mixed hardwood forest	G?	S3
Red oak – mixed hardwood forest	G?	S5
Northern hardwood forest	G?	S4
Black cherry – northern hardwood forest	G?	S4
Tuliptree – beech – maple forest	G?	S4
Sugar maple – basswood forest	G?	S4
Mixed mesophytic forest	G?	S1S2
Sweet gum – oak coastal plain forest	G?	S1
Red maple (terrestrial) forest	G?	S5
Black-gum ridgetop forest	G?	S4
Aspen/gray (paper) birch forest	G?	S?
Black locust forest	G?	SW

PALUSTRINE FORESTS

Black Spruce- tamarack peatland forest	G?	S2
Red Spruce palustrine forest	G?	S2
Hemlock palustrine forest	G5	S3
Hemlock – mixed hardwood palustrine forest	G?	S3S4
Red spruce – mixed hardwood palustrine forest	G?	S2
Bottomland oak – hardwood palustrine forest	G5	S2
Red maple – black-gum palustrine forest	G5	S3S4
Red maple – black ash palustrine forest	G?	S2
Red maple – magnolia Coastal Plain palustrine forest	G?	S1
Great Lakes Region lakeplain palustrine forest	G?	S1
Sycamore – (river birch)- box elder floodplain forest	G?	S2
Silver maple floodplain forest		
Sycamore – (river birch)- box elder floodplain forest	G?	S2
Red maple – elm – willow floodplain swamp	G?	S1

TERRESTRIAL WOODLANDS

Pitch pine – heath woodland	G4	S2S3
Pitch pine – scrub oak woodland	G4	S2
Red spruce rocky summit	G?	S1
Pitch pine – rhodora – scrub oak woodland	G?	S1
Pitch pine – mixed hardwood woodland	G4	S2

APPENDIX IV (CONT.)

COMMUNITY NAME	GLOBAL RANK	STATE RANK
Virginia pine – mixed hardwood shale woodland	G?	S2
Red-cedar – mixed hardwood rich shale woodland	G?	S1S2
Dry oak – heath woodland	G4	S2
Birch (black-gum) rocky slope woodland	G?	S2
Yellow oak – redbud woodland	G?	S2
Great Lakes Region scarp woodland	G?	S2
Great Lakes Region bayberry – cottonwood community	G?	S1
<u>PALUSTRINE WOODLANDS</u>		
Pitch pine – leatherleaf woodland	G?	S2
Black spruce – tamarack palustrine woodland	G?	S2
Red spruce palustrine woodland	G?	S1S2
Red maple – highbush blueberry palustrine woodland	G5	S3
Red maple – sedge palustrine woodland	G5	S3
Red maple – mixed shrub palustrine woodland	G?	S3
<u>TERRESTRIAL SHRUBLANDS</u>		
Red-cedar – prickly pear shale shrubland	G?	S2
Red-cedar – pine serpentine shrubland	G2	S1
Red-cedar – redbud shrubland	G?	S2
Low heath shrubland	G4	S2
Low heath – mountain ash shrubland	G?	S2
Scrub oak shrubland	G4	S2
Rhodora – mixed heath – scrub oak shrubland	G?	S1
<u>PALUSTRINE SHRUBLANDS</u>		
Buttonbush wetland	G?	S3
Alder – ninebark wetland	G?	S3
Alder – sphagnum wetland	G5	S2S3
Highbush blueberry – meadow-sweet wetland	G5	S2S3
Highbush blueberry – sphagnum wetland	G?	S3
Leatherleaf – sedge wetland	G?	S2S3
Leatherleaf – bog rosemary	G?	S2
Leatherleaf – cranberry peatland	G?	S2
Water-willow (<i>Decodon verticillatus</i>) shrub wetland	G?	S2
River birch – sycamore floodplain scrub	G?	S3
Poison sumac – red-cedar – bayberry fen	G2	S1
Buckthorn – sedge (<i>Carex interior</i>) – golden ragwort fen	G2G3	S1

APPENDIX IV (CONT.)

COMMUNITY NAME	GLOBAL RANK	STATE RANK
Great Lakes Region scarp seep	G?	S1
Great Lakes Region bayberry – mixed shrub palustrine shrubland	G?	S1

TERRESTRIAL HERBACEOUS OPENINGS

Side-oats gramma calcareous grassland	G2	S1
Calcareous opening/cliff	G?	S1S2
Serpentine grassland	G?	S1
Serpentine gravel forb community	G?	S1
Great Lakes Region dry sandplain	G?	S1

HERBACEOUS WETLANDS

Bluejoint – reed canary grass marsh	G?	S3S4
Cat-tail marsh	G?	S3S4
Tussock sedge marsh	G?	S3
Mixed forb marsh	G3G4	S3S4
Herbaceous vernal pond	G?	S3
Wet meadow	G?	S3
Bulrush marsh	G?	S2
Great Lakes Region palustrine sandplain	G?	S1
Prairie sedge – spotted joe – pye – weed marsh	G?	S1
Open sedge (<i>Carex stricta</i> , <i>C. prairea</i> , <i>C. lacustris</i>) fen	G?	S1
Golden Saxifrage – sedge rich seep	G?	S1S2
Skunk cabbage – golden saxifrage forest seep	G?	S3
Serpentine seepage wetland	G?	S1
Golden saxifrage – Pennsylvania bitter-cress spring run	G?	S2
Sphagnum – beaked rush peatland	G?	S2
Many fruited sedge – bladderwort peatland	G?	S2
Water-willow (<i>Justicia americana</i>) – smartweed riverbed community	G?	S2
Riverside ice scour community	G?	S1S2
Big bluestem – Indian grass river grassland	G?	S3S4
Pickereel-weed – arrow-arum – arrowhead wetland	G3G4	S3
Spatterdock – water lily wetland	G?	S2S3

SUBTERRANEAN COMMUNITIES

Solution Cave Terrestrial Community	G?	S3
Solution Cave Aquatic Community	G?	S3
Tectonic Cave Community	G?	S3S4
Talus Cave Community	G?	S2S4

APPENDIX IV (CONT.)

COMMUNITY NAME	GLOBAL RANK	STATE RANK
<u>DISTURBED COMMUNITIES</u>		
Bare Soil	G?	S?
Meadow/Pastureland	G?	S?
Cultivated Land	G?	S?
Successional Field	G?	S?
Young Miscellaneous Forest	G?	S?
Conifer Plantation	G?	S?

APPENDIX Va

FEDERAL AND STATE ENDANGERED SPECIES CATEGORIES, GLOBAL AND STATE ELEMENT RANKS

Several federal and state legislative acts have provided the authority and means for the designation of endangered, threatened, rare, etc. species lists. Those acts and status summaries follow. However, not all of the species or natural communities considered by conservation biologists (e.g., Pennsylvania Biological Survey) as "special concern resources" are included on the state or federal lists. In this county inventory report, "N" denotes those special concern species that are not officially recognized by state or federal agencies. Therefore: N = No current legal status, but is considered to be of special concern in Pennsylvania, or is under review for such consideration, by conservation biologists. Contact the Pennsylvania Natural Diversity Inventory for more information.

FEDERAL STATUS

All Plants and Animals: Legislative Authority: U.S. Endangered Species Act (1973), U.S. Fish and Wildlife Service, February 21, 1990, Federal Register.

- LE = Listed Endangered - Taxa in danger of extinction throughout all or a significant portion of their ranges.
- LT = Listed Threatened - Taxa that are likely to become endangered within the foreseeable future throughout all or a significant portion of their ranges.
- PE = Proposed Endangered - Taxa already proposed to be listed as endangered.
- PT = Proposed Threatened - Taxa already proposed to be listed as threatened.
- C1 = Candidate 1 - Taxa for which the Service has on file enough substantial information on biological vulnerability and threat(s) to support proposals to list them as endangered or threatened species. Taxa of known vulnerable status in the recent past that may already have become extinct.
- C2 = Candidate 2 - Taxa for which there is some evidence of vulnerability but for which there are not enough data to support listing proposals at this time.

APPENDIX Va (CONT.)

- C3 = Candidate 3 (See 3A, 3B, 3C below) - Taxa that once were considered for listing as threatened or endangered but are no longer under such consideration. Such taxa are further divided into three subcategories, to indicate the reason(s) for their removal from consideration.
- 3A = Taxa for which the Service has persuasive evidence of extinction.
- 3B = Names that, on the basis of current taxonomic understanding (usually as represented in published revisions and monographs) do not represent distinct taxa meeting the Act's definition of "species".
- 3C = Taxa that have proven to be more abundant or widespread than was previously believed and/or those that are not subject to any identifiable threat.

{N = No current legal status, but is considered to be of special concern in Pennsylvania, or is under review for such consideration, by conservation biologists. Contact the Pennsylvania Natural Diversity Inventory for more information.}

APPENDIX Vb

PENNSYLVANIA STATUS

Native Plant Species: Legislative Authority: Title 25 Chapter 82, Conservation of Native Wild Plants, January 1, 1988; Pennsylvania Department of Environmental Resources.

PE = Pennsylvania Endangered - Plant species which are in danger of extinction throughout most or all of their natural range within this Commonwealth, if critical habitat is not maintained or if the species is greatly exploited by man. This classification shall also include any populations of plant species that have been classified as Pennsylvania Extirpated, but which subsequently are found to exist in this Commonwealth.

PT = Pennsylvania Threatened - Plant species which may become endangered throughout most or all of their natural range within this Commonwealth, if critical habitat is not maintained to prevent their future decline, or if the species is greatly exploited by man.

PR = Pennsylvania Rare - Plant species which are uncommon within this Commonwealth because they may be found in restricted geographic areas or in low numbers throughout this Commonwealth.

PX = Pennsylvania Extirpated - Plant species believed by the Department to be extinct within this Commonwealth. These plants may or may not be in existence outside the Commonwealth.

PV = Pennsylvania Vulnerable - Plant species which are in danger of population decline within this Commonwealth because of their beauty, economic value, use as a cultivar, or other factors which indicate that persons may seek to remove these species from their native habitats.

TU = Tentatively Undetermined - A classification of plant species which are believed to be in danger of population decline, but which cannot presently be included within another classification due to taxonomic uncertainties, limited evidence within historical records, or insufficient data.

{N = No current legal status, but is considered to be of special concern in Pennsylvania, or is under review for such consideration, by conservation biologists. Contact the Pennsylvania Natural Diversity Inventory for more information.}

APPENDIX Vb (CONT.)

Wild Birds and Mammals - Legislative Authority: Title 34 Chapter 133, Game and Wildlife Code, revised Dec. 1, 1990 Pennsylvania Game Commission.

PE = Pennsylvania Endangered - Species in imminent danger of extinction or extirpation throughout their range in Pennsylvania if the deleterious factors affecting them continue to operate. These are: 1) species whose numbers have already been reduced to a critically low level or whose habitat has been so drastically reduced or degraded that immediate action is required to prevent their extirpation from the Commonwealth; or 2) species whose extreme rarity or peripherality places them in potential danger of precipitous declines or sudden extirpation throughout their range in Pennsylvania; or 3) species that have been classified as "Pennsylvania Extirpated", but which are subsequently found to exist in Pennsylvania as long as the above conditions 1 or 2 are met; or 4) species determined to be "Endangered" pursuant to the Endangered Species Act of 1973, Public Law 93-205 (87 Stat. 884), as amended.

PT = Pennsylvania Threatened - Species that may become endangered within the foreseeable future throughout their range in Pennsylvania unless the casual factors affecting the organism are abated. These are: 1) species whose population within the Commonwealth are decreasing or have been heavily depleted by adverse factors and while not actually endangered, are still in critical condition; 2) species whose populations may be relatively abundant in the Commonwealth but are under severe threat from serious adverse factors that have been identified and documented; or 3) species whose populations are rare or peripheral and in possible danger of severe decline throughout their range in Pennsylvania; or 4) species determined to be "Threatened" pursuant to the Endangered Species Act of 1973, Public Law 93-205 (87 Stat. 884), as amended, that are not listed as "Pennsylvania Endangered".

{N = No current legal status, but is considered to be of special concern in Pennsylvania, or is under review for such consideration, by conservation biologists. Contact the Pennsylvania Natural Diversity Inventory for more information.}

APPENDIX Vb (CONT.)

Fish, Amphibians, Reptiles, and Aquatic Organisms - Legislative Authority: Title 30 Chapter 75, Fish and Boat Code, revised February 9, 1991; Pennsylvania Fish and Boat Commission

PE = Pennsylvania Endangered - All species declared by: 1) the Secretary of the United States Department of the Interior to be threatened with extinction and appear on the Endangered Species List or the Native Endangered Species List published in the Federal Register; or 2) have been declared by the Pennsylvania Fish and Boat Commission, Executive Director to be threatened with extinction and appear on the Pennsylvania Endangered Species List published by the Pennsylvania Bulletin.

PT = Pennsylvania Threatened - All species declared by: 1) the Secretary of the United States Department of the Interior to be in such small numbers throughout their range that they may become endangered if their environment worsens, and appear on a Threatened Species List published in the Federal Register; or 2) have been declared by the Pennsylvania Fish and Boat Commission Executive Director to be in such small numbers throughout their range that they may become endangered if their environment worsens and appear on the Pennsylvania Threatened Species List published in the Pennsylvania Bulletin.

Internal Fish and Boat Commission Status Category:

PC = Pennsylvania Candidate - Species that exhibit the potential to become Endangered or Threatened in the future. Pennsylvania populations of these taxa are: 1) "rare" due to their decline, distribution, restricted habitat, etc.; 2) are "at risk" due to aspects of their biology, certain types of human exploitation, or environmental modification; or, 3) are considered "undetermined" because adequate data is not available to assign an accurate status.

This category is unofficial and has no basis in any law (*i. e.*, Chapter 75, Fish and Boat Code), as do the Endangered and Threatened categories.

{N = No current legal status, but is considered to be of special concern in Pennsylvania, or is under review for such consideration, by conservation biologists. Contact the Pennsylvania Natural Diversity Inventory for more information.}

APPENDIX Vb (CONT.)

Invertebrates - Pennsylvania Status: No state agency has been assigned to develop regulations to protect terrestrial invertebrates, although a federal status may exist for some species. Aquatic invertebrates are regulated by the Pennsylvania Fish Commission, but have not been listed to date.

Although no invertebrate species are presently state listed, numerous state status and/or state rank designations have been unofficially assigned by conservation biologists. NOTE: Invertebrate species are regularly considered under the U.S. Endangered Species Act for federal status assignments.

{N = No current legal status, but is considered to be of special concern in Pennsylvania, or is under review for such consideration, by conservation biologists. Contact the Pennsylvania Natural Diversity Inventory for more information.}

APPENDIX Vc

GLOBAL AND STATE RANKING

Global and State Ranking is a system utilized by the network of 50 state natural heritage programs in the United States. Although similar to the federal and state status designations, the ranking scheme allows the use of one comparative system to "rank" all species in a relative format. Unlike state or federal status designation guidelines, the heritage ranking procedures are also applied to natural community resources. Global ranks consider the imperilment of a species or community throughout its range, while state ranks provide the same assessment within each state. Although there is only one global rank used by the heritage network, state ranks are developed by each state and allow a "one-system" comparison of a species or communities imperilment state by state. For more information, contact the Pennsylvania Natural Diversity Inventory.

Global Element Ranks

- G1 = Critically imperiled globally because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) or because of some factor(s) making it especially vulnerable to extinction.
- G2 = Imperiled globally because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of some factor(s) making it very vulnerable to extinction throughout its range.
- G3 = Either very rare and local throughout its range or found locally (even abundantly at some of its locations) in a restricted range or because of other factors making it vulnerable to extinction throughout its range; in terms of occurrences, in the range of 21 to 100.
- G4 = Apparently secure globally, though it may be quite rare in parts of its range, especially at the periphery.
- G5 = Demonstrably secure globally, though it may be quite rare in parts of its range, especially at the periphery.
- GH = Of historical occurrence throughout its range, i.e., formerly part of the Established biota, with the expectation that it may be rediscovered (e.g., biota, with the expectation that it may be rediscovered (e.g., Bachman's Warbler).
- GU = Possibly in peril range-wide but status uncertain; need more information.
- GX = Believed to be extinct throughout its range (e.g., Passenger Pigeon) with virtually no likelihood that it will be rediscovered.

APPENDIX Vc (CONT.)

G? = Not ranked to date.

NOTE: The study of naturally occurring biological communities is complex and natural community classification is unresolved both regionally and within Pennsylvania. The Global and State Ranking of natural communities also remains difficult and incomplete. Although many natural community types are clearly identifiable and have been ranked, others are still under review and appear as G? and/or S?.

APPENDIX Vd

State Element Ranks

- S1 = Critically imperiled in state because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) or because of some factor(s) making it especially vulnerable to extirpation from the state.
- S2 = Imperiled in state because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of some factor(s) making it vulnerable to extirpation from the state.
- S3 = Rare or uncommon in state (on the order of 21 to 100 occurrences).
- S4 = Apparently secure in state, with many occurrences.
- S5 = Demonstrably secure in state and essentially ineradicable under present conditions.
- SA = Accidental (occurring only once or a few times) or casual (occurring more regularly but not every year) in state, including species which only sporadically breed in the state.
- SE = An exotic established in state; may be native elsewhere in North America (e.g., house finch or catalpa in eastern states).
- SH = Of historical occurrence in the state, perhaps having not been verified in the past 20 years, and suspected to be still extant.
- SN = Regularly occurring, usually migratory and typically nonbreeding species for which no significant or effective habitat conservation measures can be taken in the state.
- SR = Reported from the state, but without persuasive documentation which would provide a basis for either accepting or rejecting (e.g., misidentified specimen) the report.
- SU = Possibly in peril in state but status uncertain; need more information.
- SX = Apparently extirpated from the state.
- SZ = Not of significant conservation concern in the state, invariably because there are no (zero) definable element occurrences in the state, although the taxon is native and appears regularly in the state.
- S? = Not ranked to date.

NOTE: The study of naturally occurring biological communities is complex and natural community classification is unresolved both regionally and within Pennsylvania. The Global and State Ranking of natural communities also remains difficult and incomplete. Although many natural community types are clearly identifiable and have been ranked, others are still under review and appear as G? and/or S.

APPENDIX VI

SPECIAL CONCERN PLANTS AND ANIMALS OF MERCER COUNTY

PLANTS

<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>
<i>Agalinus paupercula</i>	Small Flowered False Foxglove
<i>Alopecurus aequalis</i>	Short-awn Meadow Foxtail
<i>Alisma triviale</i>	Broad-leaved Water Plantain
<i>Carex diandra</i>	Lesser Panic Led Sedge
<i>Carex disperma</i>	Soft-Leaved Sedge
<i>Carex prairea</i>	Prairie Sedge
<i>Carex typhina</i>	Cat-tail Sedge
<i>Cypripedium parviflorum</i>	Yellow Lady's Slipper
<i>Eleocharis elliptica</i>	Elliptic Spike Rush
<i>Eleocharis quadrangulata</i>	Four-Angled Spike Rush
<i>Epilobium strictum</i>	Downy Willowherb
<i>Filipendula rubra</i>	Queen-of-the-Prairie
<i>Juncus torreyi</i>	Torrey's Rush
<i>Najas gracillima</i>	Bushy Naiad
<i>Najas marina</i>	Grassy Pondweed
<i>Phyla lanceolata</i>	Lance Fog-Fruit
<i>Poa paludigena</i>	Bog Bluegrass
<i>Potamogeton illinoensis</i>	Illinois Pondweed
<i>Potamogeton richardsonii</i>	Red-Head Pondweed
<i>Salix serissima</i>	Autumn Willow
<i>Salix x subsericea</i>	Meadow Willow
<i>Scheonoplectus subterminalis</i>	Water bulrush
<i>Solidago purshii</i>	Pursh's Goldenrod
<i>Swertia caroliniensis</i>	American Columbo
<i>Viburnum trilobum</i>	High-bush Cranberry

ANIMALS

<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>
<i>Amblema plicata</i>	Three-ridge Mussel
<i>Ardea herodias</i>	Great Blue Heron
<i>Cistothorus palustris</i>	Marsh Wren
<i>Culea inconstans</i>	Brook Stickleback
<i>Epioblasma triquetra</i>	Snuffbox
<i>Etheostoma camurum</i>	Bluebreast Darter
<i>Etheostoma maculatum</i>	Spotted Darter

APPENDIX VI (Cont.)

<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>
<i>Etheostoma tippecanoe</i>	Tippecanoe Darter
<i>Fusconaia subrotunda</i>	Long-Solid
<i>Haliaeetus leucocephalus</i>	Bald Eagle
<i>Ichthyomyzon bdellium</i>	Ohio Lamprey
<i>Ichthyomyzon greeleyi</i>	Mountain Brook Lamprey
<i>Ixobrychus exilis</i>	Least Bittern
<i>Labidesthes sicculus</i>	Brook Silverside
<i>Lasmigona compressa</i>	White Heelsplitter
<i>Lepomis gulosus</i>	Warmouth
<i>Ligumia nastuta</i>	Eastern Pondmussel
<i>Moxostoma carinatum</i>	River Redhorse
<i>Noturus eleutherus</i>	Mountain Madtom
<i>Noturus miurus</i>	Brindled Madtom
<i>Obovaria subrotunda</i>	Round Hickorynut
<i>Pandion haliaetus</i>	Osprey
<i>Percina macrocephala</i>	Longhead Darter
<i>Pleuroblema clava</i>	Club Shell
<i>Pleuroblema sintoxia</i>	Round Pigtoe
<i>Quadrula cylindrica</i>	Rabbitsfoot
<i>Rallus elegans</i>	King Rail
<i>Rallus limicola</i>	Virginia Rail
<i>Sistrurus catenatus catenatus</i>	Massasauga Rattlesnake
<i>Tritogonia verrucosa</i>	Pistolgrip Mussel
<i>Umbra limi</i>	Central Mudminnow