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Flora of the floodplain of the Big Muddy River at 20th

Street (CH 5),

Job No. P-99-100-96,

Murphysboro, Jackson County, Illinois

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**Center for Biodiversity
Technical Report 1998 (15)**

**Illinois Natural History Survey
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**Prepared for:
Bureau of Design and Environment
Illinois Department of Transportation
2300 South Dirksen Parkway
Springfield, Illinois 62764**

**Project Completion Report
6 August 1998**

INTRODUCTION

A request by the Illinois Department of Transportation (IDOT) for a botanical survey of a bridge replacement corridor, FAS 917 (CH 5), Section 95-0010-9-00-BR, over the Big Muddy River, Murphysboro, Jackson County, Illinois, Job No. P-99-100-96, was received on 20 January 1998. This site is along the 20th Street extension in Murphysboro. Its legal location is on the Murphysboro, ILL 7.5 min. quad., T9S, R2W, NW/4, SE/4, section 8. A corridor of 76.2 m (250 ft) on each side of the existing road centerline from south of an abandoned RR to north of Jackson Street was specified.

Of special concern was the possibility for the occurrence of Matelea decipiens (Alex.) Woods., climbing milkweed, IL endangered. This species had been reported from the nearby Riverside Park, a Murphysboro city park, located at T9S, R2W, NW/4, NW/4, SE/4, NW/4 sect. 8, 1.0 km northwest of the bridge crossing. Colleague David Ketzner of the Illinois Natural History Survey had found that population and shared that information. This climbing milkweed, a perennial twining herb of floodplain forests, reaches its northwestern range limit in southern Illinois in Jackson and Williamson counties.

No dedicated Nature Preserves are located within 5 km (3.1 mi) of the study site (McFall and Karnes 1995). One area registered by the Illinois Natural Areas Inventory (INAI) is located within that distance. The closest INAI site is the Murphysboro Marsh (INAI #957) located at T8S, R2W, NW/4 sec. 32, 4 km (2.5 mi) almost due north of the bridge crossing.

METHODS

Before visiting the site, Herkert's Endangered and Threatened Species of Illinois (1991, 1994) and the Illinois Natural Areas files (maintained in the Illinois Natural History Survey Library) were consulted for information on rare plants of the region. The Illinois Natural Heritage Database (Illinois Department of Natural Resources, Division of Natural Heritage) provided information on the locations of significant natural areas and threatened and endangered species in the vicinity of the project through January 1998. A search was conducted for rare, threatened, and endangered plant species throughout the project area and the natural quality of the vegetation was evaluated. Lists of plants found were made along with vegetation descriptions. Detailed ground surveys were not undertaken in the highly impacted areas of residences and businesses because natural communities in these areas had been destroyed and no suitable habitat for threatened and endangered species remained.

The topographic map and an aerial photograph of the project area were consulted for information during the course of the botanical survey. Other members of the Illinois Natural History Survey (INHS), particularly D. Ketzner, who not only first discovered the plant in Murphysboro but conducted vegetation surveys of the corridor for the wetland report, were also

consulted. A report on the wetland survey (conducted 24-25 October and 12 November 1997) was submitted to IDOT on 17 December 1997 (Keene et al. 1997).

The survey area was examined by quadrant as delimited by the bridge approach and crossing, starting at the northeast, then proceeding northwest, southwest, and southeast. Plant lists were compiled by quadrant, each of which had some floodplain forest and then variable amounts of other communities, all degraded. Much of the site was made up of the Big Muddy River itself and its extensive floodplain, which was not vegetated immediately along the channel except for a few scattered swamp privet and willow trees.

During both visits, the Big Muddy River was in its channel, but had only recently flooded its floodplain which was still covered with wet silt.

Field work was conducted on 19 May 1998 and 23 July 1998 (w/Sue Dees). Representative plant specimens were pressed and dried using standard herbarium techniques (Hill 1995) and field notes about them were made on site. Plant specimen vouchers collected by S.R. Hill have been indicated in this report by a boldface **H** followed by the collection number. These vouchers have been deposited in the Illinois Natural History Survey herbarium (ILLS). Plant nomenclature follows Mohlenbrock (1986) unless otherwise indicated.

To assess the quality of the vegetation of a given habitat with native species, each area considered to have potentially significant vegetation received a grade from A to D following the methods described by White (1978). The following criteria were used to determine the status of each community:

1. The presence of endangered, threatened, and watch-list species in the area.
2. The presence and abundance of exotic (non-native) vegetation.
3. Disturbance factors in a community such as grazing, logging, or other man-made activities.
4. Age of the community and successional stage.
5. If disturbance has ceased in the community and if the community appears to be recovering.
6. The presence and abundance of conservative plant species for a community type.
7. Size and position of the community in the landscape.

In addition to the A to D grade system, qualifiers of "+" and "-" were used to further evaluate plant communities. For example, habitats may be of grade "C" quality and fail to rate Illinois Natural Areas Inventory (INAI) consideration for natural areas because of size restrictions or severity of disturbance. These areas may harbor uncommon native plants and be regionally important refuges for preserving biodiversity in the increasingly fragmented and disturbed landscape. The classification of "C+" indicated a community that has been disturbed in the past but is recovering or has significant natural character. Examples can include forests that have been grazed in the past but whose understory plant diversity has significantly recovered, or prairie remnants which have species characteristic of high-quality undisturbed prairies but may need increased management to eliminate encroachment by shrubs or exotics. The classification

of "C-" indicated that a recognizable natural community was present, but that disturbance continues and recovery may not occur. These areas may have threatened and endangered species which could be eliminated if disturbance worsens. For example, a high quality natural area within or adjacent to agricultural land may harbor rare species, but continued use of herbicides and agricultural practices could eliminate the species from the site.

RESULTS AND DISCUSSION

No Illinois threatened or endangered or watch-listed species were found within the bridge crossing corridor study area. No high quality (grades A or B) vegetation communities were located at the study site.

Matelea decipiens was not located in the corridor, and only marginally suitable floodplain forest habitat for the species was found. Suitable habitat did occur for Acalypha deamii (Weath.) Ahles (large-seeded mercury, threatened in Illinois) plants at the margin of the floodplain forest along the Illinois River on higher banks, but none were found. It is not known from the vicinity of the project site, but has been found in southern Illinois in Pope and Massac counties.

On 19 May 1998 a milkweed vine was found that was very immature, so a later trip was planned to see the vines at flowering. Because neither Cynanchum nor Matelea had been reported by the wetland survey team (Keene et al. 1997) this possibility had to be carefully checked. Upon returning 23 July it was found that the vines were the common and widespread Cynanchum laeve and not a Matelea. In conversations with D. Ketzner, it was determined that the population of Matelea decipiens that he had located was at a site that was not flooded as frequently as those in the bridge corridor, and was more upland in character. Because only small areas of the corridor escaped the frequent Big Muddy River flooding these were the ones examined most carefully on the second site visit. The Cynanchum was found on these sites. The habitat was determined to be only somewhat suitable for the Matelea.

No portions of the corridor had significant intact natural communities (grades A or B). Vegetation cover types included degraded floodplain forest, wet meadow, forbland, shrubland, drainage ditches, a small pond, and developed land (figure 1). The floodplain forests were generally rated as fair quality by the wetland survey (Keene et al. 1997) or grade C- in terms of natural quality. The wet meadows were rated as fair to poor quality (grades C- to D). All other vegetation communities seen were rated as poor (grade D).

The natural levee banks of the Big Muddy River, along the margin of the floodplain forest along the banks above the silted floodplain, were suitable habitat for the Illinois threatened large-seeded mercury (Acalypha deamii (Weath.) Ahles). A search was made for the species, but it was not found. There appear to be no current records in Jackson County, but it has been found several times in Pope County.

One plant worthy of note that was found to be common at the study site was the swamp privet (Forestiera acuminata (Michx.) Poir.). This is a tall shrub (generally 3 m) with several trunks. The species was listed as "occasional or rare in the s. 3/5 of the state." by Mohlenbrock (1986). It was a co-dominant on the silted floodplain of the Big Muddy River on both banks in areas that had been flooded several times this year. In addition, the individuals were abundantly fruiting during the first visit to the site.

These botanical sites are mapped on Appendix 1, maps 1 and 2, in this memorandum. Lists of the plant species found at each site are provided in Appendix 2.

SUMMARY

No Illinois or federally threatened or endangered species were found within the project area. Suitable habitat occurred for individuals of Acalypha deamii (Weath.) Ahles (large-seeded mercury, threatened in Illinois) at the margin of the floodplain forest along the Big Muddy River on higher banks, but none were found. A small amount of somewhat suitable habitat occurs within the corridor for the Illinois endangered climbing milkweed (Matelea decipiens (Alex.) Woods.).

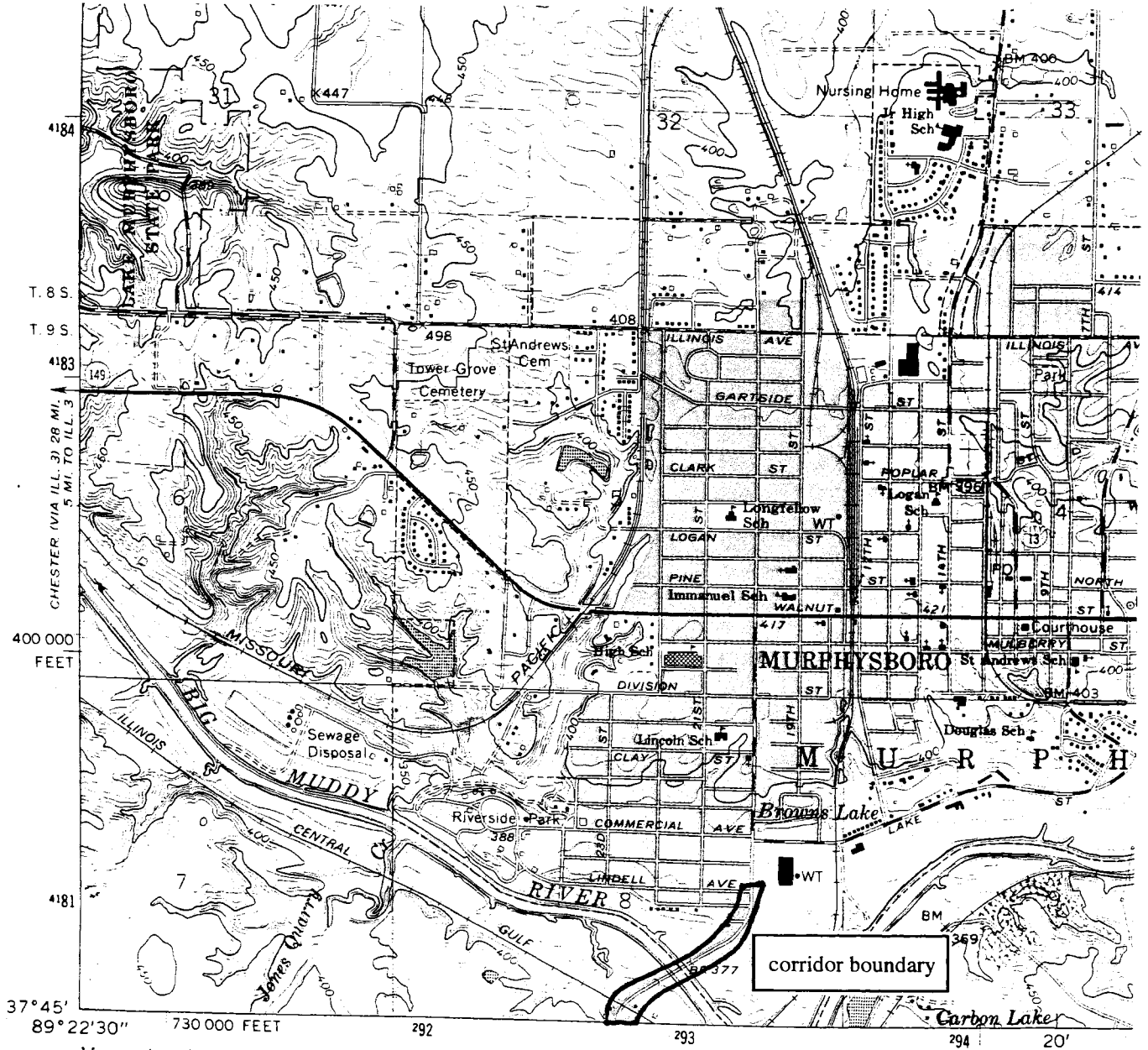
No high quality (grades A or B) plant communities were located within the corridor. Fair quality (grades C-) floodplain forest and wet meadow communities were found, along with designated wetlands. Other plant communities present had no natural character remaining (grade D).

LITERATURE CITED

- Herkert, J. R. (ed.) 1991. Endangered and Threatened Species of Illinois: Status and Distribution, Volume 1 - Plants. Illinois Endangered Species Protection Board, Springfield, Illinois. 158 pp.
- Herkert, J. R. (ed.) 1994. Endangered and Threatened Species of Illinois: Status and Distribution, Volume 3 - 1994 Changes to the Illinois List of Endangered and Threatened Species. Illinois Endangered Species Protection Board, Springfield, Illinois. 33 pp.
- Hill, S. R. 1995. How to Make a Plant Collection. Herbarium Supply Company, Menlo Park, California. 8 pp.
- Keene, D, D. Ketzner, A. Admiraal, and R. Larimore. 1997. Wetland Report for FAS 917, Jackson County. Prepared by the Center for Wildlife Ecology, Illinois Natural History Survey, Champaign, for the Bureau of Design and Environment, Illinois Department of Transportation, Springfield. 33 pp. and map.
- McFall, D. and J. Karnes, eds. 1995. A Directory of Illinois Nature Preserves, Volume 2. Illinois Department of Natural Resources, Springfield. 327 pp.
- Mohlenbrock, R. H. 1986. Guide to the Vascular Flora of Illinois. Revised and enlarged edition. Southern Illinois University Press. xii + 507 pp.
- U.S. Geological Survey. 1968, revised 1978. Murphysboro, ILL. 7.5 min series (topographic quadrangle). U.S. Dept. of the Interior, Geological Survey.
- White, J. 1978. Illinois natural areas inventory technical report. Vol. 1. Survey methods and results. Illinois Natural Areas Inventory, Urbana. 426 pp.

APPENDIX 1.

Map 1. Project area, Murphysboro, Jackson County, IL. Murphysboro U.S.G.S. 7.5 min. topographic quadrangle (1968, revised 1978).



Map 2. Project area, aerial photograph. Scale: 1:3600; 0.01 m = 36 m (1 inch = 300 ft).
Vegetation communities and sites indicated.

(map separate)

APPENDIX 2. Plant Lists.

1=rare 4=abundant **boldface H** numbers represent Hill collections
 2=occasional 5=very abundant
 3=common *=adventive species

Site 1. Northeast quadrant: Floodplain forest bordered by shrubland towards NE, drainage ditches (mowed roadside). Murphysboro, ILL 7.5 min. quad., T9S, R2W, NE/4, SE/4, NW/4, SE/4, section 8. Includes portions of wetland sites 2, 3, and 9 (Keene et al. 1997).

Floodplain forest; fair natural quality (grade C-):

2	<i>Acalypha rhomboidea</i> Raf.		co-dominant, mudflats
3	<i>Acer negundo</i> L.		H30245
4-5	<i>Acer saccharinum</i> L. dominant	3-4	<i>Fraxinus pennsylvanica</i> Marsh.
1-2	<i>Allium canadense</i> L.		co-dominant
1	* <i>Allium vineale</i> L.	3	<i>Galium aparine</i> L.
1-2	<i>Ambrosia trifida</i> L.	2	<i>Geum canadense</i> Jacq.
1-2	<i>Ampelopsis cordata</i> Michx.	2	<i>Gleditsia triacanthos</i> L.
1-2	<i>Arundinaria gigantea</i> (Walt.) Chapm. margin	3	<i>Impatiens capensis</i> Meerb.
3	<i>Aster simplex</i> Willd.	2-3	<i>Ipomoea pandurata</i> (L.) G.F.W. Meyer
3	<i>Bidens frondosa</i> L.	2-3	<i>Leersia virginica</i> Willd.
2-3	<i>Boehmeria cylindrica</i> (L.) Sw.	3	<i>Liquidambar styraciflua</i> L.
3-4	<i>Campsis radicans</i> (L.) Seemann	1-2	<i>Ludwigia palustris</i> (L.) Ell.
3	<i>Carex grayi</i> Carey	1-2	<i>Lycopus americanus</i> Muhl.
3	<i>Carex grisea</i> Wahlenb. H30257	2-3	* <i>Lysimachia nummularia</i> L.
3	<i>Carex muskingumensis</i> Schwein. H30253, H30607	1	<i>Cynanchum laeve</i> (Michx.) Pers. H30261
1-2	<i>Carya laciniosa</i> (Michx.f.) Loudon H30608	1-2	<i>Menispermum canadense</i> L.
2-3	<i>Celtis laevigata</i> Willd.	1-2	<i>Mimulus alatus</i> Ait.
2	<i>Cephalanthus occidentalis</i> L.	1-2	<i>Muhlenbergia</i> sp.
2	<i>Cercis canadensis</i> L.	2	<i>Myosotis macrosperma</i> Engelm.
2	<i>Chaerophyllum procumbens</i> (L.) Crantz	1-2	<i>Oxalis dillenii</i> Jacq.
2	<i>Chasmanthium latifolium</i> (Michx.) Yates	1-2	<i>Panicum clandestinum</i> L.
3-4	<i>Elymus villosus</i> Muhl.	2-3	<i>Parthenocissus quinquefolia</i> (L.) Planch.
3	<i>Elymus virginicus</i> L.	2	<i>Penthorum sedoides</i> L.
2-3	<i>Eupatorium rugosum</i> Houtt.	2	<i>Phytolacca americana</i> L.
2	<i>Eupatorium serotinum</i> Michx.	2-3	<i>Pilea pumila</i> (L.) A.Gray
3-4	<i>Forestiera acuminata</i> (Michx.) Poir.	1-2	<i>Platanus occidentalis</i> L.
		3	<i>Poa sylvestris</i> A.Gray
		2	* <i>Polygonum cespitosum</i> Blum

2	<i>Polygonum pennsylvanicum</i> L.	1-2	<i>Sassafras albidum</i> (Nutt.) Nees
2	<i>Polygonum punctatum</i> Ell.	1	<i>Senecio glabellus</i> Poir.
2	<i>Populus deltoides</i> Marsh.	2	<i>Sicyos angulatus</i> L.
1-2	<i>Quercus imbricaria</i> Michx.	2	<i>Stachys tenuifolia</i> Willd.
2-3	<i>Quercus shumardii</i> Buckley higher ground; some 2.5-3 ft dbh H30262	1-2	<i>Symphoricarpos orbiculatus</i> Moench
2	<i>Ranunculus abortivus</i> L.	2	<i>Teucrium canadense</i> L.
2	<i>Ruellia strepens</i> L.	1	<i>Triodanis perfoliata</i> (L.) Nieuwl.
2-3	<i>Salix nigra</i> Marsh. mudflats	2-3	<i>Ulmus americana</i> L.
2	<i>Sanicula gregaria</i> Bickn.	2	<i>Viola missouriensis</i> Greene
		2-3	<i>Vitis riparia</i> Michx. H30246

Shrubland margin (poor natural quality, grade D):

2	* <i>Albizia julibrissin</i> Duraz.	3-4	* <i>Lonicera morrowii</i> A.Gray
2	<i>Asclepias syriaca</i> L.	2	* <i>Malus pumila</i> Mill.
1	* <i>Asparagus officinalis</i> L.	2-3	* <i>Morus alba</i> L.
1-2	<i>Clematis virginiana</i> L.	1-2	* <i>Polygonum convolvulus</i> L.
2	<i>Cornus drummondii</i> C.A.Mey. H30609	2	<i>Prunus serotina</i> Ehrh.
1	<i>Cynanchum laeve</i> (Michx.) Pers.	1-2	<i>Rhus glabra</i> L.
2	<i>Diospyros virginiana</i> L.	2	* <i>Rosa multiflora</i> Thunb.
3-4	* <i>Elaeagnus umbellata</i> Thunb. H30611	2	<i>Sanicula gregaria</i> Bickn.
1	<i>Juniperus virginiana</i> L.	1-2	<i>Smilax bona-nox</i> L.
3	<i>Liquidambar styraciflua</i> L.	2	<i>Smilax hispida</i> Muhl.
2-3	* <i>Lonicera japonica</i> Thunb.	2	<i>Smilax rotundifolia</i> L.
		3	<i>Toxicodendron radicans</i> (L.) Kuntze

Drainage ditch (mowed roadside), poor natural quality (grade D):

2	<i>Acalypha rhomboidea</i> Raf.	2	<i>Carex vulpinoidea</i> Michx. H30255
2	<i>Apocynum cannabinum</i> L.	3	<i>Carex</i> spp. H30247, H30248
3	* <i>Bromus japonicus</i> Thunb.	2	* <i>Cirsium vulgare</i> (Savi) Tenore
4	* <i>Bromus sterilis</i> L. H30249	2	<i>Croton monanthogynus</i> Michx.
3-4	* <i>Bromus tectorum</i> L.	2	* <i>Cynodon dactylon</i> (L.) Pers.
2	<i>Calystegia sepium</i> (L.) R.Br.	1-2	* <i>Cyperus retrorsus</i> Chapm.
2	<i>Carex caroliniana</i> Schwein. H30252	2	<i>Desmanthus illinoensis</i> (Michx.) MacM.
2	<i>Carex conjuncta</i> Boott. H30259	2	<i>Desmodium</i> spp.
2	<i>Carex frankii</i> Kunth	1	<i>Erechtites hieracifolia</i> (L.) Raf.
3	<i>Carex granularis</i> Willd. H30250	2	<i>Erigeron philadelphicus</i> L.
3	<i>Carex muskingumensis</i> Schwein. H30253	2	<i>Eupatorium coelestinum</i> L.
1-2	<i>Carex shortiana</i> Dewey H30251	3-4	<i>Festuca pratensis</i> Huds.
3	<i>Carex squarrosa</i> L. H30256	2	<i>Geranium carolinianum</i> L.

2	<i>Juncus tenuis</i> Willd.		H30260
1	<i>Lobelia inflata</i> L.	2	<i>Solanum carolinense</i> L.
2	<i>Ludwigia alternifolia</i> L.	2-3	<i>Solidago canadensis</i> L.
1	<i>Oenothera biennis</i> L.	2-3	* <i>Sorghum halepense</i> (L.) Pers.
2	<i>Oxalis dillenii</i> Jacq.	2	<i>Spermacoce glabra</i> Michx.
1	* <i>Phleum pratense</i> L.	2	<i>Sphenopholis intermedia</i> (Rydb.) Rydb. H30258
2	<i>Phyla lanceolata</i> (Michx.) Greene	2	* <i>Torilis japonica</i> (Houtt.) DC.
2	<i>Plantago rugelii</i> Decne.	2	<i>Tridens flavus</i> (L.) Hitchc.
3	* <i>Poa pratensis</i> L.	2-3	<i>Valerianella radiata</i> (L.) Dufr. H30254
2	* <i>Prunella vulgaris</i> L.	1	<i>Verbena urticifolia</i> L.
2	<i>Rubus allegheniensis</i> Porter	1-2	<i>Vernonia missurica</i> Raf.
2	<i>Scirpus pendulus</i> Muhl.	1-2	<i>Xanthium strumarium</i> L.
1-2	<i>Senecio glabellus</i> Poir.		
1-2	<i>Sida spinosa</i> L.		
2	<i>Sisyrinchium angustifolium</i> Mill.		

Site 2. Northwest quadrant: floodplain forest, wet meadow, drainage ditch (roadside), and developed land (residential). Murphysboro, ILL 7.5 min. quad., T9S, R2W, NW/4, SE/4, NW/4, SE/4, section 8. South of Jackson Street; open area, unsuitable *Matelea* habitat; many European weeds. Includes portions of wetland sites 2, 6, 7, and 8 (Keene et al. 1997).

Floodplain forest (fair natural quality, grade C-):

2	<i>Acalypha rhomboidea</i> Raf.	1-2	<i>Cynanchum laeve</i> (Michx.) Pers. H30613
2-3	<i>Acer negundo</i> L.	2	<i>Diospyros virginiana</i> L.
4	<i>Acer saccharinum</i> L.	2-3	<i>Elymus virginicus</i> L.
2	<i>Agrostis perennans</i> (Walt.) Tuckerm.	2	<i>Eupatorium serotinum</i> Michx.
2	<i>Ambrosia trifida</i> L.	3	<i>Forestiera acuminata</i> (Michx.) Poir. mudflats
2	<i>Ampelopsis cordata</i> Michx. H30267	2-3	<i>Fraxinus pensylvanica</i> Marsh.
3	<i>Aster simplex</i> Willd.	2	<i>Gleditsia triacanthos</i> L. saplings
2	<i>Betula nigra</i> L.	2	<i>Ilex decidua</i> Walt.
3	<i>Bidens frondosa</i> L.	2-3	<i>Ipomoea pandurata</i> (L.) G.F.W. Meyer
2-3	<i>Boehmeria cylindrica</i> (L.) Sw.	2	<i>Leersia virginica</i> Willd.
3	<i>Campsis radicans</i> (L.) Seeman	2-3	<i>Lemna minor</i> L. floodplain mud
2	<i>Carex caroliniana</i> Schwein.	2	<i>Liquidambar styraciflua</i> L.
2	<i>Carex frankii</i> Kunth.	1-2	<i>Mimulus alatus</i> Ait.
3	<i>Carex grayi</i> Carey	2	* <i>Morus alba</i> L.
2-3	<i>Carex squarrosa</i> L.	2	<i>Pilea pumila</i> (L.) A.Gray
1-2	<i>Carya laciniosa</i> (Michx.f.) Loudon	2	<i>Platanus occidentalis</i> L.
2	<i>Celtis occidentalis</i> L.		
2	<i>Cephalanthus occidentalis</i> L.		
2	<i>Cornus drummondii</i> C.A.Mey.		

2	<i>Populus deltoides</i> Marsh.	2	<i>Toxicodendron radicans</i> (L.) Kuntze
2	<i>Quercus shumardii</i> Buckley	2-3	<i>Ulmus americana</i> L.
2	<i>Ranunculus abortivus</i> L.	2	<i>Viola missouriensis</i> Greene
2-3	<i>Salix nigra</i> Marsh.	2	<i>Vitis riparia</i> Michx.
1-2	<i>Smilax hispida</i> Muhl.		

Wet meadow fair to poor natural quality (grade C-, D+):

2	<i>Acalypha rhomboidea</i> Raf.	2	<i>Lysimachia ciliata</i> L.
2	<i>Amaranthus tuberculatus</i> (Moq.) Sauer	2	<i>Oenothera biennis</i> L.
3	<i>Alopecurus carolinianus</i> Walt.	2	<i>Panicum lanuginosum</i> Ell. (= <i>Dichanthelium acuminatum</i> in Mohlenbrock) H30605
2	<i>Ambrosia artemisiifolia</i> L.	2	<i>Panicum rigidulum</i> Bosc. H30610
2-3	<i>Ambrosia trifida</i> L.	1-2	<i>Penthorum sedoides</i> L.
1-2	<i>Ammannia coccinea</i> Rottb.	3-4	<i>Phyla lanceolata</i> (Michx.) Greene
2	<i>Apocynum cannabinum</i> L.	2	* <i>Polygonum cespitosum</i> Blum
1-2	<i>Asclepias incarnata</i> L.	2	<i>Polygonum pennsylvanicum</i> L. H30612
2	<i>Aster simplex</i> Willd.	2	<i>Polygonum punctatum</i> Ell.
2-3	<i>Bidens frondosa</i> L.	2	* <i>Prunella vulgaris</i> L.
2-3	<i>Boehmeria cylindrica</i> (L.) Sw.	1	<i>Populus deltoides</i> Marsh.
3	<i>Campsis radicans</i> (L.) Seem.	2	<i>Rorippa sessiliflora</i> (Nutt.) Hitchc. H30266
2-3	<i>Carex typhina</i> Michx. H30263	2-3	<i>Rorippa sylvestris</i> (L.) Bess. dried pool H30269
2	<i>Cephalanthus occidentalis</i> L.	2	<i>Rubus trivialis</i> Michx.
2	<i>Desmodium paniculatum</i> (L.) DC.	2	<i>Rudbeckia triloba</i> L.
2-3	<i>Echinochloa muricata</i> (P.Beauv.) Fern.	2	* <i>Rumex crispus</i> L.
2	<i>Elymus virginicus</i> L.	2	<i>Scutellaria lateriflora</i> L.
2	<i>Eupatorium serotinum</i> Michx.	2	<i>Senecio glabellus</i> Poir.
2	<i>Fraxinus pennsylvanica</i> Marsh. saplings	2	<i>Solanum carolinense</i> L.
2	<i>Gratiola neglecta</i> Torr. H30268	2	<i>Spermacoce glabra</i> Michx. H30606
2	<i>Hibiscus laevis</i> All.	2	* <i>Typha angustifolia</i> L.
2	<i>Hypericum mutilum</i> L.	2-3	<i>Valerianella radiata</i> (L.) Dufr.
2-3	<i>Iva annua</i> L.	1-2	<i>Verbena urticifolia</i> L.
3-4	<i>Krigia caespitosa</i> (Raf.) Chambers H30265	2-3	<i>Veronica peregrina</i> L.
2	<i>Leersia virginica</i> Willd.	2-3	<i>Xanthium strumarium</i> L.
1	<i>Leucospora multifida</i> (Michx.) Nutt.		
2	<i>Ludwigia alternifolia</i> L.		
2	<i>Ludwigia peploides</i> (HBK) Raven		

Drainage ditch (roadside); poor natural quality (grade D):

2	<i>Acalypha rhomboidea</i> Raf.	2	* <i>Lotus corniculatus</i> L. H30604
1-2	<i>Acalypha virginica</i>	2	<i>Oxalis dillenii</i> Jacq.
2	* <i>Bouteloua curtipendula</i> (Michx.) Torr.	2	<i>Plantago lanceolata</i> L.
3	* <i>Bromus tectorum</i> L.	2	* <i>Poa annua</i> L.
2	* <i>Cerastium glomeratum</i> Thuill. H30264	2	* <i>Polygonum arenastrum</i> Boreau
3	<i>Chaerophyllum procumbens</i> (L.) Crantz	2	* <i>Polygonum cespitosum</i> Blum
2	<i>Chamaesyce supina</i> (Raf.) Moldenke	1	* <i>Polygonum cuspidatum</i> Sieb. & Zucc.
1-2	<i>Conyza canadensis</i> (L.) Cronq.	2	<i>Polygonum pensylvanicum</i> L.
1	* <i>Cyperus iria</i> New to county? H30614	1-2	<i>Portulaca oleracea</i> L.
2	<i>Cyperus strigosus</i> L.	2	* <i>Prunella vulgaris</i> L.
3-4	<i>Desmanthus illinoensis</i> (Michx.) MacM.	1-2	<i>Pyrrhopappus carolinianus</i> (Walt.) DC.
2-3	* <i>Digitaria ischaemum</i> (Schreb.) Muhl.	2-3	* <i>Rumex crispus</i> L.
3	<i>Diodia teres</i> Walter	2-3	* <i>Setaria faberi</i> Herrm.
2	<i>Eragrostis pectinacea</i> (Michx.) Nees	2	<i>Sida spinosa</i> L.
2	<i>Erigeron philadelphicus</i> L.	2	<i>Sisyrinchium angustifolium</i> Miller
2	<i>Eupatorium coelestinum</i> L.	2	<i>Solanum carolinense</i> L.
2	<i>Geranium carolinianum</i> L.	2-3	<i>Solidago canadensis</i> L.
2	<i>Hordeum pusillum</i> Nutt.	2	* <i>Sonchus oleraceus</i> L.
2	* <i>Ipomoea hederacea</i> (L.) Jacq.	2	* <i>Sorghum halepensis</i> (L.) Pers.
2	<i>Lactuca canadensis</i> L.	2	* <i>Taraxacum officinale</i> Weber
		3	* <i>Trifolium hybridum</i> L.
		2-3	* <i>Trifolium repens</i> L.
		1	<i>Triodanis perfoliata</i> (L.) Nieuwl.

Site 3. Southwest quadrant: Floodplain forest, shrubland, roadside, and developed land (business/residence). Murphysboro, ILL 7.5 min. quad., T9S, R2W, NE/4, SW/4, NW/4, SE/4, section 8. Includes portions of wetland sites 2, 3 and 5 (Keene et al. 1997).

Floodplain forest; fair natural quality (grade C-):

2-3	<i>Acer negundo</i> L.	2	<i>Bidens frondosa</i> L.
3-4	<i>Acer saccharinum</i> L. some 1 m dbh	2-3	<i>Boehmeria cylindrica</i> (L.) Sw.
2	<i>Allium canadense</i> L.	3	<i>Campsis radicans</i> (L.) Seeman
2	<i>Ampelopsis cordata</i> Michx.	2	<i>Carex davisii</i> Schw. & Torr.
1-2	<i>Arisaema dracontium</i> (L.) Schott	3	<i>Carex grayi</i> Carey
1	<i>Asimina triloba</i> (L.) Dunal	2	<i>Carex jamesii</i> Schw.
3-4	<i>Aster ontarionis</i> Wieg.	2	<i>Carex rosea</i> Willd.
3-4	<i>Aster simplex</i> Willd.	2	<i>Carya laciniosa</i> (Michx. f.) Loudon
1-2	<i>Betula nigra</i> L.	3	<i>Celtis laevigata</i> Willd.

2	<i>Cephalanthus occidentalis</i> L.	2	* <i>Morus alba</i> L.
3	<i>Chaerophyllum procumbens</i> (L.) Crantz	2	<i>Myosotis macrosperma</i> Engelm.
2	<i>Chasmanthium latifolium</i> (Michx.) Yates	1	<i>Osmorhiza longistylis</i> (Torr.) DC. H30273
2	<i>Cornus drummondii</i> C.A.Mey.	2	<i>Parthenocissus quinquefolia</i> (L.) Planch.
2	<i>Diospyros virginiana</i> L. H30275	1	<i>Phytolacca americana</i> L.
3	<i>Elymus virginicus</i> L.	2	<i>Platanus occidentalis</i> L.
2	<i>Eupatorium rugosum</i> Houtt.	3	<i>Poa sylvestris</i> A.Gray
3	<i>Forestiera acuminata</i> (Michx.) Poir.	2	<i>Populus deltoides</i> Marsh. some 0.7 m DBH
2-3	<i>Fraxinus pensylvanica</i> Marsh.	1-2	<i>Quercus imbricaria</i> Michx.
3-4	<i>Galium aparine</i> L.	1-2	<i>Quercus macrocarpa</i> Michx.
2	<i>Geum canadense</i> Jacq.	2	<i>Ranunculus abortivus</i> L.
1-2	<i>Geum vernum</i> (Raf.) T. & G.	2	<i>Sanicula gregaria</i> Bickn.
2	<i>Gleditsia triacanthos</i> L.	2	<i>Sicyos angulatus</i> L.
2	<i>Glyceria striata</i> (Lam.) Hitchc.	2	<i>Sisyrinchium angustifolium</i> Miller
2	<i>Hibiscus lasiocarpus</i> Cav.	2	<i>Smilax hispida</i> Muhl.
2	<i>Ipomoea pandurata</i> (L.) G.F.W. Meyer	2	<i>Sphenopholis obtusata</i> (Michx.) Scrib.
2	<i>Lactuca floridana</i> (L.) Gaertn.	2	<i>Toxicodendron radicans</i> (L.) Kuntze
2-3	<i>Lemna minor</i> L. pools on floodplain	3	<i>Ulmus americana</i> L.
2-3	<i>Liquidambar styraciflua</i> L.	2	<i>Viola missouriensis</i> Greene
2	* <i>Lonicera japonica</i> Thunb.	2	<i>Vitis riparia</i> Michx. H30272
2-3	* <i>Lysimachia nummularia</i> L.		
2	<i>Menispermum canadense</i> L.		

Shrubland poor natural quality, old field succession returning to floodplain forest, (grade D):

2	<i>Ambrosia trifida</i> L.	2	<i>Hypericum mutilum</i> L.
2	<i>Apocynum cannabinum</i> L.	1-2	<i>Hypericum punctatum</i> Lam.
2	<i>Asclepias syriaca</i> L.	2	<i>Juncus tenuis</i> Willd.
2	* <i>Barbarea vulgaris</i> R.Br.	2-3	<i>Leersia oryzoides</i> (L.) Sw.
2	<i>Carex caroliniana</i> Schwein.	2	<i>Oenothera biennis</i> L.
2	<i>Carex conjuncta</i> Boott.	1-2	<i>Penstemon digitalis</i> Nutt. H30274
2	<i>Carex festucacea</i> Willd.	3	<i>Platanus occidentalis</i> L. saplings
2	<i>Carex vulpinoidea</i> Michx.	2	* <i>Potentilla recta</i> L.
2	<i>Cassia fasciculata</i> Michx.	2	* <i>Prunella vulgaris</i> L.
2	<i>Erigeron philadelphicus</i> L.	2	* <i>Rosa multiflora</i> Thunb.
3	<i>Fraxinus pennsylvanica</i> Marsh. saplings	2	<i>Scirpus pendulus</i> Muhl.
2	<i>Geranium carolinianum</i> L.	1-2	<i>Senecio glabellus</i> Poir.
2	<i>Hordeum pusillum</i> Nutt.	2-3	<i>Solidago canadensis</i> L.
		2	* <i>Trifolium pratense</i> L.

2-3	<i>Valerianella radiata</i> (L.) Dufr.	2	<i>Vernonia missurica</i> Raf.
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Roadside, poor natural quality (grade D):

2	* <i>Barbarea vulgaris</i> R.Br.	1-2	* <i>Lamium purpureum</i> L.
3	* <i>Bromus tectorum</i> L.	2	<i>Plantago virginica</i> L.
2	* <i>Euonymus fortunei</i> (Turcz.) Hand.-Maz.	2	* <i>Potentilla norvegica</i> L.
3	* <i>Festuca pratense</i> Huds.	2	* <i>Taraxacum officinale</i> Weber

Site 4. Southeast quadrant: Floodplain forest, forbland, drainage ditches (roadside), a small pond, and developed land (residential). The forbland is a field of clover between narrow floodplain forest and trailer homes. Murphysboro, ILL 7.5 min. quad., T9S, R2W, SW/4, SE/4, NW/4, SE/4, section 8. Includes wetland sites 1 (a poor quality pond, not surveyed), 2 and 3 (Keene et al. 1997).

Floodplain forest, fair natural quality (grade C-):

2-3	<i>Acer negundo</i> L.	3	<i>Forestiera acuminata</i> (Michx.) Poir.
4	<i>Acer saccharinum</i> L.	3	<i>Fraxinus pensylvanica</i> Marsh.
3	<i>Aster simplex</i> Willd.	3	<i>Galium aparine</i> L.
2-3	<i>Boehmeria cylindrica</i> (L.) Sw.	2	<i>Menispermum canadense</i> L.
3	<i>Campsis radicans</i> (L.) Seem.	2-3	* <i>Morus alba</i> L.
2	<i>Carex davisii</i> Schw. & Torr.	2	<i>Myosotis macrosperma</i> Engelm.
2	<i>Carex granularis</i> Willd.	2	<i>Platanus occidentalis</i> L.
2	<i>Carex rosea</i> Willd. H30270	1-2	<i>Quercus shumardii</i> Buckley
1-2	<i>Carex shortiana</i> Dewey	2	<i>Ranunculus abortivus</i> L.
1-2	<i>Carya laciniosa</i> (Michx.f.) Loudon	2	<i>Toxicodendron radicans</i> (L.) Kuntze
3	<i>Celtis laevigata</i> Willd.	2-3	<i>Ulmus americana</i> L. to 0.7 m dbh
2-3	<i>Chaerophyllum procumbens</i> (L.) Crantz	2	<i>Viola missouriensis</i> Greene
2-3	<i>Elymus virginicus</i> L.	2	<i>Vitis riparia</i> Michx.

Forbland, poor natural quality (grade D):

2	* <i>Allium vineale</i> L.	3	* <i>Bromus tectorum</i> L.
2	<i>Ambrosia artemisiifolia</i> L.	2	<i>Carex muhlenbergii</i> Schk. H30271
2	<i>Ambrosia trifida</i> L.	2	<i>Carex caroliniana</i> Schwein.
2	<i>Apocynum cannabinum</i> L.	2-3	<i>Carex festucacea</i> Willd.
2	* <i>Bromus japonicus</i> Thunb.	2	<i>Carex vulpinoidea</i> Michx.

1-2 *Erigeron annuus* (L.) Pers.
 2 *Glyceria striata* (Lam.) Hitchc.
 2 *Oxalis dillenii* Jacq.
 2 **Plantago rugelii* Decne.
 3-4 **Poa pratensis* L.
 2 *Pyrrhopappus carolinianus* (Walt.)
 DC.
 1-2 *Rorippa sessiliflora* (Nutt.) Hitchc.
 2-3 *Rubus allegheniensis* Porter

2 **Rumex crispus* L.
 2 *Scirpus atrovirens* Willd.
 2 *Senecio glabellus* Poir.
 1-2 *Sisyrinchium angustifolium* Miller
 2 *Sphenopholis obtusata* (Michx.)
 Scribn.
 2 **Trifolium campestre* Schreb.
 4 **Trifolium repens* L.
 2-3 *Valerianella radiata* (L.) Dufr.

Roadside, poor natural quality (grade D):

2 **Allium vineale* L.
 2 *Ambrosia artemisiifolia* L.
 2 *Ambrosia trifida* L.
 2 *Apocynum cannabinum* L.
 2 **Bromus japonicus* Thunb.
 3 **Bromus tectorum* L.
 2-3 *Carex festucacea* Willd.
 2 *Carex vulpinoidea* Michx.
 1-2 *Erigeron annuus* (L.) Pers.
 2 *Glyceria striata* (Lam.) Hitchc.
 2 *Oxalis dillenii* Jacq.
 2 **Plantago rugelii* Decne.
 3-4 **Poa pratensis* L.

2 *Pyrrhopappus carolinianus* (Walt.)
 DC.
 1-2 *Rorippa sessiliflora* (Nutt.) Hitchc.
 2-3 *Rubus allegheniensis* Porter
 2 **Rumex crispus* L.
 2 *Scirpus atrovirens* Willd.
 2 *Senecio glabellus* Poir.
 1-2 *Sisyrinchium angustifolium* Miller
 2 *Sphenopholis obtusata* (Michx.)
 Scribn.
 2 **Trifolium campestre* Schreb.
 4 **Trifolium repens* L.
 2-3 *Valerianella radiata* (L.) Dufr.