APPENDIX B

EXISTING VEGETATION

CONTENTS

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1. Terrestrial Natural Communities (Native Vegetation)

These are surviving remnants of the original pre-1830 natural vegetation of the area now contained within Midewin. Approximately 2.3% of Midewin is comprised of intact natural communities. Natural communities were identified using two criteria: 1) the physical habitat is natural, not artificial or severely disturbed, and 2) the site is dominated by native plants. A total of 18 different natural communities were identified that could be categorized into nine broad natural community classes: floodplain forest, upland forest, woodland, savanna, seep, marsh, sedge meadow, typic prairie, and dolomite prairie (Ecological Services 1995). Other natural communities may have been present, but were destroyed or degraded beyond recognition. Nearly all native vegetation remnants on Midewin have been disturbed or degraded to varying degrees, primarily from lack of suitable management (fire suppression), disturbance by ordnance production activities, agricultural use, hydrological alterations, and encroachment by non-native and native invasive plant species.

1.1. Floodplain forests are found in the riparian floodplains along Prairie and Jackson creeks and typically flood during high water intervals. This community can be subdivided into three types based upon soil moisture.

Wet floodplain forest is the wettest of the three, with the most frequent and prolonged flooding. These forests are dominated by tree species such as American elm (*Ulmus americana*), green ash (*Fraxinus pennsylvanica*), and black willow (*Salix nigra*). The understory is often open; a dominant herbaceous plant is clearweed (*Pilea pumila*). This community can withstand prolonged flooding, and is often associated with depressions and old meanders in floodplains.

Wet-mesic floodplain forest is intermediate in wetness between wet and mesic floodplain forests. This forest type is dominated by green ash, American elm, slippery elm (*Ulmus rubra*), eastern cottonwood (*Populus deltoides*), eastern hackberry (*Celtis occidentalis*) and hawthorns (*Crataegus* spp.).

Mesic floodplain forest is regularly flooded but the soils are well drained. Common tree species include Kentucky coffeetree (*Gymnocladus dioica*) and sugar maple (*Acer saccharum*). A characteristic herbaceous plant is wild ginger (*Asarum canadense*). The understory of these forests is now dominated by invasive shrubs (both native and non-native).

1.2. Upland forests have a continuous canopy of trees and a well developed understory of small trees. Upland forests occur on slopes, ridgetops, and stream terraces and are rarely, if ever, flooded by stream overflow. Nearly all upland forests on Midewin contain evidence of past human activites, including timber cutting and grazing. This community can be subdivided into 2 types based upon soil moisture. A third type, dry-mesic upland forest, may have been present on some slopes above Jackson Creek.

Wet-mesic upland forest occurs on terraces in Prairie Creek Woods. Characteristic trees of this community are swamp white oak (*Quercus bicolor*) and American elm. Other examples may have been present in upland depressions, where surrounded by forest, woodland, or savanna.

Mesic upland forest is found in Jackson Creek Woods and Starr Grove. This community is usually found in better drained areas than wet-mesic upland forest. Characteristic trees include sugar maple and red oak (*Quercus rubra*). These forests typically have a rich herbaceous flora of spring-blooming wildflowers, including trilliums (*Trillium recurvatum* and *T. sessile*), yellow violet (*Viola eriocarpa*), Virginia bluebells (*Mertensia virginiana*), and false rue-anemone (*Isopyrum biternatum*).

1.3. Woodlands are defined as having an open, discontinuous canopy of trees and may or may not include a shrub layer. The structure of most woodlands on Midewin has been altered by fire suppression and agricultural use. The current understory of these woodlands is often dominated by thorny shrubs and non-native woody species. This community can be subdivided into two types based on soil moisture. A third moisture class, wet-mesic woodland, was probably present in floodplains and riparian areas.

Mesic woodland is characterized by having bur oak (*Quercus macrocarpa*), white oak, and shagbark hickory (*Carya ovata*) as its dominant tree species. The primary location for mesic woodland at Midewin is Prairie Creek Woods.

Dry-mesic woodland harbors similar tree species as mesic woodland but with the addition of black oak (*Quercus velutina*). The canopy trees in these woodlands tend to be stunted because of the drier conditions (sandy soils). Pennsylvania sedge (*Carex pensylvanica*) is an indicator of this community. A small example of a dry-mesic woodland occurs in Jackson Creek Woods.

1.4. Savannas are more open communities than woodlands. In savannas, the trees grow as widely spaced individuals or they grow in small groups. The original understory was mostly herbaceous vegetation (grasses and shrubs), but most remnant savannas now have a dense understory of exotic and native shrubs. There are two types present on Midewin, based on soil

moisture. A third type, dry-mesic savanna, was probably once present on some sandy or sandy-loam soils.

Bur oaks are commonly found in ***wet-mesic savannas***. Two examples of this community type are found along the old cut-off meander of Jackson Creek. The understory of these remnants is dense with shrubs, and only the most shade-tolerant native herbs survive. The gaps between the oaks have been closed by fast-growing invasive trees (both native and exotic). A few grasses survive at the margins of these remnants, including wood reed (*Cinna arundinacea*).

Bur oaks are also common to ***mesic savannas***, but white oak occurs only in mesic savannas. Mesic savanna is found in Prairie Creek Woods, around the edges of Starr Grove, in isolated areas adjacent to Prairie Creek, and in Jackson Creek Woods. Most mesic savanna remnants on Midewin now have a dense understory of shrubs and saplings. Where grazing or mowing has maintained the savanna structure, exotic grasses are predominant in the understory.

1.5. Seeps are wetlands that have a continuous, diffuse flow of groundwater to the surface. These seeps occur on the lower slopes of bluffs or glacial moraines, and at the edges of outwash plain terraces. The soil in these areas is wet throughout the year and often highly organic (a few are gravelly). Most identified seeps on Midewin are along Jackson Creek. Some of these sites are open and dominated with grass-like plants; others are shaded by surrounding forest trees. One of the characteristic plant species is skunk cabbage (*Symplocarpus foetidus*); other common plants include orange jewelweed (*Impatiens capensis*), spotted Joe-Pye-weed (*Eupatorium maculatum*), fowl manna grass (*Glyceria striata*), and sedges (*Carex* spp.). Some of these seeps may be fens that have been degraded by intensive livestock use; trampling and wallowing by livestock has destroyed the peat and marl deposits characteristic of fen communities.

1.6. Marshes are semi-permanently flooded wetlands that may have open water at their deepest points. They are dominated by tall graminoids including cattails (*Typha* spp.), river bulrush (*Scirpus fluviatilis*), great bulrush (*Scirpus validus*) and bur-reed (*Sparganium eurycarpum*). The natural marshes of Midewin are all found on the west side. The largest marsh complex is in the northwest portion of Midewin, north of Blodgett Road and west of West Patrol Road.

1.7. Sedge meadow is a wetland dominated by sedges, the most common of which are the tussock sedges (*Carex stricta, C. haydenii*). Other common plant species include blue flag (*Iris shrevei virginicus*), northern bugleweed (*Lycopus uniflorus*), and rushes (*Juncus* spp.). Most sedge meadows occupy lowland depressions, but few may be associated with seepage areas. With

only a few exceptions, Midewin's sedge meadows are located on the west side where they are intermingled with prairie areas.

1.8. At Midewin, **typic prairie** occurs in scattered, isolated locations, mostly west of IL 53. These remnants often occur as patches amid agricultural. Many typic prairie remnants at Midewin suffer from invasion by woody plants and non-native herbs, often the result of past fire suppression and attempts at drainage. Sometimes called black-soil prairie, typic prairie occurs on deep, loamy soil and can be subdivided into five types based on soil moisture regimes; three of these types are present on Midewin. The other two moisture classes, dry and dry-mesic, were probably present on Midewin but were eliminated by agricultural and industrial activities. A few species associated with these drier moisture classes still persist in roadsides or other disturbed sites, including porcupine grass (*Stipa spartea*), round-headed bush-clover (*Lespedeza captitata*), and short green milkweed (*Asclepias viridiflora*).

Wet typic prairie is at the wettest end of the moisture spectrum for prairies. It has a water table near the surface through winter and spring and is saturated during this period. Characteristic plants are prairie cord grass (*Spartina pectinata*) and water horehound (*Lycopus americanus*). Other plants present in wet prairie remnants on Midewin include meadow-rue (*Thalictrum* spp.), prairie Indian-plantain (*Cacalia plantaginea*) and winged loosestrife (*Lythrum alatum*).

Wet-mesic typic prairie is intermediate between wet and mesic prairie in the moisture spectrum. This prairie type is saturated after rain events. Common plants for wet-mesic prairies include switch grass (*Panicum virgatum*) and common boneset (*Eupatorium perfoliatum*). Other wet-mesic prairie species present on Midewin include marsh phlox (*Phlox glaberrima*), common mountain-mint (*Pycnanthemum virginianum*), and prairie sundrops (*Oenothera pilosella*).

Mesic typic prairie is typified by moisture conditions that allow for the greatest diversity of plant species (White and Madany 1978). Common grasses of mesic prairie remnants are northern dropseed (*Sporobolus heterolepis*) and big bluestem (*Andropogon gerardii*); forb species present in remnants on Midewin include prairie dock (*Silphium terebinthinaceum*), obedient plant (*Physostegia virginiana arenaria*), yellow coneflower (*Ratibida pinnata*), rosinweed (*Silphium integrifolium*), and rattlesnake-master (*Eryngium yuccifolium*).

1.9. The rarest and most unique natural community found at Midewin is the **dolomite prairie**. This community is restricted to areas of exposed dolomite limestone or shallow soils (<50 cm) over dolomite limestone bedrock. Because of the close proximity of the bedrock to the soil surface, the water

table is perched. These areas can be very wet in the spring and very dry during summer. The calcareous bedrock causes the soils to be more alkaline than that of typic prairies. The extreme moisture fluctuations, shallow soils, and calcareous nature of the soils exclude many common prairie plants, and allow for the presence of many regionally uncommon or rare plants. Many of these plants are disjunct from the remainder of their range, which is otherwise the limestone glades of the Ozarks or the cedar glades of Tennessee and northern Alabama. Because dolomite prairies are now very rare, so are many species restricted to this habitat. Specialized plants such as the Federal Endangered, leafy prairie clover (*Dalea foliosa*) are dependent on these calcareous habitats.

Dolomite prairie can be subdivided into five types based on soil moisture; three types are present on Midewin. Two additional types, dry dolomite prairie and dry-mesic dolomite prairie, occur within 500 ft of Midewin on adjacent private land. Two plants species, low calamint (*Satureja arkansana*) and flattened spikerush (*Eleocharis compressa*) are often present in all moisture classes of dolomite prairie on Midewin.

Wet dolomite prairie is the wettest of the three and occurs in depressions of the bedrock. Dominant plant species include tufted hair grass (*Deschampsia caespitosa*), prairie cord grass, and various sedges (*Carex* spp.). Tufted hair grass which tends to be restricted to dolomite prairies, is very common in some of the shallowest wet dolomite prairies at Midewin.

Wet-mesic dolomite prairie is slightly drier than wet dolomite prairie and is characterized by switch grass, prairie cord grass, Riddell's goldenrod (*Solidago riddellii*), and prairie milkweed (*Asclepias sullivantii*).

Mesic dolomite prairie has deeper, better-drained soils than wet or wet-mesic dolomite prairie. Characteristic grasses include prairie dropseed and big bluestem (*Andropogon gerardii*). There are few characteristic forb species, such as round-headed St. John's-wort (*Hypericum sphaerocarpum*), but mesic dolomite prairie is habitat for the Endangered leafy prairie-clover.

2. Cultural and Successional Communities

This classification includes all vegetation on Midewin that is not an identifiable remnant of the original (pre-1830) natural vegetation or restored native vegetation. The most modified examples include cropland, lawns, and other intensively managed vegetation. This category also applies to areas where intensive human uses (e.g. agriculture) have ceased and the vegetation has been allowed to change without management. The latter situations may include some remnants of native vegetation that been degraded beyond recognition.

2.1. Developed and intensively managed lands includes administrative sites and other buildings (including yards, gardens, and mowed lawns), seed production beds and fields, recreation sites, parking lots, former industrial sites, manicured cemeteries, and exposed soil or rubble areas with little vegetative cover during the growing season. All vegetation present is intensively maintained or there is little cover because of high soil disturbance; either way, there is minimal habitat for wildlife and native plant populations. This category does not include dewatered mudflats, exposed sandbars, or other channel features.

2.2. Croplands are open fields planted with grain or seed crops on an annual basis. Typical crops may include, but are not restricted to soybeans (*Glycine max*), corn (*Zea mays*), wheat (*Triticum aestivale*), oats (*Avena sativa*), and sunflowers (*Helianthus annuus*).

2.3. Agricultural grasslands are dominated by Eurasian cool-season grasses and forbs, but they may contain native elements. Under the Army, these areas were grazed by livestock or periodically cut for grass hay. As Army leases are converted to Forest Service Special Use Permits, the vegetation structure is being managed for certain grassland birds using a variety of agricultural techniques, including livestock grazing, cutting and removal of grass hay (after bird nesting season), and mowing to control noxious weeds and shrubs. Predominant grasses include Hungarian brome (*Bromus inermis*), Kentucky bluegrass (*Poa pratensis*), tall fescue (*Festuca arundinacea*), and redtop (*Agrostis alba*). Common non-native forbs include clovers (*Trifolium* spp.), yarrow (*Achillea millefolium*), common teasel (*Dipsacus sylvestris*), hound's-tongue (*Cynoglossum officinale*), chicory (*Cichorium intybus*), thistles (*Cirsium* spp.), and horse-nettle (*Solanum carolinense*). These grasslands often contain a minor element of native prairie graminoids and forbs, primarily west of IL 53 (on the outwash plain). Scattered woody plants in agricultural grasslands include Osage-orange (*Maclura pomifera*), red haw (*Crataegus mollis*), multiflora rose (*Rosa multiflora*), autumn-olive (*Elaeagnus umbellata*), coralberry (*Symphoricarpos orbiculatus*), white mulberry (*Morus alba*), and eastern cottonwood (*Populus*

deltoides). This classification does not include alfalfa hayfields, which were eliminated on Midewin in 2000, because their management (harvest in Late May-July) is incompatible with nesting grassland birds.

2.4. Wet meadows are open grasslands that are also wetlands. Surface inundation is usually brief during the growing season after May, but the soil may be saturated throughout most of spring and early summer. Some wet meadows were grazed by livestock, which has controlled certain invasive species and prevented woody encroachment. This category includes some ditch-banks and grassy waterways, and also floodplain meadows. Many wet meadows are severely degraded natural wetlands (primarily wet prairies and sedge meadows) that have become dominated by the exotic reed canary grass (*Phalaris arundinacea*). Other wet meadows are dominated by redtop or common reed (*Phragmites australis*). Where reed canary grass or common reed are dominant, species diversity is very low. Some wet meadows may be entering seral stages leading to development of shrubland and successional woodland.

2.5. Disturbed emergent wetlands are open, poorly-drained sites where inundation is prolonged into the growing season. These often represent natural wetlands that have been severely degraded by sedimentation, nutrient pollution, and hydrologic alterations. This category also includes “new” wetlands created by impoundments and excavation (ditches and ponds). The vegetation is dominated by monotypic stands of aggressive, emergent herbs, including cattails (*Typha angustifolia* and *T. latifolia*) and common reed. Other, less frequent dominants include reed canary grass, rice-cut grass (*Leersia oryzoides*), river bulrush, and common arrowleaf (*Sagittaria latifolia*).

2.6. Successional native grasslands occur on disturbed sites, often where topsoil has been removed in the past. These sites have been colonized by a limited flora of native grasses and forbs, with a few non-native species. These areas are also called “clay scrapes” or subsoil exposures. Although relatively small in total coverage, they may be biologically important, as they have become refugia for prairie plants and may preserve some genetic diversity from the original populations. The dominant species is often tall dropseed (*Sporobolus asper*), but other native plants include whorled milkweed (*Asclepias verticillatus*), stiff goldenrod (*Solidago rigida*), gray goldenrod (*Solidago nemoralis*), prairie dock, daisy fleabane (*Erigeron strigosus*), heath aster (*Aster ericoides*), switchgrass, short-green milkweed, red bulrush (*Scirpus pendulus*), blue-eyed grass (*Sisyrinchium albidum*), and sedges (*Carex granularis*). Some exotic grasses and forbs present include Canada bluegrass (*Poa compressa*), wild carrot, chicory (*Cichorium intybus*), and sweet-clovers (*Melilotus* spp.).

2.7. Successional non-native vegetation includes all other vegetation types that have developed after human use has ceased. Where the habitat has

developed from planted vegetation, some of these planted species may still persist (as in fencerows or tree plantations), but spontaneous plants dominate the vegetation with time. Long term, all sub-types become increasingly dominated by woody plants. Shrublands, fencerows, and successional woodlands, are combined as an "unassociated woody growth" category developed by Chicago Wilderness (2000).

Forb lands are open lands that have been abandoned after intensive use as cropland or built up areas. The intense use obliterated all traces of the original vegetation, but these sites were mostly prairie before intensive use. Annual and biennial plants colonize these areas quickly after cessation of farming or other activities. Common plant species include horseweed (*Conyza canadensis*), prickly lettuce (*Lactuca serriola*), Canada thistle, (*Cirsium arvense*), sweet-clovers, curly dock (*Rumex crispus*), and evening-primrose (*Oenothera biennis*). Older abandoned land is dominated by perennial forbs; especially predominant is tall goldenrod (*Solidago canadensis*), but other common species include wild carrot (*Daucus carota*), teasel, and tall boneset (*Eupatorium altissimum*). Some perennial grasses may be present, and may form a sod under dense stands of forbs. A few species of low shrubs may be fairly common, such as wild blackberries (*Rubus* spp.).

Non-native grasslands are similar to agricultural grasslands, but not managed with agricultural techniques (livestock grazing, hay cutting and removal). These grasslands often have a considerable duff or litter layer. These grasslands may be in the process of becoming forbland, shrubland, or restored native vegetation, and they may have a considerable native herbaceous element.

Fencerows*,* hedgerows, and shrub plantings are linear features dominated by planted or spontaneous woody plants, including both shrubs and trees. Generally, these features parallel roads or partially delineate agricultural fields and pastures. The composition of the vegetation is similar to that of shrublands and successional woodlands.

Hedgerows developed from field boundaries planted with Osage-orange during the 1800's. The hedges were maintained originally as low, dense, spiny "living fences" but were allowed to grow up after replacement with barbed wire. Other woody species colonized in the shade of the hedge trees, or colonized the gaps where hedge trees died.

Fencerows develop under fences, utility lines, and in roadsides; these sites are usually a mixture of several species of shrubs, trees, and vines (both native and introduced species). Although a few planted trees may be present, most of the woody plants are derived from seeds dispersed to the fencerow by birds or other animals.

Shrub plantings are linear features parallel to roads, fences, and field margins. They were planted to act as living drift fences, screen views, or benefit wildlife. Principal species include autumn-olive (*Elaeagnus umbellata*), Amur honeysuckle (*Lonicera maackii*), and rough-leaved dogwood (*Cornus drummondii*).

Shrublands are fields, wetlands, or grasslands that are now dominated by shrubs, saplings or low trees. Shrubland also includes "shrubby grasslands", where total shrub cover is only five to fifty percent, and the shrub thickets are interspersed with openings dominated by non-native grasses or forbs. Common woody plants in shrublands include many native and exotic species, such as autumn-olive, Amur honeysuckle, wild plum, hawthorns, multiflora rose, sandbar willow (*Salix interior*), and saplings of green ash, eastern cottonwood, and willows (*Salix* spp.). Herbaceous species are often limited by dense shade, but stands of non-native grasses or giant ragweed (*Ambrosia trifida*) may occur in openings among the shrub thickets.

Successional woodlands are stands of woody vegetation dominated by spontaneous trees; a few planted trees and shrubs may exist at abandoned housesites. In general, these are woodland or forest-like vegetation that has developed on sites that were prairie or prairie wetlands prior to 1830 (based on soil and GLO information). This category also includes sites that may have once supported native woody vegetation, but were cleared for agricultural uses; after abandonment, they have developed woody vegetation that is very different from the original species composition and structure.

Successional woodlands on Midewin often consist of monotypic, even-age stands of trees, especially when they have developed in wetlands or riparian areas. Frequent tree species include green ash, eastern cottonwood, eastern hackberry, silver maple (*Acer saccharinum*), black walnut (*Juglans nigra*), red haw, and white mulberry. The understory in successional woodlands consists frequently of dense stands of invasive shrubs, especially Amur honeysuckle.

The herbaceous layer is usually dominated by a few shade tolerant species, including non-native garlic mustard (*Alliaria petiolata*), motherwort (*Leonurus cardiaca*), moneywort (*Lysimachia nummularia*), ground-ivy (*Glechoma hederacea*), and burdock (*Arctium minus*). Native herbaceous species consist often of herbs with seeds easily dispersed by animals, including clustered black snakeroot (*Sanicula odorata*), white avens (*Geum canadense*), and Virginia stickseed (*Hackelia virginiana*). Other common native herbs in successional woodland include white snakeroot

(*Eupatorium rugosum*), wood sorrel (*Oxalis dillenii*), blue violet (*Viola sororia*), sweet cicely (*Osmorhiza longistylis*).

On hydric soils, the understory of successional woodlands may include herbaceous species persisting from the original natural vegetation (sedge meadow, wet prairie, or seeps). Some of the surviving plants include sedges (*Carex* spp.), wild blue iris, and fowl manna grass. Successional woodlands in riparian areas may have an understory lacking herbaceous species, because of prolonged inundation, sediment deposition or deep debris. At other sites, however, herbaceous species present include giant ragweed, reed canary-grass, and stinging nettle (*Urtica dioica*).

Tree plantations are planted, non-linear stands of trees. There are a few tree plantations on Midewin, usually black walnut or black locust (*Robinia pseudoacacia*), but also conifers (often pines, *Pinus* spp.). The understory may be open, dominated by non-native grasses and forbs, or (more often) is a dense tangle of non-native shrubs, especially Amur honeysuckle. Otherwise, plants species present are similar to those found in fencerows and hedgerows.

Although of small coverage, this vegetation does provide some habitat for wildlife. The few conifer plantations on site are used by raptors for roosting and nesting.