Conservation Plan
Illinois Rivers Projects

Meredosia–Austin Project
Meredosia–Ipava Project
Meredosia–Herleman Project

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APPENDICES

Appendix A IDNR Correspondence

ABBREVIATIONS AND ACRONYMS

ATXi	Ameren Transmission Company of Illinois
ESA	Endangered Species Act
ICF	Illinois Chorus Frog
IDNR	Illinois Department of Natural Resources
ITA	Incidental Take Authorization
RFB	Regal Fritillary Butterfly
USFWS	U.S. Fish and Wildlife Service

1.0 INTRODUCTION

This Conservation Plan has been prepared in accordance with the requirements outlined in Title 17, Chapter I(c), Section 1080 of the Illinois Administrative Code (Incidental Taking of Endangered or Threatened Species). Section 1080 allows the Illinois Department of Natural Resources (IDNR) to authorize the incidental take of species listed as Endangered or Threatened by the State of Illinois following the preparation of an approved Conservation Plan. This Conservation Plan is written in support of Ameren's application for incidental take authorization (ITA) from IDNR for the Illinois chorus frog (ICF) and the regal fritillary butterfly (RFB). Species concurrently listed as federally threatened and endangered under the Endangered Species Act of 1973 (ESA, as amended) will be consulted upon with the U.S. Fish and Wildlife Service (USFWS) as per Section 7 of Endangered Species Act (ESA). The Conservation Plan for three independent (but interconnected) components of the Illinois Rivers Project (Austin – Meredosia Project; Meredosia – Herleman Project; and Meredosia – Ipava Project) includes a description of the proposed project, biological data on the Illinois Endangered or Threatened species that may be affected by the proposed project, anticipated effects upon these species, mitigation measures that will be implemented to minimize adverse effects, a description of project alternatives, an assessment of take, and an implementing agreement.

This Conservation Plan identifies both federal and state-listed species that are likely to occur within the project area.

2.0 CONSERVATION PLAN

2.1 Project Purpose and Need

The Illinois Rivers Project is necessary for Ameren Transmission Company of Illinois (ATXi) to provide adequate, reliable, and efficient service to its consumers and to reliably deliver capacity and energy to the Midcontinent Independent Transmission System at the least cost. The proposed Illinois Rivers Project would provide additional connectivity across the electrical transmission grid, reduce congestion, and enable access to a broader array of resources by loads in Illinois and elsewhere. The Illinois Rivers Project will stretch from Palmyra, Missouri, to near Sugar Creek, Indiana.

This Conservation Plan will address three independent/interconnected components of the Illinois Rivers Project. ATXi anticipates commencing construction first on the Meredosia – Herleman Project in fall 2014. It is anticipated that construction on the other two projects will commence the following year. The Illinois Rivers Project 345 kV electric transmission line route was approved by the Illinois Commerce Commission in August 2013 and February 2014.

2.2 Project Location and Description

The Austin – Meredosia, Meredosia – Herleman, and Meredosia – Ipava Projects involve the construction of approximately 170.1 miles of 345 kV transmission line (see Figure 1-1). With a typical 150-foot corridor, the projects will cover approximately 3,100 acres. The Projects will be situated in portions of Adams, Cass, Fulton, Morgan, Pike, Sangamon, Schuyler, and Scott counties in Illinois.

The Austin – Meredosia Project is an overhead 345 kV transmission line from a proposed substation south of Pawnee, Sangamon County, Illinois to the Meredosia Energy Center, near Meredosia, Morgan County, Illinois (see Figure 2-3). This project is 76.17 miles in length and will include nearly 1,400 acres. The majority of the project area is cultivated crops or deciduous forest.

The Meredosia – Herleman Project is an overhead transmission line 46.28 miles in length and will connect the proposed Herleman substation south of Quincy, Adams County, Illinois with the Meredosia Energy Center near Meredosia, Morgan County, Illinois (see Figure 2-1). The project will include approximately 875 acres. The majority of the project area is cultivated crops or deciduous forest.

The Meredosia – Ipava Project is an overhead transmission line 47.65 miles in length and will connect the proposed substation south of Ipava, Fulton County, Illinois with the Meredosia Energy Center, near Meredosia, Morgan County, Illinois (see Figure 2-2). The project will include more than 875 acres. The majority of the project area is cultivated crops or deciduous forest.

2.3 Listed Species

The terrestrial and aquatic habitats in the study area support plant and wildlife species that are listed as either threatened or endangered pursuant to the ESA of 1973 (as amended) and the Illinois Endangered Species Act (520 ILCS 10/7). Listed species that could potentially occur in the project area were identified through consultation with IDNR, review of IDNR species lists (IDNR 2007), and literature review.

2.3.1 Plants

Based on range distributions and consultation with IDNR, five listed plant species have the potential to occur within the proposed transmission line corridors. Hall's bulrush (*Schoenoplectus hallii*) and arrowwood virburnum (*Viburnum molle*) are state-listed as threatened by IDNR whereas Patterson's bindweed (*Stylisma pickeringii*) and Bent or Ozark milk vetch (*Astragalus distortus*) are listed as state-endangered by IDNR. State-listed plant species may only be taken with the written consent of the landowner. Ameren does not anticipate take of these species in association with construction of the proposed project. Should these species be encountered during construction, Ameren will consult with the private landowners regarding take on their property.

The decurrent false aster (*Boltonia decurrens*) is federally-listed as threatened by the USFWS and state-listed as threatened by IDNR. This species is known to occur in various locations within the floodplain of the Illinois River in Brown, Cass, Fulton, Morgan, Pike, and Schuyler Counties. A major cause of its decline is the conversion of floodplains to agriculture. Although the Meredosia-Herleman and Meredosia-Ipava Transmission Lines cross the Illinois River floodplain, preconstruction surveys performed in August of 2014 (AMEC, 2014) did not identify this species anywhere within or nearby the proposed transmission line corridor. As such, impacts to the decurrent false aster are not anticipated from construction of the proposed transmission project. Should this species be encountered during construction, Ameren will consult with the private landowners regarding take on their property.

Regarding plant species, the federal *Endangered Species Act* is applicable only to those listed plants located on federal property. The proposed Meredosia-Austin, Meredosia-Ipava, and Meredosia-Herleman transmission lines do not cross federal property. The taking of State-listed plant species in Illinois requires the express written permission of the landowner. IDNR is not a landowner within any part of the proposed Illinois Rivers Project and thus ITA is not requested for any of the plant species listed herein. As part of the property access easements conducted by Ameren's Real Estate Department, landowners were notified and agreed that vegetation clearing and maintenance would be occurring on their property.

2.3.2 Wildlife

The Indiana bat (*Myotis sodalis*) is listed as endangered by both the USFWS and the IDNR. The northern long-eared bat (*Myotis septentrionalis*) is proposed for listing as endangered by the USFWS. Both bat species utilize trees during the summer roosting season and therefore could be present in the forested areas of the proposed corridor. Bat habitat suitability surveys have been completed along the Meredosia-Herleman Transmission Line and the Meredosia-Ipava Transmission Line in accordance with USFWS 2014 guidelines. A similar survey for the Meredosia-Austin Transmission Line will be performed in 2015. Based on the results of the habitat suitability assessments and a commitment to cut potentially suitable roost trees in the non-roosting season, the USFWS has concurred that the project is not likely to adversely affect the Indiana bat or northern long-eared bat.

Bald eagles (*Haliaeetus leucocephalus*) are federally protected by the Bald and Golden Eagle Protection Act (16 USC 668) and the Migratory Bird Treaty Act (16 USC 703). Due to the need for clearing along the banks of the Illinois River, the proposed project was evaluated with consideration of potential bald eagle nesting and roosting areas. A bald eagle nesting survey was conducted at the Meredosia Energy Center in spring/summer of 2013 in conjunction with the proposed FutureGen Project (FutureGen Alliance, 2014). No eagles were observed and no nests were found during field surveys.

Species for which Ameren herein requests ITA from the IDNR include the Regal Fritillary Butterfly (*Speyeria idalia*) and the Illinois Chorus Frog (*Pseudacris streckeri illinoensis*).

2.4 Incidental Take Authorization (ITA) Request

Based upon analyses of the project location and design as well as anticipated impacts and feedback provided by IDNR (see Appendix A), it was determined that there is the potential for take of two species, the regal fritillary butterfly (RFB) and Illinois chorus frog (ICF), which are covered by this Conservation Plan (Chapter 4.0, Table 4-1).

2.4.1 Regal Fritillary Butterfly (*Speyeria idalia)*

The RFB is state-listed Threatened and is a member of the brush-footed butterflies. In the spring, larvae feed on violets and subsequent flight dates are from June 4 – September 16. Larvae of Lepidoptera are typically very specific in their feeding requirements. After feeding, they pupate. In early June, adult males emerge and are followed by adult females two weeks later. By early September, females begin depositing over 1,000 eggs in clusters on violets. The eggs hatch and larva feed on the egg case and enter winter dormancy.

The RFB has been observed at the Meredosia Energy Center and at other sites in the floodplains east of the Illinois River in Cass and Morgan Counties (LaGesse 2012). IDNR has not received any reports of the RFB west of the Illinois River (IDNR 2014).

2.4.2 Illinois Chorus Frog (Pseudacris (streckeri) illinoensis)

The ICF is state-listed Threatened and inhabits sand prairies and agricultural fields with sandy substrates. The species hibernates in burrows, and emerges in the spring to breed in flooded fields, ditches, and vernal pools, then they return to underground burrows. The distribution of the ICF includes west-central and southwestern Illinois, and the species is known to occur in the vicinity of the Meredosia Energy Center and in floodplains and hill prairies in Cass, Morgan, and Scott Counties. Primary threats include loss of sand prairie habitats, draining and clearing of bottomlands, and use of herbicides and pesticides (INHS 2006*a*).

A survey in the vicinity of the Meredosia Energy Center conducted in April 2014 identified ICF breeding in shallow pools and ditches east of the plant (AMEC 2014). A survey in March 2012, however, did not identify any ICF at the Meredosia Energy Center (LaGesse 2012).

2.5 Project Effects

This section describes the activities associated with the proposed project and the anticipated adverse effects to listed species that would result from these activities.

2.5.1 Description of Project Activities

2.5.1.1 Line Structures

The transmission lines would be a single circuit 345 kV electric transmission line and consist of single shaft (monopole) galvanized or painted steel poles. Poles would typically range between 80 and 140 feet in height. The two or three structures near the Illinois River crossing may be greater than 300 feet in height and will be a lattice-style design. Structure spacing will vary between 700 and 1,000 feet. Single pole design was considered to reduce impacts on wildlife, habitat, and agriculture.

Single shaft steel poles would require concrete foundations. These foundations would be constructed of steel-reinforced concrete cast-in-place and would vary from approximately six feet in diameter for the tangent structures to 12 feet in diameter for the angle structures. Installation depths would vary according to local soil and geologic conditions, and structural requirements. Foundations for lattice towers would likely consist of steel piles driven to a competent rock layer or refusal.

Construction of the transmission lines is anticipated to occur between the fall of 2015 and 2017 unless easement acquisitions are delayed. The following describes the general chronological sequence of construction activities for the projects.

2.5.1.2 Surveying

Construction survey work for the project would consist of determining the locations of the ROW boundaries, the transmission line centerline, structure, and conductor spacer locations.

2.5.1.3 Construction of Access Roads

Construction of travel ways may be necessary to provide access to work areas and pulling and tensioning sites during construction. The exact length and location of the access travel ways would not be known until the detailed engineering of the project is completed. Vegetation within the travel ways would be cleared, and the travel ways may be graded to maintain passable conditions. Gravel or crane matting may be applied only if necessary to maintain passable conditions. Smaller side access would be necessary to interconnect to the travel way within the ROW where it deviates to avoid stream crossings, difficult topography, or to meet landowner requirements. Existing roads would be used, wherever feasible, to minimize new disturbance. After line construction, temporary access roads would be restored using native plant materials or per landowner requirements. In cases where stream crossings cannot be avoided, temporary bridges or culverts would be used. Culverts would be properly designed to meet regulatory and sound engineering requirements. Access would be constructed at right angles to streams and drainages where feasible.

2.5.1.4 Clearing Vegetation

All woody vegetation within the 150 foot wide transmission line ROW would be cut, trimmed, and wind rowed to facilitate surveying and construction activities, create adequate electrical clearance, and maintain system reliability. Vegetative clearing within the ROW would be conducted either manually or mechanically and stumps will be treated with FIFRA-registered herbicide. All stumps in cleared areas shall be no higher than 3 inches; except on steep hillsides where a maximum of 6 inches is allowed (measured on the low side of the slope). On edges and banks of creeks and other natural watercourses susceptible to erosion, clearing shall be done in a manner so as not to disturb the root structure of existing growth. To aid in the prevention of erosion, clearing along streams would generally be kept to the minimum necessary to permit movement of equipment and protection of the completed line. For large stream and river crossings, trees would be cut as low to ground as possible and a waterway mix of appropriate native grasses will be used for flood plain and river bank stabilization. In order to maintain bank stabilization and minimize erosion, small low-growing shrubs that reach a mature height of 10 feet or less (e.g. buttonbush, *Cephalanthus occidentalis*), would be planted. At each structure location, work areas would be established for structure footings, assembly, and erection equipment. These work areas would be graded as needed for safe operation of construction equipment. Work areas would be cleared of brush and vegetation only to the extent necessary to facilitate the safe operation of equipment, and remaining vegetation may be crushed by the equipment. Pulling and tensioning work areas would be cleared of brush and vegetation, and landings would be leveled as required for equipment set-up. After completion of construction, all work areas would be restored to existing ground contours. Restoration activities would include, as necessary, loosening of compacted soils and seeding utilizing approved native plants and/or seed mixtures. In low-lying areas subject to

flooding from natural watercourses, all logs, brush, branches, and other cuttings generated by vegetation clearing activities will be moved to ground above high water.

Level areas in row crops, pasture, or similar land use are subject to restoration as required by the land owner.

2.5.1.5 Foundation Installation

A track hoe or truck-mounted power auger, or pile driving equipment may be used to install pole and tower foundations. Excavation activities would require access by large equipment including a power auger or drill, crane, material trucks, and ready-mix trucks. After excavation is complete, steel reinforced cages would be placed into the excavated holes. Anchor bolts would be installed in the foundation template form, and concrete would be poured into the hole to the required height. Drilling slurry may be used in unstable soil conditions and the slurry will be disposed in a suitable location after completion of the foundation.

Poles would be placed on foundation anchor bolts when the foundations are ready. Soils removed from foundation holes would be stockpiled within the work area and hauled away, re-spread per landowner requirements, or used as backfill.

2.5.1.6 Structure Assembly and Erection

Steel pole and lattice steel structures and associated hardware would be transported to work areas by truck. Structures would be assembled within the work areas. While the pole is on the ground, davit arms would be mounted and rigged with insulator strings and stringing sheaves at each ground wire and conductor position. The assembled pole would then be hoisted into place by a large crane or helicopter.

2.5.1.7 Conductor Wire Installation

Once the poles are in place, a pilot line would be pulled (strung) from pole to pole via light vehicle, helicopter, or by hand. The line would be threaded through the stringing sheaves on each pole. A larger diameter, stronger line would then be attached to the pilot line and strung through the sheaves. Finally, the conductor would be attached to the pulling line and strung through the sheaves. This process would then be repeated until the conductor is pulled through all the sheaves. Conductor splicing would be required at the end of a conductor spool or if a conductor is damaged during stringing.

For public protection during wire installation, guard structures would be erected on the side of highways, public roads, railroads, power lines, structures, and other obstacles. Guard structures consisting of H-frame or Y-structures would be placed on either side of an obstacle. These structures prevent ground wire, conductors, or equipment from falling on an obstacle. Equipment for erecting guard structures is similar to erecting transmission line structures. Additional safety

measures such as barriers, flagmen, or other traffic control would be used when required on state and federal highway crossings.

2.5.1.8 Restoration

All travel ways and work areas would be ripped, disked, chiseled, or otherwise loosened to remove compaction, re-graded for positive drainage, and blended into surrounding topography. Excess material would be hauled away. Agricultural lands would be re-cropped by the land owner. For non-agricultural lands, appropriate native seed mixes would be used to provide a stable ground cover.

2.5.2 Project Effects on Listed Species

Construction of the proposed transmission line could result in the taking of listed species as a result of (1) ground disturbance and vegetative clearing, (2) construction equipment and vehicle traffic during construction and maintenance activities, and (3) the presence of transmission lines and structures.

Ground disturbance (grading) and vegetative clearing could result in the direct mortality of species with limited mobility that occur within work areas, access roads, and the transmission line ROW. These activities could also affect those wildlife species that inhabit/roost in trees or occupy underground burrows or dens. Finally, reptiles, amphibians, and small mammals could be trapped in excavations (i.e., trenches or holes). These potential hazards would only occur during the construction phase.

Traffic associated with construction equipment and worker vehicles could result in mortality (crushing) of species that have limited mobility or utilize underground burrows/dens. Reptiles and amphibians often utilize roads and burrows, and would be most susceptible to such mortality. Additionally, construction equipment and worker vehicles could result in the loss of eggs or young for ground-nesting bird species. These potential hazards would be present throughout both the construction and maintenance phases. However, maintenance-related traffic would be minimal/infrequent and most equipment or vehicle activity and associated risk of mortality would occur during construction.

Finally, the presence of the transmission lines could cause bird mortality as a result of (1) collisions with transmission lines and/or structures and (2) electrocution from contact with the conductors. These would represent long-term hazards that would be present over the life of the project.

2.6 Measures to Reduce Impacts to Listed Species

One of the primary considerations in the routing of the projects was the potential impact to biological resources, including sensitive habitats and species listed as threatened and

endangered by the State of Illinois. While the general routing was designed to minimize potential impacts associated with construction, operation, and maintenance of the projects, a number of mitigation measures will also be incorporated into the project. The implementation of these measures will help to reduce adverse effects upon sensitive habitats and biological resources, and will minimize the potential for taking of state-listed species. The following describes the generic mitigation measures and species-specific mitigation measures that will be implemented as part of the Projects.

2.6.1 Mitigation Measures

General measures used to minimize project-related impacts include:

1. Construction personnel will be educated on the sensitive biological resources in the area, the identification of listed species, where the RFB and ICF might be found, avoidance areas, travel restrictions for equipment and vehicles, how to report sightings of listed species, how to report incidents that could involve take, and the importance of avoiding taking of listed species.
2. Pre-construction surveys have been conducted to identify wetlands, streams, and potentially suitable roost tree habitat for Indiana bats and northern long-eared bats along the transmission line routes. Transmission line structures and access roads may be adjusted in the design phase, where feasible, to span or avoid sensitive habitats. If a wetland cannot be avoided, crane mats will be used in the work areas to minimize soil compaction and other adverse effects, or an appropriate permit will be requested from the USACE. Furthermore, data from the pre-construction surveys has been used in conjunction with available GIS / desktop information and previous studies in the vicinity to identify potentially suitable habitat for listed species.
3. All rivers and streams will be spanned by transmission lines, and no structures will be placed within the channels of any waterways. Access roads will be designed to minimize disturbance of river banks and floodplains. Steel lattice towers within a floodplain will be designed to minimize flow obstructions.
4. In accordance with Ameren's 2010 Avian Protection Plan (APP), the transmission line projects will utilize avian-safe structures and have been designed to follow the wire spacing and minimum clearances recommended by the Edison Electric Institute –Avian Power Line Interaction Committee (EEI-APLIC).
5. Select sensitive areas disturbed by construction will be restored with a native seed mixture. Re-seeding will help to restore vegetative cover, reduce the potential for erosion, and create habitat for a number of plant and wildlife species.
6. Outside the designated project rights-of-way, construction equipment and vehicle traffic will be limited to existing public roads or designated access roads. This will help to minimize potential adverse effects to sensitive habitats and listed species.
7. As part of the property access easements conducted by Ameren's Real Estate Department, landowners were notified and agreed that vegetation clearing and maintenance would be occurring on their property.
8. In order to eliminate potential direct take of the Indiana bat and northern long-eared bat, seasonal restrictions on tree clearing will be implemented throughout the project area. As

such, tree clearing will only occur when these species are not utilizing trees for roosting, per USFWS guidance. This tree clearing restriction will also minimize potential impacts to nesting avian species such as the loggerhead shrike.

9. To minimize the potential for avian collisions between bald eagles, golden eagles, and American white pelicans with power lines, and to minimize the potential for electrocution while perching, design and configuration of the power line and its supporting structures will employ methods in Ameren's APP to avoid or limit injury/mortality (e.g., installation of aerial flight diverters on static wires). If these lines result in avian incidents, Ameren will coordinate with USFWS to address line design elements as necessary. Ameren will also continue to coordinate with the USFWS regarding migratory birds and potential mitigation measures from habitat loss of corridor clearing.
10. Pre-construction surveys for the decurrent false aster were performed in August of 2014 within areas thought to contain suitable habitat near the Illinois River and its backwaters (AMEC, 2014). Although suitable habitat was present in some areas, decurrent false aster was not observed growing anywhere within or nearby the proposed transmission line corridor. As such, impacts to the decurrent false aster are not anticipated from construction of the proposed transmission project.
11. For Franklin's ground squirrel, the construction schedule, to the extent feasible, will be planned such that activities would occur outside their active season (end of April through August) in areas of potentially suitable habitat near Auburn, Illinois. If scheduling avoidance is not practicable, temporary exclusionary fencing will be placed between the construction area and potential habitat. Wooden mats will be used in suitable grassy areas to avoid or minimize the potential of affecting Franklin's ground squirrel burrows.

2.6.2 Illinois Chorus Frog

- For construction activities scheduled within the breeding season of the ICF, preconstruction surveys will be performed for construction activities that are planned within 900 meters of known occupied habitat as depicted in Figure 3-1. Surveys will document presence/absence and will determine locations and provide a baseline for post-construction surveys.
- Temporary exclusion fencing will be placed along active haul/travel routes within 900 meters of known occupied habitat to prevent ICF from entering the active construction areas during the breeding season (February – May). Inspections of the fencing will be conducted on a regular basis to maintain an adequate functional barrier. Where appropriate and feasible, best management practices will also be implemented, such as crane mats and/or low ground pressure tires on heavy equipment, to spread the weight of

equipment and minimize the potential for soil compaction and subsequent crushing of burrowing ICF.

- Inspect open excavations on a daily basis, within areas of potentially suitable habitat, and remove any frogs that may be in the excavations to avoid injury to these individuals.
- Annual monitoring will be conducted for the ICF during the first three years following construction in areas of potentially suitable habitat.

2.6.3 Regal Fritillary Butterfly

- During restoration activities, adult and larval food sources for the RFB will be planted (based on commercial availability) within appropriate sensitive areas in the ROW. Violet species (*Viola* spp.) provide a food source for RFB larva whereas milkweeds (*Asclepias* spp.), native thistles (*Cirsium* spp.), coneflowers (*Echinacea* spp.), blazing stars (*Liatris* spp.), and wild bergamot (*Monarda fistulosa*) are important adult nectar sources (Selby, 2007).
- Conduct post-construction monitoring annually during the first three years following construction. Monitoring will focus on habitat restoration and the establishment of native larval and adult food sources.

2.6.4 Monitoring

Upon completion of construction, all disturbed areas (travel ways and work areas) will be restored to include the following (as necessary):

- ripping, disking, or chiseling areas to de-compact soils;
- re-distributing displaced soils to facilitate the establishment of vegetation;
- grading to re-create original contours and ensure positive drainage;
- hauling away debris and excess materials to an approved location; and
- seeding disturbed areas with native seed mixtures (except in agricultural areas).

Restoration activities will help to establish native plant species and restore these areas as potential habitat for a number of plant and wildlife species.

Annual monitoring will be conducted for the ICF and RFB during the first three years following construction in areas of potentially suitable habitat. Monitoring will be performed to confirm the presence of ICF in areas within the ROW where they were known to occur prior to construction. Because the RFB is more mobile, however, monitoring in this case will be habitat-based to confirm the existence of appropriate food sources following construction.

2.6.5 Adaptive Management

The purpose of the project, as stated in Section 2.1, is to provide adequate, reliable, and efficient service to its consumers and to reliably deliver capacity and energy to the Midcontinent

Independent Transmission System at a reasonable cost. The objective of this plan is to meet Ameren's stated purpose with the objective of minimizing take of the RFB and ICF.

Adaptive management is a systematic but flexible approach for improving resource management by learning from management outcomes. It is the idea of learning from experience and modifying subsequent management decisions in light of that experience.

Learning will be acquired from monitoring which will be used to evaluate the effectiveness of best management practices, restoration measures, and on-going proliferation of ICF populations and RFB habitat.

Best management practices to be implemented in an effort to minimize take of ICF and RFB are listed above. Adaptive management is based on monitoring and will include the following.

- Preconstruction calling surveys will be used to establish baseline conditions for construction activities scheduled within the ICF breeding season within known occupied habitat.
- During active construction weekly monitoring will occur within the breeding season (late February through early April) within known occupied habitat for the purposes of evaluating disturbance and take. Monitoring results will be compared with nearby undisturbed breeding sites with calling ICF. If monitoring results indicate that construction activities may have a deleterious impact on ICF breeding activity, Ameren will conduct a construction meeting to determine appropriate work around measures.
- Weekly monitoring will include inspection of temporary exclusion fencing along active haul routes to maintain integrity of the protective barrier. If the barrier is fallen or not in contact with the soil, construction crews will repair the barrier as needed. Observation of ICF will be documented and dead ICF, if observed, will be photographed, located by GPS, and reported to IDNR.
- Weekly monitoring will include inspection of active haul routes to minimize soil compaction within known ICF habitat. If soft/rutted haul routes are observed, construction mats will be installed to minimize disturbance of ICF habitat.
- Should periodic monitoring identify congregating areas for the RFB, photographs will be taken and the location(s) will be recorded with GPS. This information will be shared with IDNR and construction meetings will be held to identify appropriate work around measures.

- Preconstruction vegetation surveys will be conducted within potential RFB habitat areas, as depicted in Figure 4-1, to identify baseline habitat conditions including the identification of larval and adult food sources. Post-construction monitoring will be performed in areas restored for RFB habitat as described in Section 2.6.4. Should post-construction

monitoring identify sparsely vegetated areas or low RFB food source diversity, additional supplemental plantings will occur as soon as seasonal conditions allow.

The current project schedule indicates that construction activities will not occur within known ICF habitat in 2015. Should construction activities occur within known ICF habitat in subsequent years, monitoring and adaptive management will occur as described above.

2.6.6 Conservation Plan Funding

Ameren Corporation is the parent of ATXi, which provides services to electric and gas customers across central, east central and southern Illinois. As a large utility, Ameren has adequate financial backing to support and implement all mitigation activities described in this Conservation Plan. The costs of mitigation activities will be incorporated into the overall project budget. Therefore, no specific financial instruments such as bonds, certificates of insurance, or escrow accounts will be required to implement all aspects of the Conservation Plan.

3.0 ROUTE ALTERNATIVES

3.1 No Action Alternative

The No Action alternative would result in a transmission line not being built, and would have no effect on sensitive habitats or state listed species. However, the No Action alternative would not provide for reliable delivery of electricity generated for the Midcontinent Independent Transmission System Inc. energy market.

3.2 Alternatives Considered

Several alternatives were considered for the proposed transmission lines. Primary considerations in the routing of alternative corridors included potential impact to wetlands, streams, biological resources (including species listed as threatened or endangered by the State of Illinois), land use, cultural resources, and view sheds. Ultimately, the preferred and alternate routes were submitted to the ICC who approved the preferred/selected alternative for construction.

4.0 ASSESSMENT OF TAKE

Although the transmission line design and proposed mitigation measures will minimize impacts to sensitive habitats and threatened and endangered species, construction activities could result in the taking of some individuals. While every effort will be made to minimize take, construction activities may result in the mortality and/or disturbance of individuals that occur in work areas or on access roads. This is particularly true for species with limited mobility or those that use underground burrows.

The anticipated number of takings will not reduce the (1) likelihood of the survival of the endangered or threatened species in the wild within the State of Illinois, (2) the biotic community of which the species is a part, or (3) the habitat essential to the species existence in Illinois. There are other locations both in the immediate vicinity and throughout Illinois where the RFB and ICF occur. In addition, the loss of habitat associated with the projects is relatively small compared to remaining habitat in other locations in Illinois. The alignment of the transmission lines was designed to minimize potential impacts to ecologically-sensitive areas that may be used by state-listed species. Implementation of the mitigation measures identified above will reduce the potential for takings of listed species throughout the life of the transmission line projects.

Table 4-1. Estimated Take of Threatened and Endangered Species

Common Name	Scientific Name	Estimated Permanent Habitat Loss[1]	Estimated Temporary Habitat Disturbed[2]	Estimated Take (# of Individuals)
Regal fritillary butterfly	*Speyeria idalia*	0.1 ac	1.3 ac	1 – 10
Illinois chorus frog	*Pseudacris (streckeri) illinoensis*	0.24 ac	26.0 ac	1 – 20

[1] Habitat loss is based on the area occupied by the support structures and a permanent access ramp/road for the MI Line near structure C-7.
[2] Areas disturbed during construction will be restored to original contours and re-vegetated with appropriate native species (where allowed by the landowner) in select sensitive areas. Disturbance based on 20 foot wide access corridors through potentially suitable habitat. ICF disturbance also includes 3 temporary ditch culverts on MI Line.

4.1 Illinois Chorus Frog

Take assessment for the ICF is based on habitat locations where this species was previously known to occur as depicted in Figure 3-1. Based on correspondence with IDNR (2014) regarding documented movements of the species from burrowing sites to breeding sites, the historic locations in Figure 3-1 were buffered or expanded by 900 meters around each occurrence location. The area where take could occur, therefore, is quantified as the area of potentially suitable habitat lost and disturbed within these expanded historic locations. Habitat loss was calculated by multiplying the number of support structures proposed within these areas by the area occupied by each monopole support structure. As such, 82 support structures are proposed within potentially suitable ICF habitat and each monopole structure is assumed to be 12-feet in diameter or 113 square feet. Based on this analysis, the total estimated loss of habitat is 9,266

square feet or approximately 0.2 acres. In addition, the area of habitat disturbance was calculated as the area within suitable habitat (depicted in Figure 3-1) occupied by temporary construction areas, temporary access roads, and construction laydown yards. As such, the 150-foot wide proposed right-of-way corridor was quantified through the potentially suitable habitat areas. Based on this analysis, the total estimated area of habitat disturbance is 213 acres.

The range of potential take for this species is 1-30 individuals as depicted in Table 4-1. Take is difficult to assess because this fossorial species is active above ground only during the breeding season when weather conditions are favorable. In some years, populations of this species may go undetected if climatic conditions are poor. As such, it is difficult to determine population presence or size in a given area from year to year. As stated above, temporary exclusion fencing will be placed along active haul/travel routes within these habitat areas (identified in Figure 3-1) to prevent ICF from entering active construction zones during the breeding season (February – May). Furthermore, best management practices such as crane mats and/or low ground pressure tires will be used on heavy equipment, as needed and appropriate, to spread the weight of equipment and minimize the potential for soil compaction during construction within the potentially suitable ICF habitat areas. Post construction monitoring will be used as an on-going tool to assess the status of this species within the project area.

4.2 Regal Fritillary Butterfly

RFB take assessment included the investigation of two habitat areas crossed by the proposed transmission lines where vegetation mapping indicates the potential presence of remnant native grassland communities that could include forb species known to be larval or adult food sources. These potentially suitable habitat areas, as mapped in Figure 4-1, were investigated during field reconnaissance. The northern location on the proposed Meredosia – Ipava Line consisted of pasture or old field adjacent to Otter Creek. Diversity at this site is low and food sources for the RFB were not readily apparent at the time of survey. The southern site east of the Meredosia Substation, however, is an old field with a diversity of suitable adult nectar food sources including bee balm (*Monarda* sp.), common milkweed (*Asclepias syriaca*), and others. The total area covered by both sites is approximately 1.3 acres within the proposed ROW which may be disturbed during construction but will be re-vegetated with appropriate native food sources during restoration, pending concurrence with the landowner. Current plans call for a single monopole support structure (Structure No. C-7) to be installed at the edge of the southern field as depicted in Figure 4-1. This single support structure encompasses a total loss of approximately 113 square feet (0.003 ac) of habitat, otherwise the disturbance during construction will be temporary.

The range of potential take for this species is 1-10 individuals as depicted in Table 4-1. A 2012 survey for adult RFB in the vicinity of the Meredosia Plant identified a total of just 57 individuals (FutureGen Alliance, 2014). Higher take numbers are not expected due to the local population size and the limited amount of habitat disturbed and lost by the project.

5.0 IMPLEMENTING AGREEMENT

Ameren agrees to implement this Conservation Plan upon approval by IDNR and issuance of the requested ITA. Ameren will be solely responsible for meeting the terms and conditions of the ITA and will allocate sufficient personnel and resources to ensure effective implementation of the Conservation Plan. Ameren will be responsible for planning, contract execution and construction supervision for the entire project.

5.1 Responsibilities and Schedules

Kenneth W. Lynn of Ameren will serve as the Conservation Plan Coordinator and will be responsible for the implementation of the best management practices, mitigation measures and restoration activities as described in this Conservation Plan. In addition, K. Lynn will be the IDNR liaison and will inform IDNR of adaptive management measures, such as changes in access road or structure locations, if such modifications result in necessary changes to the Conservation Plan. Progress reports will be submitted to IDNR annually for a period to include construction and three years following construction. Progress reports will include a description of the project activities completed, best management practices employed, a discussion of species take during the report period, and mitigation/restoration activities implemented. Contact information for the Conservation Plan Coordinator is as follows:

Kenneth W. Lynn
Senior Environmental Scientist
Ameren Services
1901 Choteau Avenue, MC602
St. Louis, Missouri 63103
klynn@ameren.com
314-554-2978

Tree clearing in select areas is scheduled to begin on the Meredosia-Herleman segment of the Illinois Rivers Project in the winter of 2014-2015. Support structure construction is scheduled to commence in 2015 with an in-service date of 2016. Meredosia-Ipava and Meredosia-Austin are scheduled to be in service by 2017.

5.2 Certification

I hereby certify that all participants listed in Section 5.1 have the legal authority to carry out their respective obligations and responsibilities under the Conservation Plan.

Ajay Arora
Env. Services & Generation Resource Planning
Ameren

3-9-2015
Date

5.3 Compliance with Federal, State, and Local Regulations

The project will comply with all pertinent Federal, State, and local regulations. The list of agencies and associated regulations is presented in Table 5-1.

Table 5-1. Compliance with Federal, State, and Local Regulations

Statute or Requirement	Agency	Compliance[1]
Archaeological and Historic Preservation Act	IHPA	Full compliance
Clean Water Act, Section 404	USACE	Full compliance
Clean Water Act, Section 401	IEPA	Full compliance
Clean Water Act, Section 408	USACE	Full compliance
Endangered Species Act	USFWS	Full compliance
Fish and Wildlife Coordination Act	USFWS	Full compliance
National Historic Preservation Act	IHPA	Full compliance
River and Harbors Act	USACE	Full compliance
Floodplain Development Permit	County	Full compliance
Road Crossing / Encroachment Permits	IDOT	Full compliance

[1] Full compliance is anticipated for project authorization and is required prior to commencement of construction activities.

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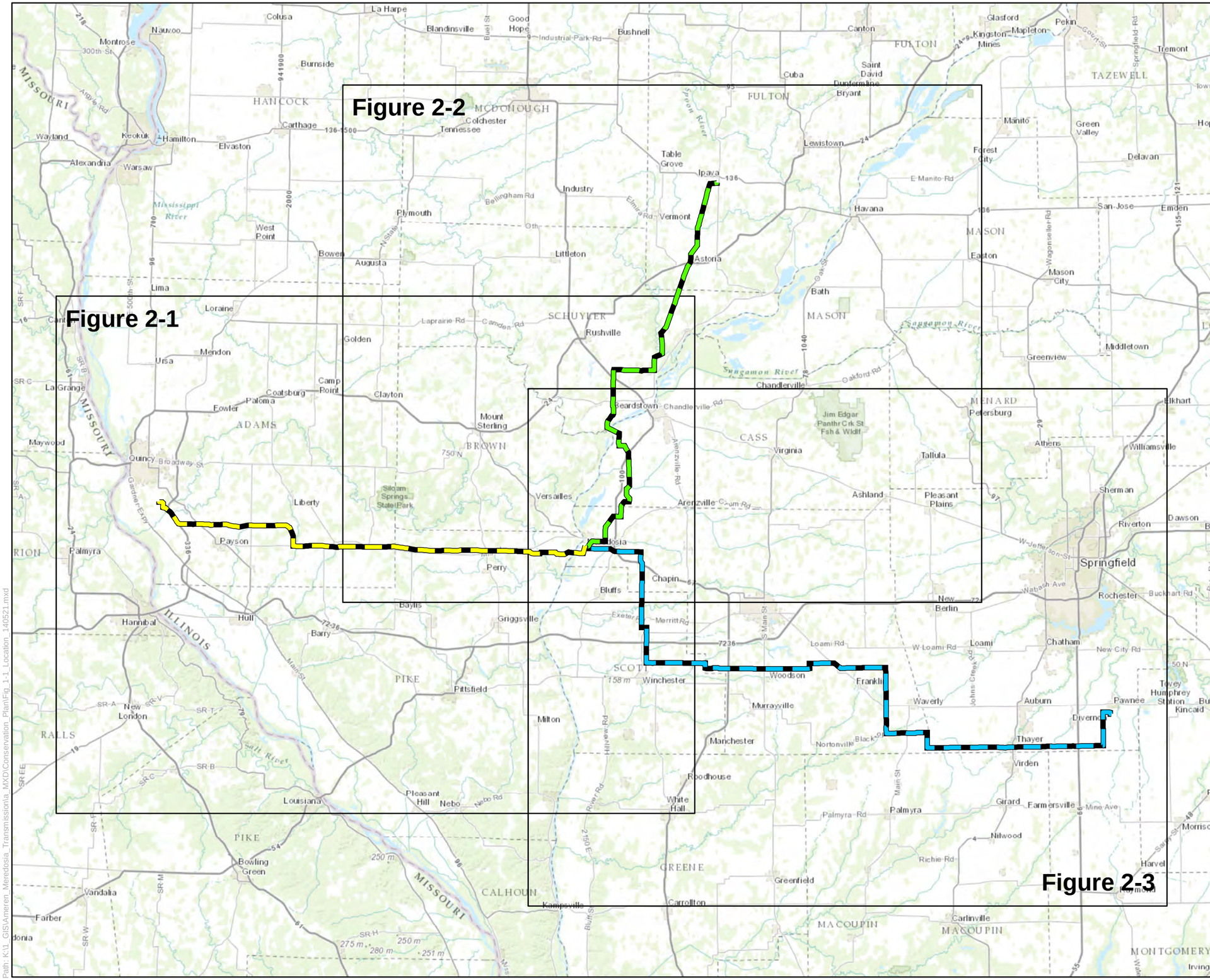
Figures



Area of Detail

Legend

- Proposed Meredosia-Herleman Line
- Proposed Meredosia-Ipava Line
- Proposed Meredosia-Austin Line
- Figure Index

0 10 20
Miles

Figure 1-1
Proposed Projects Location

Ameren

Job No.	325213698
Drawn By:	BSM
Reviewed By:	M_M
Date:	5/21/2014

amec

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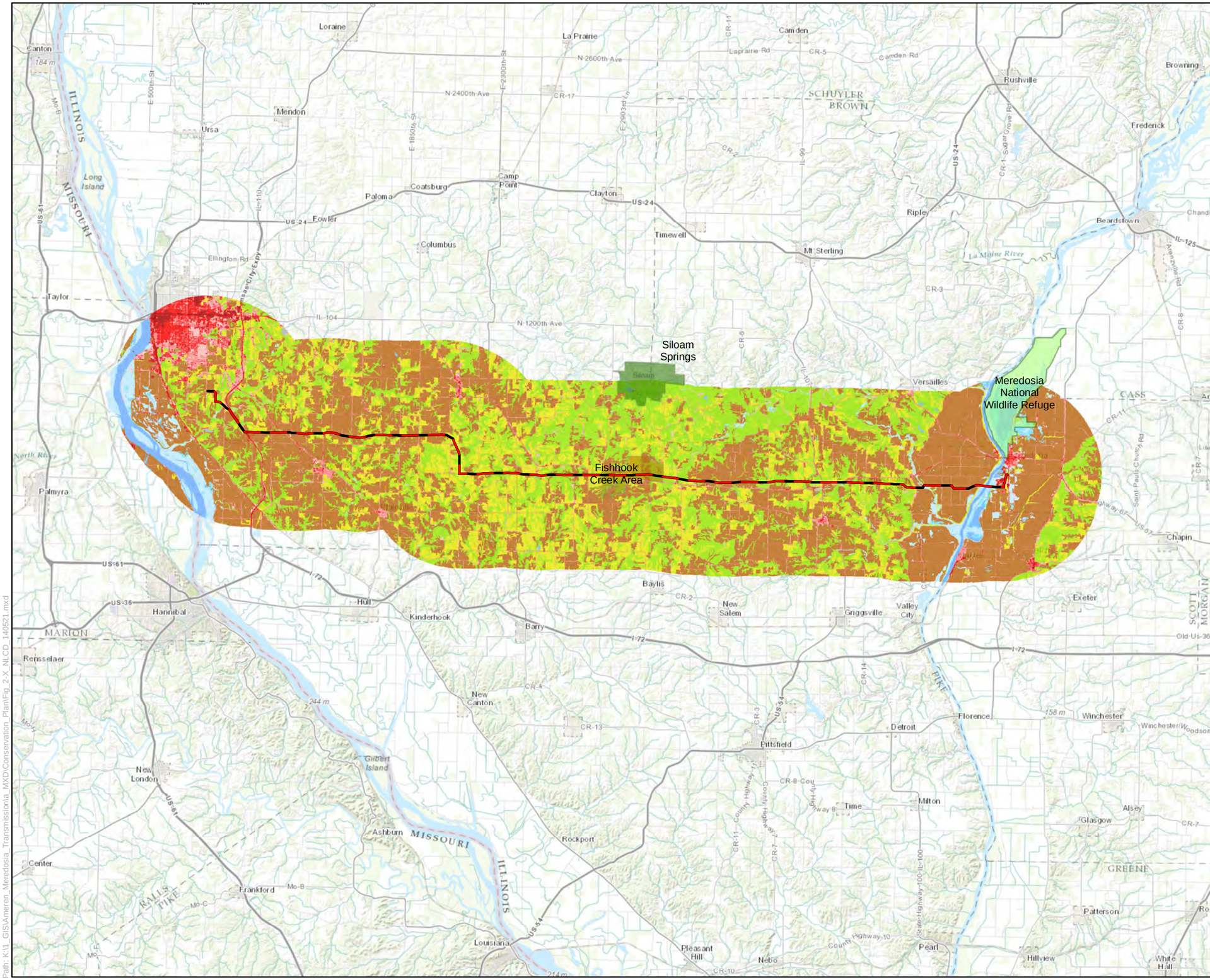

Figure 2-1
Landcover for the Proposed Meredosia-Herleman Project

Ameren

amec

Job No.	325213698
Drawn By:	BSM
Reviewed By:	M_M
Date:	5/21/2014

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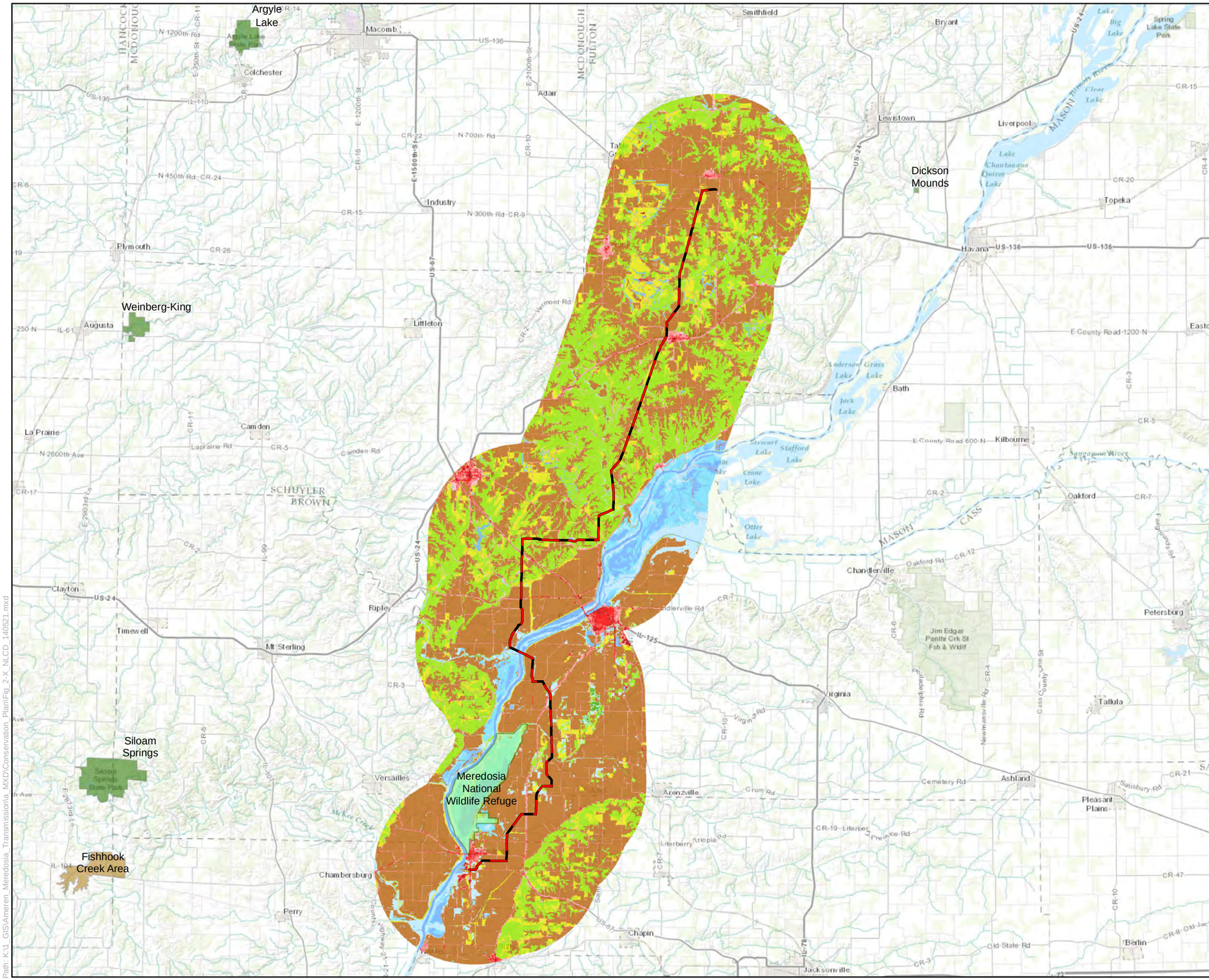

Area of Detail

Legend

- Proposed Transmission Line
- Illinois Natural Areas Inventory Site (INAI)
- Illinois State Park
- National Wildlife Refuge

2011 NLCD

- Open Water
- Developed - Open Space
- Developed - Low Intensity
- Developed - Medium Intensity
- Developed - High Intensity
- Baren
- Deciduous Forest
- Evergreen Forest
- Mixed Forest
- Shrub/Scrub
- Grassland/Herbaceous
- Pasture Hay
- Cultivated Crops
- Woody Wetlands
- Emergent Herbaceous Wetlands

0 4 8
Miles

Figure 2-2
Landcover for the Proposed Meredosia-Ipava Project

Ameren

Job No.	325213698
Drawn By:	BSM
Reviewed By:	M_M
Date:	5/21/2014

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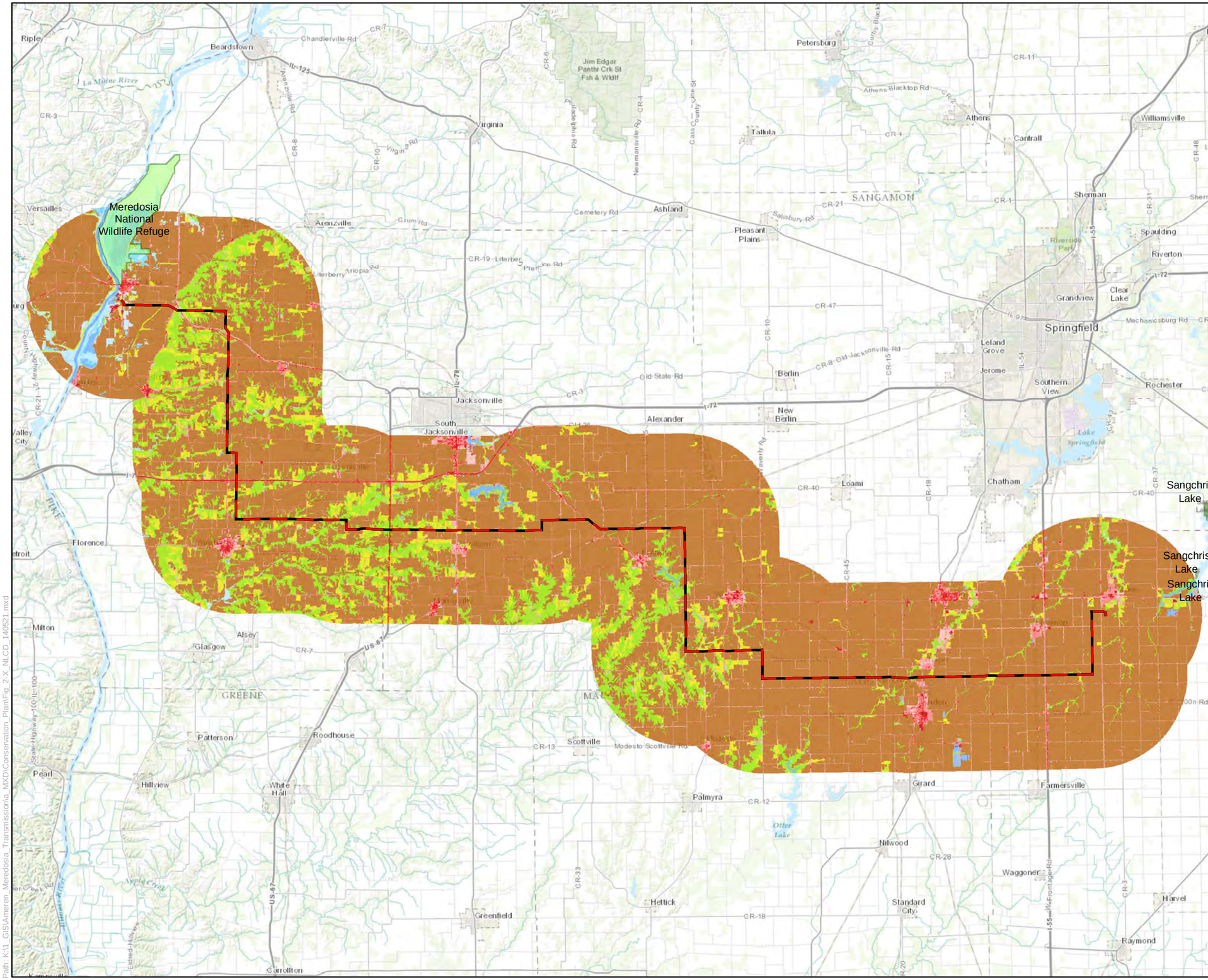

Area of Detail

Legend

- Proposed Transmission Line
- Illinois Natural Areas Inventory Site (INAI)
- Illinois State Park
- National Wildlife Refuge

2011 NLCD

- Open Water
- Developed - Open Space
- Developed - Low Intensity
- Developed - Medium Intensity
- Developed - High Intensity
- Baren
- Deciduous Forest
- Evergreen Forest
- Mixed Forest
- Shrub/Scrub
- Grassland/Herbaceous
- Pasture Hay
- Cultivated Crops
- Woody Wetlands
- Emergent Herbaceous Wetlands

0 4 8
Miles

Figure 2-3
Landcover for the Proposed Meredosia-Austin Project

Ameren

Job No.	325213698
Drawn By:	BSM
Reviewed By:	M_M
Date:	5/21/2014

amec

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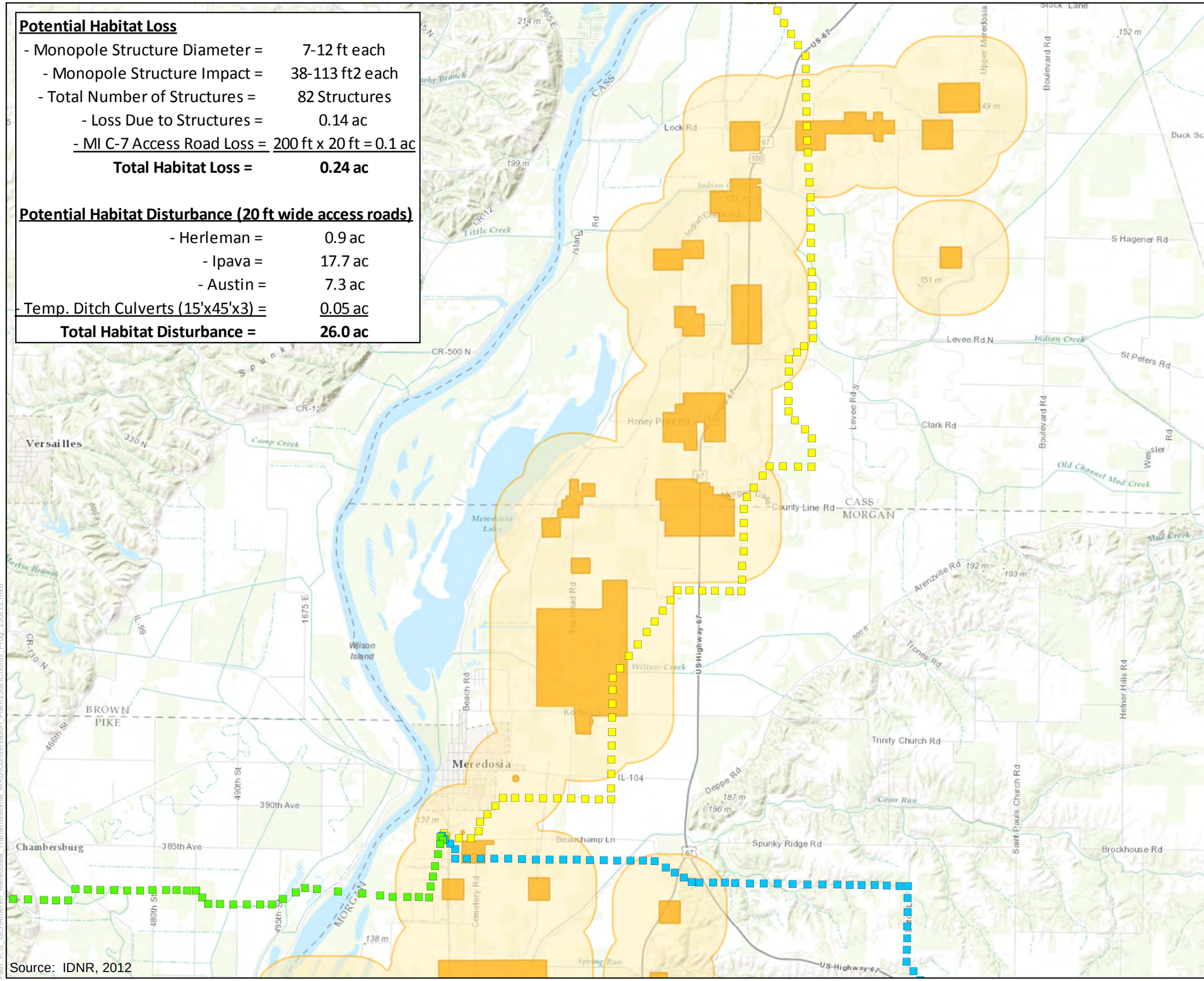
Potential Habitat Loss

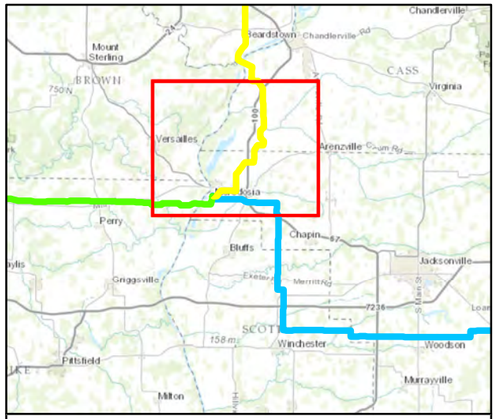
- Monopole Structure Diameter =	7-12 ft each
- Monopole Structure Impact =	38-113 ft2 each
- Total Number of Structures =	82 Structures
- Loss Due to Structures =	0.14 ac
- MI C-7 Access Road Loss =	200 ft x 20 ft = 0.1 ac
Total Habitat Loss =	**0.24 ac**

Potential Habitat Disturbance (20 ft wide access roads)

- Herleman =	0.9 ac
- Ipava =	17.7 ac
- Austin =	7.3 ac
- Temp. Ditch Culverts (15'x45'x3) =	0.05 ac
Total Habitat Disturbance =	**26.0 ac**



Source: IDNR, 2012



Area of Detail

Legend

- Potential Chorus Frog Impact
- Proposed Austin Transmission Tower
- Proposed Herleman Transmission Tower
- Proposed Ipava Transmission Tower
- Known Chorus Frog Location
- Known Chorus Frog Location (900 meter buffer)

0 1 2
Miles

Figure 3-1
Potentially Suitable Habitat
Illinois Chorus Frog

Ameren

amec foster wheeler

Job No.	325213698	Drawn By:	BSM
Date:	2/23/2015	Reviewed By:	SPS

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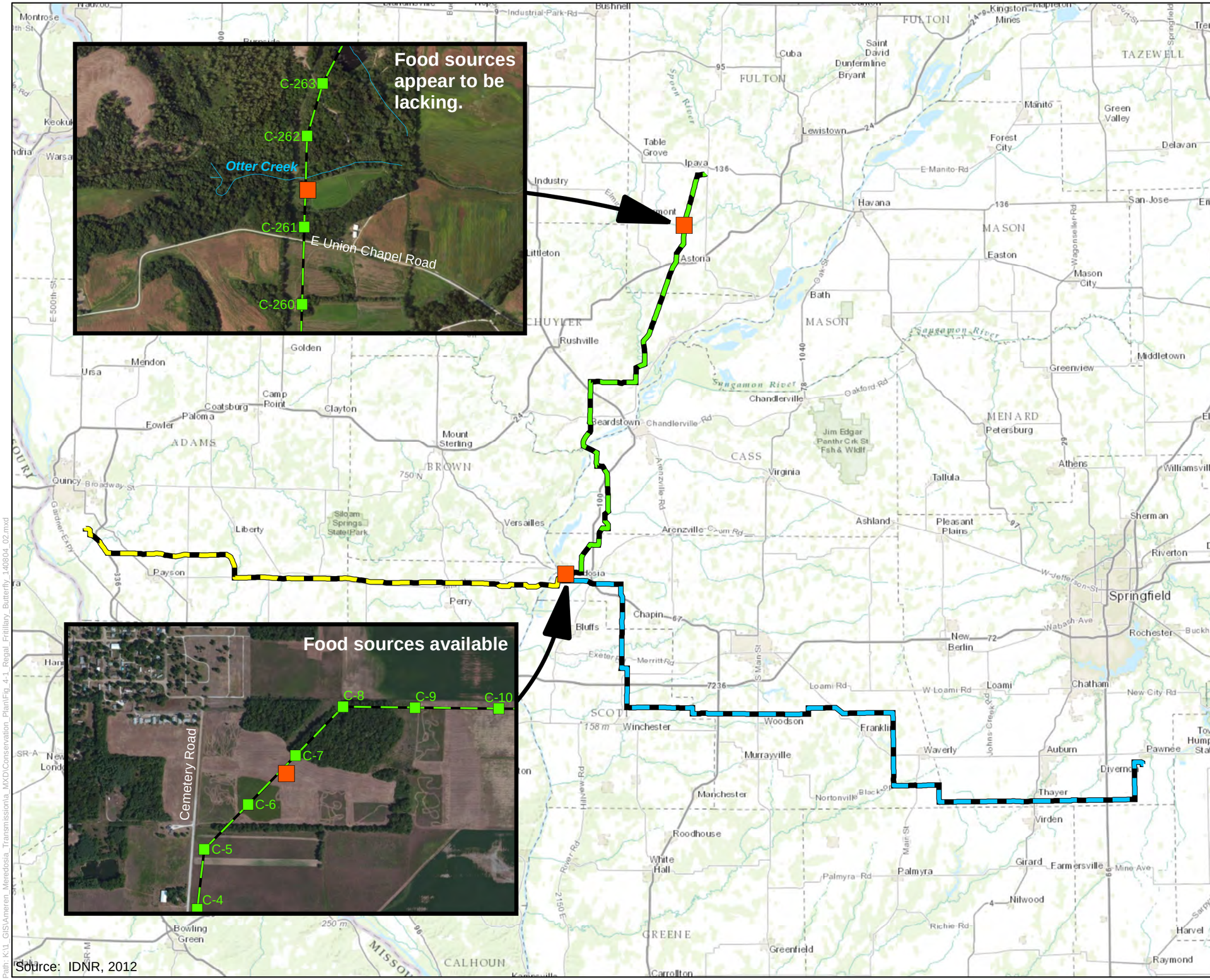

Food sources appear to be lacking.
C-263
C-262
Otter Creek
C-261
E Union Chapel Road
C-260
Food sources available
C-8
C-9
C-10
C-7
C-6
C-5
C-4
Cemetery Road
Springfield
Chicago
Decatur
Jacksonville
Bloomington
Peoria
Quincy
Macomb
Rushville
Beardstown
Chandlerville
Virginia
Jim Edgar Panther Creek State Fish & Wildlife Area
Siloam Springs State Park
Bowling Green
Versailles
Liberty
Payson
Perry
Mount Sterling
Golden
Mendon
Ursa
Camp Point
Coatsburg
Paloma
Fowler
Clayton
Quincy
Bluffs
Chapin
Winchester
Murrayville
Manchester
Roodhouse
White Hall
Greenfield
Carrollton
Palmyra
Nilwood
Virden
Girard
Farmersville
Thayer
Auburn
Pawnee
Divernon
Waverly
Franklin
Woodson
New Berlin
Loami
Chatham
Rochester
Riverton
Sherman
Pleasant Plains
Ashland
Athens
Petersburg
Tallula
Williamsville
Greenview
Middletown
Mason City
Easton
Havana
San Jose
Bath
Astoria
Ipava
Table Grove
Lewistown
Cuba
Saint David
Dunfermline
Bryant
Kingston Mines
Manito
Forest City
Green Valley
Delavan
Industry
Littleton
Bushnell
Macomb
Keokuk
Warsaw
Montrose
Burnside
Industrial Park Rd
E Manito Rd
Chandlerville Rd
Oakford Rd
Arenzville Rd
Arenzville-Chapin Rd
Merritt Rd
Loami Rd
W Loami Rd
New City Rd
Nabash Ave
W Jefferson St
Mine Ave
Palmyra Rd
Richie Rd
Hillview Rd
River Rd
Oak St
Main St
S Main St
Johns Creek Rd
Wagonseller Rd
E Manito Rd
Spoon River
Sangamon River
Illinois River
Mississippi River
Elm
Black
Exeter
Sarpy
Harvel
Raymond
Nortonville
Bath
Table Grove
Ipava
Astoria
Lewistown
Havana
San Jose
Easton
Mason City
Manito
Forest City
Green Valley
Delavan
Cuba
Saint David
Dunfermline
Bryant
Kingston Mines
Chicago
Des Moines
Kansas City
Jefferson City
Saint Louis
Springfield
IOWA
ILLINOIS
MISSOURI
INDI
Wapsipinicon
Iowa
Rock
Des Moines
Missouri
Kaskaskia
Wabash
Indi
FULTON
TAZEWELL
MASON
MENARD
CASS
BROWN
ADAMS
SCOTT
CHUYLER
GREENE
CALHOUN
MISSOURI
Industrial Park Rd
Burnside
Montrose
Keokuk
Warsaw
Hamilton
New London
Bowling Green
Quincy
Broadway St
Gardner Expy
E 500th St
SR-A
Elk
Sarpy
Tovey Humphrey State
Harvel
Raymond
Carrollton
Greenfield

Appendix A

IDNR Correspondence

Illinois Department of
Natural Resources
One Natural Resources Way Springfield, Illinois 62702-1271
www.dnr.illinois.gov

Pat Quinn, Governor
Marc Miller, Director

March 28, 2014

Mr. Kenneth Lynn, Consulting Environmental Scientist
Ameren Services
1901 Chouteau Ave.
P.O. Box 66149, MC 635
St. Louis, MO 63166

RE: Illinois Rivers Project, Ipava-Meredosia Segment, Multiple Counties
IDNR Environmental Resources Review
EcoCAT Reports 1409760, 1409763, 1409774

Dear Mr. Lynn:

This letter provides IDNR's comments resulting from its review of the approved (alternate) route between the Meredosia Energy Center and the proposed Ipava Substation for this portion of the Illinois Rivers Project 345-kV transmission line.

This review considered potential avian impacts; potential effects to species listed as endangered or threatened by the Illinois Endangered Species Protection Board and their essential habitats; potential effects to sites identified in the Illinois Natural Areas Inventory (INAI Sites); potential effects to State Parks; potential effects to large forest blocks or grasslands; and potential effects to wetland resources.

Eagles. Bald Eagle, *Haliaeetus leucocephalus*. More than 5,000 Bald Eagles, were present in Illinois during the Winter Count of 2014, shattering prior records. About 90% of these birds were concentrated along the Mississippi River, with most of the remainder concentrated along the Illinois River. Numerous Bald Eagle nests are known both upstream and downstream on the Illinois River in the vicinity of Meredosia in Morgan and Cass Counties.

Golden Eagle, *Aquila chrysaetos*. These birds are being reported in increasing numbers, as well, but are only winter residents. This species has been identified along the Mississippi River as far south as Monroe County in recent years. The Department is unaware of reports of this species along the approved route, but the presence of this species is likely, from time to time.

Both species are vulnerable to collision with power lines and electrocution while perching. *The Department recommends the design and configuration of the power line and its supporting structures employ the methods recommended by the Avian Power Line Interaction Committee (APLIC) to limit Eagle injury/mortality.*

As you know, each of these species is protected by the federal *Bald and Golden Eagle Protection Act*. *The Department recommends a late winter/early spring survey to assure that no new nests have been built within 660 feet of the proposed route, prior to beginning construction*. If such a nest is found, Ameren should promptly consult with the Fish & Wildlife Service to determine the best means of proceeding.

Endangered Bats. Wooded areas of Fulton, Schuyler, Brown, Cass, and Morgan County fall within the range of populations of the **Gray Bat**, *Myotis grisescens*; the **Indiana Bat**, *Myotis sodalis*; and the **Northern Long-Eared Bat**, *Myotis septentrionalis*. The Indiana Bat and Gray Bat are both federally-listed as endangered and state-listed as endangered. The Northern Long-Eared Bat will become federally-listed as endangered in October 2014, whereupon it will automatically become state-listed, as well. The USFWS has already issued guidance stating that those operations which may result in taking the Northern Long-Eared Bat after October 2014 should be treated as though they will take a listed species, beginning immediately.

Gray Bat, *Myotis grisescens*. The nearest Gray Bat records are from southern Pike County along the Illinois River. However, Gray Bats have been found hibernating as far north as the Blackball Mine in LaSalle County in recent years (2013), a site which lies outside the "accepted" range of this species. Hence, caves and mines along the Illinois River bluffs may provide habitat for this species. The Gray Bat is a true "cave bat," roosting in caves and mines in both winter and summer. However, this species feeds along riparian corridors, often fifteen miles or more from its cave roosts. It should be presumed to feed along streams, sloughs, and riverbanks in the project area during the summer activity season, which extends from April through November.

Indiana Bat, *Myotis sodalis*. The Indiana Bat and the Northern Long-Eared Bat hibernate in caves and mines in the winter, but roost in trees during the summer activity season, which extends from late March through mid-November. The Indiana Bat has numerous recorded roost trees within the Jim Edgar Panther Creek State Fish & Wildlife Area in Cass County, and the species has been collected at several sites in Brown County. The deeply dissected and forested stream valleys of Schuyler and Fulton Counties provide suitable habitat but have not been subjected to intensive survey efforts. The species has been collected from Little Missouri Creek, a tributary of the La Moine River, in Schuyler County. It would be prudent to presume the Indiana Bat is present in suitable habitat throughout the Ipava-Meredosia Corridor.

Northern Long-Eared Bat, *Myotis septentrionalis*. The Northern Long-Eared Bat is more common than either the Gray Bat or Indiana Bat, and may be presumed to be present in suitable habitat throughout the Ipava-Meredosia Corridor. Its life history and behavior is very similar to that of the Indiana Bat.

If a presumption of presence is rejected, the Department recommends mist-netting and acoustic surveys during June to characterize bat activity and populations along the route. The approved route intersects wooded areas at many points. *To avoid violating protective statutes, tree-clearing should occur before April 1 or after November 15.* Tree removal between these dates is not unlawful, but should be preceded by mist-net and acoustic surveys to avoid felling any trees currently in use by Indiana Bats or Northern Long-Eared Bats. (Maternity colonies of these species will not be sharing a maternity roost.) Felling such trees while they are in use is a violation of both state and federal statutes. Northern Long-Eared

Bats may roost in trees as small as three inches diameter-at-breast-height (dbh), while Indiana Bats prefer larger trees (generally > nine inches dbh).

Mist-netting activities, which require permission from both federal and state agencies, should be supplemented by radio-telemetry. Female Indiana Bats forage *an average distance* of 2.5 miles from a primary roost tree. Hence, a mist-net capture of lactating females may not indicate a roost tree near the area of primary interest. Radio-telemetry aids in identifying the specific location of roosts.

Both state and federal statutes provide procedures for obtaining permission to take listed bats incidentally during other lawful activities, such as power line construction. However, the procedures differ in important respects, and state and federal permits must be obtained separately, if avoidance measures are deemed insufficient to guarantee no prohibited taking will occur.

Other Endangered/Threatened Plants and Animals. Decurrent False Aster, ***Boltonia decurrans***. A number of populations of this federally-listed endangered plant are located along the floodplains of the Illinois River from LaSalle-Peru southward. This plant is present near the River and its backwaters in Morgan, Cass, Brown, Schuyler, and Fulton Counties. Decurrent False Aster is a biennial plant with wind-borne seeds which readily colonizes disturbed areas. A major cause of its decline is the conversion of many floodplains to agriculture.

As with other federally-listed endangered plants, the federal *Endangered Species Act* applies directly only to those plants found on federal property, such as the federal Fish & Wildlife Refuges. On non-federal lands, this and other federally-listed plants are protected consistent with applicable state law. In Illinois, such plants are automatically state-listed as endangered or threatened, which means "taking" such plants requires the written permission of the land owner as mandated by the *Illinois Endangered Species Protection Act*. The Illinois Department of Natural Resources is not empowered to authorize the take of such plants contrary to the desires of the land owner.

Consequently, *the Department recommends seeking permission to take from the owners of properties where such plants may be found.* Under Illinois law, the prohibited "taking" of a plant may be summarized as "to harm in any manner." This encompasses such common maintenance activities as mowing and herbicide application, as well as other forms of physical damage and habitat modification.

Regal Fritillary Butterfly, *Speyeria idalia*. In recent years, large numbers of this State-listed threatened butterfly have been observed at the Meredosia Energy Center, along Yeck Road and Koch Lane near Meredosia, and at numerous other sites in the floodplains east of the Illinois River in Morgan and Cass Counties. [While the Department has not received reports of this species from the west side of the Illinois River, it is unlikely the River poses a barrier to butterfly movement.]

Although these populations appear to have been decimated by the drought of 2012, it is likely that suitable habitat has been or will soon be re-colonized by this strong-flying insect. Because of the complex life-history of this protected insect and the difficulty of avoiding prohibited taking where it may be abundant, ***the Department recommends Ameren consider seeking an Incidental Take Authorization pursuant to Part 1080 of the Department's Administrative Rules for the Regal Fritillary Butterfly.***

Female Regal Fritillaries deposit their small clusters of eggs on a variety of plants beginning in September, with each female depositing up to 1,000 eggs altogether. Newly hatched larvae fall to the ground and overwinter beneath vegetative detritus. In the spring, each larva must find a suitable host plant on which to feed. This species will feed only on plants in the *Viola* genus, but the violets must occur in the context of the equivalent of a tallgrass prairie community. After developing through five or six instars, the larvae pupate.

Male Regal Fritillaries (distinguishable by a slightly different hind-wing pattern) emerge as adults around the middle of June, with females emerging around the start of July. The two sexes commingle for about ten days, during which mating occurs, after which the males die. Females enter a condition known as "diapause," in which egg development is delayed. Females must survive until the beginning of the oviposition period in September. To do so, they feed on the nectar of flowering forbs, which, being exceptionally strong fliers, they will fly far afield to find if they are not available locally. This is likely the major means of population dispersal. However, unless the flowering forbs are also in the vicinity of suitable host plants in an appropriate context, subsequent recruitment may not be successful.

The Department has observed that where forested areas are penetrated by roads and power line corridors, Regal Fritillaries can be found moving along such routes in what would otherwise be inhospitable habitat. Moving vehicles in such confined areas have a higher probability of striking butterflies.

All butterflies are noted for a behavior known as "puddling," and the Regal Fritillary is no exception. Butterflies congregate on the ground at the edges of puddles, where they can extract necessary mineral nutrients from the soil. They are also attracted to fresh dung for the same purpose. Off-road vehicles moving at speed have the potential to strike and kill puddling butterflies before they can evade the vehicle.

During the egg and larval stages, this species is particularly vulnerable to fire and other disturbances of the habitat, such as herbicide spraying, mowing, and off-road vehicle use. Adults are vulnerable to unlawful collecting and to collisions with vehicles, because flowering forbs are often restricted to field margins along roadsides. Any regional catastrophe, such as drought, flooding, or a late freeze, can also severely restrict the availability of food plants. At all life stages, this species must contend with a variety of predators, as well as fungal and bacterial diseases.

In early summer 2012, Regal Fritillaries were reported emerging and flying from at least ten locations in western Morgan and Cass Counties, but none were observed after July 3, suggesting the extreme high temperatures of the severe late-summer drought suppressed these populations. However, provided habitat remains available, the Department expects these populations to rebound.

This species presents a challenge, not only to power line construction activities, but to on-going maintenance activities as well. While it is obvious that encounters will be much more likely in some localities than others, the flight abilities of this species means the possibility of an encounter may exist anywhere up to 20 miles of the site of adult emergence. The use of broad-spectrum broad-leaf herbicides also threatens the obligatory larval host plants and the flowering forbs required to sustain adults.

Illinois Chorus Frog, *Pseudacris (streckeri) illinoensis*. This is another ecologically interesting species which is abundant in the floodplains of Scott, Morgan, and Cass Counties, especially around Meredosia. Despite efforts to do so, no populations have been located on the west side of the Illinois River. The species is known to be averse to flowing waters, so that the Illinois River may pose an effective barrier to dispersal of this species to suitable habitat west of the River.

Although a member of the arboreal tree-frog family, the Illinois Chorus Frog is a fossorial species which spends most of its life underground, silent and out of sight. It has developed physiological adaptations which allow it to burrow forwards, in contrast to most amphibians, which burrow backward. However, given its small size, it is limited to burrowing in pure sand or predominantly sandy soils. Consequently, populations are generally limited to sand prairies found in glacial outwash areas of current or ancient river floodplains. Precisely such habitat dominates the Ipava-Meredosia power line route in Morgan and Cass Counties.

However, being an amphibian, the Illinois Chorus Frog requires water in which to lay its eggs, and water which remains long enough (about 60 days) for tadpoles to metamorphose into adults. The sandy soils in which it spends most of its time cannot sustain such pools. This species must undergo seasonal migrations to ephemeral or permanent bodies of standing water to successfully recruit juveniles. A study of 36 choruses of breeding Frogs found that most pools were within 200 meters of an area of sandy soil which would support burrowing, but movements up to 900 meters have been reliably reported. Movements to and from breeding ponds occur at night.

Illinois Chorus Frogs prefer breeding pools with a maximum depth of slightly more than one meter which contain plant debris or detritus from the prior growing season, and free of fish and other potential egg predators. Male Frogs cling to such debris while calling for mates, and mating occurs in the same context. Such pools can occur in roadside ditches and farmed wetlands, as well as vernal woodland pools.

Frogs emerge from underground and move to breeding ponds very soon after ice-melt, with calling and breeding beginning when body temperatures reach about 50 degrees Fahrenheit. Breeding can occur as early as February in warm winters, and as late as early May in cooler years. Breeding usually peaks in March and April.

Only the male Frogs engage in calling behavior. Although the Frogs themselves are small, their voices are not, and the most common method to survey for the presence of this species is to travel along roadways with periodic stops to listen for this species' distinctive call, which is audible for more than a mile. It is then possible to locate the breeding pond and to roughly estimate the number of males present and active that evening. Often, fewer than five or six males are present in a "chorus."

The drawbacks to this method of assessing populations are obvious. If conditions that spring are not conducive, the Frogs will not attempt to breed and their presence will go unremarked. Even where they are identified, reasonable estimation of population numbers is difficult. Moreover, dispersal areas can be only roughly inferred from the location of breeding ponds, and no indication of population density in dispersal areas can be derived. In addition, it has been shown successive years of good or poor breeding conditions can result in huge fluctuations in both population numbers and in the extent of territory

occupied. Consequently, the absence of the Illinois Chorus Frog from apparently suitable habitat during a single survey period is not a reliable guide to its presence in the past or future.

Very little is known about the behavior of this species once it goes underground. It has been demonstrated this species is capable of moving and feeding (on worms and soil insects) underground. Like its arboreal cousins, this species may share their ability to endure freezing and thawing with minimal harm. Nevertheless, the depth of its underground activity may vary seasonally, being deeper in winter and shallower in warmer seasons.

Large populations persist in areas almost entirely devoted to mechanized agriculture, although some popular herbicides, such as atrazine, are known to be highly toxic to it, suggesting the mechanical aspects of agricultural activities are generally compatible with this species' ecology. The fact that Frogs are generally underground when agricultural chemicals are applied may provide them some degree of protection from chemical toxicity.

Given these characteristics, the Department presumes that all suitable sandy soils within 900 meters (slightly greater than half a mile) of a known breeding location are currently occupied by the Illinois Chorus Frog.

This species has a number of vulnerabilities. Drainage "improvements" which drain or prevent flooding of breeding ponds are detrimental. Adults and juveniles crossing roads to breed or disperse are subject to road-kill and exposure to predators. Eggs and tadpoles are extremely sensitive to chemical pollution. Frogs deep enough underground are preserved from being crushed to some degree when heavy vehicles pass above, but excavations in dispersal areas have the potential to injure or kill Frogs which are present. Consequently, excavation and construction in suitable Illinois Chorus Frog habitat has a high probability of resulting in the prohibited taking of this species.

Known breeding locations exist directly adjacent to the Meredosia Energy Center and inside or within 900 meters of the proposed power line corridor throughout its length in Morgan and Cass Counties. The disturbance of known breeding sites should be avoided, but the dispersal distances and population densities within suitable soils are not known with any degree of certainty. The Department believes construction activities associated with the power line are likely to injure or kill some number of Illinois Chorus Frogs, despite efforts to avoid harming them. While it is possible current populations can sustain such losses, ***the Department recommends Ameren consider seeking an Incidental Take Authorization pursuant to Part 1080 of the Department's Administrative Rules for the Illinois Chorus Frog for actions associated with construction of the power line***.

Hall's Bulrush, *Schoenoplectus (Scirpus) hallii*. This annual sedge is quite rare in the United States; the greatest concentrations of known populations are located in Illinois, in the sandy regions of the Illinois River floodplains of Morgan, Cass, and Mason Counties, where the species was first described in 1863. Few populations are on public lands; private lands host the great majority of known populations.

Hall's Bulrush requires specific hydrologic and soil conditions to trigger germination. Its abundant seeds can lie dormant for many years, so that extensive populations one year may be entirely absent the next year or through succeeding years until appropriate conditions for germination once again prevail. A recorded population should be considered "extant" for at least 25 years since its last appearance.

In the spring of 1996, unusually high ground water conditions prevailed in the sandy floodplains around Beardstown. As the ground water table receded, dozens of populations of Hall's Bulrush appeared in hitherto unsuspected locations, demonstrating its long-term seed viability and its ability to respond to appropriate climatic conditions. Consequently, it is virtually impossible to determine this species is absent from suitable habitat based on recent observations of mature plants. It is possible a qualified botanist could identify the distinctive seeds of Hall's Bulrush through analysis of soil samples, but such a survey technique has not been discussed in the scientific literature and may be impractical.

As with other state-listed endangered plants, Hall's Bulrush may only be taken with the written consent of the land owner. Given the difficulty of ascertaining where and when this plant will express itself, *the Department recommends Ameren seek the written consent of land owners in Morgan and Cass Counties to take this species through construction and maintenance operations*.

Soil disturbances associated with construction may optimize or improve germination conditions in some locations. In the interests of maximizing the conservation of this plant, *the Department recommends periodic post-construction monitoring of the power line route in late summers to identify and avoid harm to populations of Hall's Bulrush which appear within the right-of-way in the future.*

In addition it is important not to distribute invasive or exotic plants into habitats required for native species, and it is equally important to not carry seeds of listed species into inhospitable environments. Mud on vehicle tires and other equipment surfaces is a primary means of inadvertent and unwanted seed dispersal. *The Department recommends that construction equipment used on the project be cleaned daily to limit inadvertent seed dispersal.*

Patterson's Bindweed (Dawnflower), *Stylisma pickeringii* var. *pattersoni*. Patterson's Bindweed is one of the rarer plants listed as endangered in Illinois, with only five known occurrences. One of these locations is along US Route 67 just one mile northeast of the point the power line will cross the highway in Cass County. While it is clear the power line's construction is unlikely to disturb the known location of the nearest population, the potential exists to disturb other, unknown, locations which may exist along the power line corridor.

The history of the Route 67 population is instructive. In 2005, the site was visited by a botanist attempting to relocate a single plant reported ten years before. He was unable to locate any plants and recommended that no further searches be undertaken because, in his opinion, land owner modifications to the area made it likely the species had been extirpated at this location.

Nevertheless, the site was visited by another botanist the following summer, who found a robust population of more than 1,000 plants covering several hundred square meters along the edge of a corn field, the largest population ever found in Cass County.

Although Patterson's Bindweed is a perennial, rather than an annual, both climatic and ecological conditions must be suitable for it to thrive, rather than to merely persist. When conditions are not suitable, it may appear to be completely absent, but may be able to survive for several years awaiting optimal conditions. This species is an early successional plant which requires nearly-bare ground and

little competition from other plants. Periodic fires and floods may be necessary under natural regimes to create disturbances which provide suitable conditions.

Consequently, it may be possible that power line activities may create sufficient disturbance for unknown populations of Patterson's Bindweed to express themselves following construction.

As with other state-listed endangered plants, Patterson's Bindweed may only be taken with the written consent of the land owner. Given the difficulty of ascertaining where and when this plant will express itself, *the Department recommends Ameren seek the written consent of land owners in Morgan and Cass Counties to take this species through construction and maintenance operations*.

Soil disturbances associated with construction may optimize or improve germination conditions in some locations. In the interests of maximizing the conservation of this plant, *the Department recommends periodic post-construction monitoring of the power line route in late summers to identify and avoid harm to populations of Patterson's Bindweed which may appear within the right-of-way in the future.*

Bent (Ozark) Milk Vetch, *Astragalus distortus*. Yet a third rare plant is located in the project area. In 2012, 95 individual plants of this species were found growing within the grounds of the Meredosia Energy Center, near the substation which will support the Ipava-Meredosia power line. This discovery was not the product of a general survey of the vicinity, but was incidental to an effort to quantify the suitability of this area as Regal Fritillary habitat.

As previously noted, endangered plants are protected by law only to the extent of prohibiting taking of the plant without the express written permission of the land owner; the owner remains free to manage or dispose of the plants as the owner sees fit. In this case, the owner of the Meredosia Energy Center has the power to destroy or conserve this population without interference from local, state, or federal authorities (except to the extent that actions adversely affecting the plants are federally-funded or state-funded—agencies can specify the conditions under which their funds can be expended).

IDNR strongly recommends the owner of the Meredosia Energy Center take steps to protect and conserve this population of Bent Milk Vetch. Such measures could include protecting the locations of individual plants from mowing, herbiciding, grading, construction, or other such disturbances; collecting seeds or translocating a subset of individual plants to attempt establishment of the plant in additional more convenient locations elsewhere within the property, or working with agencies or conservation organizations to translocate and establish populations on lands where the plants would be at less risk.

This begs the question, however, of whether other populations of this plant exist along the approved power line route, on lands owned by others. Because unnoticed individual plants may exist along the route *the Department recommends Ameren seek the written consent of land owners in Morgan and Cass Counties to take this species through construction and maintenance operations*. Further, Ameren should authorize contractors and other agents to take this species on lands it owns under the conditions Ameren specifies.

Northern Harrier, *Circus cyaneus*; Short-Eared Owl, *Asio flammeus*. The Illinois Department of Transportation owns a large tract of land southwest of the confluence of the Illinois River and the La Moine River in Brown County, designated as the LaGrange Wetland Bank. The approved power line

route passes just to the northeast. The Wetland Bank serves as a winter roosting area for numbers of Short-Eared Owls and Northern Harriers.

While the power line will in no way diminish the value of the wetland bank as winter habitat for these ground-roosting species, power line construction and maintenance crews should be aware that these species may be present in similar grassland habitat in the vicinity. This may be more important for those segments of the power line in Fulton County, which pass near large tracts once strip-mined for coal and reclaimed to grassland, which are often used by these species.

Illinois Natural Area Inventory (INAI) Sites. The **Meredosia Refuge INAI Site** extends from the north side of the Village of Meredosia for more than seven miles along the east bank of the Illinois River in Morgan and Cass Counties. A portion of the eastern part of this land is owned by the Department of Natural Resources and is designated as the **Meredosia Lake State Fish & Wildlife Area**. The remainder of the INAI Site and some additional lands comprise the federal **Meredosia National Fish & Wildlife Refuge**. The approved route approaches the INAI Site no nearer than two miles, so that the construction and operation of the power line are unlikely to have any adverse effect.

The **Meredosia Hill Prairie INAI Site** is also owned by the IDNR and is synonymous with both the **Meredosia Hill Prairie State Natural Area** and the **Meredosia Hill Prairie Nature Preserve**. It consists of 34 acres on the bluffs at the junction of Trones and Arenzville Roads in Morgan County, and provides essential habitat for five species of state-listed plants and insects. The power line route passes just over 1.5 miles west of the Meredosia Hill Prairie. It will be clearly visible but will not otherwise affect the INAI site.

The **Frederick Road INAI Site** consists of 14 acres of wetlands just southeast of unincorporated Frederick in Schuyler County. The site supports a population of the federally-listed Decurrent False Aster. The power line route passes one-half mile to the northwest on the opposite side of Frederick, and will not adversely modify the Frederick Road INAI Site.

The **Browning Woods INAI Site** is located on the west bank of Sugar Creek about two miles north of Frederick in Schuyler County. Noted for its mesic and dry-mesic upland woods community, Browning Woods is located one-half mile west of the power line route and will not be adversely modified.

The **Sugar Creek INAI Site**, located about a mile north of Browning Woods in Schuyler County, provides essential habitat for a state-listed endangered plant. It is three-quarters of a mile west of the power line route and will not be affected.

The **Diers Seep Spring INAI Site**, located about three miles south of the proposed Ipava Substation above the west bank of Jake Creek, is also designated as the **Diers Seep Spring Natural Heritage Landmark**. Diers Seep Spring is 0.8 miles east of the power line route and the deeply dissected terrain assures that power line construction will not adversely affect the spring or its ground water recharge area.

Dedicated State Nature Preserves and Land & Water Reserves. As noted, the viewshed of the **Meredosia Hill Prairie Nature Preserve** in Morgan County will be altered by the construction of the

power line, but this is not prohibited. There are currently no other Nature Preserves or Land & Water Reserves within view of the power line route.

State Parks. As noted, the **Meredosia Lake State Fish and Wildlife Area** is located north and west of the power line route near Meredosia in Morgan and Cass Counties, as well as the **Meredosia Hill Prairie State Natural Area** in Morgan County. In southern Schuyler County, the route is 1.5 miles west of the **Sanganois State Fish and Wildlife Area**, located east of the Illinois River in Cass and Mason Counties. None of these parks will be adversely affected by power line construction.

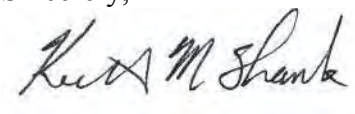
Forest or Grassland Blocks. Numerous blocks of contiguous forest occur along and in the vicinity of the approved power line route. Some forest fragmentation will be associated with this project, but the many of the existing blocks do not appear large enough to support area-sensitive interior forest migratory birds. Fortunately, much of the route follows existing power line routes, and this should minimize the necessity of additional forest clearing.

Significant grasslands exist at the LaGrange Wetland Bank in Brown County, and on numerous reclaimed strip mines in Fulton County. However, the power line route avoids direct impacts to grasslands.

Wetland Resources. Numerous and extensive wetlands, farmed and otherwise occur along the approved route, especially near the Illinois River and along the route in Morgan and Cass Counties. Power line construction is unlikely to alter their hydrologic characteristics, but their unique location in sand prairies significantly raises the probability that each wetland provides essential habitat for one or more state-listed endangered or threatened plants and animals. Reasonable measures should be employed to avoid undue disruption of wetland soils during construction.

The Department of Natural Resources appreciates this opportunity to comment on the potential wildlife issues facing this project. Should there be any questions, please do not hesitate to contact me.

Sincerely,



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May 9, 2014

Mr. Kenneth Lynn, Consulting Environmental Scientist
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RE: Illinois Rivers Project, Herleman-Meredosia Segment, Multiple Counties
IDNR Environmental Resources Review
EcoCAT Review #1411059

Dear Mr. Lynn:

This letter provides IDNR's comments resulting from its review of the approved route between the proposed Herleman Road Substation and the Meredosia Energy Center for this portion of the Illinois Rivers Project 345-kV transmission line.

This review considered potential avian impacts; potential effects to species listed as endangered or threatened by the Illinois Endangered Species Protection Board and their essential habitats; potential effects to sites identified in the Illinois Natural Areas Inventory (INAI Sites); potential effects to State Parks; potential effects to large forest blocks or grasslands; and potential effects to wetland resources.

Eagles. Bald Eagle, *Haliaeetus leucocephalus*. More than 5,000 Bald Eagles, were present in Illinois during the Winter Count of 2014, shattering prior records. About 90% of these birds were concentrated along the Mississippi River, with most of the remainder concentrated along the Illinois River. Numerous Bald Eagle nests are known both upstream and downstream on the Mississippi River in Adams and Pike Counties, as well as along the Illinois River in the vicinity of Meredosia in Morgan County. *The approved corridor near Meredosia may lie within 660 feet of active Bald Eagle nests on both sides of the Illinois River*.

Golden Eagle, *Aquila chrysaetos*. These birds are being reported in increasing numbers, as well, but are only winter residents. This species has been identified along the Mississippi River as far south as Monroe County in recent years. The Department is unaware of reports of this species along the approved route, but the presence of this species is likely, from time to time.

Both species are vulnerable to collision with power lines and electrocution while perching. *The Department recommends the design and configuration of the power line and its supporting structures*

employ the methods recommended by the Avian Power Line Interaction Committee (APLIC) to limit Eagle injury/mortality.

As you know, each of these species is protected by the federal <u>*Bald and Golden Eagle Protection Act*</u>. *The Department recommends a late winter/early spring survey to assure that no new nests have been built within 660 feet of the proposed route, prior to beginning construction*. If such a nest is found, Ameren should promptly consult with the Fish & Wildlife Service to determine the best means of proceeding.

<u>Other Migratory Birds</u>. In recent years, increasing numbers of the **American White Pelican**, ***Pelicanus erythrorhynchus*,** have been migrating through—and even breeding in—Illinois waters. This species is protected under the federal *Migratory Bird Treaty Act*. The Department is aware of a recent electrocution of an adult White Pelican near Lake Carlyle. The American White Pelican has a larger wing-span than the Eagles, with spans up to 10 feet not uncommon. Hence, facility designs intended to avoid electrocutions of large raptors, which typically provide only 60-72 inches of clearance, are likely insufficient to avoid electrocutions of this species. *Ameren may wish to consider providing greater clearances on support structures located in the vicinity of large waterways or lakes which may be used by this species.*

<u>Endangered Bats</u>. Wooded areas of Adams, Pike, and Morgan County fall within the range of populations of the **Gray Bat**, *Myotis grisescens*; the **Indiana Bat**, *Myotis sodalis*; and the **Northern Long-Eared Bat**, *Myotis septentrionalis*. The Indiana Bat and Gray Bat are both federally-listed as endangered and state-listed as endangered. The Northern Long-Eared Bat will become federally-listed as endangered in October 2014, whereupon it will automatically become state-listed, as well. The USFWS has already issued guidance stating that those operations which may result in taking the Northern Long-Eared Bat after October 2014 should be treated as though they will take a listed species, beginning immediately.

Gray Bat, *Myotis grisescens*. The nearest Gray Bat hibernation records are from Burton Cave in Adams County, not far from the Herleman Substation location, and from southern Pike County along the Illinois River. However, Gray Bats have been found hibernating as far north as the Blackball Mine in LaSalle County in recent years (2013), a site which lies outside the "accepted" range of this species. Hence, caves and mines along the Illinois River bluffs may provide habitat for this species. The Gray Bat is a true "cave bat," roosting in caves and mines in both winter and summer. However, this species feeds along riparian corridors, often fifteen miles or more from its cave roosts. It should be presumed to feed along streams, sloughs, and riverbanks in the project area during the summer activity season, which extends from April through November. Gray Bats were acoustically detected at the Pigeon Creek Wind Turbine northeast of Payson in 2012; the approved corridor runs 0.8 miles north of this location across the headwaters of Pigeon Creek

Indiana Bat, *Myotis sodalis*. The Indiana Bat and the Northern Long-Eared Bat hibernate in caves and mines in the winter, but roost in trees during the summer activity season, which extends from late March through mid-November. The Indiana Bat has a number of Priority Four hibernaculae in Adams and Pike Counties, and an extremely high number of maternity roost trees (>40) were identified in the Fishhook Creek INAI Site, which is bisected by the approved route, in 1989. The deeply dissected and forested stream valleys of Adams and Pike Counties provide suitable habitat but most have not been subjected to

intensive survey efforts. It would be prudent to presume the Indiana Bat is present in suitable habitat throughout the Ipava-Meredosia Corridor. The Indiana Bat was acoustically detected at the Pigeon Creek Wind Turbine northeast of Payson in both 2011 and 2012.

Northern Long-Eared Bat, *Myotis septentrionalis*. The Northern Long-Eared Bat is more common than either the Gray Bat or Indiana Bat, and may be presumed to be present in suitable habitat throughout the Herleman-Meredosia Corridor. Its life history and behavior is very similar to that of the Indiana Bat.

If a presumption of presence is rejected, the Department recommends mist-netting and acoustic surveys during June to characterize bat activity and populations along the route. The approved route intersects wooded areas at many points. *To avoid violating protective statutes, tree-clearing should occur before April 1 or after November 15.* Tree removal between these dates is not unlawful, but should be preceded by mist-net and acoustic surveys to avoid felling any trees currently in use by Indiana Bats or Northern Long-Eared Bats. (Maternity colonies of these species will not be sharing a maternity roost.) Felling such trees while they are in use is a violation of both state and federal statutes. Northern Long-Eared Bats may roost in trees as small as three inches diameter-at-breast-height (dbh), while Indiana Bats prefer larger trees (generally > nine inches dbh).

The **Fishhook Creek Illinois Natural Areas Inventory (INAI) Site** is located on either side of the County Line between Adams and Pike Counties, and on either side of Illinois Route 104, in Sections 11, 12, 13, 14, and 15 of Township 3 North, Range 5 West in Adams County; and in Sections 7 and 18 of Township 3 South, Range 4 West. Fishhook Creek was added to the INAI because it provides essential habitat for the Indiana Bat and represents an unusual concentration of that species. The approved route will have its greatest adverse effect on the bat species' habitat as it follows the section line between Sections 7 and 18 in Pike County, where the cleared right-of-way will fragment existing forest blocks. This may have a greater effect on the Northern Long-Eared Bat than the Indiana Bat, since the former appears to prefer roosting in forest interiors, whereas the Indiana Bat often roosts in trees at forest edges.

Mist-netting activities, which require permission from both federal and state agencies, should be supplemented by radio-telemetry. Female Indiana Bats forage *an average distance* of 2.5 miles from a primary roost tree. Hence, a mist-net capture of lactating females may not indicate a roost tree near the area of primary interest. Radio-telemetry aids in identifying the specific location of roosts.

Both state and federal statutes provide procedures for obtaining permission to take listed bats incidentally during other lawful activities, such as power line construction. However, the procedures differ in important respects, and state and federal permits must be obtained separately, if avoidance measures are deemed insufficient to guarantee no prohibited taking will occur.

<u>Other Endangered/Threatened Plants and Animals</u>. Regal Fritillary Butterfly, *Speyeria idalia*. In recent years, large numbers of this State-listed threatened butterfly have been observed at the Meredosia Energy Center, along Yeck Road and Koch Lane near Meredosia, and at numerous other sites in the floodplains east of the Illinois River in Morgan County. [While the Department has not received reports of this species from the west side of the Illinois River, it is unlikely the River poses a barrier to butterfly movement.]

Although these populations appear to have been decimated by the drought of 2012, it is likely that suitable habitat has been or will soon be re-colonized by this strong-flying insect. Because of the complex life-history of this protected insect and the difficulty of avoiding prohibited taking where it may be abundant, ***the Department recommends Ameren consider seeking an Incidental Take Authorization pursuant to Part 1080 of the Department's Administrative Rules for the Regal Fritillary Butterfly*.**

Female Regal Fritillaries deposit their small clusters of eggs on a variety of plants beginning in September, with each female depositing up to 1,000 eggs in total. Newly-hatched larvae fall to the ground and overwinter beneath vegetative detritus. In the spring, each larva must find a suitable host plant on which to feed. This species will feed only on plants in the *Viola* genus, but the violets must occur in the context of the equivalent of a tallgrass prairie community. After developing through five or six instars, the larvae pupate.

Male Regal Fritillaries (distinguishable by a slightly different hind-wing pattern) emerge as adults from late May to the middle of June, with females emerging after mid-June. The two sexes commingle for about ten days, during which mating occurs, after which the males die. Females enter a condition known as "diapause," in which egg development is delayed. Females must survive until the beginning of the oviposition period in September. To do so, they feed on the nectar of flowering forbs, which, being exceptionally strong fliers, they will fly far afield to find if they are not available locally. This is likely the major means of population dispersal. However, unless the flowering forbs are also in the vicinity of suitable host plants in an appropriate context, subsequent recruitment may not be successful.

The Department has observed that where forested areas are penetrated by roads and power line corridors, Regal Fritillaries can be found moving along such routes in what would otherwise be inhospitable habitat. Moving vehicles in such confined areas have a higher probability of striking butterflies.

All butterflies are noted for a behavior known as "puddling," and the Regal Fritillary is no exception. Butterflies congregate on the ground at the edges of puddles, where they can extract necessary mineral nutrients from the soil. They are also attracted to fresh animal dung for the same purpose. Off-road vehicles moving at speed have the potential to strike and kill puddling butterflies before they can evade the vehicle.

During the egg and larval stages, this species is particularly vulnerable to fire and other disturbances of the habitat, such as herbicide spraying, mowing, and off-road vehicle use. Adults are vulnerable to unlawful collecting and to collisions with vehicles, because flowering forbs are often restricted to field margins along roadsides. Any regional catastrophe, such as drought, flooding, or a late freeze, can also severely restrict the availability of food plants. At all life stages, this species must contend with a variety of insect, avian, and mammalian predators, as well as fungal and bacterial diseases.

In early summer 2012, Regal Fritillaries were reported emerging and flying from at least ten locations in western Morgan and Cass Counties, but none were observed after July 3, suggesting the extreme high temperatures of the severe late-summer drought suppressed these populations. However, provided habitat remains available, the Department expects these populations to rebound.

This species presents a challenge, not only to power line construction activities, but to on-going maintenance activities as well. While it is obvious that encounters will be much more likely in some localities than others, the flight abilities of this species means the possibility of an encounter may exist anywhere up to 20 miles from the site of adult emergence. The use of broad-spectrum broad-leaf herbicides also threatens the obligatory larval host plants and the flowering forbs required to sustain adults.

Illinois Chorus Frog, *Pseudacris (streckeri) illinoensis*. This is another ecologically interesting species which is abundant in the floodplains of Scott, Morgan, and Cass Counties, especially around Meredosia. Despite repeated efforts, no populations have been located on the west side of the Illinois River. The species is known to be averse to flowing waters, so that the Illinois River may pose an effective barrier to dispersal of this species to suitable habitat west of the River.

Although a member of the arboreal tree-frog family, the Illinois Chorus Frog is a fossorial species which spends most of its life underground, silent and out of sight. It has developed physiological adaptations which allow it to burrow forwards, in contrast to most amphibians, which burrow backward. However, given its small size, it is limited to burrowing in pure sand or predominantly sandy soils. Consequently, populations are generally limited to sand prairies found in glacial outwash areas of current or ancient river floodplains. Precisely such habitat dominates the Meredosia area in Morgan County.

However, being an amphibian, the Illinois Chorus Frog requires water in which to lay its eggs, and water which remains long enough (about 60 days) for tadpoles to metamorphose into adults. The sandy soils in which it spends most of its time cannot sustain such pools. This species must undergo seasonal migrations to ephemeral or permanent bodies of standing water to successfully recruit juveniles. A study of 36 choruses of breeding Frogs found that most pools were within 200 meters of an area of sandy soil which would support burrowing, but movements up to 900 meters have been reliably reported. Movements to and from breeding ponds occur at night.

Illinois Chorus Frogs prefer breeding pools with a maximum depth of slightly more than one meter which contain plant debris or detritus from the prior growing season, and are free of fish and other potential egg predators. Male Frogs cling to such debris while calling for mates, and mating occurs in the same context. Such pools can occur in roadside ditches and farmed wetlands, as well as vernal woodland pools.

Frogs emerge from underground and move to breeding ponds very soon after ice-melt, with calling and breeding beginning when body temperatures reach about 50 degrees Fahrenheit. Breeding can occur as early as February in warm winters, and as late as early May in cooler years. Breeding usually peaks in March and April.

Only the male Frogs engage in calling behavior. Although the Frogs themselves are small, their voices are not, and the most common method to survey for the presence of this species is to travel along roadways with periodic stops to listen for this species' distinctive call, which is audible for more than a mile. It is then possible to locate the breeding pond and to roughly estimate the number of males present and active that evening. Often, fewer than five or six males are present in a "chorus."

The drawbacks to this method of assessing populations are obvious. If conditions that spring are not conducive, the Frogs will not attempt to breed and their presence will go unremarked. Even where they are identified, reasonable estimation of population numbers is difficult. Moreover, dispersal areas can be only roughly inferred from the location of breeding ponds, and no indication of population density in dispersal areas can be derived. In addition, it has been shown successive years of good or poor breeding conditions can result in huge fluctuations in both population numbers and in the extent of territory occupied. Consequently, the absence of the Illinois Chorus Frog from apparently suitable habitat during a single survey period is not a reliable guide to its presence in the past or future.

Very little is known about the behavior of this species once it goes underground. It has been demonstrated this species is capable of moving and feeding (on worms and soil insects) underground. Like its arboreal cousins, this species may share their ability to endure freezing and thawing with minimal harm. Nevertheless, the depth of its underground activity may vary seasonally, being deeper in winter and shallower in warmer seasons.

Large populations persist in areas almost entirely devoted to mechanized agriculture, although some popular herbicides, such as atrazine, are known to be highly toxic to it, suggesting the mechanical aspects of agricultural activities are generally compatible with this species' ecology. The fact that Frogs are generally underground when agricultural chemicals are applied may provide them some degree of protection from chemical toxicity.

Given these characteristics, the Department presumes that all suitable sandy soils within 900 meters (slightly greater than half a mile) of a known breeding location are currently occupied by the Illinois Chorus Frog.

This species has a number of vulnerabilities. Drainage "improvements" which drain or prevent flooding of breeding ponds are detrimental. Adults and juveniles crossing roads to breed or disperse are subject to road-kill and exposure to predators. Eggs and tadpoles are extremely sensitive to chemical pollution. Frogs deep enough underground are preserved from being crushed to some degree when heavy vehicles pass above, but excavations in dispersal areas have the potential to injure or kill Frogs which are present. Consequently, excavation and construction in suitable Illinois Chorus Frog habitat has a high probability of resulting in the prohibited taking of this species.

Known breeding locations exist directly adjacent to the Meredosia Energy Center and inside or within 900 meters of the proposed power line corridor near its Meredosia terminus. The disturbance of known breeding sites should be avoided, but the dispersal distances and population densities within suitable soils are not known with any degree of certainty. The Department believes construction activities associated with the power line are likely to injure or kill some number of Illinois Chorus Frogs, despite efforts to avoid harming them. While it is possible current populations can sustain such losses, ***the Department recommends Ameren consider seeking an Incidental Take Authorization pursuant to Part 1080 of the Department's Administrative Rules for the Illinois Chorus Frog for actions associated with construction of the power line***.

Loggerhead Shrike, *Lanius ludovicianus*. The approved route intersects several localities with nesting records for this State-listed endangered bird. These records date to 1989 and 1990, a period when the Shrike was listed as "threatened," and may or may not continue to indicate areas where this

bird may continue to breed. In actuality, this species could be encountered anywhere along the route where conditions are suitable.

Often considered a grassland species, the Shrike prefers old fields and open meadows containing or bordered by shrubs and small trees. Many such areas exist in Adams and Pike Counties. Its diet consists primarily of large insects (grasshoppers and beetles) or small rodents. Its presence can be deduced through observations of insects or small animals impaled on twigs, thorns, or barbed-wire fences; it is easier for the Shrike to dismember prey which has decomposed to an extent, and it uses impalement to briefly store its prey.

The primary threat to this species from power line construction would be the inadvertent destruction of a nest through clearing operations or equipment movements. The species is migratory, so disturbance of likely habitat areas during the late fall or winter would be least likely to result in harassment, injury, or death. If this cannot be done, a June breeding bird survey would help identify areas where special care should be used to avoid violations of applicable statutes.

Decurrent False Aster, ***Boltonia decurrans***. A number of populations of this federally-listed endangered plant are located along the floodplains of the Illinois River from LaSalle-Peru southward. This plant is present near the Illinois River and its backwaters in Pike and Morgan Counties. Decurrent False Aster is a biennial plant with wind-borne seeds which readily colonizes disturbed areas. A major cause of its decline is the conversion of many floodplains to agricultural areas protected from flooding by levees.

As with other federally-listed endangered plants, the federal *Endangered Species Act* applies directly only to those plants found on federal property, such as the federal Meredosia Fish & Wildlife Refuge. On non-federal lands, this and other federally-listed plants are protected consistent with applicable state law. In Illinois, such plants are automatically state-listed as endangered or threatened, which means "taking" such plants requires the written permission of the land owner as mandated by the *Illinois Endangered Species Protection Act*. The Illinois Department of Natural Resources is not empowered to authorize the take of such plants contrary to the desires of the land owner.

Consequently, *the Department recommends seeking permission to take from the owners of properties where such plants may be found.* Under Illinois law, the prohibited "taking" of a plant may be summarized as "to harm in any manner." This encompasses such common maintenance activities as mowing and herbicide application, as well as other forms of physical damage and habitat modification such as soil compaction and rutting.

Bent (Ozark) Milk Vetch, *Astragalus distortus*. This very rare plant is located in the project area. In 2012, 95 individual plants of this species were found growing within the grounds of the Meredosia Energy Center, near the substation which will support the Ipava-Meredosia power line. This discovery was not the product of a general survey of the vicinity, but was incidental to an effort to quantify the suitability of this area as Regal Fritillary habitat.

As previously noted, endangered plants are protected by law only to the extent of prohibiting taking of the plant without the express written permission of the land owner; the owner remains free to manage or dispose of the plants as the owner sees fit. In this case, the owner of the Meredosia Energy Center has

the power to destroy or conserve this population without interference from local, state, or federal authorities (except to the extent that actions adversely affecting the plants are federally-funded or state-funded—agencies can specify the conditions under which their funds can be expended).

IDNR strongly recommends the owner of the Meredosia Energy Center take steps to protect and conserve this population of Bent Milk Vetch. Such measures could include protecting the locations of individual plants from mowing, herbiciding, grading, construction, or other such disturbances; collecting seeds or translocating a subset of individual plants to attempt establishment of the plant in additional more convenient locations elsewhere within the property, or working with agencies or conservation organizations to translocate and establish populations on lands where the plants would be at less risk.

This begs the question, however, of whether other populations of this plant exist along the approved power line route, on lands owned by others. Because unnoticed individual plants may exist along the route *the Department recommends Ameren seek the written permission of land owners in Morgan County to take this species through construction and maintenance operations*. Further, Ameren should authorize contractors and other agents to take this species on lands it owns under the conditions Ameren specifies.

Arrowwood, *Viburnum molle*. Sometimes called Softleaf Arrowwood or Kentucky Viburnum, this state-listed threatened species occurs on forested slopes and limestone bluffs in Adams and Pike Counties. The nearest known occurrence is just over a mile from the approved power line route, in the **Burton Creek Natural Area INAI Site**, but unknown populations may be encountered, since most woodlands along the route have not been botanically surveyed. A June survey of woodlands which will be cleared might be advisable. Arrowwood is most readily identifiable by its leaves and flowers; winter identification immediately preceding clearing operations may be difficult. As with other state-listed plants, the express written permission of the landowner is required to harm these plants in any manner.

Illinois Natural Area Inventory (INAI) Sites. The adverse modification of the **Fishhook Creek INAI Site** has already been described in the paragraphs dealing with bats.

The **Rice School Geological Area INAI Site** is located nearly a mile south of the approved route, and will not be adversely modified.

The **National Starch Bed INAI Site** and the **Woods Lake Bed INAI Site** are both mussel beds in the Illinois River, located very near or beneath the point at which the proposed line will cross from Pike County into Morgan County. Both are designated because they contain more than ten species of living mussels, including the State-listed threatened **Ebonyshell Mussel**, *Fusconaia ebena*. However, because lines are expected to be extended across the River by helicopter, no disturbance of the river bed is anticipated, and neither INAI Site is expected to be adversely modified.

As indicated, the **Burton Creek Natural Area INAI Site**, which supports a stand of Arrowwood, is located just over a mile northeast of the approved route along I-172; it will not be adversely modified in any way.

Dedicated State Nature Preserves and Land & Water Reserves. There are currently no Nature Preserves or Land & Water Reserves within view of the power line route.

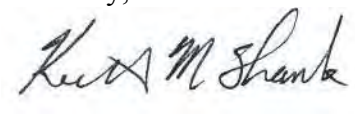
State Parks. The **Meredosia Lake State Fish and Wildlife Area** is located just over a half-mile north of the Meredosia Energy Center, beginning on the north side of the Village of Meredosia. Otherwise there are no State Parks with 2.5 miles of the approved power line route. **Siloam Springs State Park** is located four miles north of the route, while **Fall Creek Gorge State Natural Area** is located 2.5 miles south of the corridor.

Forest or Grassland Blocks. Numerous forest blocks occur along and in the vicinity of the approved power line route. Some forest fragmentation will be associated with this project. Some of the existing blocks to be affected appear large enough to support area-sensitive interior forest migratory birds. However, given the topography and land cover of Adams and Pike Counties, impacts to large forest blocks appear unavoidable. Smaller grasslands and pastures are present along the route, but adverse effects to fauna using them are unlikely to be significant, unless they support the Loggerhead Shrike.

Wetland Resources. Significant wetlands occur along the route only near the Illinois River in Pike and Morgan Counties. Power line construction is unlikely to alter their hydrology, but the right-of-way will convert riparian forest to herbaceous cover. This change is unlikely to adversely affect wildlife in the vicinity. However, Bald Eagles may be present very near the proposed corridor; it is difficult to predict whether such changes will modify their use of the area.

The Department of Natural Resources appreciates this opportunity to comment on the potential wildlife issues facing this project. Should there be any questions, please do not hesitate to contact me.

Sincerely,



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One Natural Resources Way Springfield, Illinois 62702-1271
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Pat Quinn, Governor
Marc Miller, Director

May 19, 2014

Mr. Kenneth Lynn, Consulting Environmental Scientist
Ameren Services
1901 Chouteau Ave.
P.O. Box 66149, MC 635
St. Louis, MO 63166

RE: Illinois Rivers Project, Austin-Meredosia Segment, Multiple Counties
IDNR Environmental Resources Review
EcoCAT Review #1411303

Dear Mr. Lynn:

This letter provides IDNR's comments resulting from its review of the approved route between the proposed Austin (Pawnee) Substation and the Meredosia Energy Center for this portion of the Illinois Rivers Project 345-kV transmission line.

This review considered potential avian impacts; potential effects to species listed as endangered or threatened by the Illinois Endangered Species Protection Board and their essential habitats; potential effects to sites identified in the Illinois Natural Areas Inventory (INAI Sites); potential effects to State Parks; potential effects to large forest blocks or grasslands; and potential effects to wetland resources.

Eagles. Bald Eagle, *Haliaeetus leucocephalus*. More than 5,000 Bald Eagles, were present in Illinois during the Winter Count of 2014, shattering prior records. About 90% of these birds were concentrated along the Mississippi River, with most of the remainder concentrated along the Illinois River. Numerous Bald Eagle nests are known both upstream and downstream on the Mississippi River in Adams and Pike Counties, as well as along the Illinois River in the vicinity of Meredosia in Morgan County. *The corridor near Meredosia lies within ten miles of multiple active Bald Eagle nests on both sides of the Illinois River*. Eagles can be expected to be active within this zone for most of the year. Bald Eagles are also known to be nesting on Lake Springfield, and nesting may also potentially occur at Lake Sangchris near the Austin terminus. Other larger bodies of water along the route may also host this species.

Golden Eagle, *Aquila chrysaetos*. These birds are being reported in increasing numbers, as well, but are only winter residents. This species has been identified along the Mississippi River as far south as Monroe County in recent years. The Department is unaware of reports of this species along the approved route, but the presence of this species is likely, from time to time.

Both species are vulnerable to collision with power lines and electrocution while perching. *The Department recommends the design and configuration of the power line and its supporting structures employ the methods recommended by the Avian Power Line Interaction Committee (APLIC) to limit Eagle injury/mortality.*

As you know, each of these species is protected by the federal *Bald and Golden Eagle Protection Act*. *The Department recommends a late winter/early spring survey to assure that no new nests have been built within 660 feet of the proposed route, prior to beginning construction*. If such a nest is found, Ameren should promptly consult with the Fish & Wildlife Service to determine the best means of proceeding.

Other Migratory Birds. In recent years, increasing numbers of the **American White Pelican**, ***Pelicanus erythrorhynchus*,** have been migrating through—and even breeding in—Illinois waters. This species is protected under the federal *Migratory Bird Treaty Act*. The Department is aware of a recent electrocution of an adult White Pelican near Lake Carlyle. The American White Pelican has a larger wing-span than the Eagles, with spans up to 10 feet not uncommon. Hence, facility designs intended to avoid electrocutions of large raptors, which typically provide only 60-72 inches of clearance, are likely insufficient to avoid electrocutions of this species. *Ameren may wish to consider providing greater clearances on support structures located in the vicinity of large waterways or lakes which may be used by this species.*

Endangered Bats. Wooded areas of Pike, Morgan, and Scott County fall within the range of populations of the **Gray Bat**, *Myotis grisescens*; the **Indiana Bat**, *Myotis sodalis*; and the **Northern Long-Eared Bat**, *Myotis septentrionalis*. The Indiana Bat and Gray Bat are both federally-listed as endangered and state-listed as endangered. The Northern Long-Eared Bat will become federally-listed as endangered in October 2014, whereupon it will automatically become state-listed, as well. The USFWS has already issued guidance stating that those operations which may result in taking the Northern Long-Eared Bat after October 2014 should be treated as though they will take a listed species, beginning immediately.

Gray Bat, *Myotis grisescens*. The nearest Gray Bat hibernation records are from Twin Culverts Cave in southeastern Pike County, near the Illinois River, below Scott County. Caves and mines along the Illinois River bluffs may provide habitat for this species. The Gray Bat is a true "cave bat," roosting in caves and mines in both winter and summer. However, this species feeds along riparian corridors, often fifteen miles or more from its cave roosts. It may occasionally feed along streams, sloughs, and riverbanks in the project area in Scott County during the summer activity season, which extends from April through November.

Indiana Bat, *Myotis sodalis*. The Indiana Bat and the Northern Long-Eared Bat hibernate in caves and mines in the winter, but roost in trees during the summer activity season, which extends from late March through mid-November. The Indiana Bat has a number of Priority Four hibernaculae in Pike County, including Twin Culverts Cave just west of Pearl. The deeply dissected and forested stream valleys of Scott and Morgan Counties provide abundant suitable summer habitat but most have not been subjected to intensive or recent survey efforts. The sole record of this species in Scott County dates from 1985, when a maternity colony was identified on lower Sandy Creek. The headwaters of Sandy Creek approach the project corridor at a number of points between Winchester and Woodson. The only record

of the Indiana Bat in Sangamon County was collected in Springfield in 1970. *Nevertheless, it would be prudent to presume the Indiana Bat is present in suitable habitat throughout the Austin-Meredosia Corridor.*

Northern Long-Eared Bat, *Myotis septentrionalis*. The Northern Long-Eared Bat is more common than either the Gray Bat or Indiana Bat, and may be presumed to be present in suitable habitat throughout the Austin-Meredosia Corridor. Its life history and behavior are very similar to that of the Indiana Bat.

If a presumption of presence is rejected, the Department recommends mist-netting and acoustic surveys during June to characterize bat activity and populations along the route. The approved route intersects wooded areas at many points. *To avoid violating protective statutes, tree-clearing should occur before April 1 or after November 15.* Tree removal between these dates is not unlawful, but should be preceded by mist-net and acoustic surveys to avoid felling any trees currently in use by Indiana Bats or Northern Long-Eared Bats. (Maternity colonies of these species will not be sharing a maternity roost.) Felling such trees while they are in use is a violation of both state and federal statutes. Northern Long-Eared Bats may roost in trees as small as three inches diameter-at-breast-height (dbh), while Indiana Bats prefer larger trees (generally > nine inches dbh).

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Other Endangered/Threatened Plants and Animals. Regal Fritillary Butterfly, *Speyeria idalia*. In recent years, large numbers of this State-listed threatened butterfly have been observed at the Meredosia Energy Center, along Yeck Road and Koch Lane near Meredosia, and at numerous other sites in the floodplains east of the Illinois River in Morgan County. This species is also observed in the hill prairies atop the bluffs east of the floodplain.

Although these populations appear to have been decimated by the drought of 2012, it is likely that suitable habitat has been or will soon be re-colonized by this strong-flying insect. Because of the complex life-history of this protected insect and the difficulty of avoiding prohibited taking where it may be abundant, ***the Department recommends Ameren consider seeking an Incidental Take Authorization pursuant to Part 1080 of the Department's Administrative Rules for the Regal Fritillary Butterfly*.**

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occur in the context of the equivalent of a tallgrass prairie community. After developing through five or six instars, the larvae pupate.

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Illinois Chorus Frog, *Pseudacris (streckeri) illinoensis*. This is another ecologically unusual species which is abundant in the floodplains of Scott and Morgan Counties, especially around Meredosia. However, populations are also occasionally found in friable soils in the hill prairies atop the river bluffs; they are not limited to the floodplain.

Persistent choruses have been found close to the Meredosia Energy Center and in the floodplain at the toe of the river bluffs the power line will ascend. The Department believes it is reasonable to presume the entire width of the floodplain is occupied by this species during its dispersal period.

Although a member of the arboreal tree-frog family, the Illinois Chorus Frog is a fossorial species which spends most of its life underground, silent and out of sight. It has developed physiological adaptations which allow it to burrow forwards, in contrast to most amphibians, which burrow backward. However, given its small size, it is limited to burrowing in pure sand or predominantly sandy soils. Consequently, populations are generally limited to sand prairies found in glacial outwash areas of current or ancient river floodplains. Precisely such habitat dominates the Meredosia area in Morgan County.

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Illinois Chorus Frogs prefer breeding pools with a maximum depth of slightly more than one meter which contain plant debris or detritus from the prior growing season, and are free of fish and other potential egg predators. Male Frogs cling to such debris while calling for mates, and mating occurs in the same context. Such pools can occur in roadside ditches and farmed wetlands, as well as vernal woodland pools.

Frogs emerge from underground and move to breeding ponds very soon after ice-melt, with calling and breeding beginning when body temperatures reach about 50 degrees Fahrenheit. Breeding can occur as early as February in warm winters, and as late as early May in cooler years. Breeding usually peaks in March and April.

Only the male Frogs engage in calling behavior. Although the Frogs themselves are small, their voices are not, and the most common method to survey for the presence of this species is to travel along roadways with periodic stops to listen for this species' distinctive call, which is audible for more than a mile. It is then possible to locate the breeding pond and to roughly estimate the number of males present and active that evening. Often, fewer than five or six males are present in a "chorus."

The drawbacks to this method of assessing populations are obvious. If conditions that spring are not conducive, the Frogs will not attempt to breed and their presence will go unremarked. Even where they are identified, reasonable estimation of population numbers is difficult. Moreover, dispersal areas can be only roughly inferred from the location of breeding ponds, and no indication of population density in dispersal areas can be derived. In addition, it has been shown successive years of good or poor breeding conditions can result in huge fluctuations in both population numbers and in the extent of occupied territory. Consequently, the absence of the Illinois Chorus Frog from apparently suitable habitat during a single survey period is not a reliable guide to its presence in the past or future.

Very little is known about the behavior of this species once it goes underground. It has been demonstrated this species is capable of moving and feeding (on worms and soil insects) underground. Like its arboreal cousins, this species may share their ability to endure freezing and thawing with minimal harm. Nevertheless, the depth of its underground activity may vary seasonally, being deeper in winter and shallower in warmer seasons.

Large populations persist in areas almost entirely devoted to mechanized agriculture, although some popular herbicides, such as atrazine, are known to be highly toxic to it, suggesting the mechanical aspects of agricultural activities are generally compatible with this species' ecology. The fact that Frogs are generally underground when agricultural chemicals are applied may provide them some degree of protection from chemical toxicity.

Given these characteristics, the Department presumes that all suitable sandy soils within 900 meters (slightly greater than half a mile) of a known breeding location are currently occupied by the Illinois Chorus Frog.

This species has a number of vulnerabilities. Drainage "improvements" which drain or prevent flooding of breeding ponds are detrimental. Adults and juveniles crossing roads to breed or disperse are subject to road-kill and predation. Eggs and tadpoles are extremely sensitive to chemical pollution. Frogs deep enough underground are preserved from being crushed to some degree when heavy vehicles pass above, but excavations in dispersal areas have the potential to injure or kill Frogs which are present. Thus, excavation and construction in suitable Illinois Chorus Frog habitat has a high probability of resulting in the prohibited taking of this species.

Known breeding locations exist directly adjacent to the Meredosia Energy Center and inside or within 900 meters of the proposed power line corridor near its Meredosia terminus, as well as at the toe of the river bluffs east of Meredosia. The disturbance of known breeding sites should be avoided, but the dispersal distances and population densities within suitable soils are not known with any degree of certainty. The Department believes construction activities associated with the power line are likely to injure or kill some number of Illinois Chorus Frogs, despite efforts to avoid harming them. While it is possible current populations can sustain such losses, ***the Department recommends Ameren consider seeking an Incidental Take Authorization pursuant to Part 1080 of the Department's Administrative Rules for the Illinois Chorus Frog for actions associated with construction of the power line***.

Franklin's Ground Squirrel, *Poliocitellus (Spermophilus) franklinii*. Studies over the last two years have discovered high numbers of this species in southwestern Sangamon County, primarily along the abandoned railroad corridor running roughly north-south west of Illinois Route 4. A significant colony has been identified just west of Auburn, while individual animals have been observed at least as far south as Thayer Road, just one-half mile north of the proposed power line route. Researchers from the University of Illinois-Springfield have tracked dispersing juveniles as far as ten kilometers (six miles), so it is prudent to anticipate the presence of this animal in suitable habitat anywhere within six miles of a known colony.

The Franklin's Ground Squirrel favors railroad corridors, roadsides, fence-rows, drainage ditches, and grassed waterways. The squirrel is less common, but not necessarily absent, from wooded portions of a connecting corridor, such as a highway or railroad. Routinely tilled areas are inhospitable, and

construction activities which can be limited to such areas can likely avoid incidental taking of this species. However, where the route runs along or intersects suitable habitat, the presence of the Squirrel is problematic. Even when active it spends 90% of its time underground, and hibernates from the beginning of September to the end of April. Many burrows are within a few meters of a tree or shrub but, where these are absent, burrows may cluster near wooden power poles. The destruction of occupied burrows during construction activities is difficult to avoid.

The Department recommends summer trapping surveys of likely habitat in or near the proposed corridor between Pawnee and Waverly. If Franklin's Ground Squirrels are found to be present, Ameren may wish to seek further consultation with the Department on the feasibility of avoiding the species, or consider whether to seek an Incidental Take Authorization pursuant to Part 1080 of the Department's Administrative Rules, depending on the circumstances.

Prairie (Western) Hognose Snake, *Heterodon nasicus*. In many locations where this animal is still found, it co-occurs with the Ornate Box Turtle, the Regal Fritillary Butterfly, and the Illinois Chorus Frog. Its primary prey consists of amphibians, such as toads and frogs, but it is also an egg-predator of the Ornate Box Turtle. The specialized scale on its nose which gives this snake its common name gives it a limited ability to actually burrow into sandy soils. It uses this ability to bury itself in loose soil, sometimes with only the eyes exposed, to lie in wait for prey, a tactic which makes the snake harder to observe. This species can be confused with a closely-related species, the Eastern Hognose Snake, *Heterodon platirhinos*. Both species are well-known for their recourse to rolling over and playing dead to fool their own predators. The principal mark which easily distinguishes the two is that the ventral scales of the tale are very dark or black in *H. nasicus*, whereas they are lighter than the remaining belly scales in *H. platirhinos*.

This species was collected twice in Morgan County by the Illinois Natural History Survey in the 1940's and 1950's. If it persists in the area, it is most likely to be found in the Illinois River Floodplain. The lack of records in recent decades suggests the species may have been eliminated from Morgan County due to habitat conversion, but extensive enrolment of agricultural acreage in Conservation Reserve programs could have resulted in a resurgence of this species. *The Department recommends that crews working on this project be trained to recognize this species and be instructed on the appropriate response if they encounter it.*

Ornate Box Turtle, *Terrepene ornata*. This State-listed threatened species was once common in the Grand Prairie Division of Illinois, but is now largely restricted to sand prairies. However, relict populations exist on friable soils throughout Central Illinois; the species may be encountered in forest clearings, in grasslands, and in the tilled field portions of an individual animal's home range. This species of turtle is not tied to water bodies, but is largely terrestrial. It spends a great deal of time underground, either in burrows it excavates itself, or by appropriating burrows of larger mammals, such as ground hogs.

A small population (at least four individuals) exists on a small hill prairie in southeastern Pike County, and an individual was observed in 2008 along the toe of the river bluffs in Scott County, about 15 miles south of Meredosia. There are recent records near Beardstown in Cass County. While there are no recent records from Morgan County, its floodplains and hill prairies provide abundant suitable habitat, and this species is considered cryptic; many observations are due more to luck than effort. The most

recent record from Sangamon County was in Springfield in 1965, but several specimens were collecting in Sangamon County in 1940. It is widely presumed the species is no longer present in Sangamon County, but the historic records demonstrate that suitable habitat is present.

Habitats suitable for the Regal Fritillary Butterfly, the Illinois Chorus Frog, and the Prairie Hognose Snake are suitable for the Ornate Box Turtle, but the Turtle can exploit habitats the Butterfly, Chorus Frog, and Prairie Hognose cannot. The most likely area along the proposed corridor where this animal may be encountered is the Illinois River floodplain east of Meredosia. Encountering it elsewhere along the route is much less likely, but not impossible.

Surveying for the Ornate Box Turtle is difficult. Experiments carried out by the Department of Natural Resources have demonstrated that Visual Encounter Surveys (VES) by experienced biologists have only a three percent chance of detecting an Ornate Box Turtle which is above ground and subject to observation. Thus, more than thirty surveys are needed to state the Turtle is absent with any confidence. *The Department recommends that crews working on this project be trained to recognize this species and be instructed on the appropriate response if they encounter it.*

Loggerhead Shrike, *Lanius ludovicianus*. Records for this species do not exist along the proposed route in Morgan, Scott, and Sangamon Counties, but this is more likely due to a lack of consistent survey effort than to a lack of suitable habitat, which is abundant in both Morgan and Scott Counties. This species could be encountered anywhere along the route where conditions are suitable.

Often considered a grassland species, the Shrike prefers old fields and open meadows containing or bordered by shrubs and small trees. Many such areas exist in Morgan and Scott Counties. Its diet consists primarily of large insects (grasshoppers and beetles) or small rodents. Its presence can be deduced through observations of insects or small animals impaled on twigs, thorns, or barbed-wire fences; it is easier for the Shrike to dismember prey which has decomposed to an extent, and it uses impalement to briefly store its prey.

The primary threat to this species from power line construction would be the inadvertent destruction of a nest through clearing operations or equipment movements. The species is migratory, so *disturbance of likely habitat areas during the late fall or winter would be least likely to result in harassment, injury, or death. If this cannot be done, a June breeding bird survey would help identify areas where special care should be used to avoid violations of applicable statutes.*

Bent (Ozark) Milk Vetch, *Astragalus distortus*. This very rare plant is located in the project area. In 2012, 95 individual plants of this species were found growing within the grounds of the Meredosia Energy Center, near the substation which will support the Ipava-Meredosia power line. This discovery was not the product of a general survey of the vicinity, but was incidental to an effort to quantify the suitability of this area as Regal Fritillary habitat. The species also occurs in Scott County, although it is not known to be in the vicinity of the power line corridor.

As previously noted, endangered plants are protected by law only to the extent of prohibiting taking of the plant without the express written permission of the land owner; the owner remains free to manage or dispose of the plants as the owner sees fit. In this case, the owner of the Meredosia Energy Center has the power to destroy or conserve this population without interference from local, state, or federal

authorities (except to the extent that actions adversely affecting the plants are federally-funded or state-funded—agencies can specify the conditions under which their funds can be expended).

IDNR strongly recommends the owner of the Meredosia Energy Center take steps to protect and conserve this population of Bent Milk Vetch. Such measures could include protecting the locations of individual plants from mowing, herbiciding, grading, construction, or other such disturbances; collecting seeds or translocating a subset of individual plants to attempt establishment of the plant in additional more convenient locations elsewhere within the property, or working with agencies or conservation organizations to translocate and establish populations on lands where the plants would be at less risk.

This begs the question, however, of whether other populations of this plant exist along the approved power line route, on lands owned by others. Because unnoticed individual plants may exist along the route *the Department recommends Ameren seek the written permission of land owners in Morgan County to take this species through construction and maintenance operations*. Further, Ameren should authorize contractors and other agents to take this species on lands it owns under the conditions Ameren specifies.

Illinois Natural Area Inventory (INAI) Sites. The **National Starch Bed INAI Site** and the George Smith **Bed INAI Site** are both mussel beds in the Illinois River, located very near or beneath the point at which the proposed line will cross from Pike County into Morgan County. Both are designated because they contain more than ten species of living mussels. However, this segment does not cross the Illinois River and neither INAI Site is will be adversely modified.

The **Kincaid Cemetery Prairie INAI** Site is approximately one mile north of the proposed route and will not be adversely modified.

The **Meredosia Refuge INAI Site** lies about one-half mile north of the Meredosia Energy Center and will not be adversely modified by construction of this power line segment.

Dedicated State Nature Preserves and Land & Water Reserves. There are currently no Nature Preserves or Land & Water Reserves within view of the power line route.

State Parks. The **Meredosia Lake State Fish and Wildlife Area** is located just over a half-mile north of the Meredosia Energy Center, beginning on the north side of the Village of Meredosia.

The **Sangamon Valley Trail** runs along a former railroad corridor from near Athens, in Menard County, to Girard, in Macoupin County. *The approved route will cross the Sangamon Valley Trail just west of Thayer.* This portion of the Trail has not yet been developed and is not yet open to the public. Nevertheless, the proposed line will be visible to future users of the Trail for a significant distance and will indisputably affect the recreational experience. It will necessary for Ameren to negotiate a license agreement with the Department of Natural Resources at the crossing point.

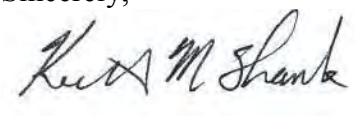
Forest or Grassland Blocks. Numerous forest blocks occur along and in the vicinity of the approved power line route. Some forest fragmentation will be associated with this project. Few of the existing blocks to be affected appear large enough to support area-sensitive interior forest migratory birds.

Smaller grasslands and pastures are present along the route, but adverse effects to fauna using them are unlikely to be significant, unless they support the Loggerhead Shrike.

Wetland Resources. Significant wetlands occur along the route only near the Illinois River in Morgan County. Power line construction is unlikely to alter their hydrology.

The Department of Natural Resources appreciates this opportunity to comment on the potential wildlife issues facing this project. Should there be any questions, please do not hesitate to contact me.

Sincerely,



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