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AmerenIP

Baldwin-Rush Island Interconnection Project

Conservation Plan

PROJECT NUMBER:
106945

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POWER ENGINEERS

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TABLE OF CONTENTS

1.0 INTRODUCTION 1

2.0 CONSERVATION PLAN 1

2.1 Project Purpose and Need 1

2.2 Project Location and Description 1

2.3 State Threatened and Endangered Species 5

2.3.1 Plants 6

2.3.2 Wildlife 9

2.4 Project Effects 14

2.4.1 Description of Project Activities 14

2.4.2 Project Effects on Listed Species 17

2.5 Measures to Reduce Impacts to Listed Species 17

2.5.1 Mitigation Measures 18

2.5.2 Long-Term Management 20

2.5.3 Conservation Plan Funding 20

3.0 ROUTE ALTERNATIVES 21

3.1 No Action Alternative 21

3.2 Alternatives Considered 21

3.3 Alternatives Considered but Eliminated 21

4.0 ASSESSMENT OF TAKE 21

5.0 IMPLEMENTING AGREEMENT 25

5.1 Signatories 25

5.2 Responsibilities and Schedules 25

5.3 Certification 26

5.4 Compliance with Federal, State, and Local Regulations 26

6.0 LITERATURE CITED 27

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. Species concurrently listed as federally threatened and endangered under the Endangered Species Act of 1973 (ESA, as amended) will be further evaluated in a Biological Assessment and consulted upon with the U.S. Fish and Wildlife Service as per Section 7 of ESA. The Conservation Plan for the Baldwin-Rush Island Interconnection Project includes a description of the proposed project, biological data on the Illinois Endangered or Threatened species that would likely 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 In accordance with Section 3(3) of the Illinois Endangered Species Protection Act (520 ILCS 10), AmerenIP will not take any plant listed as endangered or threatened by ESA or the State of Illinois without the express written permission of the landowner. In addition to the Conservation Plan a Biological Assessment is being prepared to further evaluate federally listed species in accordance with the Endangered Species Act of 1973 (as amended).

2.0 CONSERVATION PLAN

2.1 Project Purpose and Need

The Baldwin–Rush Island Interconnection Project is necessary for AmerenIP to provide adequate, reliable, and efficient service to its consumers and to enable the interconnection customer, Prairie State, to reliably deliver capacity and energy to the bulk electric system at the least cost. Pursuant to FERC Order 888, AmerenIP is obligated to fulfill all generation interconnection requests in a nondiscriminatory manner and in compliance with NERC Reliability Standards and Ameren Transmission Planning Criteria and Guidelines. The proposed project would allow interconnection of the Prairie State generation facility in a safe and reliable manner, and would provide for reliable delivery into the Midwest Independent Transmission System, Inc. energy market. The Prairie State generation facility is expected to be 100 percent operational at maximum design generation capability and connected to the transmission system grid by May 2012. AmerenIP is required have the Baldwin–Rush Island Interconnection Project completed by 4th quarter 2010.

2.2 Project Location and Description

The Baldwin–Rush Island Interconnection Project involves the construction of approximately 30.2 miles of 345kV transmission line (Figure 1). The "Baldwin-Rush Island Line" will extend from AmerenIP's Baldwin Switchyard near Baldwin, Illinois, to AmerenUE's Rush Island Power Station, located on the west bank of the Mississippi River directly across from Fults, Illinois.

The proposed transmission line would cross through Randolph and Monroe counties, Illinois and

Jefferson County, Missouri. Communities in the vicinity of the transmission line include Baldwin, Red Bud, Ruma, Renault, and Fults. This line would be located entirely on private lands except where it crosses lands under the jurisdiction of the IDNR along the Kaskaskia River. The Baldwin–Rush Island Line would cross both the Kaskaskia River and the Mississippi River.

Figure 1 Project Location

The majority of the Baldwin–Rush Island Line crosses through agricultural lands. Native vegetative communities have been reduced and fragmented by agricultural activities. The primary terrestrial communities in this area include floodplain forest, upland deciduous and coniferous forests, and grassland savanna habitats. Large tracts of relatively contiguous floodplain forests occur along the Kaskaskia River and the Mississippi River. These mature floodplain forests represent important habitats for a number of special status species. Characteristic tree species in the floodplain forests include silver maple (*Acer saccharinum*), cottonwood (*Populus* spp.), sycamore (*Platanus occidentalis*), and elm (*Ulmus* spp.; IDNR 2003). The principal aquatic habitats that are spanned by the transmission lines include the Kaskaskia River and the Mississippi River. Small freshwater wetlands occur throughout the project area.

Patches of dry upland forest are scattered throughout the project area, with the largest tracts occurring in the vicinity of the Mississippi River bluffs. Primary species include white oak (*Quercus alba*), black oak (*Quercus velutina*), post oak (*Quercus stellata*), and hickory (*Carya* spp.; IDNR 2003*a*). In the ravines, dry upland forests give way to more mesic species such as red oak (*Quercus rubra*), sugar maple (*Acer saccharum*), white ash (*Fraxinus americana*), and black walnut (*Juglans nigra*). Savannas are scattered throughout the study area and consist of widely spaced trees with an understory of grasses and other herbaceous plants (Illinois State Museum 2000). White oak, post oak, bur oak (*Quercus macrocarpa*), and black oak are common in savanna communities. Prairie communities occur along steep, dry open areas of the Mississippi River bluffs (IDNR 2003*a*). Common grasses include little bluestem (*Schizachyrium scoparium*), big bluestem (*Andropogon gerardii*), Indian grass (*Sorghastrum nutans*), and side oats grama (*Bouteloua curtipendula*; IDNR 2003*b*). A narrow band of eastern red cedar (*Juniperus virginiana*) occurs along the Mississippi River bluffs.

The Renault Karst formation and Mississippi River bluffs represent unique landscape features that provide suitable habitat for a diversity of wildlife, including federal- and state-listed species. The Renault Karst occurs as a northwest-southeast trending band in the western portion of the project area, and is crossed by the Baldwin-Rush Island Line. This limestone formation contains numerous caves and sinkholes that are inhabited by a number of invertebrate, reptile, and bat species. Although no surveys for caves or sinkholes have been conducted for this project, there are caves (i.e., Saltpeter and Fogelpole Caves) in the vicinity. Since the Renault Karst formation is not suitable for agricultural uses, this area supports the largest, contiguous tract of upland forest in the project area. The Mississippi River bluffs occur at the boundary of the Renault Karst formation and Mississippi River valley. The bluffs also contain several ecologically-rich areas that are part of the Illinois Natural Area Inventory. The Fults Hill Prairie Nature Preserve, which represents the largest complex of high quality loess hill prairies in Illinois, is located in the vicinity of the Baldwin-Rush Island Line. The bluffs, Natural Areas, and Fults Hill Prairie Nature Preserve provide habitat for a number of state-listed plant and animal species, and there are a number of IDNR element occurrence records for special status species in this area.

2.3 Threatened and Endangered Species

The terrestrial and aquatic habitats in the study area support a number of 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 the USFWS, IDNR, IDNR species lists (IDNR 2007), and literature review. Based upon review of species habitat requirements and known distributions, a total of 16 federal and/or state-listed plant species (3 federal and 13 state) and 25 federal and/or state-listed wildlife species (5 federal and 20 state) potentially occur in the study area (Table 1). Based upon analyses of the project location and design and associated impacts, it was determined that there the potential for the take of 8 species which are covered by this Conservation Plan (Section 4.0, Table 2). The following sections present biological data for the plant and wildlife species included in the Conservation Plan.

TABLE 1. Threatened and Endangered Species Identified in Monroe and Randolph Counties that May Occur in the Project Area

Common Name	Scientific Name	Status[1]		Likely to Occur in the Project Area	Potential for Take
		USFWS	IDNR		
Plants					
Bellows beak sedge	*Carex physorhyncha*	--	E	Not likely to occur	No
Bradley's spleenwort	*Asplenium bradleyi*	--	E	Not likely to occur	No
Crested coralroot orchid	*Hexalectris spicata*	--	E	Known population within 1 mile	No
Dwarf bedstraw	*Galium virgatum*	--	E	Known population within 1 mile	No
Eastern prairie fringed orchid	*Plantanthera leucophaea*	T	--	Not likely to occur	No
Flameflower	*Talinum calycinum*	--	E	May occur in the vicinity	No
Missouri orange coneflower	*Rudbeckia missouriensis*	--	T	Known population within 1 mile	No
Mock Bishop's weed	*Ptilimnium nuttallii*	--	E	Not likely to occur	No
Prairie bush clover	*Lespedeza leptostachya*	T	--	Not likely to occur	No
Shortleaf pine	*Pinus echinata*	--	E	Not likely to occur	No
Slender heliotrope	*Heliotropium tenellum*	--	E	Known population within 1 mile	No
Small whorled pogonia	*Isotria medeoloides*	T	E	Not likely to occur	No
Spurge	*Euphorbia spathulata*		E	May occur in the vicinity	No
Whitlow grass	*Draba cuneifolia*	--	E	May occur in the vicinity	No
Wooly buckthorn	*Bumelia lanuginosa*	--	E	May occur in the vicinity	No
Yellow honeysuckle	*Lonicera flava*	--	E	Not likely to occur	No

Wildlife					
Illinois cave amphipod	*Gammarus acherondytes*	E	E	May occur in the vicinity	No
Pallid sturgeon	*Scaphirynchus albus*	E	E	May occur in the vicinity	No
Gravel chub	*Erimystax x-punctatus*	--	T	May occur in the vicinity	No
Bigeye shiner	*Notropis boops*	--	E	Not likely to occur	No
Bald eagle	*Haliaeetus leucocephalus*	--	T	May occur in the vicinity	No
Least tern	*Sterna antillarum*	E	--	May occur in the vicinity	No
Indiana bat	*Myotis sodalis*	E	E	Known to occur	No
Gray bat	*Myotis grisescens*	E	E	Known to occur in the vicinity	No
Western sand darter	*Ammocrypta clarum*	--	E	May occur in the vicinity	No
Illinois chorus frog	*Pseudacris streckeri illinoensis*	--	T	May occur in the vicinity	Yes
Timber rattlesnake	*Crotalus horridus*	--	T	Known to occur	Yes
Great Plains rat snake	*Elaphe emoryi*	--	E	May occur in the vicinity	Yes
Eastern narrowmouth toad	*Gastrophryne carolinensis*	--	T	Known to occur	Yes
Coachwhip	*Masticophis flagellum*	--	E	Known to occur	Yes
Flathead snake	*Tantilla gracilis*	--	T	Known to occur	Yes
Mississippi kite	*Ictinia mississippiensis*	--	E	Known to occur	No
Short-eared owl	*Asio flammeus*	--	E	May occur in the vicinity	No
Barn owl	*Tyto alba*	--	E	May occur in the vicinity	No
Northern harrier	*Circus cyaneus*	--	E	Known to occur	No
Loggerhead shrike	*Lanius ludovicianus*	--	T	Known to occur	Yes
Common moorhen	*Gallinula chloropus*	--	T	Known to occur	No

[1] Status: E=Endangered, T=Threatened,
Sources: ILDNR Illinois Threatened and Endangered Species by County as of 1-2-08, Illinois Natural Heritage Database, USFWS Endangered Species in Illinois County Distribution of Federally Threatened, Endangered, Proposed and Candidate Species - By County, Collins 2007.

2.3.1 Plants

Bellows Beak Sedge (*Carex physorhyncha*)
Bellows beak sedge occurs in southwestern Illinois in Jackson, Randolph and Union Counties. It grows in sand and rocky forests (Iverson *et al.* 1999). Flowering occurs from April to June (Iverson *et al.* 1999). The potential for habitat in the study area for this species is low; therefore this species is not expected to occur. Botanical surveys completed in 2007 did not document any populations of Bellows Beak Sedge (HDR 2007).

Bradley's Spleenwort (*Asplenium bradleyi*)
In Illinois, Bradley's spleenwort is found in the crevices of sandstone cliffs and cherty

inclusions within limestone outcrops (NatureServe 2007). Lobed spleenwort (Asplenium pinnatifidum) is one of the few other species that occur in this harsh environment (NatureServe 2007). No known populations of Bradley's spleenwort occur in the study area and the potential for habitat for this species is low. Botanical surveys completed in 2007 did not document any populations of Bradley's spleenwort (HDR 2007).

Crested Coralroot Orchid (*Hexalectris spicata*)
Crested coralroot orchid has been found on calcareous soils in open woods and prairie openings; on dry, usually rocky woods of limestone strata; at or along bluff bases; and sometimes bordering limestone glades near red cedar trees (Iverson *et al.* 1999). In Monroe and Randolph Counties, crested coralroot orchid has been collected from calcareous loess hill prairies on limestone bluffs (Lynn 2001). Crested coralroot is a summer flowering orchid, and typically flowers from June to August (Iverson *et al.* 1999). A known population of crested coralroot orchid occurs within Fults Hill Prairie Nature Preserve, less than 1 mile from the Baldwin-Rush Island Line. Botanical surveys completed in 2007 did not document any populations of crested coralroot orchid (HDR 2007).

Dwarf Bedstraw (*Galium virgatum*)
Dwarf bedstraw is an annual forb that occurs in dry prairies and upland forests, rocky bluffs and glades, typically in limestone soils (Iverson *et al.* 1999). Dwarf bedstraw flowers from April to June (Iverson *et al.* 1999). In Illinois, dwarf bedstraw occurs in Monroe County and a known population of dwarf bedstraw is located within the Fults Hill Prairie Nature Preserve, less than 1 mile from the Baldwin-Rush Island Line. Botanical surveys completed in 2007 did not document any populations of dwarf bedstraw (HDR 2007).

Eastern Prairie Fringed Orchid (*Plantanthera leucophaea*)
Eastern prairie fringed orchid occurs in forest thickets, wet-mesic and mesic prairies, wet-mesic and mesic sand prairies, calcareous seeps, bogs, and marshes (Iverson *et al.* 1999). In Illinois, this species historically occupied tallgrass prairie in 33 counties across the northern two-thirds of the state (USFWS 2003). Currently, this area has almost entirely been converted to agriculture (USFWS 2003). The study area is out of the former range and current distribution of eastern prairie fringed orchid; therefore this species is not expected to occur in the study area.

Flameflower (*Talinum calycinum*)
Flameflower occurs on sandstone rocky bluffs, and limestone or sandstone glades, and has been documented in Randolph County, Illinois (Iverson *et al.* 1999). The flowering time period is from June to September (Iverson *et al.* 1999). One known population of flameflower occurs in Randolph County, therefore this species may occur in the vicinity of the Baldwin-Rush Island Line. Botanical surveys completed in 2007 did not document any populations of flameflower (HDR 2007).

Missouri Orange Coneflower (*Rudbeckia missouriensis*)
Missouri orange coneflower occurs in glades, bald knobs and loess hill prairies (Iverson *et al.* 1999). This species grows on limestone substrata and has been documented in Illinois in both Monroe and Randolph Counties (Iverson *et al.* 1999). Flowering occurs from June to October (Iverson *et al.* 1999). Two known populations of Missouri orange coneflower are known to occur in the Fults Hill Prairie Nature Preserve, less than 1 mile from the Baldwin-Rush Island Line. Botanical surveys completed in 2007 did not document any populations of Missouri

orange coneflower (HDR 2007).

Mock Bishop's Weed (*Ptilimnium nuttallii*)
Mock Bishop's weed occurs in wet prairies and wet floodplain forests (Iverson *et al.* 1999). It has been found in the floodplains of the Mississippi and Ohio Rivers (Iverson *et al.* 1999). Flowering occurs from June to July (Iverson *et al.* 1999). No known populations occur in the study area, but habitat is present in the vicinity of the Baldwin-Rush Island Line. Botanical surveys completed in 2007 did not document any populations of Mock Bishop's weed (HDR 2007).

Prairie Bush Clover (*Lespedeza leptostachya*)
Prairie bush-clover occurs in dry-gravel and dry-mesic prairies (Iverson *et al.* 1999). The forest cover type is aspen-paper birch (ESIS 1996). In Illinois, plants occur more commonly on steep south-facing slopes. Associated species include little bluestem (*Schizachyrium scoparium*), side oats grama (*Bouteloua curtipendula*), and Indian grass (*Sorghastrum nutans*) (Iverson *et al.* 1999; ESIS 1996). Flowering occurs from August to September (Iverson *et al.* 1999). This species known to occur in northern Illinois, but has not been documented in the study area. Limited potential habitat occurs in the western portion of the study area, near the Fults Hill Prairie Nature Preserve. Botanical surveys completed in 2007 did not document any populations of prairie bush clover (HDR 2007).

Shortleaf Pine (*Pinus echinata*)
Shortleaf pine occurs in dry upland forests and developed land and plantations (Iverson *et al.* 1999). Forest cover types include white/black/northern red oak, chestnut oak, post oak-blackjack oak, and shortleaf pine-oak (Iverson *et al.* 1999). Piney Creek in Randolph County, approximately 30 miles south of the study area, represents one of two areas with naturally occurring stands in Illinois (Miller *et al.* 2000). Potential habitat is not present in the study area so this species is not expected to occur. Botanical surveys completed in 2007 did not document any populations of shortleaf pine (HDR 2007).

Slender Heliotrope (*Heliotropium tenellum*)
Slender heliotrope has been documented in both Monroe and Randolph Counties (Iverson *et al.* 1999). This species occurs in loess hill prairies, limestone glades, and limestone rocky bluffs. The flowering period for slender heliotrope is from June to August (Iverson *et al.* 1999). Slender heliotrope is documented from one location within the Fults Hill Prairie Nature Preserve less than 1 mile from the Baldwin-Rush Island Line. Botanical surveys completed in 2007 did not document any populations of slender heliotrope (HDR 2007).

Small Whorled Pogonia (*Isotria medeoloides*)
Small whorled pogonia occupies dry-mesic, and dry and mesic upland forests (Iverson *et al.* 1999). The forest cover type is white/black/northern red upland oak (Iverson *et al.* 1999). This species is considered the rarest native orchid east of the Mississippi (CPC 2005). Associates include several species of mosses, lichens, red oak, white oak, shagbark hickory (*Carya ovata*) and downy rattlesnake plantain (*Goodyera pubescens*; Iverson *et al.* 1999). Small whorled pogonia's flowering period is from May to June (Iverson *et al.* 1999). No known populations of small whorled pogonia occur in the study area and this species has likely been extirpated from Illinois (Collins 2006). Botanical surveys completed in 2007 did not document any populations of small whorled pogonia (HDR 2007).

Spurge (*Euphorbia spathulata*)
Spurge occurs in dry prairies and limestone rocky bluffs (Iverson *et al.* 1999). Flowering occurs from May to July (Iverson *et al.* 1999). This annual forb has been documented in Monroe County, Illinois. Population of spurge occur in Monroe County, therefore this species may occur in the vicinity of the Baldwin-Rush Island Line. Botanical surveys completed in 2007 did not document any populations of spurge (HDR 2007).

Whitlow Grass (*Draba cuneifolia*)
Whitlow grass occurs on the edges and tops of bluffs, rocky ledges, and typically in limestone soils (Iverson *et al.* 1999). This annual forb flowers from February to May (Iverson *et al.* 1999). Whitlow grass has been recorded in Illinois in Monroe and Randolph Counties. One population of Whitlow grass is known to occur within the Fults Hill Prairie Nature Preserve, less than 1 mile from the Baldwin-Rush Island Line. Botanical surveys completed in 2007 did not document any populations of whitlow grass (HDR 2007).

Wooly Buckthorn (*Sideroxylon lanuginosum* - Syn: *Bumelia lanuginosa*)
Wooly buckthorn occurs in rocky and open woods, and on upland ridges and slopes (Iverson *et al.* 1999). The forest cover is type white/black/northern red oak (Iverson *et al.* 1999). Flowering occurs June through July (Iverson *et al.* 1999). Wooly buckthorn has been documented in Monroe County and is known to occur in Fults Hill Prairie Nature Preserve, less than 1 mile from the Baldwin-Rush Island Line. Botanical surveys completed in 2007 did not document any populations of woody buckthorn (HDR 2007).

Yellow Honeysuckle (*Lonicera flava*)
The yellow honeysuckle is a perennial fibrous vine with trailing or climbing stems, with often showy orange to pale yellow flowers and globose red to reddish-orange berries. Yellow honeysuckles occur on upland rocky forests or on rock bluffs, or in rocky ground along streams. In Illinois, the yellow honeysuckle tends to be restricted to the margins of rock outcrops in rocky woods, and particularly at the edges of sandstone bluffs (USFWS 2003).The best documented site in Illinois is Bell Smith Springs in Pope County (USFWS 2003). In Randolph County the yellow honeysuckle is known to occur in Swayne Hollow. Flowering occurs typical between April and May, with peak flowering in Illinois around May 15. Yellow honeysuckle is not known to occur along the Baldwin Rush Island Line. The nearest known occurrence is approximately 50 miles southeast of the proposed line at Swanye Hollow Nature Preserve (near Murphysboro). Botanical surveys completed in 2007 did not document any populations of yellow honeysuckle (HDR 2007).

2.3.2 Wildlife

Illinois cave amphipod (*Gammarus acherondytes*)
The Illinois cave amphipod inhabits dark cave streams with relatively cool water temperatures, and are not tolerant of large temperature fluctuations. The species ecology is not well known, although it has been collected from a variety of aquatic cave habitats including mainstream riffles, small tributaries, rimstone pools, and streams with silt overlying bedrock. The primary factors affecting contributing to the species decline include destruction of cave habitats and water pollution. The species was historically known from six cave systems in Monroe and St. Clair Counties. Recent surveys indicate an extant population in the Fogelpole Cave system, which is located in the study area approximately 1 mile north of the Proposed Route (USFWS

2002). Although no Illinois cave amphipod surveys were conducted for the proposed project, the Illinois cave amphipod may occur in the vicinity of the Baldwin-Rush Island Line near Fogelpole Cave, approximately 1/2 mile from the proposed line.

Pallid sturgeon (*Scaphirynchus albus*)
The pallid sturgeon is native to the Missouri and Mississippi Rivers and is adapted to large, free-flowing, turbid habitats. Historically, floodplains, backwaters, chutes, sloughs, islands, sandbars and main channels formed the large-river ecosystem habitat for all life stages of pallid sturgeon. Current primary habitats in the Mississippi River include the main channel border and downstream islands tips. The primary factors affecting contributing to the species decline include degradation of habitat due to navigation system maintenance and flood control (USFWS 1993). The pallid sturgeon is known to occur in the Mississippi River in the vicinity of the Baldwin-Rush Island Line.

Gravel Chub (*Erimystax punctatus*)
The gravel chub typically reaches just over three inches and may grow over four inches in length.. The head is elongated with moderately large eyes, and a rounded snout that overhangs the mouth, the corners of which bear a small, but noticeable barbel. The silvery sides of the body are marked irregularly with darker X or Yshaped markings. The small anal fin has seven rays; the dorsal and pelvic fins each have eight. The gravel chub occurs in moderately deep portions of large, clear creeks and rivers, or shallow riffles flowing over a sand-gravel-rock bottoms. Spawning occurs in the spring. The gravel chub is an omnivore. In Illinois the species is known in the Rock River system in the northwestern part of the state. The species is also known less commonly in the Wabash and Mississippi Rivers. There has been one documented collection in northwest Monroe County. The gravel chub may occur in the Mississippi River in the vicinity of the Baldwin-Rush Island Line.

Bigeye Shiner (*Notropis boops*)
The primary bigeye shiner populations in Illinois occur in the Vermilion and Little Vermilion River systems. Recent surveys have confirmed the species occurrence in the Little Vermilion River, the Clear Creek drainage, and a side channel of the Mississippi River. The bigeye shiner is presumed to be extirpated from reaches of the Kaskaskia and Little Wabash Rivers (Burr *et al.* 1996). There are no historic observations or IDNR element occurrence records for bigeye shiner in that portion of the Kaskaskia River that is located within the study area. Although specific surveys for the bigeye shiner have not been conducted, the species is not likely to occur in the study area.

Bald eagle (*Haliaeetus leucocephalus*)
Bald eagle habitat consists of large trees, which are utilized for perching, roosting, and nesting, within ½ mile of a permanent water body that supports abundant fish populations. While fish represent the primary food source, bald eagles also prey upon waterfowl and small mammals and scavenge carrion (USFWS 1983). The species was observed along the Mississippi River bluffs during field investigations, and there are IDNR element occurrence records for bald eagle nests on the Kaskaskia River (west of Baldwin Lake) and on the Mississippi River (southeast of Fults).

Field investigations were conducted on May 2 and May 3, 2006 to locate bald eagle nests within the project area. Nest surveys were completed at the proposed Kaskaskia River crossing in the center of the project area and the Mississippi River floodplain forest crossing in the western end of the study area. No bald eagle nest or nest remnants were located in the vicinity of the IDNR

nest location or elsewhere within the Kaskaskia River and Mississippi River floodplain survey areas. Additional surveys will be conducted prior to construction. A pair of bald eagles was observed soaring in the vicinity of the Mississippi River floodplain forest crossing during these investigations. The bald eagle is known to occur and nest in the vicinity of the Baldwin-Rush Island Line.

Least tern (*Sterna antillarum*)
The interior population of least tern was listed as an endangered species on May 28, 1985 (50 FR 21784). The species nests on barren river sandbars, gravel pits, and lake and reservoir shorelines and forages for small fish in shallow-water habitats. The primary factors affecting contributing to the species decline include degradation of habitat due to navigation system maintenance and flood control (USFWS 1990). Although the least tern breeding range extends north to St. Louis, much of the sandbar habitat along the Mississippi River is not suitable for nesting. The species is considered to be an uncommon local migrant and summer resident in southern Illinois. Potential habitat for the least tern occurs along the Mississippi River in the study area, and the species may occur in the vicinity of the Baldwin-Rush Island Line.

Indiana bat (*Myotis sodalis*)
The Indiana bat hibernates in caves or abandoned mines (occasionally) during the winter months. The species requires cool, humid caves with stable temperatures for hibernation, and few caves within the range of the species possess the conditions to be suitable hibernacula. In early spring, Indiana bats migrate to summer floodplain forest habitats where they forage along forest edges and roost under loose bark on dead or dying trees. Males roost alone or in small groups, while females roost in larger maternity colonies. The tree species most frequently used by maternity colonies are northern red oak, slippery elm, cottonwood, silver maple, and shagbark hickory. Primary causes of the species decline include disturbance of hibernating bats and destruction of hibernacula, loss of summer roosting and foraging habitats, and declines in prey associated with pesticide use (USFWS 1996).

In October of 2006, Ameren was informed by IDNR and USFWS that these agencies maintain a list of all active hibernacula (caves) in the study area and conduct biennial hibernacula surveys. Several hibernacula, including a cave ½ mile north of the study area boundary, are known to occur in Monroe County. Fogelpole Cave, a known Indiana bat hibernacula, is located approximately ½ mile north of the Baldwin-Rush Island Line. Additionally, bat studies conducted for the Holcim Lee Island project identified Indiana bat summer roosts along the Mississippi River floodplain forest in Illinois. Indiana bat mist-netting surveys were conducted in 2006 and 2007 in suitable roosting habitats (e.g., riparian forests along Kaskaskia River and Mississippi River) within the Baldwin-Rush Island study area. These surveys documented 19 Indiana bats in the project study area. Field survey efforts also recorded 8 maternity roosts within 1 mile of the Baldwin-Rush Island Line (Ecological Specialties, LLC, 2007). Two of the maternity roosts are located within the line's 150-foot ROW corridor. Therefore, the Indiana bat is known to occur in the vicinity of the Baldwin-Rush Island Line.

Gray bat (*Myotis grisescens*)
The gray bat was listed as an endangered species on April 28, 1976 (41 FR 17736). The species utilizes caves or cave-like habitats in all seasons (roosting and hibernacula). The gray bat forages along rivers and lakes for a variety of terrestrial and aquatic insects. Throughout its range, the species is most commonly found in limestone karst cave systems. During summer, the gray bat utilizes caves that meet the species temperature requirements and are within a

kilometer of foraging habitat. Winter hibernacula are located in deep, vertical cave systems with stable temperatures between 6 and 11 C°. Primary causes for the species decline include disturbance of caves and pesticide use. Southwestern Illinois represents the northern limit of gray bat distribution. The IDNR has no records of gray bat roosts or hibernacula in the study area. Suitable cave habitats may occur in the Renault Karst formation approximately ½ mile to the north. The gray bat may occur in the vicinity of the Baldwin-Rush Island Line.

Western sand darter (*Ammocrypta clarum*)
The western sand darter inhabits rivers with sandy substrates and relatively fast currents. The species is known to occur in the upper Kaskaskia River as well as the Mississippi River (Randolph, Madison, and Calhoun counties). The lack of suitable habitat in the Mississippi River and the degradation of habitat in the lower Kaskaskia River have contributed to the species decline (Tucker and Cronin 1996). The western sand darter does not occur in that portion of the Kaskaskia River that is located within the study area; however it may occur in the Mississippi River in the vicinity of the Baldwin-Rush Island Line.

Illinois chorus frog (*Pseudacris streckeri illinoensis*)
The Illinois chorus frog 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. The distribution of the Illinois chorus frog includes west-central and southwestern Illinois, and the species has been observed in Monroe County. Primary threats include loss of sand prairie habitats, draining and clearing of bottomlands, and use of herbicides and pesticides (INHS 2006*a*). Although there are no historic observations or IDNR element occurrence records for the species in the study area, the Illinois chorus frog is likely to occur in the vicinity of the Baldwin-Rush Island Line.

Timber rattlesnake (*Crotalus horridus*)
The timber rattlesnake most often inhabits mature upland forests in rugged, rocky terrain and along rock bluffs. The species distribution is determined by the existence of suitable winter denning habitat in rocks or talus slopes. Primary threats include indiscriminate killing, vehicles, and clearing of forested lands (INHS 2006*b*). The timber rattlesnake is known to occur in Monroe and Randolph Counties, and there are IDNR element occurrence records for the species in the Fults Hill Prairie Nature Preserve. The timber rattlesnake is known to occur along the Mississippi River bluffs in the vicinity of the Baldwin-Rush Island Line.

Great Plains rat snake (*Elaphe emoryi*)
The Great Plains rat snake occurs in rocky, wooded hillsides, hill prairies, bluffs, and adjacent brushy fields. The species is only known to occur along the Mississippi River bluffs between Jersey and Randolph counties. Vehicles are the primary threat to the Great Plains rat snake (INHS 2006*c*). The species is known to occur in Monroe and Randolph Counties, and there are IDNR element occurrence records for the species in the vicinity of the Fults Hill Prairie Nature Preserve. The Great Plains rat snake is known to occur along the Mississippi River bluffs in the vicinity of the Baldwin-Rush Island Line.

Eastern narrowmouth toad (*Gastrophryne carolinensis*)
The eastern narrowmouth toad inhabits mesic habitats with abundant ground cover. The species breeds in temporary or permanent waters including ponds, lakes, swamp edges, marshy fields, and roadside ditches. Outside of breeding season, the eastern narrowmouth toad is typically found beneath rocks, logs, and rotten stumps. The primary threat to the species is habitat destruction. The eastern narrowmouth toad is known to occur in Monroe and Randolph

Counties (INHS 2006*d*), and there are IDNR element occurrence records for the species throughout the Renault Karst formation in the study area. The eastern narrowmouth toad is known to occur in the vicinity of the Baldwin-Rush Island Line.

Coachwhip (*Masticophis flagellum*)
The coachwhip inhabits rocky, open hillsides, glades, and hill prairies. The primary threat to the species is vehicle traffic. The only known coachwhip population in Illinois occurs along the Mississippi River bluffs in Monroe County. There are several IDNR element occurrence records for the coachwhip along the Mississippi River bluffs in the vicinity of the Fults Hill Prairie Nature Preserve (INHS 2006*e*), and the species is known to occur in the vicinity of the Baldwin-Rush Island Line.

Flathead snake (*Tantilla gracilis*)
The flathead snake inhabits rocky, wooded limestone hillsides. The species is typically found under rocks and logs in forested areas or on brushy slopes. Flathead snakes are sometimes observed along roads at bottoms of rocky hillsides. As surface soils dry out in summer, the flathead snake burrows deep into the ground. The species is rare and localized along the Mississippi River bluffs in St. Clair, Monroe, and Randolph Counties. There are IDNR element occurrence records for the flathead snake in the vicinity of the Fults Hill Prairie Nature Preserve (INHS 2006*f*), and the species is known to occur in the vicinity of the Baldwin-Rush Island Line.

Mississippi kite (*Ictinia mississippiensis*)
The Mississippi kite requires extensive mature, mixed bottomland forests (nesting habitat) interspersed with open fields or prairies (foraging habitat). The species is considered to be an uncommon wanderer and local summer resident along the Mississippi in Illinois River (INHS 2006*g*). There are IDNR element occurrence records for the Mississippi kite along the Mississippi River in the study area, and the species is known to occur in the vicinity of the Baldwin-Rush Island Line.

Short-eared owl (*Asio flammeus*)
The short-eared owl occurs in open habitats including prairies, grasslands, pastures, wet meadows, and marshes. In Illinois, the species prefers wet prairie habitats for breeding, foraging, roosting in all seasons. The short-eared owl nests on the ground usually near clump of vegetation in marsh or meadow. Primary threats include shooting, collisions with vehicles and barbed-wire fences, and farm machinery (INHS 2006*h*). Although there are no IDNR element occurrence records for the short-eared owl in the study area, the species is likely to occur in the vicinity of the Baldwin-Rush Island Line.

Barn owl (*Tyto alba*)
The barn owl utilizes a variety of open habitats (farmlands, prairie, forest edges, etc.) for foraging and nests in cavities of mature and dead trees. The species is relatively tolerant of human activity and often nests in manmade structures (i.e., barns and abandoned buildings) when natural cavities are not available. The species is considered an occasional resident in southern Illinois. Primary threats to the barn owl include loss of nesting habitat, vehicle collisions, and control of prey populations (INHS 2006*i*). Although there are no IDNR element occurrence records for the barn owl in the study area, the species may occur in the vicinity of the Baldwin-Rush Island Line.

Northern harrier (*Circus cyaneus*)

Ecological requirements of the northern harrier are similar to those of the short-eared owl. The species forages in open prairies, meadows, and pastures and nests on the ground in areas sheltered by shrubs, weeds or other vegetation. High quality breeding habitats in Illinois include large tracts of native prairie and marsh habitats. The northern harrier is considered a common migrant and winter resident and occasional summer resident in Illinois. Primary threats include disturbance of nests and nesting habitat (INHS 2006*j*). The northern harrier was observed along the Mississippi River floodplain during field investigations and is known to occur in the vicinity of the Baldwin-Rush Island Line.

Loggerhead shrike (*Lanius ludovicianus*)
The loggerhead shrike utilizes edge habitats and hedgerows with scattered thorny shrubs and trees (e.g., hawthorn, locust, crab apple, Osage orange) on which they impale their prey. The species is considered a common resident in southern Illinois (INHS 2006k). There are several IDNR element occurrence records for the loggerhead shrike throughout the study area, and the species is known to occur in the vicinity of the Baldwin-Rush Island Line.

Common moorhen (*Gallinula chloropus*)
The common moorhen inhabits freshwater marshes and ponds with emergent vegetation, particularly cattails and bulrushes. The species does not require large marsh systems, and is often found in small patches of cattails along the edges of lakes or rivers. The common moorhen constructs nests on vegetated platforms in emergent vegetation. The species is considered an occasional migrant and summer resident in southern Illinois. The primary threat is habitat destruction (INHS 2006l). There is an IDNR element occurrence record for the common moorhen in the wetlands south of Fults, and the species is known to occur in the vicinity of the Baldwin-Rush Island Line.

2.4 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.

2.4.1 Description of Project Activities

Line Structures
The Baldwin-Rush Island Line would be a single circuit 345kV electric transmission line and consist of single shaft galvanized or painted steel poles. Poles would typically range between 95 and 125 feet in height. Typical spans are expected to be about 900 feet. Single pole design was considered to reduce impacts on agriculture. The Kaskaskia River crossing would require a single pole structures with a height of 135 to 155 feet. Steel lattice towers would be used to cross the Mississippi River and would require a height of 320 to 400 feet.

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, and 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 line would occur between late fall 2008 and fall 2010 unless

easement acquisition is delayed due to the need for condemnation. The following describes the general chronological sequence of construction activities for the Baldwin-Rush Island Interconnection Project.

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. The specified ROW boundaries would be marked with lath and/or flagging. All markers would be removed during final cleanup.

Construction of Access Roads

Construction of travel ways would 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. For the purposes of this report it is assumed that a temporary travel way would run the entire length of the lines within the ROW except for the Mississippi River crossing where it is assumed roads already exist to access lattice tower locations. The Mississippi River shoreline could also be accessed by barge. Travel ways would be constructed 20-feet wide within the 150-foot ROW for the entire length of each selected route. Vegetation within the travel way would be cleared, and the travel way would be graded to maintain passable conditions. Gravel would 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, access would be rehabilitated. Travel ways would be reopened if maintenance of a structure is needed and would be rehabilitated upon work completion. Access would be designed with storm water controls such as cross drains, flow dissipaters, etc. All drainage structures would be maintained throughout construction and repaired when necessary. 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.

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, 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 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 the Kaskaskia and Mississippi River crossings, trees would be cut as low to ground as possible. A waterway mix of 50% Tall Fescue (Faun), 30% Perennial Rye, 10% Redtop, and 10% White Clover will be utilized to stabilize flood plain and any river bank disturbance. In order to maintain bank stabilization and minimize erosion, small low-growing shrubs that reach a mature height of 10 feet or less (i.e. *Cephalanthus occidentalis* "Buttonbush"), 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 rehabilitated to existing ground contours. Rehabilitation activities would include, as necessary, ripping, redistribution of displaced soils, distribution of large woody debris, and re-vegetation utilizing approved native plants and/or seed mixtures. In low-lying areas subject to flooding from natural watercourses, all logs, brush, branches, and other slashings generated by vegetation clearing activities will be moved to ground above high water level.

At each structure location, work areas would be established for structure footings, assembly, and erection equipment. Work areas would be cleared of brush and vegetation only to the extent necessary to facilitate the safe operation of equipment. Pulling and tensioning sites would be cleared of brush and vegetation, and landings would be leveled as required for equipment set-up. After completion of construction, all disturbed work areas would be rehabilitated by ripping, redistributing displaced soils and large woody debris, and reseeding the area with a native seed mixture if not is cultivation.

Foundation Installation

A track hoe or truck-mounted power auger, or pile driving equipment would 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 on the ground after completion of the foundation.

Poles would be placed on foundation anchor bolts when the foundations are ready. In instances where foundation holes are left open for any period of time, they would be covered. Soils removed from foundation holes would be stockpiled within the work area and hauled away, re-spread per landowner requirements, or used as backfill.

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.

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.

Rehabilitation
All travel ways and work areas would be ripped, disked or chiseled to remove compaction and 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.

Operations and Maintenance Activities
Typical long-term operations and maintenance activities include line inspections and minor routine maintenance activities. Line inspections will be completed either from the ground or utilizing airplanes or helicopters. Inspections would occur over a period of one day (if conducted aerially) to several days (if conducted on the ground). Ground inspections would utilize existing roads where possible. Routine maintenance activities would be completed following inspections, and would involve a few individuals (Ameren employees or contractors) accessing the line in work vehicles. Routine maintenance activities would not require heavy equipment. Periodic right-of-way maintenance would include trimming trees with an aerial saw or for contractor to bring in all terrain aerial buckets (ATAB) to trim trees located on the sides of the right of way. Stump and basal herbicide treatment within the ROW will include the use of Garlon 4 with bark blue oil (20% Garlon), or Garlon4 with Stalker and basal oil (15% Garlon, 3% Stalker), depending on the contractor. ROW maintenance would include mowing where applicable. Occasionally, emergency activities may be necessary to repair damaged structures or conductors. These activities may require heavy equipment or helicopter operations. Every effort will be made to ensure that emergency activities are conducted in compliance with the measures outlined in this Conservation Plan and do not adversely affect sensitive habitats and state-listed species.

2.4.2 Project Effects on Listed Species

Construction and maintenance of the proposed transmission line could result in a taking of listed plants and terrestrial wildlife 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 plants and wildlife 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. Grading and clearing could destroy bird nests and result in the loss of eggs or young. 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 wildlife 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 and most equipment and 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.

2.5 Measures to Reduce Impacts to Listed Species

One of the primary considerations in the routing of the Baldwin-Rush Island Interconnection Project was the potential impact to biological resources, including sensitive habitats and species listed as threatened and endangered by the State of Illinois. Specifically, the routes were designed to 1) cross the Kaskaskia River floodplain forest at the narrowest point, 2) minimize the amount of Renault Karst formation crossed, 3) avoid traversing the Mississippi River bluff, 4) avoid ecologically-sensitive areas (Fults Hill Prairie Nature Preserve, Saltpeter Cave, Salt Peter Cave Natural Area, Renault Herpetological Natural Area) and 5) minimize impacts to the Mississippi River floodplain forest.

While the general routing was designed to minimize potential impacts associated with construction, operation, and maintenance of the Baldwin-Rush Island Interconnection Project, 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 Baldwin-Rush Island Interconnection Project.

2.5.1 Mitigation Measures

Generic Measures

1. All construction personnel will be briefed on the sensitive biological resources in the area, the system used to mark work areas and avoidance areas, travel restrictions for equipment and vehicles, how to report incidents to the Construction Supervisor, and the importance of avoiding taking of listed species.
2. Pre-construction surveys for listed plant species will be conducted along the transmission line routes and access roads. The locations of listed plants (individuals and populations) will be recorded on GPS units and mapped utilizing GIS. Prior to the initiation of construction, all individuals/populations will be marked in the field as avoidance areas. As necessary, transmission line structures and access roads will be located to span or avoid these areas. If listed plants cannot be avoided, efforts will be made to relocate the plants outside of active work areas.
3. Pre-construction surveys will be conducted to identify sensitive habitats along the transmission line route and access roads. As necessary, transmission line structures and access roads will be located to span or avoid sensitive habitats, including wetlands. If a

wetland cannot be avoided, mat or corduroy will be used in the work areas to minimize soil compaction and other adverse effects.

4. Pre-construction IDNR record surveys have been conducted to identify caves along the transmission line route and access roads. Pre-construction subsurface exploration at proposed pole locations will be conducted to identify sinkholes along the transmission line route. Caves and sinkholes will be marked as avoidance areas, and the transmission line and access roads will be designed to span or avoid these features.

5. 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 the Mississippi River floodplain will be designed to minimize flow obstructions.

6. Erosion and sediment controls will be conducted in compliance with the site's Storm Water Pollution Prevention Plan (SWPPP). The SWPPP is a requirement for the EPA General Storm Water Permit for Construction Activities.

7. All pits, trenches, or holes excavated during construction will either be immediately backfilled or covered overnight to prevent trapping and killing amphibians, reptiles, and small mammals. Construction personnel will check all pits, trenches, or holes each morning and remove any animals that have been accidentally captured overnight.

8. Balls or other marker devices will be installed on the transmission line at the crossings of the Kaskaskia River and the Mississippi River. These markers will increase visibility of the conductors and reduce the potential for avian collisions.

9. Trees within the Kaskaskia and Mississippi flood plain forest will be trimmed or cut as low to ground as possible and treated with FIFRA registered herbicide to prevent re-sprouting of weak secondary growth off of the stumps. A waterway mix of 50% Tall Fescue (Faun), 30% Perennial Rye, 10% Redtop, and 10% White Clover will be utilized to stabilize flood plain and any river bank disturbance. In order to maintain bank stabilization and minimize erosion, small low-growing shrubs that reach a mature height of 10 feet or less (i.e. *Cephalanthus occidentalis* "Buttonbush"), would be planted. In low-lying areas subject to flooding from natural watercourses, all logs, brush, branches, and other slashings generated by vegetation clearing activities will be moved to ground above high water level.

10. Areas where the ground has been disturbed for construction of the transmission lines and access roads will be seeded 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.

11. The transmission lines have been designed to include a separation of at least 216 inches between conductors. Studies of avian electrocutions on transmission line have shown that a 60-inch minimum horizontal separation between energized conductors eliminates any potential for avian electrocution, including larger species such as cranes and raptors (APLIC and USFWS 2005). This measure will ensure that there is no avian mortality as a result of electrocutions on the transmission lines.

12. A Noxious and Exotic Weed Control Plan will be developed and implemented in coordination with the County Weed Control Authority. This plan will help to prevent the introduction and spread of weed species and associated adverse effects to native habitats throughout the project area.

13. 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.

14. Pre-construction biological surveys will be conducted throughout the project area, including the entire 150-foot wide right-of-way for the transmission line. These surveys will target all threatened and endangered plant and wildlife species listed in Table 1. All observations of listed species will be recorded using GPS, and occupied habitats will be delineated in the field and designated as avoidance areas in which no ground disturbance will be permitted.

Species-Specific Measures

15. Specific surveys have been conducted for Indiana bat roosts in all suitable habitats within the project area. Mist-netting surveys in accordance with USFWS protocols were completed in 2006 and 2007 and have documented 8 new roost trees in Monroe and Randolph Counties (Ecological Specialties, LLC, 2007). The locations of active roosts were recorded using GPS. Roost trees will be marked as avoidance areas. If a roost tree must be removed or pruned for the project, the USFWS will be consulted prior to any action to determine the appropriate methods and time frame.

16. In order to minimize potential adverse impacts to the Indiana bat, seasonal restrictions on tree clearing, topping, and pruning will be implemented throughout the project area. In accordance with USFWS guidelines, tree clearing, topping, and pruning will be prohibited between April 1 and September 30.

17. In accordance with USFWS guidelines, this restriction period will extend until November 15 for that portion of the Baldwin-Rush Island Line located within 5 miles of Fogelpole Cave (a known Indiana bat hibernacula).

18. Bald eagle nest surveys will be completed throughout the project area during the early spring (prior to leaf-out) before construction begins. Should any active nests be identified within or adjacent to the project area, seasonal restrictions on construction will be implemented as necessary in accordance with the Northern States Bald Eagle Recovery Plan (USFWS 1983). Active nest trees will be protected from disturbance.

19. Pre-construction surveys for the Illinois chorus frog and Eastern narrowmouth toad will be completed within all suitable habitats in the project area. All occupied habitats will be delineated using GPS, and these areas will be marked as avoidance areas in which no ground disturbance will be permitted. The transmission line and access roads will be designed to span or avoid occupied habitats.

20. Prior to construction, a biologist will survey the work area for all bird species listed in Table 1. If any individuals are observed, the biologist will ensure that they are moved or displaced to a safe location outside of the designated work areas. The monitor will also survey the work areas for nests during the appropriate season. Nests will be marked as avoidance areas until the young have fledged or the nest is abandoned.

2.5.2 Long-Term Management

Upon completion of construction, all disturbed areas (travel ways and work areas) will be reclaimed. Reclamation activities will 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.

Reclamation activities will help to establish native plant species and restore these areas as potential habitat for a number of plant and wildlife species. Additionally, a Noxious and Exotic Weed Control Plan will be implemented throughout the project area to minimize the potential for the invasion and spread of non-native species. Restoration activities will be monitored annually for 3 years to ensure that the area is successfully reclaimed and native vegetation has been established. Although trees will not be allowed to establish within the right-of-way, the area will be managed as native grasslands that provide habitat for listed species.

2.5.3 Conservation Plan Funding

Ameren Corporation is the parent of AmerenIP, which provides services to approximately 625,000 electric customers in 313 incorporated municipalities across 15,000 square miles of central, east central and southern Illinois. AmerenIP provides service to nine cities with populations greater than 30,000, including Danville, Decatur, Belleville, Bloomington-Normal, Champaign-Urbana, Galesburg and Granite City. As a large utility, AmerenIP 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 the financial instruments such as bonds, certificates of insurance, 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 provide for reliable delivery of electricity generated by the new Prairie State generation facility into the Midwest Independent Transmission System Inc. energy market. The No Action alternative would not allow AmerenIP to fulfill its legally-mandated obligations pursuant to FERC Order 888.

3.2 Alternatives Considered

Several alternatives were considered for the proposed transmission line. AmerenIP prepared a routing study and a subsequent environmental report to evaluate and compare the environmental impacts associated with the proposed route. AmerenIP also consulted with the IDNR in the development of the preferred alignment for the Baldwin-Rush Island Line. The proposed route alternative was selected to generally minimize impacts to land use, visual, biological resources, and water resources.

Three alternative routes were considered for the Baldwin-Rush Island Line. The preferred route was largely based upon an evaluation of biological resources. Compared to the other alternatives, the route minimizes effects to upland forest and Mississippi floodplain forest

communities, and avoids ecologically-sensitive areas including Fults Hill Prairie Nature Preserve, the Salt Peter Cave Natural Area, and the Renault Herpetological Natural Area.

3.3 Alternatives Considered but Eliminated

Two alternative corridors for the Baldwin-Rush Island Line identified in the routing study were withdrawn from consideration for the following reasons:

- multiple crossings of existing 345kV and 138kV transmission lines would create an unacceptable risk in terms of system reliability;
- proximity to a large number of residences and the City of Red Bud;
- crossing a wide portion of the Kaskaskia River floodplain forest and wetlands;
- crossing an extensive area of the Renault Karst formation;
- more ground disturbance due to greater lengths; and
- proximity to Harlow Island National Wildlife Refuge.

4.0 ASSESSMENT OF TAKE

Although the project design and proposed mitigation measures will minimize impacts to sensitive habitats and threatened and endangered species, construction and maintenance activities could result in the taking of some individuals. While every effort will be made to minimize take, construction equipment and vehicles may result in the mortality and/or harassment of individuals that occur in work areas or on access roads. This is particularly true for species with limited mobility, ground nesting species, or use underground burrows, such as some birds, reptiles, and amphibians. Take of listed bird species is limited as a result of pre-construction surveys.

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. The alignment of the transmission line was designed in consultation with IDNR and minimizes potential impacts to ecologically-sensitive areas that provide habitat for a number state-listed species. Specifically, the transmission line avoids crossing the Mississippi River bluffs and associated caves, native prairies, and rocky, talus slopes. Implementation of the generic and species-specific mitigation measures identified above will reduce the potential for takings of listed species throughout the life of the project.

The potential for species takes were determined through analysis of the project activities, the location and amount of habitats that will be disturbed, and the mitigation measures that will be implemented. Species specific home ranges, nesting, and clutch size (identified in Birds of North America 2008 and NatureServe 2007) were compared to the amount of potential disturbed habitat utilized within the Baldwin-Rush Island line ROW. For example, northern harrier nests are separated by approximately 0.5 km (this equates to a 193 acre circle). Therefore, approximately 3 northern harrier nests could potentially occur along the Baldwin-Rush Island line ROW (549 acres). Northern harriers are ground nesting species in prairies, pastures, and meadows. Approximately 80 acres of this habitat would likely be disturbed within the Baldwin-Rush Island line ROW. Since 15% of the Baldwin-Rush Island line ROW contains potential habitat for the northern harrier, one lost nest is estimated to occur from construction of

the line. This equates to an estimated take of 4 northern harriers based on an average clutch size of 4 eggs (Birds of North America 2008). Based upon this type of analysis, estimates of expected take were determined for each of the Illinois endangered or threatened species that is likely to occur within or adjacent to the project area (Table 2). The estimates of take identified in Table 2 are also based on a few assumptions, including 1) no caves or sinkholes will be disturbed, 2) no rocky, talus slopes along the Mississippi River bluffs will be disturbed, 3) seasonal restrictions will be implemented for construction in all upland and floodplain forest habitats, and 4) bird species will be able to avoid construction equipment and vehicles.

Based upon the numbers of individuals affected by the project (Table 2), the proposed taking will not reduce the likelihood of the survival of any endangered or threatened species in the wild within the State of Illinois. Although the project will cross through upland forest and floodplain forest habitats and the Renault Karst formation, the transmission line and associated access roads will affect relatively narrow corridors. Accordingly, the project would not significantly affect any biotic communities. Finally, the project has been designed to avoid ecologically-sensitive areas and will not adversely affect any habitats that are essential to the species existence in Illinois.

TABLE 2. Estimated Take of Threatened and Endangered Species

Common Name	Scientific Name	Estimated Habitat Loss and/or Disturbance[1]	Estimated Take[2]	Mitigation Measures[3]
Plants				
Bellows beak sedge	*Carex physorhyncha*	34 acres of potential habitat	0	1, 2, 3
Bradley's spleenwort	*Asplenium bradleyi*	None	0	1, 2, 3
Crested coralroot orchid	*Hexalectris spicata*	34 acres of potential habitat	0	1, 2, 3
Dwarf bedstraw	*Galium virgatum*	78 acres of potential habitat	0	1, 2, 3
Eastern prairie fringed orchid	*Plantanthera leucophaea*	3 acres of potential habitat	0	1, 2, 3
Flameflower	*Talinum calycinum*	1 acres of potential habitat	0	1, 2, 3
Missouri orange coneflower	*Rudbeckia missouriensis*	78 acres of potential habitat	0	1, 2, 3
Mock Bishop's weed	*Ptilimnium nuttallii*	3 acres of potential habitat	0	1, 2, 3
Prairie bush clover	*Lespedeza leptostachya*	1 acre of potential habitat	0	1, 2, 3
Shortleaf pine	*Pinus echinata*	4 acres of potential habitat	0	1, 2, 3
Slender heliotrope	*Heliotropium tenellum*	78 acres of potential habitat	0	1, 2, 3
Small whorled pogonia	*Isotria medeoloides*	34 acres of potential habitat	0	1, 2, 3
Spurge	*Euphorbia spathulata*	78 acres of potential habitat	0	1, 2, 3
Whitlow grass	*Draba cuneifolia*	34 acres of potential habitat	0	1, 2, 3
Wooly buckthorn	*Bumelia lanuginosa*	34 acres of potential habitat	0	1, 2, 3
Yellow honeysuckle	*Lonicera flava*	34 acres of potential habitat	0	1, 2, 3
Wildlife				
Illinois cave amphipod	*Gammarus acherondytes*	None	0	3,4,5,6
Pallid sturgeon	*Scaphirynchus albus*	None	0	5,6
Gravel chub	*Erimystax x-punctatus*	None	0	5,6
Bigeye shiner	*Notropis boops*	None	0	5,6
Bald eagle	*Haliaeetus leucocephalus*	49 acres of potential foraging, roosting, nesting habitat	0	8, 11, 14, 18, 20
Least tern	*Sterna antillarum*	9 acres of potential foraging habitat	0	8, 14, 20
Indiana bat	*Myotis sodalis*	49 acres of potential roosting habitat	0	14, 15, 16, 17
Gray bat	*Myotis grisescens*	9 acres of potential foraging habitat	0	3, 4, 5

Western sand darter	*Ammocrypta clarum*	None	0	5, 6
Illinois chorus frog	*Pseudacris streckeri illinoensis*	78 acres of potential burrowing/breeding habitat	15	3, 7, 13, 14, 19
Timber rattlesnake	*Crotalus horridus*	39 acres of potential habitat	5	7, 13, 14
Great Plains rat snake	*Elaphe emoryi*	78 acres of potential habitat	5	7, 13, 14
Eastern narrowmouth toad	*Gastrophryne carolinensis*	12 acres of potential breeding habitat	10	7, 13, 14, 19
Coachwhip	*Masticophis flagellum*	78 acres of potential habitat	5	7, 13, 14
Flathead snake	*Tantilla gracilis*	34 acres of potential habitat	5	7, 13, 14
Mississippi kite	*Ictinia mississippiensis*	10 acres potential nesting habitat	0	8, 14, 20
Short-eared owl	*Asio flammeus*	2 acres of potential nesting habitat	0	8, 14, 20
Barn owl	*Tyto alba*	49 acres of potential foraging habitat	0	8, 14, 20
Northern harrier	*Circus cyaneus*	80 acres of potential nesting habitat	4	8, 14, 20
Loggerhead shrike	*Lanius ludovicianus*	122 acres of potential breeding/foraging habitat	20	8, 14, 20
Common moorhen	*Gallinula chloropus*	1 acre of habitat	0	8, 14, 20

[1] Acres of habitat loss based upon species habitat requirements.
[2] Number of individuals taken as a result of construction, operation, and maintenance activities; bird take associated with loss of one active nest.
[3] Mitigation measures identified in Section 2.5.1 that will be implemented to minimize take.

5.0 IMPLEMENTING AGREEMENT

5.1 Signatories

The following individuals are responsible for the execution of this Conservation Plan.

_____ _____

Name of Ameren Representative Date
Title
AmerenIP

_____ _____

Name of Ameren Representative Date
Title
AmerenIP

_____ _____

Name of Ameren Representative Date
Title
AmerenIP

5.2 Responsibilities and Schedules

The individual responsibilities include the following:

Name of Ameren Representative, Title – responsible for training and education of construction crews

Name of Ameren Representative, Title – responsible for hiring IDNR biological monitor(s) at Ameren's expense

Name of Ameren Representative, Title – adaptive management; responsible for coordinating changes in access road locations and structure locations with engineers and field crews

Name of Ameren Representative, Title – IDNR liaison; responsible for the preparation and submission of semi-annual IDNR progress reports

Progress reports shall be submitted to the IDNR every six months for the duration of the project. Each report will cover a six month period (January 1-June 30 or July 1-Decmber 31). The report for the January 1-June 30 period will be submitted to the IDNR no later than July 31 of that year. The report for the July 1-Decmber 31 period will be submitted to the IDNR no later than January 31 of the following year. The progress reports will include a description of the project activities completed mitigation measures employed during the 6 month period, and a discussion of the

species take during the report period.

5.3 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.

_____ _____

Name of Ameren Representative Date
Title
AmerenIP

5.4 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 3.

Table 3. Federal, State, and Local Regulations

Agency	Regulation
U.S. Army Corps of Engineers	Section 401 and Section 10 Permits
US Fish and Wildlife Service	Section 7 Consultation
Federal Aviation Administration and Illinois Division of Aeronautics	Notice of Airway Obstruction and Determination
Illinois Environmental Protection Agency	401 Water Quality Certification
Illinois State Historic Preservation Office	Concurrence
Illinois Department of Natural Resources	Crossing Easement or Leases
Counties	Flood Control District Permit
Illinois Department of Transportation and County Highway Departments	Road Crossing and Encroachment Permits
Foreign Utilities	Crossing and Encroachment Permits

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