Appendix D3.4: Ecological Systems Natural Resources Reports and Correspondence

Biological Assessment for Section 7 Consultation

Biological Assessment for Section 7 Consultation

Elwood to Braidwood Track Construction Project
(Mainline of the Union Pacific Railroad [UPRR]
from MP 44.60 to MP 55.50)
Will County, Illinois

Submitted by:

US Department of Transportation, Federal Railroad Administration

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Executive Summary

The Illinois Department of Transportation (IDOT), with the Federal Railroad Administration (FRA), proposes to construct a second track adjacent to the existing mainline of the Union Pacific Railroad (UPRR) from milepost (MP) 44.60 to MP 55.50 in Will County, Illinois.

In compliance with Section 7 of the Endangered Species Act (ESA), the purpose of this Biological Assessment (BA) is to evaluate the potential effects of the proposed action on listed species, species proposed for listing, and designated and proposed critical habitat, and to determine whether any such species or habitat are likely to be adversely affected by the proposed action.

The proposed action is a part of the Chicago to St. Louis High-Speed Rail Program (HSR Program) and a Tier 2 Environmental Assessment (EA) currently is being prepared for the proposed action. This BA is a part of the proposed action's impact assessment.

ACTION AREA AND SURVEYS

The action area consists of a 9.59-mile-long corridor along the UPRR mainline alignment between Elwood and Braidwood in Will County, Illinois, as shown in Appendix A of the EA. The Village of Elwood is 54 miles south of Chicago and approximately 9 miles south of Joliet, along Illinois Route 53 (IL-53) and to the east of Interstate 55 (I-55). The City of Braidwood, Illinois, is 12.5 miles south of Elwood along IL-53.

Surveys completed as part of the proposed action's impact assessment include bat habitat surveys, prairie surveys, wetland delineations, turtle surveys, bee surveys, and plant surveys. Surveys were previously completed by the Illinois Natural History Survey (INHS), Huff & Huff, Inc (H&H), and Olsson and Associates in 2013, 2014, and 2015. Updates to these surveys were conducted by H&H and Jacobs Engineering throughout the summer of 2020. Additional surveys were conducted by H&H throughout the summer and fall of 2024.

EFFECTS ON FEDERALLY THREATENED AND ENDANGERED SPECIES

Table ES-1 summarizes the federally threatened and endangered species within the vicinity of the project limits in Will County, Illinois, based on the results of the US Fish & Wildlife Service (USFWS) Information for Planning and Consultation (IPAC, March 17, 2025) and the effect determination from the construction and operation of the proposed action.

Table ES-1. Effect Determination of Species and Critical Habitat

Species (Scientific Name)	Listing Status	Effect Determination	Critical Habitat
Hine's emerald dragonfly (*Somatochlora hineana*)	Endangered	May affect, not likely to adversely affect	Designated: No effect

Leafy prairie clover (*Dalea foliosa*)	Endangered	No effect	None designated
Northern long-eared bat (*Myotis septentrionalis)*	Endangered	May affect, likely to adversely affect	None designated
Rusty patched bumble bee *(Bombus affinis)*	Endangered	May affect, not likely to adversely affect	Critical Habitat Proposed: No effect
Sheepnose mussel (*Plethobasus cyphyus*)	Endangered	No effect	Critical Habitat Proposed: No effect
Decurrent false aster[1] (*Boltonia decurrens*)	Threatened	May affect, not likely to adversely affect	None designated
Eastern massasauga (*Sistrurus catenatus*)	Threatened	No effect	None designated
Eastern prairie fringed orchid (*Platanthera leucophaea*)	Threatened	No effect	None designated
Lakeside daisy (*Hymenoxys herbacea*)	Threatened	No effect	None designated
Salamander mussel (*Simpsonaias ambigua*)	Proposed endangered	No effect	None designated
Tricolored bat[2] (*Perimyotis subflavus*)	Proposed endangered	May affect, likely to adversely affect	None designated
Western Regal Fritillary (*Argynnis idalia occidentalis*)	Proposed threatened	N/A	None designated
Whooping Crane (*Grus americana*)	Experimental population, Non-essential	No effect	None designated
Monarch Butterfly (*Danaus Plexippus*)	Proposed threatened	N/A	Critical Habitat Proposed: No effect

[1]Not listed in Will County and is outside of the historical habitat range. Species is included as it is present on site.
[2]Tricolored bat is not yet listed but was requested to be included in this BA by the USFWS.

Species that would not be impacted by the proposed action, or have *no effect* under Section 7, were dropped from further consideration. Species or suitable habitat for federally listed species, or species proposed for listing that were determined to potentially be affected by the proposed action, include rusty patched bumble bee, northern long-eared bat, decurrent false aster, tricolored bat, and Hine's emerald dragonfly.

1.0 Introduction

The Illinois Department of Transportation (IDOT), in coordination with the Federal Railroad Administration (FRA), proposes to construct improvements to the existing mainline of the Union Pacific Railroad (UPRR) between Elwood and Braidwood in Will County, Illinois (Appendix A of the EA). The Elwood to Braidwood Track Construction Project (proposed Project) includes the construction of a second main line track adjacent to the existing main line track and an associated maintenance access facility, as well as grade crossings, fencing, culvert, bridge, and signal improvements. The proposed Project is 9.59 miles long and includes the following proposed action:

- A second track added from Elwood to Wilmington (Milepost [MP] 44.60 to MP 51.88) and from Wilmington to Braidwood (MP 53.19 to MP 55.50), creating one continuous second mainline track from Elwood to Braidwood (MP 44.60 to MP 55.50).

- A maintenance access facility, which would be a 10-foot-wide private gravel path paralleling the track within the railroad right-of-way for access to the railroad, for the full proposed Project length.

- Replacement and widening of the Prairie Creek Bridge, including the addition of a second track across the bridge, at MP 49.50.

- At-grade crossing improvements at Mississippi Street (in Elwood), Hoff Road, Joliet Arsenal (private crossing), Damien Mills Road (private crossing), and River Road to accommodate the second track.

- Drainage throughout the proposed Project study area.

- 13 culvert improvements throughout the proposed Project study area.

- Positive Train Control signaling, which is a system designed to prevent train-to-train collisions, over-speed derailments, incursions into established work zones, and movements of trains through switches left in the wrong position.

- Urban- and rural-style fencing in selected areas.

- Installation of retaining walls.

The proposed Project is a section of the Chicago to St. Louis High-Speed Rail Program (HSR Program) approved by FRA under a Tier 2 Final Environmental Impact Statement (FEIS) and Record of Decision (ROD), dated 2012. The program includes adding a second track along the existing railroad corridor to improve high-speed passenger service reliability and safety, and increasing the number of passenger trips between Chicago, Illinois and St. Louis, Missouri.

FRA is the National Environmental Policy Act (NEPA) lead federal agency for the project and IDOT is the local sponsor and recipient of the federal funds. The UPRR will be responsible for construction, operation, and maintenance of the project. An operations service agreement will be developed between IDOT and UPRR to establish the funding responsibilities for maintenance of the corridor.

The purpose of this Biological Assessment (BA) is to evaluate the potential effects of the proposed action on listed species, species proposed for listing, and designated and proposed critical habitat, and to determine whether any such species or habitat are likely to be adversely affected by the action. The BA addresses the proposed action in accordance with Section 7 of the Endangered Species Act (ESA) of 1973, as amended. ESA Section 7 requires federal agencies to consult with the US Fish and Wildlife Service (USFWS) to ensure their actions are not likely to jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of critical habitat. It is FRA's policy to confer on actions that may affect proposed species and proposed critical habitat. This document evaluates the potential effects of the proposed Project on species within the action area listed as federally threatened or endangered, as well as species with candidacy to be considered for protection under the ESA action area.

1.1 Description of the Proposed Action

The proposed action (see Appendix A of the EA) would construct a second track adjacent to the existing UPRR mainline track from Elwood to Wilmington (MP 44.60 to MP 51.88) and from Wilmington to Braidwood (MP 53.19 to 55.50), creating a continuous second mainline track from Elwood to Braidwood (MP 44.60 to 55.50).

1.1.1 Construction

Construction of the proposed action, regardless of alternative selected, would include clearing, grading, in-stream work and bridge reconstruction, and ballasting. In general, the new track would be built first, rail traffic then would be shifted to the new track, and improvements to the existing track would be made. Construction work would be confined to the existing and new railroad ROW, new permanent easements, temporary construction easements, and track crossing public road ROW. Additional construction duration is required for Alternative 2A, compared to Alternative 1B due to constructability challenges associated with retaining wall construction and construction staging along Illinois Route 53 (IL-53).

During the construction period, coordination would occur between the contractor and the UPRR, wayside industries, local municipalities, Will County, Abraham Lincoln National Cemetery, and the Logistics Park Chicago Intermodal Facility to minimize construction period transportation impacts, such as access restrictions or detours during improvement of at-grade crossings and modifications to the industrial spur lines.

Prairie Creek Bridge construction would be completed in phases, regardless of alternative selected. The Prairie Creek Bridge would have new substructure elements including new abutments, fill slopes leading from the creek bottom to the new abutments, and two new piers. Piles associated with the new abutments and piers would be driven or cast-in-place concrete drilled shafts with a precast concrete back wall for the new abutments. The two fill slopes would be behind the location of the existing abutments. The existing pier in the center of the stream would be removed. An application would be made for a partial causeway permit to place temporary fill in the creek for construction access. Cofferdams would be used for removal of the existing pier and construction of the two new piers. To minimize sedimentation during construction of the permanent substructure, the use of inflatable bladders or similar non-erodible materials are being considered for use as cofferdams. These methods would not require driving sheet piling for the cofferdams. Once the cofferdams are installed, they would be dewatered using pumps to create a dry work environment, and the footings would be constructed.

In-stream work would be performed in accordance with the US Army Corps of Engineers, Chicago District – Regulatory Branch Requirements for In-stream Construction Activities. This includes the use of non-erodible cofferdams, filtering of dewatering operations, timber/work mats and the use of low ground-pressure equipment for work in wetlands as much as practical.

Clearing would take place during timeframes where there is the least probability for impacts to listed species. Tree clearing in respect to potentially impacted bat species would be restricted from April 1 to October 15 during their active seasons. Vegetation clearing in respect to potentially impacted insect species would occur between March 15 and October 15 after spring ephemerals have emerged, and regular mowing would occur during this timeframe to prevent further blooming of floral resources to deter pollinators. Tree clearing within medium or high-quality overwintering RPBB habitat will be conducted between August 1 and October 10.

1.1.2 Time Frame of Action

Construction of the proposed action is expected to commence as early as summer 2026. Construction is expected to last 18 to 24 months for Build Alternative 1B and 24 to 30 months for Build Alternative 2A. Build Alternative 2A is expected to take longer due to the retaining walls.

1.2 Action Area

The action area includes areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action (50 CFR 402.02). The action area is defined by measurable or detectable changes in land, air, and water, or to other measurable factors that would result from the proposed action. The action area is not limited to the "footprint" of the proposed action but encompasses the aerial extent of the

biotic, chemical, and physical impacts to the environment resulting from the proposed action. See Appendix A of the EA for a map of the action area.

1.2.1 Habitat

Habitats within the action area are primarily railroad ROW, residential, commercial, and undeveloped areas with wetlands and prairies of low to high natural quality. Streams along existing UPRR are bridged. Wildlife usage in the build alternatives is likely to be species tolerant of disturbance and human presence.

1.2.2 Permanent Versus Temporary Impacts

The construction of the proposed action would convert areas of vegetation to railroad ballast. Other vegetated areas would be disturbed and reseeded and are considered temporary impacts. Temporary impacts are anticipated for the construction of retaining walls and slopes, as well as within Prairie Creek for the construction of bridge piers and removal of existing piers. The temporary features would include cofferdams at the pier locations and temporary sedimentation and siltation downstream during construction activities.

2.0 Description of Species and their Habitat

The ESA establishes protections for the conservation of ecosystems upon which threatened and endangered species of fish, wildlife, and plants depend. It also authorizes the determination and listing of species as endangered and threatened. ESA Section 7 requires federal agencies to ensure any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of listed species or modify their critical habitat. If federally listed species are known to exist on the proposed action site, the agency must initiate Section 7 consultation with the USFWS to assure that the species and critical habitat would not be adversely affected.

Table 2-1 summarizes the federally listed threatened and endangered species within Will County and FRA's effect determination from the construction and operation of the proposed Project.

Species that would not be impacted by the proposed action, or have *no effect* under Section 7, were dropped from further consideration. The project action area does overlap with proposed critical habitat for the sheepnose mussel; however, the proposed action will not touch the habitat.

This section, as well as Section 3.0 and Section 4.0, focus on federally listed species and suitable habitat that the proposed action *may affect, but is not likely to adversely affect* or *may affect, likely to adversely affect*, including the RPBB, northern long-eared bat, decurrent false aster, tricolored bat, and Hine's emerald dragonfly. Determinations of *no effect* for other species are presented in the Executive Summary and Section 5.0. No effect determinations were made for the monarch butterfly or western regal fritillary due to

their listing as "proposed threatened", but they are included for information purposes below.

Table 2-1. Federally Listed Species Potentially within Project Area

Species (Scientific Name)	Listing Status	Effect Determination	Critical Habitat
Hine's emerald dragonfly (Somatochlora hineana)	Endangered	May affect, not likely to adversely affect	Designated: No effect
Leafy prairie clover (Dalea foliosa)	Endangered	No effect	None designated
Northern long-eared bat (Myotis septentrionalis)	Endangered	May affect, likely to adversely affect	None designated
Rusty patched bumble bee (Bombus affinis)	Endangered	May affect, not likely to adversely affect	Critical Habitat Proposed: No effect
Sheepnose mussel (Plethobasus cyphyus)	Endangered	No effect	Critical Habitat Proposed: No effect
Decurrent false aster1 (Boltonia decurrens)	Threatened	May affect, not likely to adversely affect	None designated
Eastern massasauga (Sistrurus catenatus)	Threatened	No effect	None designated
Eastern prairie fringed orchid (Platanthera leucophaea)	Threatened	No effect	None designated
Lakeside daisy (Hymenoxys herbacea)	Threatened	No effect	None designated
Salamander mussel (Simpsonaias ambigua)	Proposed endangered	No effect	None designated
Tricolored bat2 (Perimyotis subflavus)	Proposed endangered	May affect, likely to adversely affect	None designated
Western Regal Fritillary (Argynnis idalia occidentalis)	Proposed threatened	N/A	None designated
Whooping Crane (Grus americana)	Experimental population, Non-essential	No effect	None designated
Monarch Butterfly (Danaus Plexippus)	Proposed threatened	N/A	Critical Habitat Proposed: No effect

[1]Not listed in Will County and is outside of the historical habitat range. Species is included as it is present on site.
[2]Tricolored bat is not yet listed but was requested to be included by the USFWS.

2.1 Rusty Patched Bumble Bee

The federally endangered RPBB is a social insect forming colonies of a single queen, female workers, and males. Colonies can consist of up to 1,000 individuals in a season. RPBBs have entirely black heads, and workers and males have a reddish patch on the abdomen (USFWS, 2019). The RPBB was historically found across much of the eastern United States, but habitat loss, farming practices, pesticides, disease, and changing climates have caused populations to decrease by 87 percent in the last 20 years. Its range is now restricted to 13 states, including Illinois, Indiana, Iowa, Maine, Maryland, Massachusetts, Minnesota, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, and Wisconsin, as well as Ontario, Canada. The RPBB is listed as an Illinois endangered species and was listed in 2017 as a federally endangered species by the USFWS.

The RPBB Determination Key was submitted on May 5, 2025. The Technical Assistance Letter is included in Appendix D3 of the EA.

2.1.1 Species Biology

2.1.1.1 Species Description

RPBBs have entirely black heads, and workers and males have a small rust-colored patch on the middle of their second abdominal segment (USFWS, 2019). This rust-colored patch is surrounded by two yellow abdominal segments, a distinguishing feature from similar bumble bees (*Bombus spp.*) The remaining abdominal segments are black. Queen RPBBs are larger than the workers and males and lack the eponymous rusty patch.

2.1.1.2 Life History

RPBBs form colonies of up to 1,000 individuals. In spring, the solitary queen emerges from hibernation and looks for a suitable nest, which often consists of a small mammal burrow. The queen lays eggs that are fertilized by sperm stored from the previous fall. In late spring and summer, the eggs hatch and mature into worker bees, who forage for food and help rear developing larvae. In the late summer, the queen begins to lay eggs containing males and new queens. By fall, male RPBBs leave to mate with new queens from other colonies. Male RPBBs die off after mating in fall, along with female workers and founding queens. Only new queens hibernate over winter to begin the cycle again the following spring (USFWS, 2019).

2.1.1.3 Population Dynamics

RPBB colonies are on an annual cycle. Each year a new colony is formed from a founding queen born the previous summer. The founding queen rears her offspring of female workers, males, and eventually new queens, who then hibernate over winter and emerge in spring to begin the cycle again. Males and new queens do not begin to hatch

until late summer. Founding queens lay female workers first, who help grow the colony by collecting food, rearing young, and defending the colony.

2.1.2 Habitat

RPBBs are habitat generalists and have been found in a variety of habitats, including prairies, woodlands, and residential parks and gardens. They serve an important role in pollination and do not depend on any one flower type. The RPBB relies on blooms spanning the seasons from spring through fall. The RPBB overwinters in upland forests and woodland, as well as edges within 30 meters of these areas. New queens overwinter from mid-October through mid-March (USFWS, 2018). The species' active foraging and flight period is from mid-March to mid-October. During this period, the RPBB is often found near woodland habitats from mid-March through May, for spring foraging opportunities with the emergence of woodland spring ephemeral flowers. In summer and fall, the RPBB's primary foraging areas include areas with concentrated flower blooms, such as open fields and prairies with large patches of blooming native flowers. The RPBB typically forages within 0.6 mile of its nests, likely to be located underground in open areas that are not heavily forested and not excessively wet.

2.1.3 Rangewide Status

Historically, the RPBB was found through much of the eastern and midwestern United States and southern Canada. Records indicate the RPBB range included 28 states and two Canadian provinces (USFWS 2019). Populations have since declined by as much as 87 percent over the last 20 years. The RPBB has been reported in only 13 states and one Canadian province since 2000. This represents 0.1 percent of its historical range (USFWS, 2019). Habitat loss, farming, pesticide use, disease and climate change have all been cited as driving factors for declining RPBB populations.

2.1.4 Critical Habitat

Critical habitat has been proposed for the RPBB. No critical habitat is within the project area.

2.2 Northern Long-Eared Bat

The USFWS published a proposal to list the northern long-eared bat as an endangered species throughout its range on October 2, 2013 (78 FR 61046) under the ESA. On January 16, 2015, the northern long-eared bat was proposed to be listed as threatened with a Section 4(d) ruling, which became final on January 14, 2016. The northern long-eared bat was reclassified as endangered on November 29, 2022 (USFWS, 2024). FRA has agreed to a programmatic Biological Opinion/Conference Opinion with the USFWS regarding potential take of the northern long-eared bat. The Northern Long-eared Bat and Tricolored Bat Rangewide Determination Key (USFWS, 2025) was utilized for this project (Appendix D3 of the EA). The project will follow the guidelines of the FHWA, FRA, FTA Programmatic Biological Opinion/Conference Opinion (dated December 13,

2024) for Transportation Projects in the Range of the Indiana Bat, Northern Long-Eared Bat, and Tricolored Bat.

The northern long-eared bat is a medium sized bat that hibernates during winter in caves, in abandoned mines, and occasionally in other types of habitats that resemble cave or mine hibernacula (USFWS, 2024). During the summer, the northern long-eared bats typically roost underneath tree bark or in cavities or crevices of both live trees and snags (USFWS, 2024).

The primary threat to the northern long-eared bat is white-nose syndrome (WNS). This species naturally occurs in small populations, making it particularly vulnerable to mass mortality events like WNS. Other sources of mortality include wind-energy development; habitat modification, destruction and disturbance; effects of climate change; and contaminants. Although no significant decline because of these factors has been observed, they may have aggregate effects to the species in addition to WNS. The action area is a part of an area of the United States affected by WNS (USFWS 2024).

2.2.1 Species Biology

2.2.1.1 Species Description

The northern long-eared bat is a medium sized bat and, as its name suggests, is distinguishable from other Myotis species by its long ears, which extend beyond its nose when pushed forward (average length 0.6 inch) (USFWS, 2024). Females within this species tend to be slightly larger and heavier than males (USFWS, 2024.). Its tragus, the small pointed eminence of the external ear, is long and pointed, and often curved (USFWS, 2024). The northern long-eared bats' dorsal pelage is a dullish yellow-brown with brown shoulder spots, and its ventral pelage is pale gray.

2.2.1.2 Life History

Northern long-eared bats hibernate for the winter, generally from late summer or early fall to spring (Caire et al., 1979). In Missouri, hibernation has been reported from October to late March, with the numbers of individuals captured at cave entrances beginning to decline significantly in September (Caire et al., 1979). In Indiana, northern long-eared bats have been documented outside of hibernation sites periodically throughout winter, especially in mild weather. In summer, an activity peak generally occurs one to two hours after sunset, with a secondary peak seven to eight hours after sunset (Kunz, 1973).

Though some individuals may roost alone, females often roost colonially. Maternity or nursery colonies may be comprised of up to 90 individuals, including young (Layne, 1978). Males and non-reproductive females generally roost singly during the summer months (Caceres and Pybus, 1997). As many as 60 adults have been found in a single tree (Foster and Kurta, 1999).

Mating takes place in late summer and early fall, during the swarming period when large numbers of bats congregate in and near certain caves (Center for Biological Diversity [CBD], 2010; Baker, 1983; Kurta, 1980). Females store sperm during

hibernation, though some may copulate again at spring emergence (Racey, 1982). Researchers found a portion of the males of some species to be reproductively active in late winter and early spring. However, males emerging from hibernation in Missouri were found to be reproductively inactive until late July, with the largest percentage of males becoming reproductively active in August and September (CDB, 2010; Caire et al., 1979).

Females ovulate at the time of emergence and bear a single offspring 50 to 60 days later (CBD, 2010). Females have been documented to give birth in early to late June in Indiana, and in late June to early July in Iowa, Illinois, Michigan, and New York (CBD, 2010). Nursery colonies are relatively small, most often including 2 to 30 adults (CBD, 2010).

Information on migration of this species is sparse. It has been reported that the winter and summer geographic ranges of the species appear to be identical. However, the lack of hibernacula and lactating females in some areas indicates that significant portions of the population may move seasonally. Swarming behavior in late summer indicates that there is some degree of local or regional movement prior to reproduction (Barbour and Davis, 1969).

Some observations indicate the northern long-eared bat species is capable of traversing relatively long distances, often in a short period of time (Caire et al., 1979). One recaptured male traveled at least 34 miles in one month from its cave of origin to its apparent summering area (Caire et al., 1979). Also, one individual was reported to have flown approximately 60 miles between two caves (Griffin, 1945).

The northern long-eared bat is an opportunistic insectivore (Kunz, 1973) and the only bat in the United States known to glean prey from foliage. Prey composition varies widely among sites and seasons. Their diet includes moths, butterflies, beetles, net-winged insects, flies, ants, bees, sawflies, and true bugs, among other insects (Whitaker and Rissler, 1992).

2.2.1.3 Population Dynamics

The northern long-eared bat is found across the United States, with more than 100 occurrences in Illinois (USFWS, 2006). Through 2011, the number of northern long-eared bats captured in mist-net surveys in Southern Illinois has remained consistent (USFWS, 2013). WNS is the primary threat to the northern long-eared bat in the United States and has led to the fast disappearance of the species in many Northeast hibernation sites. WNS is now spreading rapidly through the Midwest and South. Prior to WNS, the northern long-eared bat was more common.

2.2.2 Habitat

The northern long-eared bat hibernates during winter in caves, abandoned mines, and occasionally other types of habitats that resemble cave or mine hibernacula, including abandoned railroad tunnels (USFWS, 2024). Also, northern long-eared bats have been found hibernating near the entrance of a storm sewer in central Minnesota, in a hydro-

electric dam facility in Michigan, and in an aqueduct and a dry well in Massachusetts (USFWS, 2024).

During summer, northern long-eared bats typically roost singly or in colonies underneath bark or in cavities or crevices of both live trees and snags (USFWS, 2024). The summer roost sites of males and non-reproductive females may include cooler locations, including caves and mines (USFWS, 2024). Northern long-eared bats have also been observed roosting in colonies in structures, such as buildings, barns, park pavilions, sheds, cabins, under eaves of buildings, behind window shutters, and in bat houses (USFWS, 2024).

The northern long-eared bat appears to be somewhat opportunistic in tree roost selection, selecting varying roost tree species and types of roosts throughout its range, including tree species such as black oak (*Quercus velutina*), red oak (*Quercus rubra*), silver maple (*Acer saccharinum*), black locust (*Robinia pseudoacacia*), American beech (*Fagus grandifolia*), sugar maple (*Acer saccharum*), sourwood (*Oxydendrum arboreum*), and shortleaf pine (*Pinus echinata*) (USFWS, 2024). It is likely that northern long-eared bats are not dependent on specific species of trees for roosts. Rather, trees with suitable cavities or sloughing bark are utilized by the bats opportunistically (USFWS, 2024). Researchers speculate that structural complexity of habitat or available roosting resources are more important than the actual species of tree (USFWS, 2024). In tree roosts, northern long-eared bats are typically found beneath loose bark or within cavities and have been found to use both exfoliating bark and crevices to a similar degree for summer roosting habitat.

Forest canopy coverage at northern long-eared bat roosts has been documented as 56 percent in Missouri, greater than 75 percent in New Hampshire, and greater than 84 percent in Kentucky (USFWS, 2024). Females tend to roost in more open areas than males, likely due to increased solar radiation, which supports pup development (USFWS, 2024). Fewer trees surrounding maternity roosts may also benefit juvenile bats learning to fly (USFWS, 2024).

Female northern long-eared bats typically roost in tall trees with a large diameter (USFWS, 2024). Studies have found that the diameter-at-breast height (DBH) of northern long-eared bat roost trees was greater than random trees (USFWS, 2024), and others have found both DBH and height of selected roost trees to be greater than random trees (USFWS, 2024). However, other studies have found that roost tree mean DBH and height did not differ from random trees (USFWS, 2024).

2.2.3 Species Status

The northern long-eared bat ranges widely across the United States but is patchily distributed and rarely found in large numbers (CBD, 2010). It occurs in eastern, Midwestern, and some southern states (CBD, 2010). Thirty-six known hibernacula for the northern long-eared bat are in Illinois (USFWS, 2024).

The species is often found infrequently and in small numbers in hibernacula surveys throughout most of the Midwest (USFWS, 2024).

Data on specific locations of hibernacula for the northern long-earned bat within Illinois is limited. There are no known caves or mines in the action area. Therefore, it is assumed that northern long-eared bats do not overwinter within the action area.

2.2.4 Critical Habitat

Critical habitat has not been proposed for the northern long-eared bat.

2.3 Decurrent False Aster

The USFWS published a proposal to list decurrent false aster (*Boltonia decurrens*) as a threatened species throughout its range on February 25, 1988 (53 FR 5598) under the ESA. On November 11, 1988, the USFWS set forth a final listing determination to list the species as threatened, which was published in the Federal Register (53 FR 45858). The listing became effective on December 14, 1988 (USFWS, 1988).

Decurrent false aster is a herbaceous perennial that naturally populates riverine wetland habitats, such as river bottom prairies and mud flats, particularly within the Illinois River Valley. Introduced populations have also been planted in anthropogenically disturbed lowland areas where light levels are high, which is how decurrent false aster occurs within the action area. It is a federally threatened species and listed as threatened in Illinois and endangered in Missouri.

The primary threat to decurrent false aster is habitat destruction and the conversion of suitable wet prairies and natural marshes within their habitat range to cropland. Other threats include prolonged and late season flooding, herbicide usage, and loss of habitat due to encroachment by woody vegetation (USFWS, 1990).

2.3.1 Species Biology

2.3.1.1 Species Description

Decurrent false aster is a herbaceous perennial plant that can grow from 3 to 7 feet tall. It forms a single or cluster of central stems that branch out towards the apex of the plant. The central stems are light green, vertically veined, glabrous, and circular in circumference. The alternately arranged leaves occur along the entire length of these central stems at regular intervals. They are approximately 7 inches long and 1.5 inches wide, oblong-lanceolate in shape, and their margins are entire and slightly wavy. The tops of the leaves are medium to dark green and glabrous, while the bottoms are a lesser shade of green and glabrous as well. Venation is pinnate, and the central veins of each leaf are prominent, especially towards their bases. Each individual leaf base strongly clasps to the central stem in a decurrent structure and extends downward along the stem for approximately 1 inch to 3 inches. This gives the plant its winged appearance.

During the blooming period for decurrent false aster, the apex of each central stem terminates into a panicle of dome-shaped flowerheads. The branches of these inflorescences are similar to the stems but are less winged. The individual flowerheads are daisy-like and approximately .75-inch to 1-inch wide, consisting of 40 to 60 white ray florets that surround a dense head of 180+ yellow disk florets. Decurrent false aster blooms from August through October throughout its range.

2.3.1.2 Life History

Decurrent false aster primarily reproduces through outcrossing, but some self-pollination occurs (Smith, 1995). Vegetative reproduction may also occur through shoots formed from a basal rosette (Smith and Keevin, 1998). Pistillate ray flowers and perfect disk flowers within inflorescences produce morphologically distinct achenes that are often dispersed by flowing water and wind. Under optimal conditions, the average plant produces 40,000 seedlings, but the rate of seedling survival is low in the field (<1 percent) (Smith and Keevan, 1998). At the end of the blooming season, each flowering individual dies, leading to the development of independent root systems by the remaining basal rosettes. These rosettes overwinter and will bolt up and flower in the following spring.

Both seedlings and vegetatively produced rosettes can withstand prolonged periods of flooding, and have been observed to develop while completely submerged, to bolt up above water level, to flower, and to produce seeds (Smith, 1990).

2.3.1.3 Population Dynamics

The decurrent false aster is largely restricted to several counties in central and southwestern Illinois, where it is found along the floodplain of the Illinois River. A few small colonies have been found along the floodplain of the Mississippi River in eastern Missouri. Populations of this species can vary considerably from year to year depending on precipitation and flooding patterns along the Illinois and Mississippi rivers. Flood-control projects, wetland habitat destruction, and excessive sediment in the water during floods can undermine and adversely affect populations of decurrent false aster.

2.3.2 Habitat

Decurrent false aster is a conservative species that is found in periodically disturbed riverine wetland habitats. These include river bottom prairies, shallow marshes, and mud flats along major rivers. Sites where the species is most successful in reproducing sexually and maintaining their populations are those characterized by moist and sandy soils, periodic flooding, and high light levels. Historically, their natural habitat has been on the shores of lakes and the banks of streams, specifically the Illinois River. While decurrent false aster is still occasionally found in these natural habitats, it is now primarily restricted to anthropogenically disturbed lowland areas. Mowing within these areas has promoted the plant's germination and seedling establishment due to the increased amount of sunlight that reaches the soil surface in cultivated areas.

2.3.3 Species Status

Currently, decurrent false aster is only known to occur in Illinois within the Illinois River Valley and in Missouri where populations are ephemeral along the Mississippi River. It was introduced in MNTP (INHS, 2013).

Decurrent false aster is considered a state threatened species in Illinois. It is also a federally threatened species.

2.3.4 Critical Habitat

Critical habitat has not been proposed for the decurrent false aster.

2.4 Tricolored Bat

The USFWS published a proposal to list the tricolored bat as an endangered species throughout its range on September 13, 2022, under the ESA. Tricolored bat still awaits further designation from the USFWS. The project will follow the guidelines of the FHWA, FRA, FTA Programmatic Biological Opinion/Conference Opinion (dated December 13, 2024) for Transportation Projects in the Range of the Indiana Bat, Northern Long-eared Bat, and Tricolored Bat. The Northern Long-eared Bat and Tricolored Bat Rangewide Determination Key (USFWS, 2025) was utilized for this project (Appendix D3 of the EA). The project will follow the guidelines of the FHWA, FRA, FTA Programmatic Biological Opinion/Conference Opinion (dated December 13, 2024) for Transportation Projects in the Range of the Indiana Bat, Northern Long-Eared Bat, and Tricolored Bat.

The tricolored bat is a small sized bat distinguished by tricolored fur that is dark at the base, lighter in the middle, and dark at the tip (USFWS, 2021). The tricolored bat hibernates during winter in caves and abandoned mines and requires a specific microclimate. During summer, tricolored bats typically roost in leaves of live or recently dead deciduous trees. They may also be found in Spanish moss, pine trees, and human structures (USFWS, 2021).

The primary threat to the tricolored bat is WNS. Other sources of mortality include wind-energy development, habitat loss and destruction, and effects of climate change (USFWS, 2024). Although no significant decline because of these additional factors has been observed, they may have aggregate effects to the species in addition to WNS. The action area is a part of an area of the United States affected by WNS.

2.4.1 Species Biology

2.4.1.1 Species Description

The tricolored bat is a small sized bat with a body length of 3 inches to 3.5 inches, weighing 0.16 ounce to 0.28 ounce depending on season. The tricolored bat is

distinguishable from other Myotis species by its unique color pattern. Tricolored bats typically appear to be yellow in color, but have darker fur at the base, lighter in the middle, and are darker at the tip. Young bats are darker and grayer than adults (USFWS, 2021).

2.4.1.2 Life History

Tricolored bats mate in fall and hibernate for winter in caves and mines and emerge in spring. They migrate from their hibernacula to their summer maternity colonies. The bats disperse from maternity colonies when the young bats can fly and return to winter habitat to mate and hibernate. Mating occurs between mid-August and mid-October. Females typically give birth to two young, who begin to fly at three weeks of age. Young can forage and achieve adult flying capabilities at four weeks of age. During the first hibernation, the bats are juveniles and likely do not mate.

In spring, summer and fall, tricolored bats roost in live and dead leaf clusters of live or recently dead deciduous hardwood trees. In addition, tricolored bats can roost in Spanish moss, *Usnea trichodea* lichen, pine needles, and artificial roost such as porch roofs, bridges, and barns (USFWS, 2024). Tricolored bats are active in the early evening and forage at treetop level or above. Later in the evening, they may forage closer to ground, often over waterways and forest edges.

Tricolored bats eat small insects including caddisflies, moths, beetles, wasps, flying ants, and flies.

2.4.1.3 Population Dynamics

The tricolored bat is found in 39 states and four Canadian provinces. They are also found in Mexico and Central America. WNS is the primary threat to tricolored bats in the United States. WNS is spreading rapidly through the Midwest and South. Prior to WNS, the tricolored bat was more common.

2.4.2 Habitat

The tricolored bat hibernates during winter in caves, abandoned mines, and occasionally other types of habitats that resemble cave or mine hibernacula, including abandoned railroad tunnels (USFWS, 2021).

During spring, summer, and fall, female tricolored bats typically form maternity colonies and switch roost trees regularly, while male tricolored bats typically roost singly. Tricolored bats primarily roost among live and dead leaf clusters in both living or recently dead deciduous hardwood trees (USFWS, 2021). During the summer, tricolored bats rarely roost within caves and have been observed roosting among pine needles or artificial roosts such as barns, and beneath porch roofs, bridges, and concrete bunkers (USFWS, 2021).

During winter, tricolored bats hibernate in caves and mines. Tricolored bats exhibit high site fidelity, returning year after year to the same hibernaculum. Tricolored bats are one of the first cave-hibernating species to enter hibernation in fall, and one of the last to

leave (USFWS, 2021). Hibernating tricolored bats typically do not form large clusters, typically roosting singly, in pairs, or in small clusters of both sexes away from other bats (USFWS, 2021).

2.4.3 Species Status

The tricolored bat ranges widely across 39 states (primarily the eastern half of the United States), Canadian provinces, Mexico, and Central America (USFWS, 2021).

Data on the specific locations of hibernacula for the tricolored bat within Illinois is limited. There are no known caves or mines in the action area. Therefore, it is assumed that tricolored bats do not overwinter within the action area.

2.4.4 Critical Habitat

Critical habitat has not been proposed for the tricolored bat.

2.5 Western Regal Fritillary

The USFWS published a proposal to list the western regal fritillary as a threatened species throughout its range on August 6, 2024 under the ESA.

The western regal fritillary (*Argynnis idalia*) is a large, showy butterfly distinguished by reddish orange forewings, iridescent blue black hind wings with white spots. The western regal fritillary is a subspecies of the eastern regal fritillary, *Speyeria idalia*. The western regal fritillary lays its eggs in late summer and the larvae enter dormancy until the following spring. The western regal fritillary can be found in prairie habitats, including sand prairies and open sand savannas, wet meadows, and marsh (Moorehouse, 2022).

The primary threat to the western regal fritillary is habitat loss related to its diet of various species of violets (Selby, 2007).

2.5.1 Species Biology

2.5.1.1 Species Description

The Western regal fritillary are large butterflies with wingspans ranging from 7 to 10 centimeters. Females are generally larger than males (Moorehouse, 2022). The forewings of the western regal fritillary are "reddish orange with black spots and white flecks in a narrow black border along the outer margin of the wing. The upper side of the hind wings are iridescent blue black with an inner row of large white spots and an outer row of smaller spots that are orange in males and white in females" (Minnesota Department of Natural Resources [MNDNR], 2024). The western regal fritillary is similar in size to the monarch butterfly.

2.5.1.2 Life History

Western regal fritillary butterflies lay their eggs in late summer. After hatching, the larvae enter dormancy until the following spring. By June, Western regal fritillary larvae pupate, and young caterpillars tend to feed on young violet species leaves (Moorehouse, 2022). Adults emerge from the pupa stage mid-June throughout July and males search for newly emerged females to begin mating. Males generally live for one month after emergence. After the females emerge, they mate one time and are capable of laying up to 1,000 eggs (MNDNR, Rare Species Guide). After mating, the females tend to conceal themselves in vegetation such as tall grass for several weeks. Female Western regal fritillaries tend to survive for up to 90 days after emergence. Western regal fritillaries spend their life cycle within a couple miles range, close to violet species where the females will lay their eggs (Moorehouse, 2022).

The larvae of the Western regal fritillary only feed on violet species (*Viola spp*). Adults rely on nectar sources such as milkweeds, thistles, coneflowers, blazing stars, goldenrods, clovers, and ironweeds (Selby, 2007).

2.5.1.3 Population Dynamics

The Western regal fritillary species has been found in 33 states and five Canadian provinces. According to the Illinois Department of Natural Resources (IDNR), the current range of the Western regal fritillary includes Illinois, Wisconsin, Minnesota, Missouri, Kansas, Oklahoma, Nebraska, North Dakota, South Dakota, and the eastern portions of Montana, Wyoming, and Colorado. Western regal fritillaries do not migrate and tend to remain within a couple miles of the host plant, *Viola* spp (Selby, 2007).

2.5.2 Habitat

The Western regal fritillary is associated with prairies, wet meadows, and marshes (Moorehouse 2022). The Western regal fritillary thrives in habitats that include violets for larval feeding, nectar plants, tall grasses, shrubs, and leaf litter. Violet species are particularly important for Western regal fritillary butterflies because the larvae exclusively feed on these species. Adult western regal fritillaries feed on nectar plants primarily from milkweeds and thistles. Other nectar sources include coneflowers, blazing stars, bergamots, goldenrods, clovers, and ironweeds (Selby, 2007).

Tall grasses and shrubs are an important part of the western regal fritillary habitat because they protect all life stages. Therefore, western regal fritillaries are commonly found in tallgrass prairies, including upland and wet prairies. (MNDNR, Rare Species Guide). Adults are very rarely encountered away from prairie habitats. Within Illinois, western regal fritillaries are encountered in sand prairies and open sand savannahs, including dry and dry-mesic habitats that support sufficient violet populations (Moorehouse, 2022).

2.5.3 Species Status

The Western regal fritillary ranges from Illinois to the eastern portions of Montana, Wyoming, and Colorado, but is patchily distributed and rarely found in large numbers (Selby, 2007). It occurs in the Midwest and Great Plains regions (Moorehouse, 2022).

The western regal fritillary is considered a threatened species in Illinois.

2.5.4 Critical Habitat

Critical habitat for the western regal fritillary has not been designated.

2.6 Monarch Butterfly

The USFWS published a proposal to list the monarch butterfly as a threatened species throughout its range on December 10, 2024 under the ESA.

The monarch butterfly is a conspicuously colored migratory butterfly species which can be found throughout North, Central, and South America The greatest threat to the monarch is the destruction of its wintering habitats in Mexico and California, but breeding and foraging plant and habitat availability is also a concern for this species. Monarchs require milkweed (primarily *Asclepias spp.*) as host plants to lay eggs and feed larva. The monarch can be found in nearly all US states and territories.

2.6.1.1 Species Description

The monarch is a large butterfly with orange wings and black markings along the veins. The wings are outlined with black and a double row of white spots. The conspicuous coloring of the monarch warns potential predators that they are toxic if consumed. Males can be identified by a pair of black spots, called androconial scent patches, on their hind wings. The wingspan of monarchs is generally 3 inches to 4 inches (USFWS, 2020).

2.6.1.2 Life History

Monarch butterflies go through complete metamorphosis, completing their life cycle in four stages: egg, larva, pupa, and adult. Monarchs lay eggs on their obligate host plant, milkweed, which is the only plant monarchs can eat in the larval stage. As larva, monarchs develop through five instars over a period of 9 to 18 days. Larva then pupate into a chrysalis for 6 to 14 days until they close as a butterfly. Adult butterflies feed on nectar producing plants and require diverse flowering resources throughout the year.

Several generations of monarchs are produced each breeding season. Adults generally live two to five weeks, but overwintering adults enter a period of suspended reproduction, called diapause, and can live up to nine months. Monarchs migrate long distances (some over 3,000 kilometers) to overwintering sites in Mexico or California, where they remain until spring. Mating occurs in their overwintering site before the adults migrate north in early spring. Monarchs may travel north over successive generations, breeding along the way (USFWS, 2020).

2.6.1.3 Population Dynamics

Monarchs can be found throughout the continental United States and Hawaii, as well as Canada, Central America, and South America. Populations have been declining over the last three decades due to habitat loss and destruction, use of pesticides, and reduced availability of milkweed. (USFWS, 2020).

2.6.2 Habitat

Monarch butterflies rely on milkweed to lay eggs and feed larva. Adult butterflies feed on nectar sources (USFWS, 2020). Prairies with an abundance of nectar resources are particularly suited for sustaining monarch populations.

Overwintering populations of monarch butterflies rely on a specific microhabitat to survive; specifically, eastern monarch populations depend on oyamel fir (*Abies religiosa*) forests during winter, which are found in the Sierra Madre Mountains of Mexico (USFWS, 2024). Oyamel firs grow at specifically high altitudes and is considered Mexico's most endangered forest type. According to the USFWS, the conversion of grasslands to agriculture as well as urban development and the use of pesticides across North America contribute to the habitat loss of the monarch butterfly.

Monarchs require milkweed species as a host plant to lay eggs and feed larva. Milkweeds grow in a wide variety of habitats, included prairies, wetlands, roadsides, agricultural fields, and urban gardens.

2.6.3 Species Status

The monarch butterfly is found widely throughout North, Central, and South America. Of the six subspecies of monarchs extant worldwide, only *Danus plexippus plexippus* is found throughout the United States and is the only migratory subspecies in North America. Within this subspecies, two populations are generally distinguished based on geographic location: the eastern and western populations of monarch can be found east and west of the Rocky Mountains, respectively.

The monarch butterfly was designated as a candidate species by the USFWS in December 2020, but a proposal to list the species as threatened was issued on December 13, 2024. An official decision on the listing will be made after public comments are received and evaluated by the USFWS.

2.6.4 Critical Habitat

Designated critical habitat is also proposed for the monarch butterfly in the recent proposal for a federal listing under the ESA. In total, approximately 4,395 acres in southern, coastal California fall within the boundaries of the proposed critical habitat (USFWS, 2024). The effects of the proposed Project will not impact proposed critical habitat for the monarch butterfly.

2.7 Hine's Emerald Dragonfly

The federally endangered Hine's emerald dragonfly is an aquatic insect highly dependent on wetland habitats for all stages of their life cycles. Larvae reside in small streamlets and are vulnerable to environmental stressors. Adults are brightly colored with emerald-green eyes, agile fliers, and have short life spans (USFWS, 2020). Habitat loss through agricultural and industrial development along with changing ecological and hydrogeological conditions threaten significant population declines. Its range is now restricted to critical habitat within Illinois, Wisconsin, Missouri, and Michigan. The Hine's emerald dragonfly is listed as an Illinois endangered species and was listed in 1995 as a federally endangered species by the USFWS.

2.7.1 Species Biology

2.7.1.1 Species Description

Hine's emerald dragonflies are medium-sized dragonflies approximately 2.5 inches in length. They have metallic green bodies with two distinct lateral yellow stripes on the thorax, and bright emerald-green eyes. The wings are clear with an amber hue towards the base. Larvae are entirely aquatic and depend on slow-moving or stagnant water with access to aquatic vegetation. Adults are agile fliers (USFWS, 2020).

2.7.1.2 Life History

Hine's emerald dragonflies have complex life cycles which consist of an aquatic larval stage and a shorter terrestrial adult stage. Eggs are laid in shallow, slow-moving water or wet soils. Larvae then spend 2 to 4 years in small streamlets and molt as they grow. They are presumed to be "sit-and-wait" predators, and are mainly active at night. Adults begin to emerge in late May and live for 14 days to 6 weeks, with the flight season ending around early October (USFWS, 2020).

Adults go through pre-reproductive, reproductive, and post-reproductive stages. Reproductive females can lay up to as many as 500 eggs during their lifetimes. Mating occurs from early June to late August. Copulation can occur in flight or perched. Female Hine's emerald dragonflies exhibit a reproductive strategy called oviposition, where a female dips its abdomen into shallow water or muck to release eggs. This typically occurs near streamlets adjacent to cattail marshes and sedge meadows (USFWS, 2020).

2.7.1.3 Population Dynamics

Larvae may be found living in clusters or as solitary individuals. Larvae face high mortality rates due to predation and increasing habitat disturbances. Adults have limited lifespans and low capability for dispersal which makes terrestrial populations small and localized. The reproductive success of adults depends highly on the availability of suitable high quality wetland habitats, which are becoming increasingly fragmented. The above factors make Hine's emerald dragonfly especially vulnerable to environmental changes and disturbances (USFWS, 2020).

2.7.2 Habitat

Adult and larval Hine's emerald dragonflies rely on calcareous fens, sedge meadows, and other wetland habitats inundated by slow-moving or stagnant water. The habitats they reside in are often underlain by dolomite bedrock and sourced by groundwater. Adults exhibit high territoriality to their breeding areas. Habitats are generally situated near forest edges and openly vegetated meadows where adults forage for flying insects (USFWS, 2020).

2.7.3 Rangewide Status

Hine's emerald dragonfly was historically known to occur in Ohio, Indiana, and parts of northern Alabama, but is now thought to be extirpated from these states. Its current range is limited to small populations within Illinois, Wisconsin, Michigan, and Missouri. Destruction and loss of suitable habitat, agricultural and industrial development, and disruptions to hydrogeological processes which Hine's emerald dragonflies rely on pose large threats to surviving populations. It is federally and state listed in Illinois as endangered.

2.7.4 Critical Habitat

Critical habitat for the Hine's emerald dragonfly was designated in 2010. It is located in small areas within Illinois, Michigan, Missouri, and Wisconsin. Seven critical habitat units have been identified in Illinois (Federal Register 2010). The closest critical habitat unit is approximately 16 miles north of the corridor (Illinois DNR, 2011b). A population of Hine's emerald dragonfly was recently discovered in Channahon, Illinois; approximately 4.5 miles northwest of the project area. This population is not located within a designated critical habitat.

The effects of the proposed Project will not impact designated critical habitat for the Hine's emerald dragonfly.

3.0 Environmental Baseline

The environmental baseline includes the past and present impacts of all federal, state, or private actions and other human activities in the action area, the anticipated impacts of all proposed federal actions in the action area that have already undergone formal or early Section 7 consultation, and the impact of state or private actions that are contemporaneous with the consultation in process.

This section, as well as Section 2.0 and Section 4.0, focus on federally listed species and suitable habitat the proposed action *may affect, but is not likely to adversely affect* (RPBB, decurrent false aster, and Hine's emerald dragonfly) or *may affect, likely to adversely affect* (northern long-eared bat and tricolored bat). Additionally, no determination effects were made for the monarch butterfly or western regal fritillary due to their listing as

"proposed threatened", but they are included for information purposes below. Determinations of *no effect* for other species are presented in Section 5.0.

3.1 Rusty Patched Bumble Bee

3.1.1 Survey Methods

A meeting was held with the USFWS on July 22, 2020, to discuss the project. The USFWS was interested in RPBB surveys occurring just outside of the HPZ, which is located between MP 48.0 and MP 49.0. Due to the limited timeframe available in the 2020 season to survey the bees, it was determined to use the photographic methodology. RPBB habitat within the HPZ includes primarily foraging and nesting habitat. Very little overwintering habitat is present within the HPZ in the project limits.

The USFWS RPBB survey protocols (2019) were followed. According to the protocols, the surveys must occur between June and mid-August. Surveys should take place when temperatures are greater than 60 degrees and not during wet conditions. Partially cloudy days can be surveyed if you can still see your shadow. Surveys were conducted at least two hours after sunrise and three hours before sunset.

The USFWS survey protocol for photography only describes effort as "at your discretion" per visit. A RPBB habitat assessment is not required. Notably, a photograph can only verify presence, not absence, of the RPBB within the study area.

The presence-absence protocol recommends surveying one-person hour per three acres of the best habitat per visit, with four equally spaced sampling periods from mid-June to mid-August. This level of effort is not required for the photography survey protocol.

Four separate areas were surveyed for RPBB as part of the 2020 photographic survey by H&H. Surveys were focused on areas with higher concentrations of blooming nectar plants.

A habitat assessment was completed (Huff & Huff, 2025) using data collected previously using the methodologies presented in the *Rusty Patched Bumble Bee Habitat Assessment Form & Guide* (Xerces Society, 2017), *Project-Specific Bumble Bee Habitat Quality Assessment* protocols developed by Jason Robinson of the Illinois Natural History Survey (INHS) (Robinson, 2024). This assessment helps identify type and quality of suitable RPBB habitat within the HPZ.

3.1.2 Survey Results

The RPBB was not found during the photographic surveys. The most abundant bumble bees identified during the survey included brown-belted bumble bee (*Bombus griceocollis*).

Common bees were seen at most survey sites at least six times at each site. Uncommon bees were seen at many of the sites but sporadically. Appendix D3 of the EA includes specific survey efforts, observed bee species, and their relative abundance classification.

Approximately 21.3 acres of nesting habitat and 0.89 acre of foraging habitat would be impacted by the project. No overwintering habitat (upland forest) would be impacted. Additionally, approximately 13.8 acres of non-habitat in the project area were identified and are either developed or open water/non-habitat.

3.1.3 Factors Affecting the Species Environment within the Action Area

The most immediate and apparent threats to the RPBB within the action area are farming practices and pesticide use. The action area is within or adjacent to actively farmed agricultural land. Land conversion to crop fields has affected the diversity of flowering plant species throughout much of the project area and has limited the availability of nesting and overwintering sites. Pesticides used to protect crop yields also may have adverse effects on RPBB populations.

Regular herbicide treatments to invasive, non-native plant species also occurs throughout much of the RPBB HPZ located at MNTP. These herbicides, if deployed irresponsibly, may also adversely affect RPBB populations. Improperly timed prescribed burns and mowing, common techniques used to restore and regenerate historical tallgrass prairie, might limit food availability, or kill overwintering queens (Schweitzer, 2012).

3.2 Northern Long-Eared Bat

3.2.1 Status within the action area

INHS conducted mist-net surveys in 2009, 2012, and 2013 approximately five miles from the Action Area. During the 2012 and 2013 surveys, one northern long-eared bat was captured at Donohue Grove south of Donahue Road and east of Old Chicago Road. During the 2009 mist-net survey, two northern long-eared bats were captured along Jackson Creek within MNTP, specific locations unknown (McClanahan et al., 2009). Additionally, one northern long-eared bat was captured at Forsythe Woods by the Forest Preserve District of Will County in 2012 (USFWS, 2013). Eight northern long-eared bats were captured during surveys in 2013 in southwestern Will County (at Kankakee River State Park).

In 2014 and 2020, northern long-eared bat habitat assessments were conducted within the action area. Suitable habitat for this species is located within both build alternatives along forested riparian and hedgerow areas including areas within the Hitts Siding Prairie, Abraham Lincoln National Cemetery, and MNTP. The proposed action would remove potential roost trees for the northern long-eared bat. Dominant tree species within the overstory include silver maple (*Acer saccharinum*), eastern cottonwood

(*Populus deltoides*), and black locust (*Robinia pseudoacacia*). Appendix D3 of the EA includes the bat habitat survey (Huff & Huff, 2015).

In 2024, Bridge Bat Assessments were completed utilizing the FHWA/FRA methodology. There was no evidence of usage by bats in the culverts or bridges. Follow-up assessments will be completed prior to construction. The Bridge Bat Assessments are included in Appendix D3 of the EA.

3.2.2 Factors Affecting the Species Environment within the Action Area

The primary threat (i.e., infectious diseases) to the northern long-eared bat is restricted to hibernacula. Infectious disease is cited as an emerging major factor in the decline of bat populations and poses a considerable threat to hibernating bat species throughout North America (USFWS, 2024). WNS is a fungus that has resulted in the unprecedented mortality of bat species. The fungus thrives in conditions characteristic of many bat hibernacula, and bats contract WNS while hibernating (USFWS, 2024).

Since its first documented appearance in New York in 2006, WNS has spread rapidly throughout the Northeast and is expanding through the Midwest (USFWS, 2024). As of August 2013, WNS has been confirmed in 22 states (USFWS, 2024). USFWS biologists and partners estimate that 5.7 million to 6.7 million bats of several species have died from WNS (USFWS 2024).

Other threats to the northern long-eared bat include development and timber harvest; activities that may modify or destroy habitat for this species (USFWS, 2024). Although such activities occur, these activities alone do not have significant, population-level effects on the northern long-eared bat (USFWS, 2024).

Riparian areas and temperate forests, two habitat types essential to the northern long-eared bat, are particularly affected by expanding residential development (Smith and Wachob, 2006). The northern long-eared bat uses forested habitat for summer roosting and the formation of maternity colonies, and it relies on the insect abundance fostered by riparian habitats to meet the energy requirements associated with reproduction. Urban and agricultural development fragments contiguous habitat patches, increasing the proportion of edge habitat, which has been correlated with reduced occupancy by northern long-eared bats in forested habitat (Yates and Muzika, 2006).

3.3 Decurrent False Aster

3.3.1 Status within the Action Area

INHS conducted botanical surveys for federally listed threatened and endangered plant species during the summer of 2014 within the Action Area. Decurrent false aster was one of five plant species surveyed and was the only federally listed plant found within the Action Area during the botanical survey.

On June 26, 2014, INHS recorded 25 individual plants of decurrent false aster within the Action Area along the eastern corridor of the railroad in MNTP. MNTP provides suitable habitat for decurrent false aster, but this site is outside of its natural range along the Illinois River and within its floodplains. It occurs within this site because seeds and/or plants were unintentionally planted there during restoration of the site in 2002 or 2003 (INHS, 2014).

In summer 2024, H&H conducted additional surveys for decurrent false aster within the same site and found the number of plants within the population had increased since last being surveyed. The populations are within the action area. No direct impact is expected to the population. The population is adjacent to proposed construction and this area will be restored after construction. Therefore, the proposed action *may affect, but is not likely to adversely affect* the decurrent false aster as the project avoids directly impacting its suitable habitat.

3.3.2 Factors Affecting the Species Environment within the Action Area

The decurrent false aster was listed as threatened in 1988. At that time, the population had declined by about 50 percent, primarily due to habitat loss as a result of development and invasive species encroachment.

3.4 Tricolored Bat

3.4.1 Status within the Action Area

Tricolored bats or signs of roosting tricolored bats were not found during surveys of bridges and culverts within the action area in 2024. Suitable habitat, including trees and anthropogenic structures such as bridges and culverts, are located along the action area corridor. The Bridge Bat Assessments are included in Appendix D3 of the EA.

In 2014 and 2020, bat habitat assessments were conducted within the action area for the northern long-eared bat. Due to the similarity in habitat for tricolored bat, this habitat assessment was utilized for tricolored bat as well. Suitable habitat for this species is located within both build alternatives along forested riparian and hedgerow areas including areas within the Hitts Siding Prairie, Abraham Lincoln National Cemetery, and MNTP. The proposed action would remove potential roost trees for the tricolored bat. Dominant tree species within the overstory include silver maple, eastern cottonwood, and black locust. Appendix D3 of the EA includes the bat habitat surveys.

3.4.2 Factors Affecting the Species Environment within the Action Area

The primary threat to the tricolored bat is WNS. Other threats to the tricolored bat include mortality from wind turbines, effects from climate change, and habitat loss (USFWS, 2021).

Winter habitat for tricolored bats predominantly includes caves and mines, and, less commonly, tree cavities. Caves and mines are not located within the action area.

Summer habitat for tricolored bats includes trees. While the threat posed to tricolored bats due to habitat loss is low (USFWS, 2021), the removal of potential roost trees may affect tricolored bat populations local to the action area corridor.

3.5 Western Regal Fritillary

3.5.1 Status within the Action Area

Surveys for the western regal fritillary were not conducted within the action area. However, favorable habitats for the western regal fritillary are located throughout the corridor. These habitats mainly include sand prairies, tallgrass prairies, savannas, dunes, and other wet areas associated with sand (IDNR, 2020). Violet species are also present throughout the project area and are obligate hosts and a food source for western regal fritillary larvae. Adults primarily feed on milkweeds and thistles and are rarely found away from prairie habitats. Therefore, it is presumed that the proposed action *may affect, but is not likely to adversely affect* the western regal fritillary.

3.5.2 Factors Affecting the Species Environment within the Action Area

Threats to the western regal fritillary include habitat fragmentation and isolation. The primary risk factors include invasive plants, woody encroachment, drought, and climate change. Conversion of native grasslands to other uses reduces the size, quality, and connectedness of habitat needed by the western regal fritillary.

Western regal fritillary requires large contiguous blocks of native grasslands and violets to support larvae, warm season bunchgrasses for shelter, and nectar sources for adults (USFWS, 2024). The grasslands need to be more than 2,471 acres in size to support the western regal fritillary, and grasslands must be maintained by periodic disturbance. Although individuals do not appear to prefer small patches, suitable small patches may be 400 acres.

3.6 Monarch Butterfly

3.6.1 Status within the action area

Surveys for monarch butterflies were not conducted within the action area. However, favorable habitats for monarchs such as grasslands and prairies are located throughout the corridor. Milkweed species, including common milkweed and swamp milkweed, were located within the corridor. Milkweed species are obligate hosts for monarch eggs and larva.

3.6.2 Factors Affecting the Species Environment within the action area

The primary threat to the monarch is habitat loss in its overwintering sites. However, availability of floral resources and habitat for the monarch's host milkweed species is also of concern. Habitat for floral and milkweed species is located throughout the action

area. Destruction of vegetation within the Action Area, particularly areas with milkweed species, may affect the monarch butterfly.

3.7 Hines Emerald Dragonfly

3.7.1 Status within the action area

Suitable larval habitat for this species is groundwater-fed wetlands over dolomite or limestone bedrock and the Action Area is not within any dolomite or limestone bedrock areas (IDNR, 2024).

In Illinois, Hine's emerald dragonflies were previously known only to occur within or around their critical habitat along the Des Plaines River; however, newer populations have been discovered outside of the mapped critical habitat. The closest population of Hine's emerald dragonfly recently discovered is in Channahon, Illinois, approximately 4.5 miles northwest of the project area. Adult individuals from this population may potentially fly to the project study area for foraging purposes, and undocumented larval habitat may also exist within MNTP wetlands, however no larval habitat were found during numerous site visits within the project study area.

3.7.2 Factors Affecting the Species Environment within the action area

The primary threat to the Hine's emerald dragonfly within the Action Area is the destruction and loss of suitable habitat, exacerbated through agricultural and industrial development and the alteration of hydrogeological processes. These changes negatively impact breeding and larval development sites, which leads to population declines.

4.0 Effects of the Action

This section, as well as Section 2.0 and Section 3.0, focus on federally listed species, as well as species proposed to become listed, and suitable habitat that the proposed action *may affect*. These include the RPBB, northern long-eared bat, decurrent false aster, tricolored bat, western regal fritillary, monarch butterfly, and Hine's Emerald Dragonfly. Final determinations for all species, including *no effect* for other species, are presented in Section 5.0.

4.1 Rusty Patched Bumble Bee

Impacts to the RPBB habitat within the HPZ are discussed below, and include the following:

- Direct, permanent impacts to upland grassland and foraging habitat within the HPZ.
- Indirect impacts to individual RPBB.

4.1.1 Direct Impacts to Suitable Habitat

Construction of the proposed action is anticipated to include clearing, grading, in-stream work and bridge reconstruction, and ballasting. Construction work would be confined to the existing and new railroad ROW, new permanent easements, temporary construction easements, and track crossing public road ROW. This action will result in soil disturbance and vegetation removal within the impact areas. As a result, direct impacts to upland grassland (nesting) and foraging may occur.

The total permanent impact within the HPZ is 18.7 acres for Alternative 1B and 20.2 acres for Alternative 2A. There are an estimated 8.9 acres within the HPZ that are within an existing built environment (such as paved roadways), where no RPBB habitat is present. Additionally, waterways do not provide habitat. Habitat to be impacted includes upland grassland which provides nesting and foraging (spring and summer/fall) habitat. This includes native tallgrass prairie, including remnants and restored/reconstructed prairie.

Photographic surveys completed in 2020 did not identify RPBB within the HPZ or suitable habitat near the HPZ. However, because the Action Area overlaps an HPZ and a presence/absence survey was not conducted, it is assumed that the species is present.

Potential direct effects from soil disturbance include impacts to nests. Soil disturbance is defined as scraping, compacting, plowing, tilling, excavating, or any similar activity sufficient in intensity to kill or harm RPBB that are overwintering or in nests in the affected area (USFWS, 2019). Per Section 7 guidance from the USFWS (2019), if site-specific abundance estimates are unavailable, it may be useful to apply nest density estimates derived for the buff-tailed bumble bee.

Soil disturbance in nesting habitat greater than 0.25 acre results in a 5 percent chance that the nest would be impacted (USFWS, 2019). If the action results in soil disturbance in nesting habitat during nesting season, direct impacts to bees may occur. Overwintering habitat includes the upland woodland, which is not present within the HPZ.. Avoiding soil disturbance in the overwintering area would avoid impacts to overwintering queens.

Direct effects also occur when individuals are present in the affected area. Bumble bees need continuously available nectar and pollen during the active season (March through October). Loss of floral resources during the active season will result in stress to the bumble bee. For this project, extensive floral resources will remain just outside of the project limits and within the foraging distance of the bees. For this reason, it is assumed that there will be no direct effects due to loss of floral resources.

4.1.2 Direct Operational Impacts to the RPBB

Train Stikes

The increased train traffic within the project area may negatively affect RPBB adults that forage within MNTP by increasing the probability of train strikes. RPBB cross roadways

and railroads in order to reach abundant floral resources, and they have also been observed to frequently forage along vegetated roadsides which often contain desired plant species. These roadside vegetation corridors are often found alongside railroads as well, and act as "ecological traps", luring RPBBs into dangerous areas (Dániel-Ferreira et al., 2022). However, because train operation is not currently deterring the presence of bees, it is not expected that an increase in the frequency of trains would have an impact on habitat quality.

RPBB queens may become vulnerable to train strikes when searching for new nest sites. Queens are at a higher risk of a train strike due to their larger bodies and slower flight (Dániel-Ferreira et al., 2022). The mortality of RPBB queens can have detrimental effects and drastically reduce RPBB populations.

Chemical Spills

Bees are sensitive to chemicals, and a catastrophic event such as a chemical spill in the Action Area has the potential to impact bees, although such an event is considered unlikely. Although they may attract media attention, derailments or similar incidents on UPRR lines are rare. UPRR has well-established protocols in place both to prevent such rare occurrences and to respond quickly when they do occur. In addition, by replacing the existing bridge with a wider, more modern structure, the safety of this crossing would be enhanced and the potential for such an event would be reduced. The UPRR's protocols for responding to catastrophic events are documented on their website.

4.1.3 Interrelated and Interdependent

Although many of the interrelated projects for the HSR Program impact what is currently suitable habitat for the RPBB in different unconnected habitats, interrelated and interdependent impacts to habitat are anticipated to be minor. The UPRR railroad between Chicago and St. Louis is an existing corridor. One HPZ is mapped within the project limits for this action. The remaining corridor between Chicago and St. Louis has one additional HPZ, located between MP 17 and 19.

4.1.4 Indirect

Indirect impacts can occur due to use of chemicals in the railroad ROW. Railroads frequently use pesticides to control weeds on the ballast and immediately adjacent to the tracks. Bumble bees can become exposed to pesticides through consumption of contaminated nectar or gathering of contaminated pollen. Pesticides have a variety of effects on bumble bees, including a reduction in queen longevity, brood, feeding, and the size of workers (USFWS, 2016).

4.1.5 Cumulative

The cumulative impact assessment from the EA addresses the impacts of the build alternatives in combination with other past, present, or reasonably foreseeable future actions, including other rail projects in the proposed Project study area, and evaluates

the significance of the aggregate effects. Past development includes urban and agricultural development, the Kankakee River Bridge Improvement, and the HSR complex crossings at Hoff Road, Coal City Road, and Strip Mine Road. Projects currently ongoing include the Joliet to Dwight Track Improvements, Centerpoint Intermodal, RidgePort Logistics Center, and Amazon Fulfillment Centers. Future projects include improvements to IL-53, improvements to Lorenzo Road, and three parks in the City of Wilmington.

Current and future projects may have impacts to RPBB if development occurs within habitat in an HPZ.

4.1.6 Conservation Measures

The recommended mitigation measures for the RPBB are identified in the table below.

Table 4-1. Proposed Mitigation Measures for the RPBB

Alternative 1B Mitigation Measures	Alternative 2A Mitigation Measures	Responsible Party
Tree clearing within medium or high-quality overwintering RPBB habitat would be conducted between August 1 and October 10.		UPRR
Ground disturbance within the RPBB High Potential Zone would avoid nesting season.		UPRR
Where avoidance is not possible, the area of disturbance would be minimized. To protect areas of habitat that will not be impacted but may be near construction activity, non-intrusion fencing would be installed to alert workers of sensitive natural areas. Signs would be posted at the edge of the habitat areas to minimize accidental intrusions into these areas. Temporarily impacted areas within the high potential zone would be seeded with native seed mixes[1] following construction. To the extent practicable, the mixes would contain an assortment of plant species specific to the habitat type from the RPBB Midwest Plant Guide (Krill, 2024). Species that are RPBB superfoods should be prioritized.		UPRR
Foraging habitat would be established as mitigation for impacts to habitat within the high potential zone. A mitigation ratio of 1:1 restoration would be used. Mitigation would occur on a property yet to be identified. Several public lands occur within the project area, including Illinois Nature Preserves, MNTP, and Abraham Lincoln National Cemetery. IDOT would work with those agencies to identify an area that can be used for mitigation. Mitigation preference would be for within or adjacent to the high potential zone, with forested areas nearby that could provide winter habitat for the bee.		UPRR/IDOT

[1] All seed mixes used on or adjacent to Midewin National Tallgrass Prairie property would be coordinated with MNTP.

4.2 Northern Long-Eared Bat

4.2.1 Direct Impacts to Suitable Habitat

In 2014 and 2020, northern long-eared bat habitat assessments were conducted in the field within the action area. Suitable habitat for this species is located within both build alternatives along forested riparian and hedgerow areas including areas within the Hitts

Siding Prairie, Abraham Lincoln National Cemetery, and MNTP. The proposed action would remove potential roost trees and impact suitable habitat for the northern long-eared bat. Approximately 14.61 and 13.44 acres of suitable habitat for the northern long-eared bat are within Build Alternatives 1B and 2A, respectively.

Based upon tree clearing restrictions, there will not be direct impacts to the northern long-eared bat as a result of habitat removal. Tree clearing would be restricted during the period of April 1 to October 15, when maternity trees may be occupied during the pup season. Direct impacts to hibernating habitat would not occur as hibernacula are not located near the proposed action.

Bridges and culverts will be inspected for bats prior to construction.

4.2.2 Direct Operational Impacts to the Northern Long-Eared Bat

Struck By Trains

The precise number of northern long-eared bats that may be struck and killed from trains traveling on the UPRR between MP 44.60 to 55.50 with the proposed action cannot be definitively quantified. An estimate was developed based upon the best available scientific data of bat mortality along highways. The findings on the potential for bat collisions in the Section 3 (Tier 2) Biological Opinion (BO) for the Interstate 69 (I-69) project in Indiana, the Tier 2 BO for the Illiana Corridor project, and a comparison of traffic volumes (vehicular or train) for Section 3 of I-69 and the proposed action were utilized to estimate traffic mortality. Although trains are larger and travel faster than the cars and trucks that use highway facilities, the estimate is based on the best available information for calculating bat mortality. Literature on traffic collisions and bats includes:

- Russell et al. (2009) examined mortalities resulting from vehicular collision for the Indiana bat (*Myotis sodalis*) and the little brown bat (*Myotis lucifugus*).
- Lesiński (2008) found that areas where linear landscape features are perpendicular to roadways might indirectly contribute to bat mortality from vehicular collision. Bats likely use these landscape features as corridors for movement, which may encourage bats to cross roads and, in turn, may increase bat mortality from vehicular collision.
- Berthinussen and Altringham (2012) conducted studies along the M6 Highway in the United Kingdom. They detected a marked decrease in bat activity and diversity in proximity to the road. Within this study, possible reasons for lower activity and diversity closer to the road include habitat degradation, artificial light, noise and chemical pollution, and a roadway barrier effect

In the Tier One BO prepared for the I-69 project, the USFWS stated that bats struck by vehicles would likely be killed. The USFWS assumed that the annual number of deaths by vehicle collisions would not likely exceed 11 Indiana bats per calendar year. The USFWS also stated that based on the best available scientific data, the actual number of Indiana bats that may be struck and killed from vehicles traveling on I-69 between Evansville and Indianapolis cannot be precisely quantified as bats killed by vehicular collision are difficult to locate. In the Section 3 Tier Two BO for I-69, the USFWS

anticipated that one bat would be killed every three and a half years along the 25-mile corridor as long as the interstate is operated. No significant, long-term adverse effects were anticipated to any local Indiana bat populations.

The Tier 2 Illiana Corridor project BO used the I-69 estimate to extrapolate direct impacts to bats. Because impacts to summer habitat acreage were three times the impact acreage of summer habitat for I-69 Section 3, it was assumed for the Illiana Corridor project that three times as many bats would be impacted as a result of vehicular collision (i.e. one bat per calendar year). This estimate did not take into account general uncertainties such as baseline population numbers of bats within the vicinity of the project or the inability to accurately determine bat mortality caused by vehicular collisions. Therefore, the overall estimated maximum amount of incidental take of northern long-eared bats for the Illiana Corridor project was assumed to be no more than 23 individuals (all from roadkill) during the first 23 years of operation (approximately 2017 to 2040).

For the Illiana Corridor project, direct impacts to the northern long-eared bat as a result of habitat removal were determined *most likely not to occur*. This is based upon tree clearing restrictions as well as an assumption that maternity colonies are not located within or immediately adjacent to the corridor. Tree clearing will only occur between October 15 and March 31, when bats are in their winter hibernacula.

As indicated above, the precise number cannot be definitively quantified of northern long-eared bats that may be struck and killed from trains traveling on the UPRR between MP 44.60 to MP 55.50 with the proposed action. However, traffic data is useful in attempting to assess impacts to bats as a result of collisions because each vehicle or train traveling through these corridors represents one opportunity for collision.

An approximate average daily traffic volume (AADT) of 20,589 was projected for year 2030 for Section 3 of I-69. As indicated in Section 1.1, the proposed action is expected to increase the number of daily passenger trains passing through MP 44.60 to MP 55.50 from 10 (nine daytime and one nighttime) to 18 (16 daytime and two nighttime).

Assuming projected proposed action daily train volumes of 18, this would be only 0.087 percent of the forecasted AADT for Section 3 of I-69, approximately 20,589. The BO for Section 3 of the I-69 project stated that it was anticipated that approximately one bat would be killed every three and a half years as long as the interstate is operated. Given the substantially lower daily vehicle volumes of the rail line versus the proposed I-69, the potential for bat collisions with the proposed action is insignificant.

The potential for bat collisions is expected to remain insignificant even when taking into account that trains are faster and larger than cars and trucks. In addition, 16 of the 18 proposed daily trains will be scheduled during the day, further reducing the potential for collisions based on the nocturnal nature of bat foraging.

Noise

Studies conducted on the influence of vehicular traffic on the behavior of commuting bats near the Indianapolis International Airport revealed that bats are more than twice as likely to reverse course when vehicles were present as opposed to when vehicles are absent (Zurcher et al., 2010). This research supports the hypothesis that bats perceive vehicles as a threat and display avoidance behavior in response to their presence (Zurcher et al., 2010). The consequence of this avoidance behavior is that roads act as barriers to movement, restricting bats from accessing critical resources (Bennett and Zurcher, 2013). Research conducted by Bennett and Zurcher (2013) also concludes that roadway avoidance behavior in bats increases as noise levels associated with vehicles increases above 88 decibels. This avoidance behavior is expected as a result of train noise.

Research to determine the influence of anthropogenic noise on the greater mouse-eared bat (*Myotis myotis*) suggests that foraging areas very close to highways are degraded by noise (Schaub, 2008). The greater mouse-eared bat finds its prey predominantly by listening to prey sounds (Schaub, 2008). Other bat species also forage by echolocation (listening to prey sounds); therefore, it is assumed that acoustic habitat degradation would affect these species, including the northern long-eared bat, in a similar way (Schaub, 2008). Although this study found that bats avoided noise stimulus when it was present, the study did not find that bats could not continue to forage in areas where a noise stimulus was present (Schaub, 2008). Therefore, mortality to the northern long-eared bat is not anticipated from the noise levels that would occur for the operation of the proposed action.

The hesitancy of bats to forage in noisy environments could potentially bring about conservation benefits (Schaub, 2008). If the time bats spend foraging across noisy corridors, including rail corridors, is decreased, the number of potential casualties could be reduced (Schaub, 2008).

Because this is an existing railroad corridor, it is unlikely that there would be direct impacts to the northern long-eared bat as a result of noise.

4.2.3 Interrelated and Interdependent

Although many of the interrelated projects for the HSR Program impact suitable habitat for the northern long-eared bat in different unconnected habitats, interrelated and interdependent impacts to habitat are anticipated to be minor. The UPRR railroad between Chicago and St. Louis is an existing corridor. Habitat removed for the northern long-eared bat for the entire corridor will occur only at the edges of forests and to hedgerows.

4.2.4 Indirect

Potential indirect impacts due to noise and vibration are not expected. Bats do not appear affected by noise or vibration along roadways (USFWS, 2006) and appear

habituated to the sounds of traffic. Northern long-eared bats have not been found to be roosting on any of the bridges within the action area.

4.2.5 Cumulative

The existing UPRR already bisects the forested areas through the action area; the project would not induce new development in the area and no other reasonably foreseeable future actions are predicted to occur in the area. Construction of the proposed Project would be the only impact causing activity and there would be no cumulative impacts from other projects. As noted in Section 1.1, the number of freight trains operating in the corridor is expected to increase with or without the proposed action from five to eleven, including a growth in nighttime freight trains from two to four. The cumulative daily growth in trains (passenger and freight) by 2030 is expected to increase from the current 15 to 29, with nighttime trains increasing from three to six.

Assuming cumulative daily train volumes of 29, this would be 0.14 percent of the forecast AADT for Section 3 of the I-69 project, which is 20,589. The BO for Section 3 of the I-69 project stated that it was anticipated that approximately one bat would be killed every three and a half years if the interstate is operated. Given the substantially lower daily vehicle volumes of the rail line versus the proposed I-69 project, the potential for bat collisions with the rail improvements, even when considering the potential cumulative impact, is insignificant.

4.2.6 Conservation Measures

The recommended mitigation measures for the NLEB are described in the table that follows.

Table 4-2. Proposed Mitigation for the NLEB

Alternative 1B Mitigation Measures	Alternative 2A Mitigation Measures	Responsible Party
General AMM 1: Ensure all operators, employees, and contractors working in areas of Indiana bat, NLEB, or TCBs suitable habitat are aware of all Transportation Agency environmental commitments, including all applicable AMMs.		**UPRR/IDOT**
Tree Removal/Trimming AMM 1: Modify all phases/aspects of the project (e.g., temporary work areas, alignments) to the extent practicable to avoid tree removal/trimming in excess of what is required to implement the project safely.		**UPRR**
Tree Removal/Trimming AMM 2: Ensure tree removal/trimming is limited to that specified in project plans and ensure that contractors understand clearing limits and how they are marked in the field (e.g.,		**UPRR**

install bright colored flagging/fencing prior to any tree removal/trimming to ensure contractors stay within clearing limits).	
Tree Removal/Trimming AMM 4: Avoid conducting tree removal/trimming outside documented habitat for the Indiana bat, NLEB, or TCB beyond 100 ft of the road/rail surface during the pup season The pup season is June 1st to July 31st.	**UPRR**
Tree removal for trees that are suitable habitat for the NLEB and TCB would occur between November 1st through March 31st.	**UPRR**

4.3 Decurrent False Aster

Impacts to the decurrent false aster are described below.

4.3.1 Direct Impacts to Suitable Habitat

A population of decurrent false aster occurs in MNTP, having been unintentionally planted during restoration of the site in the early 2000s (INHS, 2014). This population was surveyed in 2020 and 2024. Approximately 3.32 and 3.09 acres of suitable habitat for decurrent false aster are within Build Alternatives 1B and 2A, respectively.

4.3.2 Direct Impacts to the Decurrent False Aster

Direct impacts to decurrent false aster are not expected.

4.3.3 Interrelated and Interdependent

Although many of the interrelated projects for the HSR Program impact suitable habitat for the decurrent false aster, the population is introduced and likely would not occur naturally within this part of the state. Interrelated and interdependent impacts to habitat are anticipated to be minor. The UPRR railroad between Chicago and St. Louis is an existing corridor. The majority of the corridor has already been improved as part of the overall project and decurrent false aster was not impacted.

4.3.4 Indirect

Potential indirect impacts may occur due to potential water quality impacts as a result of construction. Through use of appropriate soil erosion and sediment control, these impacts are expected to be minimal.

4.3.5 Cumulative

The existing UPRR already bisects the forested areas through the action area; the project would not induce new development in the area and no other reasonably foreseeable

future actions are predicted to occur in the area. Construction of the proposed Project would be the only impact causing activity and there would be no cumulative impacts from other projects. The majority of the corridor has already been improved as part of the overall project, and the previous construction projects did not impact decurrent false aster.

As discussed in Section 4.1, the cumulative impact assessment from the EA addresses the impacts of the build alternatives in combination with other past, present, or reasonably foreseeable future actions, including other rail projects in the project study area, and evaluates the significance of the aggregate effects. Past development includes urban and agricultural development, the Kankakee River Bridge Improvement, and the HSR complex crossings at Hoff Road, Coal City Road, and Strip Mine Road. Projects currently ongoing include the Joliet to Dwight Track Improvements, Centerpoint Intermodal, RidgePort Logistics Center, and Amazon Fulfillment Centers. Future projects include improvements to IL-53, improvements to Lorenzo Road, and three parks in the City of Wilmington.

Current and future projects are unlikely to impact decurrent false aster as the plant is not naturally occurring in Will County.

4.3.6 Conservation Measures

The recommended mitigation measures for the decurrent false aster are described in the table that follows.

Table 4-3 Proposed Mitigation Measures for the Decurrent False Aster

Alternative 1B Mitigation Measures	Alternative 2A Mitigation Measures	Responsible Party
Temporarily disturbed areas adjacent to the decurrent false aster population in MNTP would be reseeded with native seed mix.		**UPRR**
Silt fence or exclusion fencing would be placed around decurrent false aster populations when construction is occurring within 50 feet of the proposed Project limits to reduce the possibility of accidental impact.		**UPRR**
No work shall occur outside the Action Area where decurrent false aster has been documented.		**UPRR**
No borrow/waste/use sites shall occur in the area decurrent false aster has been documented.		**UPPR**

4.4 Tricolored Bat

Potential impacts to the tricolored bat are discussed below.

4.4.1 Direct Impacts to Suitable Habitat

In 2014 and 2020, bat habitat assessments were conducted in the field within the action area for the northern long-eared bat. Due to the similarity in habitat, this assessment will be utilized for the tricolored bat as well. Suitable habitat for this species is located within both build alternatives along forested riparian and hedgerow areas including areas within the Hitts Siding Prairie, Abraham Lincoln National Cemetery, and MNTP.

There are approximately 14.61 acres of suitable habitat within the Alternative 1B proposed Project limits, comprised of 5.42 acres of riparian trees along Grant Creek and Prairie Creek (high-quality habitat), 4.12 acres of moderate habitat (groups of trees within 500 feet of a waterway), and 5.07 acres of hedgerows in urban areas (low-quality habitat). Alternative 2A includes impacts to 13.44 acres of suitable habitat, with 4.24 acres of high-quality habitat, 4.11 acres of moderate habitat, and 5.07 acres of hedgerows.

Based upon tree clearing restrictions, there will be *no direct impact* to the tricolored bat as a result of habitat removal. Tree clearing would be restricted during the period of April 1 to October 15. Direct impacts to hibernating habitat would not occur as hibernacula are not located near the proposed action.

Bridges and culverts will be inspected for bats prior to construction.

4.4.2 Direct Operational Impacts to the Tricolored Bat

Struck By Trains

Like the northern long-eared bat, the precise number cannot be definitively quantified of tricolored bats that may be struck and killed from trains traveling on the UPRR between MP 44.60 to 55.50 with the proposed action. However, traffic data is useful in assessing impacts to bats as a result of collisions because each vehicle or train traveling through these corridors represents one opportunity for collision. The number of bat collisions with trains is expected to be insignificant (see Section 4.2). The estimated number of the tricolored bat is the same as the northern long-eared bat (see Section 4.3.2).

Noise

As discussed in Section 4.2, because this is an existing railroad corridor, it is unlikely that there would be direct impacts to the tricolored bat as a result of noise.

4.4.3 Interrelated and Interdependent

Although many of the interrelated projects for the HSR Program impact suitable habitat for the tricolored bat in different unconnected habitats, interrelated and interdependent

impacts to habitat are anticipated to be minor. The UPRR railroad between Chicago and St. Louis is an existing corridor. Habitat removed for the tricolored bat for the entire corridor will occur only at the edges of forests and to hedgerows.

4.4.4 Indirect

Potential indirect impacts due to noise and vibration are not expected. Bats do not appear affected by noise or vibration along roadways (USFWS 2006) and appear habituated to the sounds of traffic. Tricolored bats have not been found to be roosting on any of the bridges within the action area.

4.4.5 Cumulative

As discussed in Section 4.2, the existing UPRR already bisects the forested areas through the action area; the project would not induce new development in the area and no other reasonably foreseeable future actions are predicted to occur in the area. Construction of the proposed Project would be the only impact causing activity and there would be no cumulative impacts from other projects. Also as noted in Section 4.2, given the substantially lower daily vehicle volumes of the rail line versus the proposed I-69 project, the potential for bat collisions from the rail improvements, even when considering the potential cumulative impact, is likely less than the I-69 project study found.

4.4.6 Conservation Measures

The mitigation measures for the NLEB cover the tricolored bat as well. Those can be found in Section 4.2.6.

4.5 Western Regal Fritillary

The USFWS has proposed to list the western regal fritillary threatened with a 4(d) rule (USFWS 2024). The listing is currently in the public comment period.

4.5.1 Direct Impacts to Suitable Habitat

The western regal fritillary lives in prairies, meadows, savannas, and other wet areas with sand. Sand prairies are located within Hitts Siding Prairie and adjacent UPRR ROW. However, no impacts within Hitts Siding Prairie are proposed. Impacts to sand wetlands occur within the UPRR ROW adjacent to Hitts Siding.

4.5.2 Direct Impacts to the Western Regal Fritillary

Direct impacts may occur to western regal fritillary if violet species are destroyed. The western regal fritillary lay their eggs on violet species, and the larvae eat violet leaves exclusively.

4.5.3 Interrelated and Interdependent

Although many of the interrelated projects for the HSR Program impact suitable habitat for the western regal fritillary in different unconnected habitats, interrelated and interdependent impacts to habitat are anticipated to be minor. The UPRR railroad between Chicago and St. Louis is an existing corridor. The western regal fritillary is state listed. Impacts were not proposed within the other segments of the project.

4.5.4 Indirect

Potential indirect impacts to the western regal fritillary may occur due to reduction in habitat if violet species are impacted.

4.5.5 Cumulative

The existing UPRR already bisects the habitat through the action area. The proposed Project would not induce new development in the area and no other reasonably foreseeable future actions are predicted to occur in the area. Construction of the proposed Project would be the only impact causing activity and there would be no cumulative impacts from other projects. As discussed in Section 4.1, the cumulative impact assessment from the EA addresses the impacts of the build alternatives in combination with other past, present, or reasonably foreseeable future actions, including other rail projects in the Project study area, and evaluates the significance of the aggregate effects. Past development includes urban and agricultural development, the Kankakee River Bridge Improvement, and the HSR complex crossings at Hoff Road, Coal City Road, and Strip Mine Road. Projects currently ongoing include the Joliet to Dwight Track Improvements, Centerpoint Intermodal, RidgePort Logistics Center, and Amazon Fulfillment Centers. Future projects include improvements to IL-53, improvements to Lorenzo Road, and three parks in the City of Wilmington. Future projects may impact western regal fritillary if violet species are impacted.

4.5.6 Conservation Measures

The recommended mitigation measure for the western regal fritillary can be found in the table below.

Table 4-4. Proposed Mitigation Measure for the Western Regal Fritillary

Alternative 1B Mitigation Measures	Alternative 2A Mitigation Measures	Responsible Party
Disturbed areas would be reseeded with native prairie mix.		**UPRR**

4.6 Monarch Butterfly

The monarch butterfly was designated as a candidate species by the USFWS in December 2020, but a proposal to list the species as threatened was issued recently on December 13, 2024.

4.6.1 Direct Impacts to Suitable Habitat

Habitat for the monarch butterfly occurs throughout the corridor. The habitat impacted includes acreages of grasslands, prairies, and wetlands.

4.6.2 Direct Operational Impacts to the Monarch Butterfly

Direct impacts may occur to the monarch butterfly if milkweed species are destroyed.

4.6.3 Interrelated and Interdependent

Although many of the interrelated projects for the HSR Program impact suitable habitat for the monarch butterfly in different unconnected habitats, interrelated and interdependent impacts to habitat are anticipated to be minor. The UPRR railroad between Chicago and St. Louis is an existing corridor.

4.6.4 Indirect

Potential indirect impacts to the monarch butterfly may occur through destruction of milkweed plants.

4.6.5 Cumulative

The existing UPRR already bisects the habitat through the action area; the project would not induce new development in the area and no other reasonably foreseeable future actions are predicted to occur in the area. Construction of the proposed Project would be the only impact causing activity and there would be no cumulative impacts from other projects. As discussed in Section 4.1, the cumulative impact assessment from the EA addresses the impacts of the build alternatives in combination with other past, present, or reasonably foreseeable future actions, including other rail projects in the Project study area, and evaluates the significance of the aggregate effects. Past development includes urban and agricultural development, the Kankakee River Bridge Improvement, and the HSR complex crossings at Hoff Road, Coal City Road, and Strip Mine Road. Projects currently ongoing include the Joliet to Dwight Track Improvements, Centerpoint Intermodal, RidgePort Logistics Center, and Amazon Fulfillment Centers. Future projects include improvements to IL-53, improvements to Lorenzo Road, and three parks in the City of Wilmington. Future projects may impact the monarch butterfly if milkweed species are impacted.

4.6.6 Conservation Measures

Recommended mitigation measures for the monarch butterfly can be found in the table below.

Table 4-5. Proposed Mitigation Measure for the Monarch Butterfly

Alternative 1B Mitigation Measures	Alternative 2A Mitigation Measures	Responsible Party
Disturbed areas would be reseeded with native seed mixes.		UPRR

4.7 Hine's Emerald Dragonfly

The Hine's emerald dragonfly was designated as an endangered species by the USFWS on January 26, 1995.

4.7.1 Direct Impacts to Suitable Habitat

Suitable habitat for the Hine's emerald dragonfly includes high-quality wet meadows and shallow streamlets where larvae may be found. There is suitable habitat located throughout the corridor, but no proposed impacts to this habitat are expected due to the proposed action within the project corridor. There are also no proposed impacts to designated critical habitat for the Hine's emerald dragonfly, which is located approximately 16 miles north of the project corridor (Illinois DNR 2011b; USFWS 2020). A population of Hine's Emerald Dragonfly was recently discovered in Channahon, Illinois is approximately 4.5 miles northwest of the project corridor (USFWS, personal communication). This habitat will not be impacted as a result of the project, but adult individuals from this population may potentially fly to MNTP to forage.

4.7.2 Direct Operational Impacts to the Hine's emerald dragonfly

Disturbances to suitable wetland habitats potentially directly affect Hine's emerald dragonfly adults and larvae if they actively inhabit areas which may be potentially destructed or polluted as a result of project activities. Additionally, mortality resulting from collisions with construction equipment and increased traffic as a result of the proposed action may have detrimental effects on Hine's emerald dragonfly populations.

The increase the railway operation that will result from the completion of the proposed action may directly affect HED adults who fly over the railroad tracks while foraging. HEDs are known to be killed by vehicles, and they have been observed flying over railroad tracks. Therefore, it is believed that high speed trains may serve as a source of mortality (Soluk et al, 1998). Adult mortality from direct impacts with vehicles and trains has the potential to greatly reduce HED population sizes, as roads and railways commonly intersect and fragment the habitats in which HED adults forage and breed.

The closest existing population of Hine's emerald dragonfly is approximately 4.5 miles from the project corridor. HED adults from this population may forage at MNTP, and new undocumented populations may exist within wetlands outside the Project Study Area containing suitable larval habitat; therefore, direct minor mortality due to collision may occur.

4.7.3 Interrelated and Interdependent

Although many of the interrelated projects for the HSR Program impact suitable habitat for the Hine's emerald dragonfly in different unconnected habitats, interrelated and interdependent impacts to habitat are anticipated to be minor. The UPRR railroad between Chicago and St. Louis is an existing corridor. The Hine's emerald dragonfly is state listed. Impacts were not proposed within the other segments of the project.

4.7.4 Indirect

Potential indirect impacts to the Hine's emerald dragonfly may occur through the degradation of surrounding wetlands that may serve as breeding and foraging areas and the disruption of ecological processes that maintain these habitats. Increased sedimentation can also disturb the areas which Hine's emerald dragonflies depend on. The Hine's emerald dragonfly relies on specific type of wetland habitat as larval habitat. These types of wetlands do not occur within the project study area.

4.7.5 Cumulative

The existing UPRR already bisects the habitat through the action area. The proposed Project would not induce new development in the area and no other reasonably foreseeable future actions are predicted to occur in the area. Construction of the proposed Project would be the only impact causing activity and there would be no cumulative impacts from other projects. As discussed in Section 4.1, the cumulative impact assessment from the EA addresses the impacts of the build alternatives in combination with other past, present, or reasonably foreseeable future actions, including other rail projects in the Project study area, and evaluates the significance of the aggregate effects. Past development includes urban and agricultural development, the Kankakee River Bridge Improvement, and the HSR complex crossings at Hoff Road, Coal City Road, and Strip Mine Road. Projects currently ongoing include the Joliet to Dwight Track Improvements, Centerpoint Intermodal, RidgePort Logistics Center, and Amazon Fulfillment Centers. Future projects include improvements to IL-53, improvements to Lorenzo Road, and three parks in the City of Wilmington. Future projects may impact Hine's emerald dragonfly if suitable habitat is impacted.

4.7.6 Conservation Measures

No mitigation is recommended for the Hine's emerald dragonfly since no suitable larval habitat is located within the Project Study Area.

5.0 Determination of Effect

Final determinations, including *no effect*, for all species are presented below.

5.1 Hine's Emerald Dragonfly

The proposed action *may affect, but is not likely to affect* the Hine's emerald dragonfly as suitable larval habitat has not been identified during previous on-site investigations. Hine's emerald dragonfly habitat includes shallow soils over dolomite bedrock where cool groundwater feeds shallow emergent wetlands. Breeding occurs in small and shallow channels or rivulets through marshes, typically with slow flow and organic detritus on channel bottoms, and in small pools or soft organic substrate fed by sheet flow through sedge meadows and fens. Adults forage in proximity to breeding sites, utilizing a variety of open habitats including marsh, sedge meadow, fen, and successional field. Seven critical habitat units have been identified in Illinois (Federal Register 2010). The closest critical habitat unit is approximately 16 miles north of the corridor (Illinois DNR, 2011b; Indiana DNR, 2011b). Therefore, critical habitat would not be affected by the proposed action.

5.2 Eastern Massasauga

The proposed action would have *no effect* on the eastern massasauga rattlesnake. Critical habitat has not been designated for the eastern massasauga. Visual encounter surveys were conducted at three locations within areas of potential habitat within the survey area (Huff & Huff, 2014; Huff & Huff, 2020). Surveys involved searching appropriate habitat and turning cover objects such as logs, rocks, and debris, while scanning open habitat areas for target organisms (Heyer et al., 1994). The eastern massasauga was not observed within the build alternatives (Huff & Huff, 2014; Huff & Huff, 2020).

5.3 Sheepnose Mussel

The proposed action would have *no effect* on the sheepnose mussel. Critical habitat has been designated for the sheepnose mussel Critical habitat is located within the Kankakee River, which is not part of this project. The proposed action will not effect the habitat.

5.4 Rusty Patched Bumble Bee

The proposed action *may affect, but not likely to adversely affect* the RPBB. An HPZ is located within the build alternatives along restored prairie areas within MNTP and south of the Abraham Lincoln National Cemetery (From MP 49.0 to MP 47.9). Habitat within the HPZ includes upland grassland and forested areas, which functions as nesting and spring/summer foraging habitat.

The Determination Key for the RPBB was submitted on May 5, 2025. The technical assistance letter was generated the same day. The technical assistance letter recommended further consultation.

5.5 Eastern Prairie Fringed Orchid

The proposed action would have *no effect* on the eastern prairie fringed orchid. The eastern prairie fringed orchid was not found within the action area during two separate orchid surveys (INHS 2014; Huff & Huff, 2020).

The closest known eastern prairie fringed orchid population is present at Grant Creek Prairie Nature Preserve (INHS 2014), which is approximately four miles northwest of the action area and adjacent to I-55 south of Blodgett, Illinois. This population would not be impacted as a result of construction activities.

5.6 Lakeside Daisy

The proposed action would have *no effect* on the lakeside daisy as its suitable habitat, which is restricted to limestone quarries or dry, thin-soiled, degraded prairies in which limestone or dolomite bedrock is at or near the surface, is not present within or adjacent to the action area (Hilty, 2018; USFWS, 1990). Botanical surveys did not identify the lakeside daisy or suitable habitat for the species (INHS, 2014).

5.7 Leafy Prairie Clover

The proposed action would have *no effect* on the leafy prairie clover as its suitable habitat, which includes cedar glades, barrens, dolomite prairies, and prairie remnants on thin soil over limestone, is not present within or adjacent to the proposed action (USFWS 1996). As of 2010, surveys have identified seven populations throughout the state, all within Will County. However, none of the known populations are located within one mile of the build alternatives. Botanical surveys in the build alternatives did not identify the leafy prairie clover or suitable habitat for the species (INHS, 2014; Huff & Huff, 2020).

5.8 Decurrent False Aster

The proposed action would have *may affect, but is not likely to adversely effect* on the decurrent false aster. A population of decurrent false aster occurs in MNTP, having been unintentionally planted during restoration of the site in the early 2000s (INHS, 2014). Also, decurrent false aster is not endemic to Will County, with natural populations found historically along the Illinois River Valley (Smith, 2012). The proposed Project avoids directly impacting decurrent false aster.

5.9 Northern Long-Eared Bat

The proposed action *may affect, and is likely to adversely affect* the northern long-eared bat, a federally threatened species. The northern long-eared bat has been recently found in Will County, and the proposed action consists of widening an existing corridor which has the potential to remove potential roost trees and suitable habitat for the northern long-eared bat. Therefore, it is likely that there would be an adverse effect because of the addition of the second track in this location. The project conforms with the FHWA, FRA, FTA Programmatic Biological Opinion/Conference Opinion (dated December 13, 2024) for Transportation Projects in the Range of the Indiana Bat, Northern Long-Eared Bat, and Tricolored Bat. The Determination Key was submitted via IPaC on April 28, 2025 for the Northern Long-Eared and Tricolored Bat. The LAA verification letter is still pending. Suitable habitat for this species is located within the action area. The proposed actionwould remove potential roost trees and impact suitable habitat for the northern long-eared bat.

5.10 Salamander Mussel

The proposed action would have *no effect on* the salamander mussel. Suitable habitat for the salamander mussel is not present within the action area. Critical habitat has not been designated for the salamander mussel. Four records of salamander mussel are contained in the INHS mussel database for the Illinois portion of the Kankakee River, which is near the action area, but no action is proposed in the Kankakee River.

5.11 Tricolored Bat

The proposed action *may affect, and is likely to adversely affect* the tricolored bat. Suitable habitat for this species is located within both build alternatives along forested riparian and hedgerow areas including areas within the Hitts Siding Prairie, Abraham Lincoln National Cemetery, and MNTP. The proposed action would remove potential roost trees and suitable habitat for the tricolored bat. The project conforms with the FHWA, FRA, FTA Programmatic Biological Opinion (dated December 13, 2024) for Transportation Projects within the Range of the Indiana Bat, Northern Long-Eared Bat, and Tricolored Bat. The Determination Key was submitted via IPaC on April 28, 2025.

5.12 Western Regal Fritillary

No determination is made for the western regal fritillary since it is currently proposed threatened. Potential impacts to western regal fritillary include removal of *Viola spp.*, which are the primary food source of the butterfly.

5.13 Whooping Crane

The whooping crane is "known to or believed to occur" in Will County (USFWS, 2024) as part of an Experimental, Non-essential Population. This population is known as a migratory species which ranges from upper Wisconsin to central Florida.

The whooping crane breeds, migrates, winters, and forages in a variety of wetland and other habitats, including coastal marshes and estuaries, inland marshes, lakes, ponds, wet meadows and rivers, and agricultural fields. Suitable habitat for migratory whooping cranes, including marshes and wet prairie, are found throughout the project area.

According to the Congressional Research Service, experimental populations are treated as threatened species under the ESA.

5.14 Monarch Butterfly

No determination is made for the Monarch Butterfly since it is currently proposed threatened. Suitable habitat for this species includes anywhere their host plant (milkweed species) and flowering plants can be found, including fields, prairies, roadsides, and urban gardens. Monarch butterflies and suitable habitat were observed within the action area during surveys (Huff & Huff, 2024). The proposed Project is likely to impact suitable monarch butterfly habitat.

6.0 Conclusion

The purpose of this BA is to evaluate the potential effects of the action on listed and proposed species and designated and proposed critical habitat and determine whether any species or habitat are likely to be adversely affected by the action. Fourteen federally listed threatened or endangered species have the potential to occur within the project limits. Of the fourteen species listed, three species were found to have a Section 7 determination of *may affect, but not likely to adversely affect*. These species include the RPBB, decurrent false aster, and Hine's emerald dragonfly. The Northern Long-eared Bat and Tricolored Bat Determination Key was used to receive a *may affect, likely to adversely affect* determination for the northern long-eared bat and tricolored bat. The project will follow the guidelines of the FHWA, FRA, FTA Programmatic Biological Opinion (dated December 13, 2024) for Transportation Projects within the Range of the Indiana Bat, Northern Long-Eared Bat, and Tricolored Bat. No determination was made for the Monarch Butterfly or western regal fritillary.

FRA requests concurrence from the USFWS on the findings for the protected resources in the action area.

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