



Illinois Department of Natural Resources

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Bruce Rauner, Governor
Wayne A. Rosenthal, Director

April 15, 2015

Mr. Minesh Patel
Major Construction Unit & Permitting Section
Illinois Environmental Protection Agency, Bureau of Air
1021 North Grand Ave. East
Springfield IL 62794

**RE: IDNR Project #1510076
Mississippi Lime Kilns PSD Permit
Randolph County**

Dear Mr. Patel:

This letter concerns the consultation for an air quality permit in Randolph County, Township 5 South, Range 9 West, Section 17. The project was submitted for consultation in accordance with the *Illinois Endangered Species Protection Act* [520 ILCS 10/11], the *Illinois Natural Areas Preservation Act* [525 ILCS 30/17], and Title 17 *Illinois Administrative Code* Part 1075.

The proposed action is the issuance of a Clean Air Act permit for emissions emanating from a proposed new facility incorporating two industrial kilns, fueled by coal or pet-coke or both, to be constructed two miles northwest of Prairie du Rocher. The facilities would be adjacent to a nearby limestone mining operation and would process crushed limestone into calcinated lime for use in cement manufacturing.

An Ecological Screening Risk Assessment (ESRA)¹ prepared on behalf of the applicant did not address any State-listed endangered or threatened species or other natural resources protected by Illinois law. The ESRA addressed four federally-listed species: the **Small-Whorled Pogonia**, *Isotria medeoloides*; the **Interior Least Tern**, *Sternula antillarum*; the **Pallid Sturgeon**, *Scaphirhynchus albus*; and the **Indiana Bat**, *Myotis sodalis*. The Department concurs with the conclusion of the ESRA that these species are unlikely to be adversely affected, with the exception of the Indiana Bat.

¹ Ecological Screening Risk Assessment Evaluation: *Mississippi Lime Company, Prairie Du Rocher, Illinois*: URS Corporation, St. Louis, MO (April 5, 2010). This document was provided to IDNR for consultation on March 2, 2015.

Within a three-kilometer radius² of the proposed facility there exists a unique and extraordinary concentration of unusual natural communities and their constituent species of rare plants and animals, protected by the referenced Illinois statutes. These include two Illinois Natural Areas Inventory (INAI) Sites³; two Illinois Nature Preserves⁴; two Illinois Land & Water Reserves⁵; and essential habitats for ten State-listed endangered or threatened species of animals (5)⁶ and plants (5)⁷, most of them unique to this specific region of Illinois. This area also contains suitable habitat for three federally-listed endangered or threatened bats and suitable habitat for a fourth bat proposed for listing by Illinois as threatened.⁸

Increasing the radius to 4.5 kilometers⁹, doubling the area considered, would encompass two additional INAI Sites¹⁰; another Nature Preserve¹¹; two more Land & Water Reserves¹²; and essential habitats for eight additional species of endangered or threatened animals (7)¹³ and plants (1),¹⁴ as well as additional records of the species found within 3 km. Expanding the radius yet further, but no great distance, would bring yet more state-protected and federally-protected natural resources under consideration, including the federally-listed endangered **Illinois Cave Amphipod**, *Gammarus acherondytes*.

Given the character and quantity of protected natural resources in the vicinity, the Department concludes the proposed action is likely to result in the cumulative and continuous adverse modification of the dedicated Illinois Nature Preserves and registered Land & Water Reserves protected by the *Illinois Natural Areas Preservation Act* [525 ILCS 30/17].

In addition, this action will likely result in the continuous adverse modification of the essential habitats of sixteen species of animals (11) and plants (5) listed by Illinois as endangered or threatened which occur within a 4.5 km radius, and is likely to result in the prohibited taking of several listed animals, including the **Eastern Narrow-Mouth Toad**, *Gastrophryne*

² This radius is used in the Auer Method for air-quality modeling employed in the Ecological Screening Risk Assessment (ESRA) for this proposal.

³ Demint Prairie/Prairie du Rocher Herpetological INAI Site; Prairie du Rocher – South INAI Site.

⁴ William A. Demint Memorial Hill Prairie Nature Preserve; Prairie of the Rock Nature Preserve.

⁵ Prairie of the Rock Overlook Land & Water Reserve (LWR); Blufftop Acres LWR.

⁶ Eastern Narrow-Mouth Toad (T); Common Striped Scorpion (E); Coachwhip Snake (E); Flathead Snake (T); Great Plains Ratsnake (E).

⁷ Whitlow Grass (E); Missouri Orange Coneflower (T); Crested Coralroot Orchid (E); Slender Heliotrope (E). Stickleleaf is proposed for listing as “endangered.”

⁸ The federally-listed bats are the Indiana Bat (E), the Gray Bat (E), and the Northern Long-Eared Bat (T); Illinois has proposed listing the Eastern Small-Footed Bat (T).

⁹ The Auer Method, a technique published by August H. Auer (1978) to characterize land uses as rural or urban, is used by USEPA to inform various air quality models and specifies the 3-km radius. However, areas included in Risk Assessments may encompass a 50-km radius. This information is provided to indicate that additional resources located beyond 3 km may be worthy of risk assessment.

¹⁰ Renault Herpetological Area INAI Site; Renault Cave System INAI Site

¹¹ Brickey-Gonterman Memorial Hill Prairie Nature Preserve

¹² Brickey-Gonterman at Renault Bluffs LWR; Angela’s Prairie LWR

¹³ Cerulean Warbler (T); Mississippi Kite (E); Common Moorhen (E); Yellow-Crowned Night Heron (E); American Bittern (E); Least Bittern (T). The American Eel is proposed for listing as “endangered.”

¹⁴ Woolly Buckthorn (E)

carolinensis,¹⁵ indirectly due to the cumulative deposition of hazardous air pollutants, as well as directly due to construction of the proposed facilities.

The Department believes there are no recommendations it can offer to avoid or minimize adverse effects which would be consistent with granting a permit for this facility.

It is a crime to willfully degrade, damage, or injure any object, living or inanimate, within a Nature Preserve. [525 ILCS 30/23.] It should be understood that this protection extends to all species of plants and animals within a Preserve/Reserve to the same degree as though they were listed as endangered or threatened. In addition, parties responsible for violations in a Nature Preserve may be subject to civil penalties up to \$10,000. [525 ILCS 30/22.] Each day of a violation may be treated separately for purposes of assessing criminal and civil penalties.

An Incidental Take Authorization (ITA) pursuant to the *Illinois Endangered Species Protection Act* [520 ILCS 10/5.5] cannot be granted for State-listed species present within a Nature Preserve, even if all requirements of the IESPA can be satisfied, due to restrictions imposed by the *Illinois Natural Areas Preservation Act*. That statute contains no provisions which allow the incidental injury or destruction of natural resources within dedicated or registered lands and waters.

If the applicant wishes to pursue this permit, *the Department recommends the applicant commission biological surveys of the property where the facility is to be built and additional locations within the three-kilometer radius, preferably including the Nature Preserves, to verify and evaluate the extent and condition of the populations of State-listed endangered and threatened species.*¹⁶

The Department also recommends obtaining actual soil and surface water samples from the site and the Preserves/Reserves for analysis of the background levels of methyl mercury and other HAP constituents, and use these values to inform air pollution dispersion and deposition models.

To aid the Agency and the applicant in evaluating the potential adverse effects of this proposal, the Department has prepared an Attachment containing more detailed information about the protected natural resources in the vicinity.

Consultation on the part of the Department is closed, unless the Agency desires additional information or advice related to this proposal. In accordance with 17 Ill. Adm. Code 1075.40(h), the Agency must notify the Department of its decision regarding these recommendations, whether it will:

¹⁵ This species is extremely sensitive to very low levels of the Hazardous Air Pollutant (HAP) methyl mercury.

¹⁶ Persons performing biological surveys which entail the capture, handling, collection, marking, release or other taking of specimens of endangered or threatened animals must first obtain permits from the Department of Natural Resources pursuant to Parts 520 and 1070 of its Administrative Rules after stating the scientific purpose of such activities. In addition, persons conducting scientific research on a Nature Preserve or Land and Water Reserve must first obtain permits to do so from both the Illinois Nature Preserves Commission *and* the Preserve/Reserve's owner(s). Since many Preserves/Reserves are private property and not open to the public, it may also be necessary to seek permission to enter.

- Proceed with the action as originally proposed;
- Require the action to be modified per Department recommendations (please specify which measures if not all will be required); or
- Forgo the action.

This consultation is valid for two years unless new information becomes available which was not previously considered; or the proposed action is substantially modified; or additional species, essential habitats, or Natural Areas are identified in the vicinity. If the project has not been implemented within two years of the date of this letter, or any of the above-listed conditions develop, a new consultation is necessary.

The natural resource review primarily reflects the information existing in the Illinois Natural Heritage Database at the time of this consultation, and should not be regarded as a final statement on the site being considered, nor should it be a substitute for detailed site surveys or field surveys required for environmental assessments. Also, note that closing consultation does not imply IDNR's authorization or endorsement of the proposed action. Please contact me if you have questions regarding this review.

Sincerely,



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ATTACHMENT

Illinois Natural Areas Inventory (INAI) Sites are designated by the Department of Natural Resources under the authority of the *Illinois Natural Areas Preservation Act*. INAI Sites must possess one or more qualifying characteristics to be placed on the Inventory. The qualifying characteristic may be a high-quality natural community, essential habitat for a State-listed endangered or threatened species, an unusual concentration of wildlife, a geological feature, or an area dedicated or registered in the Illinois Nature Preserves System. Designation as an INAI Site triggers the advisory consultation requirements of the Illinois Natural Areas Preservation Act when it is in the vicinity of an action which will alter the conditions of air, land, or water resources. However, designation of an INAI Site, alone, confers no legal protection. The boundaries of an INAI Site are generally determined by the extent of the qualifying feature.

Nature Preserves and Land & Water Reserves signify the voluntary acceptance by land owners of restrictions on the management and uses of property, granting an interest in such properties to the State of Illinois, to be held in trust in perpetuity for the benefit of the People. These designations can only be granted by the Illinois Nature Preserves Commission, which is also instrumental in their stewardship, which includes defending Preserves and Reserves against human activities which may damage or degrade them. Preserves and Reserves acquire the legal protections of both criminal and civil penalties. Typically, lands offered for dedication or registration must contain natural features which make them eligible for the Illinois Natural Areas Inventory. Consequently, all lands and waters within the boundaries of Nature Preserves and Land & Water Reserves are included in the Inventory but, because dedication and registration are predicated on land ownership, portions of an INAI Site may fall outside the boundaries of a Nature Preserve or Land & Water Reserve. It is also possible for a single large INAI Site to contain multiple Preserves and Reserves held by different owners.

The *Illinois Endangered Species Protection Act* created the Illinois Endangered Species Protection Board, whose purpose is to list and de-list species of plants or animals at risk of becoming extirpated in the wild in Illinois. Listed plants and animals are accorded the legal protections afforded by the statute, which include criminal penalties for the unauthorized “taking” of these species. The Department of Natural Resources has the primary responsibility for enforcement of the statute, although all duly-sworn law enforcement officers in Illinois may do so. While all species listed by the federal government are automatically listed by the State, the State statute is not derived from the federal law.

Within three kilometers¹⁷ of the proposed Mississippi Lime kilns is the **Demint Prairie/Prairie du Rocher Herpetological Illinois Natural Areas Inventory (INAI) Site**, extending nearly three miles along the bluff line north from Prairie du Rocher. This INAI Site is literally “across the street” from the proposed facility. It contains rare high-quality natural communities,

¹⁷ The circle provided on a Figure accompanying the ESRA, tangent to the County Line, is labelled as a 3-kilometer *radius* from the emissions source, but actually portrays a *diameter* of 3 kilometers. Thus, a 3-kilometer *radius* extends twice as far, covering four times as much area, and reaches nearly one mile into adjacent Monroe County. The Department believes this is merely an error of portrayal, but it may have caused the ESRA’s authors to overlook issues arising in Monroe County. For example, federally-listed species occurring in Monroe County, but not Randolph County, are not addressed in the ESRA.

essential habitats for endangered species, unusual concentrations of wildlife, and dedicated or registered areas. An area at its southern end is registered with the INPC as the **Prairie of the Rock Overlook Land & Water Reserve**.¹⁸ Near its northern end, in Monroe County, a portion is dedicated to the State as the **William A. Demint Memorial Hill Prairie Nature Preserve**.¹⁹

Also within three-kilometers, south of the Village of Prairie du Rocher, again along the bluff line, is the **Prairie du Rocher – South INAI Site**. It contains rare high-quality natural communities, essential habitats for endangered species, unusual concentrations of wildlife, and dedicated or registered areas. The northern portion is dedicated as the **Prairie of the Rock Nature Preserve**,²⁰ while the southern portion is registered as the **Blufftop Acres Land & Water Reserve**.²¹

Along the bluff line in Monroe County, yet still within three kilometers of the proposed emissions source, is the **Renault Herpetological Area INAI Site**. It contains rare high-quality natural communities, essential habitats for endangered species, unusual concentrations of wildlife, and dedicated or registered areas. The southern portions of this INAI are registered with the INPC as the **Brickey-Gonterman at Renault Bluffs Land & Water Reserve**²² or dedicated as the **Brickey-Gonterman Memorial Hill Prairie Nature Preserve**.²³ Extending the radius to 4.5 kilometers encompasses **Angela’s Prairie Land & Water Reserve**.²⁴

Within three-kilometers are found records for ten State-listed endangered or threatened species: **Eastern Narrow-Mouth Toad**, *Gastrophryne carolinensis*; **Common Striped Scorpion**, *Centruroides vittatus*; **Coachwhip Snake**, *Masticophis flagellum*; **Flathead Snake**, *Tantilla gracilis*; **Great Plains Ratsnake**, *Pantherophis emoryi*; **Whitlow Grass**, *Draba cuneifolia*; **Missouri Orange Coneflower**, *Rudbeckia missouriensis*; **Crested Coralroot Orchid**, *Hexalectris spicata*; and **Slender Heliotrope**, *Heliotropium tenellum*. The **Stickleaf**, *Mentzelia oligosperma*, is proposed for listing as “endangered.”

Extending the radius to 4.5 kilometers includes records for additional State-listed endangered or threatened species: **Cerulean Warbler**, *Dendroica cerulea*; **Common Moorhen**, *Gallinula chloropus*; **Yellow-Crowned Night Heron**, *Nyctanassa violacea*; **American Bittern**, *Botaurus lentiginosus*; **Least Bittern**, *Ixobrychus exilis*; **Mississippi Kite**, *Ictinia mississippiensis*; and **Woolly Buckthorn**, *Bumelia lanuginosa*. The **American Eel**, *Anguilla rostrata*, is proposed for listing as “endangered.”

Also within these distances are suitable habitats for State-listed species where no records have been established due to a lack of suitable surveys. These include the **Indiana Bat**, *Myotis sodalis*; the **Gray Bat**, *Myotis grisescens*; and the **Northern Long-Eared Bat**, *Myotis septentrionalis*. In addition, three species proposed for State-listing are known to occur or may

¹⁸ Registered on March 9, 2005

¹⁹ Dedicated on February 9, 2000

²⁰ Dedicated on January 3, 2005

²¹ Registered on December 9, 2004

²² Registered on November 14, 2006

²³ Dedicated on June 12, 1998

²⁴ Registered on November 14, 2006

occur within this radius: the **Eastern Small-footed Bat**, *Myotis leibii*; the **American Eel**, *Anguilla rostrata*; and **Stickleaf**, *Mentzelia oligosperma*.

Following are discussions specific to each species or group of species.

Two of the four federally-listed species addressed by the ESRA do not have records in the vicinity. The **Small-Whorled Pogonia**, *Isotria medeoloides*, was known from only one location in all of Illinois, a site some 48 km (30 miles) southeast of the proposed emissions source. No more than five plants have ever been observed in this population, and no plants have been observed since 1991. The Department regards this species as extirpated from Illinois. (It remains on the Illinois list, by law, so long as the U. S. Fish & Wildlife Service lists it as occurring in Illinois.) Due to the distance involved, *the Department concurs with the ESRA's conclusion the proposed source is unlikely to adversely modify essential habitat for the Small-Whorled Pogonia.*

Breeding pairs of the **Interior Least Tern**, *Sternula antillarum*,²⁵ were last observed in Randolph County in 2001 at a power plant ash-disposal pond about 24 km (15 miles) northeast of the proposed emissions source. Due to the distance and the character of the locally-available habitat, *the Department concurs with the ESRA's conclusion the proposed source is unlikely to adversely modify essential habitat for the Interior Least Tern.*

The **Pallid Sturgeon**, *Scaphirhynchus albus*, occurs annually in Randolph County during its migrations up and down the Mississippi River. Due to the nature of its essential habitat, *the Department concurs with the ESRA's conclusion the proposed source is unlikely to adversely modify essential habitat for the Pallid Sturgeon.*

The federally-listed endangered **Indiana Bat**, *Myotis sodalis*, and the federally-listed threatened **Northern Long-Eared Bat**, *Myotis septentrionalis*,²⁶ are known to occur in Randolph County. The federally-listed endangered **Gray Bat**, *Myotis grisescens*, is known to occur in Monroe County and likely also occurs in Randolph County. The **Eastern Small-footed Bat**, *Myotis leibii*, proposed by Illinois for listing as threatened, may occur in Randolph County. Only the Indiana Bat was discussed in the ESRA.

All Illinois bats are insectivores, so ingestion of bio-accumulated toxins would be the primary pathway of adverse effect. While the Indiana Bat and Northern Long-Eared Bat share many habitat requirements, those of the Gray Bat and Eastern Small-Footed Bat are considerably different. The Gray Bat is a true “cave bat,” using caves as its primary habitat for all life stages throughout the year. (At least two caves are known to be in the vicinity of the proposed facility.) By contrast, the Eastern Small-Footed Bat is a ground-roosting species, concealing itself beneath rocks or leaf litter during the day. Talus and debris below cliffs and bluffs provide ideal roosting habitat for this species. The dry deciduous forests atop the bluffs, and the riparian forests along

²⁵ Although it currently appears in the State List (Title 17, Part 1010) as *Sterna antillarum*, recent changes in nomenclature now place this species in the genus *Sternula*.

²⁶ The Secretary of the Interior announced on April 1, 2015, her decision to list the Northern Long-Eared Bat as “threatened” under the federal *Endangered Species Act*. The federal listing is effective May 4, 2015. The Illinois Endangered Species Protection Board had already announced its intention to list this bat as “threatened” in Illinois.

the Mississippi River, both provide summer roosting habitat for the Indiana and Northern Long-Eared Bat.

To the Department's knowledge, mist-netting surveys have not been conducted in the vicinity of Prairie du Rocher. Mist-net surveys in 2007 of similar terrain on and above the bluffs near Fults, Monroe County, captured significant numbers of Indiana Bats and Northern Long-Eared Bats, implying maternity colonies in the area; several specific roost trees of the Indiana Bat were identified. The presence of Lake Mildred, only two miles from the proposed Mississippi Lime facility, and numerous flooded sinkholes even closer, suggests that more hospitable habitat conditions for both species exist very near the proposed facility. *The applicant should address potential adverse effects to all of these bats.*

Reptiles and amphibians comprise a number of the State-listed endangered and threatened species found in this vicinity. Of special significance to this proposal is the presence of the State-listed threatened **Eastern Narrow-Mouth Toad**, *Gastrophryne carolinensis*. This amphibian has been documented within the footprint of the proposed facility as well as in all directions, above the bluffs, along the bluffs, and on the floodplain of the Mississippi River.

The Toad is especially sensitive to methyl mercury, a concentration of one part per billion (0.001 mg/kg) being lethal to its eggs and larvae. The ESRA addressed methyl mercury in soils, but not in surface waters. The Region 5 USEPA Ecological Screening Level is set at 0.00158 mg/kg, already above the level lethal to the Eastern Narrow-Mouth Toad. The ESRA asserts the background soil level of methyl mercury is 0.05 mg/kg, fifty times higher than the lethal level. It is doubtful this species could survive in any area where lethal amounts are present in the soil and likely in surface waters. The fact this species is present calls into question the validity of the modeled assumptions pertaining to background soil levels of this Hazardous Air Pollutant (HAP).

If the modeled levels are accepted, in light of the continued presence of this species the Department must reject the argument that additional emissions of HAPs are harmless. Heavy metal doses are cumulative, and the species may not be able to survive additional exposure, which will result in additional injury at the cellular level, in any case. Any injury is prohibited without an Incidental Take Authorization.

Site-specific samples of soil and water should be analyzed for heavy metals. This information will be essential to a determination whether the proposed facility will result in prohibited taking of this species beyond the limits of the proposed facility. The best season for surveying the Eastern Narrow-Mouth Toad is in the spring when males are singing for mates.

Three State-listed reptiles are present within three kilometers. These are the endangered **Great Plains Ratsnake**, *Elaphe emoryi*; the endangered **Coachwhip Snake**, *Masticophis flagellum*; and the threatened **Flathead Snake**, *Tantilla gracilis*. The threatened **Timber Rattlesnake**, *Crotalus horridus*, may be present within 4.5 kilometers.

The Great Plains Ratsnake often crosses from the bluffs, where it winters, onto the floodplains in the spring, returning in the fall, but it can also be found above the bluffs in the woods and hill

prairies. The Timber Rattlesnake may also demonstrate this behavior. The very rare (and extremely fast) Coachwhip is found in Illinois only in these particular hill prairies, while the diminutive fossorial Flathead Snake is found almost exclusively on the talus slopes at the toe of the bluffs.

The Flathead Snake's diet consists mainly of earthworms and other small invertebrates. The Timber Rattlesnake feeds on small rodents, as does the Great Plains Ratsnake and Coachwhip, but the diets of the latter two species extend to amphibians, other snakes, bats, small birds, and bird eggs.

Snakes are obviously in constant contact with the soil, so dermal exposures should be considered. For the Flathead Snake, a diet of worms entails ingestion of significant quantities of soil contained in the worms' intestines, so this exposure pathway should be carefully considered. Food pathways for the other species are more complex because many prey species are, in their turn, predators of lower organisms, so that bioaccumulation of some toxins, especially mercury, may be significant.

The proposed facility may result in prohibited taking of these species beyond the limits of the property owned by the applicant.²⁷ Snakes will retreat to hibernaculae in the winter; surveys may be most successful in the summer. Potential road-kills along Bluff Road may offer a source of specimens for both identification and tissue analysis which would not risk injuring healthy animals.²⁸

The State-listed endangered **Common Striped Scorpion**, *Centruroides vittatus*, is found in Illinois only along the bluffs and hill prairies of Randolph and Monroe Counties from Prairie du Rocher to Valmeyer. Two of the three recent records are in the vicinity of the proposed Mississippi Lime kilns. During the day, this animal hides beneath rocks, vegetation, and debris, actively foraging after dark. With a maximum length of about 2.5 inches, the Scorpion will attack anything it can defeat and eat, including numerous insects and other Scorpions smaller than itself. (Its sting is painful to humans, but rarely serious unless the recipient is hypersensitive to the venom.) The simplest survey technique entails the use of battery-operated black-lights after dark; scorpions fluoresce in ultra-violet light and become easier to spot.

Several state-listed migratory bird species nest in the vicinity. The threatened **Cerulean Warbler**, *Dendroica cerulea*²⁹, is an interior forest dweller with recent records just north of the Monroe County line, but suitable upland deciduous forest habitat also occurs along the bluff line in Randolph County. This species, among the most rapidly declining birds in North America, forages on insects in the forest canopy.

²⁷ If a listed species of animal is present within the footprint of the facility, it is likely that an Incidental Take Authorization pursuant to Department Administrative Rule 1080 will be necessary to proceed, even where the species is not present year-round. If so, data about the extent of impacts to the population beyond the facility footprint will be important. The Timber Rattlesnake, Coachwhip, and Flathead Snake may be unlikely to be present within the proposed facility footprint. The Coachwhip is so rare the Department may be unable to make the findings, required by law, which would allow it to authorize any taking.

²⁸ Collection and possession of even dead specimens requires the scientific collection permits described earlier.

²⁹ Due to a recent change in nomenclature, this species now bears the scientific epithet *Setophaga cerulea* in scientific literature.

The endangered **Mississippi Kite**, *Ictinia mississippiensis*, nests along the river bottoms in the vicinity of the proposed action. This small bird-of-prey feeds mainly on large insects such as dragonflies and grasshoppers, often taken in flight, but also occasionally eats small mammals and amphibians.

The endangered **American Bittern**, *Botaurus lentiginosus*, the endangered **Yellow-Crowned Night Heron**, *Nyctanassa violacea*, the endangered **Common Gallinule**, *Gallinula galeata*³⁰, and the threatened **Least Bittern**, *Ixobrychus exilis*, all nest in wetlands northwest of the proposed facilities, within three kilometers. These birds forage in marshes and wetlands, having a diet of crustaceans, insects, amphibians, and small fish. Suitable habitat is likely not present within the proposed facility footprint. Bird species will be exposed to HAPs largely through air and water, and may be subject to bio-accumulation of toxic substances.

Under Illinois law, plants are treated as the property of the land owner; the owner's permission is required³¹ before an endangered or threatened plant may be "taken," a term very broadly defined.³² Consequently, the Department is not empowered to grant an Incidental Take Authorization for State-listed plants, except on property owned and managed by the Department. Within a Nature Preserve or Land & Water Reserve, the State holds a property interest in the plants within the dedicated or registered area, in addition to the owner in fee.

Five State-listed plants occur in the vicinity of the proposed facility: the endangered **Woolly Buckthorn**, *Bumelia lanuginosa*; the endangered **Crested Coralroot Orchid**, *Hexalectris spicata*; the endangered **Slender Heliotrope**, *Heliotropium tenellum*; the endangered **Whitlow Grass**, *Draba cuneifolia*; and the threatened **Missouri Orange Coneflower**, *Rudbeckia missouriensis*. The **Stickleaf**, *Mentzelia oligosperma*, has been proposed for listing as "endangered." Each of these plants occurs on dry alkaline bluffs and shallow soils above limestone; each may be subject to tissue damage from exposure to nitrous oxide, while the alkaline substrates on which they depend may be modified by deposition of sulphates and other acid-rain precursors.

Woolly Buckthorn,³³ a small tree or shrub, reaches its northeastern-most range in Monroe County; one of three known populations is in the vicinity of the proposed emissions source, within a dedicated Nature Preserve.

The **Crested Coralroot Orchid** is unusual in that it has no chlorophyll and cannot derive energy through photosynthesis. Instead, all nutrition is derived from symbiotic relationships with mycorrhizal soil fungi. Thus, the deposition of soil contaminants detrimental to fungal organisms could assure the extirpation of this species. More than half of Illinois records for this

³⁰ This species was recently re-classified by the Illinois Endangered Species Protection Board as "endangered" instead of "threatened." It was formerly called the Common Moorhen, with the scientific epithet *Gallinula chloropus*.

³¹ "It is unlawful for any person... to take plants on the Illinois List without the express written permission of the landowner." [525 ILCS 10/3(3)]

³² "'Take' means, in reference to plants and plant products, to collect, pick, cut, dig up, kill, destroy, bury, crush, or harm in any manner." [525 ILCS 10/2]

³³ Many recent sources refer to this species by the scientific epithet *Sideroxylon lanuginosum*.

species occur along the bluff line in Randolph and Monroe Counties. Populations in the vicinity of the proposed facility occur in a Nature Preserve and within two Land & Water Reserves.

The annual plant, **Slender Heliotrope**, is found in Illinois only at three locations in Monroe County, one of which is within a Nature Preserve in the vicinity of the proposed facility.

Whitlow Grass, another plant of shallow soils over limestone ledges, occurs at two locations in the vicinity of the proposed facility, both inside Nature Preserves. The perennial **Missouri Orange Coneflower** occurs in at least four locations in the vicinity of the proposed facility, two of which are within a Nature Preserve or Land & Water Reserve. Populations of the **Stickleleaf** occur at scattered locations at the bluff-edge and on the cliff face from Prairie Du Rocher to Fults, including several of the Nature Preserves and Land & Water Reserves.

All of these plants may be adversely affected by sulphur dioxide, nitrous oxides, and heavy metals. Few of their specific pollinators are known, and these populations may decline if pollinators are also adversely affected by degraded air quality.