

APPENDIX B:

**2004 BASELINE MONITORING
REPORT BY JF NEW**

2004 Baseline Monitoring Report

NiSource

Wild Lupine and Karner Blue Butterfly Survey Lake and Porter Counties, Indiana

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2004 Baseline Monitoring Report

NiSource

Wild Lupine and Karner Blue Butterfly Survey

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2004 Baseline Monitoring Report
NiSource
Wild Lupine and Karner Blue Butterfly Survey
Lake and Porter Counties, Indiana

I. Introduction

This report was prepared for NiSource to provide baseline information on the presence of wild lupine (*Lupinus perennis* var. *occidentalis*) and Karner blue butterflies (*Lycaeides melissa* var. *samuelis*) within several NiSource rights-of-way (ROWs) at four project sites. The project sites are located in Lake and Porter Counties, Indiana (Figure 1). The wild lupine and Karner blue butterfly surveys took place within two areas of the Aetna ROW (Aetna A and Aetna B) (Figure 2), one area along the Odgen Dunes ROW (Figure 3), three areas of the Miller ROW and Substation (Miller A, Miller B, and Miller C) (Figure 4) and three areas of the Stagecoach Road ROW (Stagecoach A, Stagecoach B, and Stagecoach C) (Figure 3). A total of approximately 86 acres of ROW were surveyed for wild lupine populations and Karner blue butterflies.

The baseline monitoring survey was conducted in order to determine the number and size of wild lupine and Karner blue butterfly populations within the study areas prior to habitat enhancement taking place. Typical wild lupine habitat consisting of open woods and savannas in sandy soils was noted throughout the study area. Wild lupine populations and available nectar species within existing open woods and savannas were also noted as potential Karner blue butterfly habitat. Suggested habitat improvements including the removal of exotics, seeding of lupine, and some thinning of woods to restore savanna conditions were also noted. Future lupine population monitoring inspections will be compared to the current survey results to determine whether the wild lupine populations are increasing or decreasing within the study areas. Future Karner blue butterfly surveys can be compared to this survey to determine whether wild lupine population enhancements are impacting Karner blue butterfly populations within the study areas.

II. Methodology

A. Wild Lupine and Karner Blue Butterfly Nectar Species

The baseline monitoring inspection for wild lupine was completed on June 23, 24, and 25, 2004. In order to note the presence of all wild lupine populations within each site, each site was walked from one end to the other in a zigzag pattern with approximately 20 to 50 feet between zigzags. Investigators then walked back to the starting point in the same manner. Results from previous wild lupine surveys within the project areas were used to assist in finding each wild lupine population. At each observed wild lupine population, the boundaries of the population were surveyed. In addition, boundary points along the ROWs were surveyed. Boundaries and points were surveyed using a Trimble Global Positioning System (GPS) with a Pro XRS receiver. This receiver

provides approximately one-meter accuracy with every point reading. Field surveys were scheduled to correspond with appropriate satellite geometry to maintain accuracy parameters. Satellite readings were real time corrected with land-based transponders to eliminate the effects of selective availability.

In addition to the GPS survey of each population, notes were taken on the size of each population, abundance and distribution of wild lupine within each population, additional species within populations, and any ecological observations regarding the populations. Notes were also compiled regarding the presence of the following Karner blue butterfly nectar species¹⁻⁶ listed in Table 1.

Table 1. Karner blue butterfly nectar species.

Scientific Name	Common Name
<i>Amorpha canescens</i>	Lead plant
<i>Apocynum</i> spp.	Dogbane
<i>Arabis lyrata</i>	Sand cress
<i>Asclepias tuberosa</i>	Butterfly weed
<i>Asclepias verticillata</i>	Whorled milkweed
<i>Berteroa incana</i>	Hoary alyssum
<i>Ceanothus americanus</i>	New Jersey tea
<i>Chrysanthemum leucanthemum pinnatifidum</i>	Ox-eye daisy
<i>Coreopsis</i> spp.	Coreopsis
<i>Euphorbia corollata</i>	Flowering spurge
<i>Helianthus occidentalis</i>	Western sunflower
<i>Hieracium aurantiacum</i>	Orange hawkweed
<i>Liatris</i> spp.	Blazing star
<i>Lithospermum</i> spp.	Puccoon
<i>Melilotus</i> spp.	Sweet clover
<i>Monarda punctata</i>	Horse mint
<i>Potentilla simplex</i>	Common cinquefoil
<i>Rubus</i> spp.	Blackberry/dewberry/raspberry
<i>Rudbeckia hirta</i>	Black-eyed Susan
<i>Solidago speciosa</i>	Showy goldenrod

Finally, notes were made on whether appropriate habitat for wild lupine or Karner blue butterfly nectar species is available within the subject ROWs.

B. Karner Blue Butterflies

The baseline monitoring inspection for Karner blue butterflies was completed on June 2, July 3, July 19, and July 28. The baseline Karner blue butterfly monitoring surveys were conducted in order to determine the presence or absence of Karner blue butterflies within the study areas prior to the proposed habitat enhancement activities. Karner blue butterfly surveys followed the Wisconsin Department of Natural Resources (DNR) Level 2 Karner blue butterfly presence/absence survey protocol as detailed in the Wisconsin Statewide Karner Blue Butterfly Habitat Conservation Plan: Appendix G. (Appendix B

contains a copy of this protocol.) Field surveying was scheduled during both the first and second broods. Field surveys were conducted under the following conditions: observations between 8 a.m. and 6 p.m., temperatures greater than 60 °F, low cloud cover and little wind if temperatures are greater than 60 °F but less than 70 °F, winds less than 20 miles per hour, and no rain or drizzly conditions.

A total of three surveys were conducted on the four ROWs. The first survey occurred during the first Karner blue butterfly brood on June 2 and 3. During this visit, each site was walked from one end of the ROW to the other in a zigzag pattern spaced approximately 50 feet apart. When Karner blue butterflies were observed, their location was recorded using a Trimble GPS with a Pro XRS receiver. The Karner blue butterfly's sex and physical condition were also noted. Karner blue butterflies were noted in one direction only, any Karner blue butterflies observed walking back along the ROW were not recorded. Sites where Karner blue butterflies were observed during the first brood were not revisited during the second brood. During the second visit conducted on July 19, instead of walking the entire road ROW, only the areas where wild lupine occurs were surveyed. Each wild lupine population recorded during the wild lupine survey was walked in a zigzag pattern for a minimum of 10 minutes per acre of wild lupine or until a Karner blue butterfly was observed. Again, if a Karner blue butterfly was observed, then the area was not revisited during the third survey. The third survey conducted on July 28 followed the same protocol as the second survey.

III. Results

A. Wild Lupine and Karner Blue Butterfly Nectar Species

The result of the wild lupine GPS survey can be found in Appendix C. Appendix D contains notes on each of the observed wild lupine populations. Photos of representative wild lupine populations, Karner blue butterflies, and representative locations throughout the study area (Appendix E)

Aetna ROW A (Appendix A Sheet 1; Appendix C Page 1) consisted of a large dune at the north end, with a general decline in elevation towards the southern end of the site. A large cattail (*Typha* spp.) -dominated wetland was present at the southern end of the ROW, and a small cattail-dominated wetland was present on the west side of the ROW just north of the center of the property. These wetland areas were not wild lupine or Karner blue butterfly habitat, but the remainder of the site appeared to contain habitat for both wild lupine and Karner blue butterflies. A portion of the southern end of the site was upland area has been consistently mowed, and another area is an upland area dominated by shrubby vegetation. Although no wild lupine was found in these areas, nectar species and species commonly associated with wild lupine were found in these areas. Therefore, these areas were potential wild lupine habitat. Portions of the study area were dominated by undesirable and invasive species of vegetation observed included quack grass (*Agropyron repens*), Japanese chess (*Bromus japonicus*), downy brome (*Bromus tectorum*), Canada thistle (*Cirsium arvense*), horseweed (*Erigeron canadensis*), tall fescue (*Festuca elatior*), Morrow's honeysuckle (*Lonicera morrowii*),

honeysuckle (*Lonicera* sp.), Kentucky blue grass (*Poa pratensis*), quaking aspen (*Populus tremuloides*), and glossy buckthorn (*Rhamnus frangula*). Eight wild lupine populations totaling 0.48 acre were observed within Aetna ROW A. Karner blue butterfly nectar species including dogbane (*Apocynum cannabinum*), sand cress, butterfly weed, sand coreopsis (*Coreopsis lanceolata*), tall coreopsis (*Coreopsis tripteris*), flowering spurge, western sunflower, rough blazing star (*Liatris aspera*), hairy pucoon (*Lithospermum croceum*), white sweet clover (*Melilotus alba*), horse mint, blackberry/dewberry/raspberry, black-eyed Susan, and showy goldenrod were observed throughout the upland portions of the site, with the most common nectar species being flowering spurge, hairy pucoon, horse mint, and blackberry/dewberry/raspberry. It should also be noted that the State Rare dwarf honeysuckle (*Diervilla lonicera*) was observed on the site.

Aetna ROW B (Appendix A Sheet 2; Appendix C Page 2) consisted of several large dunes and two wetland areas. The western side of this study area was a large forested wetland, and a small wetland was present in the center of the southern site boundary. These wetland areas were not wild lupine or Karner blue butterfly habitat, but the remainder of the site appeared to be habitat for both wild lupine and Karner blue butterflies. The majority of the non-wetland portion of this study area was dominated by undesirable and invasive species of vegetation including quack grass, Hungarian brome (*Bromus inermis*), downy brome, hardy catalpa (*Catalpa speciosa*), orange day lily (*Hemerocallis fulva*), Morrow's honeysuckle, white sweet clover, Canada blue grass (*Poa compressa*), Kentucky blue grass, glossy buckthorn, bouncing bet (*Saponaria officinalis*), and Siberian elm (*Ulmus pumila*). No wild lupine was observed within Aetna ROW B. Karner blue butterfly nectar species including dogbane, sand cress, butterfly weed, flowering spurge, hairy pucoon, white sweet clover, horse mint, and blackberry/dewberry/raspberry were observed throughout the non-wetland portions of the site, with the most common nectar species being flowering spurge, hairy pucoon, horse mint, and blackberry/dewberry/raspberry.

Ogden Dunes ROW (Appendix A Sheet 3; Appendix C Page 2) consisted mostly of level topography, as the majority of the ROW is located on the top of a dune. A small portion of the ROW at the west end consists of a swale wetland, and this portion of the ROW was not wild lupine or Karner blue butterfly habitat. The remainder of the site is potential wild lupine and Karner blue butterfly habitat, although wild lupine was only found within the eastern half of the ROW. Within the western half of the ROW, an adjacent homeowner had consistently mowed a portion of the ROW, and other areas within the ROW are overgrown with wild black cherry (*Prunus serotina*), black oak, black locust, and sassafras. The undesirable and invasive species downy brome, ground ivy (*Glechoma hederacea*), Morrow's honeysuckle, Kentucky blue grass, black locust, multiflora rose (*Rosa multiflora*), and bouncing bet were observed within this study area. Three wild lupine populations totaling 0.56 acre were observed within the Ogden Dunes ROW. These populations all continued off-site to the north and south. Karner blue butterfly nectar species including sand cress, butterfly weed, whorled milkweed, prairie coreopsis (*Coreopsis palmata*), flowering spurge, rough blazing star, hairy pucoon, white sweet clover, horse mint, common cinquefoil, blackberry/dewberry/raspberry,

black-eyed Susan, and showy goldenrod were observed throughout the non-wetland portions of the site. Of these species, the most common nectar species were butterfly weed, hairy puccoon, horse mint, and showy goldenrod.

Miller ROW and Substation A (Appendix A Sheet 4; Appendix C Page 3-5) consisted of a ROW, substation, and associated forested areas that exhibit dune/swale topography. Three large wetland areas were observed in the swale portions of this study area (north, center, and south). Additionally, a small wetland swale was noted in the southeastern corner of the ROW. An area dominated by gravelly substrate and weedy vegetation was also present in the extreme southeast corner of the site. These wetland and weedy areas were not wild lupine or Karner blue butterfly habitat, but the remainder of the site appeared to be habitat for both wild lupine and Karner blue butterflies. Within the portion of the study area located directly south of the substation, the majority of the woody individuals, including honeysuckle, black oak (*Quercus velutina*), sassafras (*Sassafras albidum*), and blueberry (*Vaccinium* spp.) had recently been killed. Dead and dying trunks and stems of these plants were still in place. The undesirable and invasive species quack grass, tree-of-heaven (*Ailanthus altissima*), Japanese chess, downy brome, oriental bittersweet (*Celastrus orbiculatus*), Canada thistle, Morrow's honeysuckle, Tartarian honeysuckle (*Lonicera tatarica*), sweet clover, wild four o'clock (*Mirabilis nyctaginea*), Canada blue grass, Kentucky blue grass, glossy buckthorn, black locust (*Robinia pseudoacacia*), and bouncing bet were observed within upland portions of this study area. In addition, several areas were being to be overgrown by woody species such as black oak and sassafras that ranged from 1-2 inches in diameter at breast height (DBH). Twenty-five wild lupine populations totaling 1.01 acres were observed within Miller ROW and Substation A. Some of these populations continued off-site to the east or west. Karner blue butterfly nectar species including spreading dogbane (*Apocynum androsaemifolium*), dogbane, sand cress, butterfly weed, whorled milkweed, New Jersey tea, sand coreopsis, tall coreopsis, flowering spurge, rough blazing star, hairy puccoon, sweet clover, horse mint, common cinquefoil, blackberry/dewberry/raspberry, black-eyed Susan, and showy goldenrod were observed throughout the non-wetland portions of the site. Of these species, the most common nectar species were butterfly weed, sand coreopsis, flowering spurge, and showy goldenrod. It should also be noted that the State Rare dwarf honeysuckle and the State Rare pin cherry (*Prunus pensylvanica*) were observed on the site.

Miller ROW and Substation B (Appendix A Sheet 5; Appendix C Page 5-6) consisted of a ROW exhibiting dune/swale topography. Two wetland areas were observed, one near the north end of the study area, and one along the southern end of the study area. These wetland areas were not wild lupine or Karner blue butterfly habitat, but the remainder of the site appeared to be habitat for both wild lupine and Karner blue butterflies. The undesirable and invasive species Hungarian brome, musk thistle (*Carduus nutans*), Morrow's honeysuckle, Tartarian honeysuckle, Canada blue grass, and Kentucky blue grass were observed within this study area. In addition, several areas were being overgrown by 1-2 inch DBH woody species such as black oak and sassafras. Seven wild lupine populations totaling 0.44 acre were observed within Miller ROW and Substation B. Some of these populations continued off-site to the east or

west. Karner blue butterfly nectar species including sand cress, butterfly weed, New Jersey tea, sand coreopsis, tall coreopsis, flowering spurge, rough blazing star, hairy pucoon, horse mint, blackberry/dewberry/raspberry, black-eyed Susan, and showy goldenrod were observed throughout the non-wetland portions of the site. Of these species, the most common nectar species were sand cress, butterfly weed, tall coreopsis, flowering spurge, and hairy pucoon. It should also be noted that the State Rare dwarf honeysuckle was observed on the site.

Miller ROW and Substation C (Appendix A Sheet 6; Appendix C Page 6) consisted of a ROW exhibiting dune/swale topography. A wetland was observed in a swale at the southern end of the study area. This wetland area was not wild lupine or Karner blue butterfly habitat, but the remainder of the site appeared to be habitat for both wild lupine and Karner blue butterflies. The undesirable and invasive species Morrow's honeysuckle, white sweet clover, and Canada blue grass were observed within this study area. Several areas within the study area were being overgrown by 1-2 inch DBH woody species such as black oaks. Three wild lupine populations totaling 1.28 acres were observed within Miller ROW and Substation C. Some of these populations continued off-site to the east or west. Karner blue butterfly nectar species including butterfly weed, whorled milkweed, New Jersey tea, sand coreopsis, flowering spurge, hairy pucoon, white sweet clover, horse mint, and black-eyed Susan were observed throughout the non-wetland portions of the site, with the most common nectar species being hairy pucoon and horse mint.

Stagecoach Road ROW A (Appendix A Sheet 7; Appendix C Page 7) consisted of fairly level topography with a few large dunes interspersed. One wet meadow wetland was observed between Stagecoach Road and Pershing Road. This wetland area was not wild lupine or Karner blue butterfly habitat, but the remainder of the site appeared to be habitat for both wild lupine and Karner blue butterflies. Portions of the study area, particularly the western portion, were dominated by undesirable species of vegetation including quack grass, garlic mustard (*Alliaria petiolata*), Hungarian brome, Japanese chess, downy brome, ground ivy, sweet clover, Canada blue grass, Kentucky blue grass, and bouncing bet. Seven wild lupine populations totaling 0.27 acre were observed within Stagecoach Road ROW A. Characteristic "window paning" by Karner blue butterflies was observed on some wild lupine leaves. Karner blue butterfly nectar species including sand cress, butterfly weed, sand coreopsis, tall coreopsis, flowering spurge, rough blazing star, marsh blazing star (*Liatris spicata*), hairy pucoon, sweet clover, horse mint, blackberry/dewberry/raspberry, black-eyed Susan, and showy goldenrod were observed throughout the non-wetland portions of the site, with the most common nectar species being hairy pucoon and blackberry/dewberry/raspberry.

Stagecoach Road ROW B (Appendix A Sheet 8; Appendix C Page 8) consisted of a portions of a steep dune north of Stagecoach Road dropping down to wet meadow and agricultural fields south of Stagecoach Road. The wetland and agricultural areas were not wild lupine or Karner blue butterfly habitat, but the remainder of the site appeared to be habitat for both wild lupine and Karner blue butterflies. Portions of the study area were dominated by undesirable and invasive species of vegetation including Hungarian

brome, Japanese chess, downy brome, oriental bittersweet, Kentucky blue grass, bouncing bet, and white stonecrop (*Sedum album*). Four wild lupine populations totaling 0.12 acre were observed within Stagecoach Road ROW B. One of these populations continues off-site to the north. Karner blue butterfly nectar species including flowering spurge, hairy puccoon, sweet clover, horse mint, and blackberry/dewberry/raspberry were observed throughout the non-wetland portions of the site, with the most common nectar species being blackberry/dewberry/raspberry.

Stagecoach Road ROW C (Appendix A Sheet 9; Appendix C Page 8) consisted of several steep dunes interspersed amongst gently rolling topography. The majority of the site appeared to be habitat for both wild lupine and Karner blue butterflies. Undesirable and invasive species of vegetation including quack grass, garlic mustard, Hungarian brome, Japanese chess, downy brome, orange day lily, Morrow's honeysuckle, Tartarian honeysuckle, sweet clover, Kentucky blue grass, and black locust were dominant throughout much of the study area. Three wild lupine populations totaling 0.08 acre were observed within Stagecoach Road ROW C. One of these populations continued off-site to the south. Karner blue butterfly nectar species including sand cress, butterfly weed, sand coreopsis, flowering spurge, hairy puccoon, sweet clover, horse mint, common cinquefoil, and blackberry/dewberry/raspberry were observed throughout the site, with the most common nectar species being flowering spurge and hairy puccoon. It should also be noted that the State Threatened false heather (*Hudsonia tomentosa*) was observed on the site.

B. Karner Blue Butterflies

The results of the Karner blue butterfly surveys can be found in Appendix D Sheets 1-9. All surveys were conducted when weather conditions met the Wisconsin DNR requirements (Table 2). In total, fifteen surveys were conducted in the nine areas resulting in twenty-two Karner blue butterfly observations (Table 3). The majority of observations occurred within the Miller ROW where 10 Karner blue butterflies were observed within the three parcels (Appendix D Sheets 4-6, Table 3). All of these observations occurred during the first brood. Additional Karner blue butterflies were observed on adjacent properties during the site visit to the Miller ROW. The large, contiguous wild lupine populations and available nectar species along this ROW provide ample habitat and forage for adult Karner blue butterfly feeding and reproduction. Likewise, the contiguous wild lupine population surrounded by forest along the eastern end of the Ogden Dunes ROW provides ideal Karner blue butterfly habitat. Five Karner blue butterflies were observed within this site during the first brood (Appendix D Sheet 3, Table 3).

During the second brood survey, four Karner blue butterflies were observed at Stagecoach A, B, and C and two Karner blue butterflies were observed at Aetna A (Appendix D Sheets 1, and 7-9, Table 3). Smaller, less contiguous wild lupine populations provide habitat at the Stagecoach and Aetna A ROW sites. The lack of leaf cover and discontinuity of wild lupine population may limit the ability of Karner blue butterfly eggs to over winter within the Stagecoach and Aetna A parcels. Nevertheless,

available nectar species at these sites attract adult Karner blue butterflies during the first brood and encourage them to lay eggs on the available wild lupine.

Karner blue butterflies were not observed during any of the three surveys conducted at Aetna B ROW (Appendix D Sheet 2, Table 3). The lack of wild lupine and nectar species limits reproductive opportunities at Aetna B ROW. Habitat is not available at this parcel for adult Karner blue butterflies to feed or reproduce.

Table 2. Weather conditions recorded during Karner blue butterfly surveys.

Survey Date	Weather Conditions
June 2, 2004	Partly sunny, temperatures around 60 °F, winds 5 to 10 miles per hour
June 3, 2004	Sunny, temperatures around 70 °F, winds 10 to 15 miles per hour
July 19, 2004	Sunny, temperatures 75 to 85 °F, winds less than 5 miles per hour
July 28, 2004	Sunny, temperatures around 85 °F, winds less than 5 miles per hour

Table 3. Karner blue butterfly observations by ROW.

Survey Location	Survey Date	Karner Blue Butterfly Observations
Aetna ROW A	June 3	None
	July 19	2 males
Aetna ROW B	June 2	None
	July 19	None
	July 28	None
Ogden Dunes	June 3	3 females, 2 males
Miller ROW A	June 3	2 females, 1 male
Miller ROW B	June 3	3 females, 3 males
Miller ROW C	June 3	1 male
Stagecoach Road ROW A	June 2	None
	July 19	2 males
Stagecoach Road ROW B	June 2	None
	July 19	1 male
Stagecoach Road ROW C	June 2	None
	July 19	1 female

IV. Conclusions

Karner blue butterflies and wild lupine were observed within all study areas with the exception of Aetna ROW B. Twenty-two Karner blue butterflies and sixty wild lupine populations totaling 4.24 acres were observed within the site boundaries. Karner blue butterfly nectar species and wild lupine habitat were observed within all study areas. Vegetation communities such as sandy prairies, open oak savannas, and early successional oak and sassafras woods commonly had wild lupine and Karner blue butterfly nectar species growing within them.

Several areas within the ROWs were commonly not wild lupine habitat or habitat for other Karner blue butterfly nectar species. Wetlands were the most common vegetation community where wild lupine and other Karner blue butterfly nectar species were not observed. Areas where trees are growing and creating more shade will eventually not

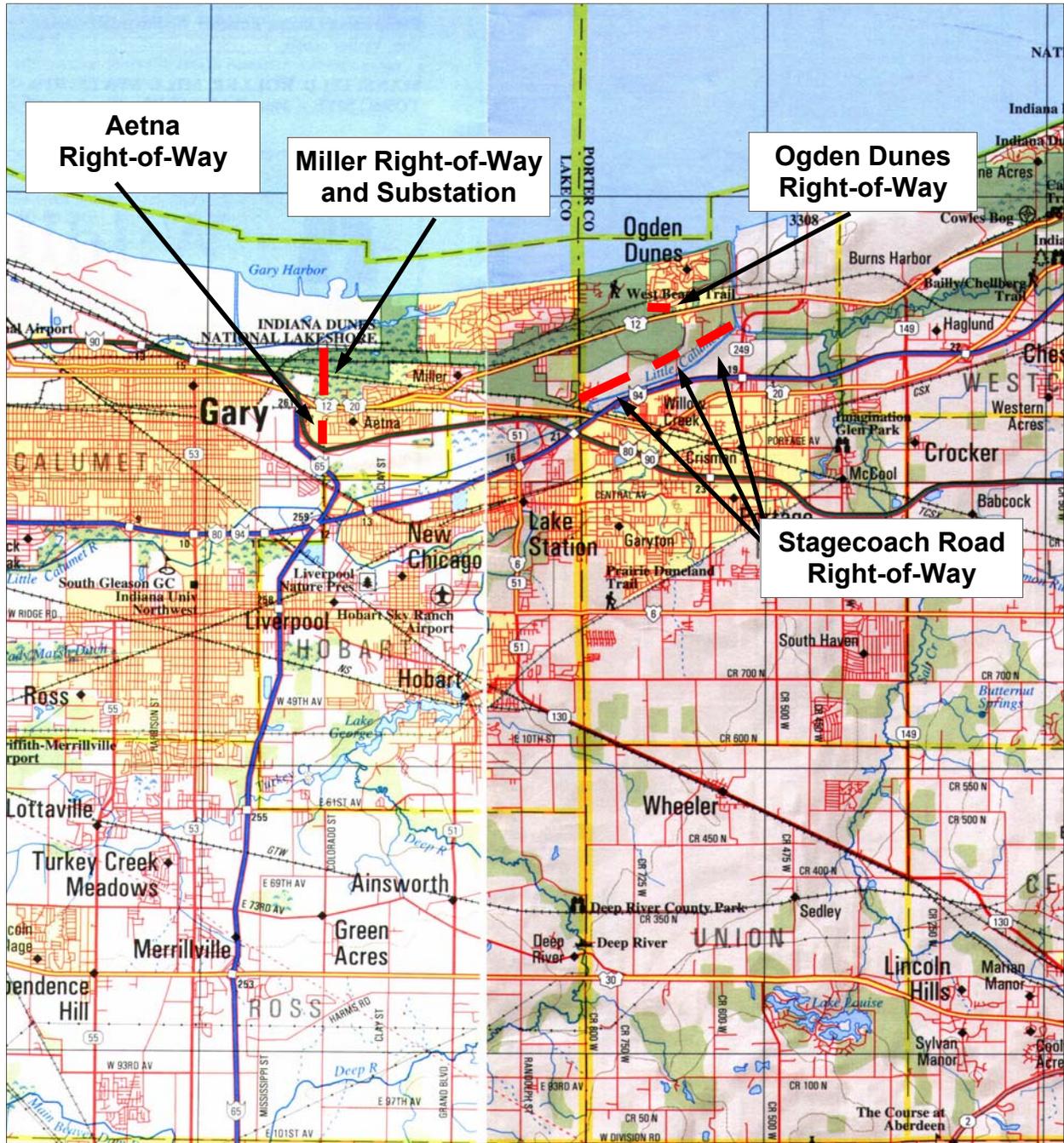
be wild lupine or other Karner blue butterfly nectar species habitat, as these species prefer more sunlight. Also, areas where undesirable and invasive species are present may eventually not be wild lupine or other Karner blue butterfly nectar species habitat, as the undesirable and invasive species may eventually out-compete the desirable species further limiting habitat for the target species.

In order to improve wild lupine and Karner blue butterfly habitat along the study area, undesirable and invasive species should be controlled. Selective treatment of woody vegetation would also increase the likelihood of wild lupine populations increasing in size and abundance. Wild lupine can be seeded in appropriate habitat to attract Karner blue butterflies to the project site in the future. The data in this report can be used as a baseline for future monitoring efforts.

- ¹ Glassberg, Jeffrey. Butterflies Through Binoculars: The East. New York: Oxford University Press, 1999. Page 101-102.
- ² Karner Blue Butterfly. <http://www.wbu.com/chipperwoods/photos/karner.htm>.
- ³ Karner Blue Butterfly Fact Sheet. http://midwest.fws.gov/endangered/insects/kbb/kbb_fact.html.
- ⁴ Karner Blue Butterfly, U.S. Fish & Wildlife Service. <http://endangered.fws.gov/i/10Q.html>.
- ⁵ Shull, Ernest M., The Butterflies of Indiana. Indiana Academy of Science, 1987. Page 163-164.
- ⁶ Species Profile for Karner Blue Butterfly. <http://ecos.fws.gov/servlet/SpeciesProfile?sPCODE=100F>.

FIGURES

**NiSource
2004 Baseline Monitoring Report
Wild Lupine and Karner Blue Butterfly Survey**



**Figure 1: Location Map
Wild Lupine/KBB Surveys
NiSource
Lake and Porter Counties, Indiana**

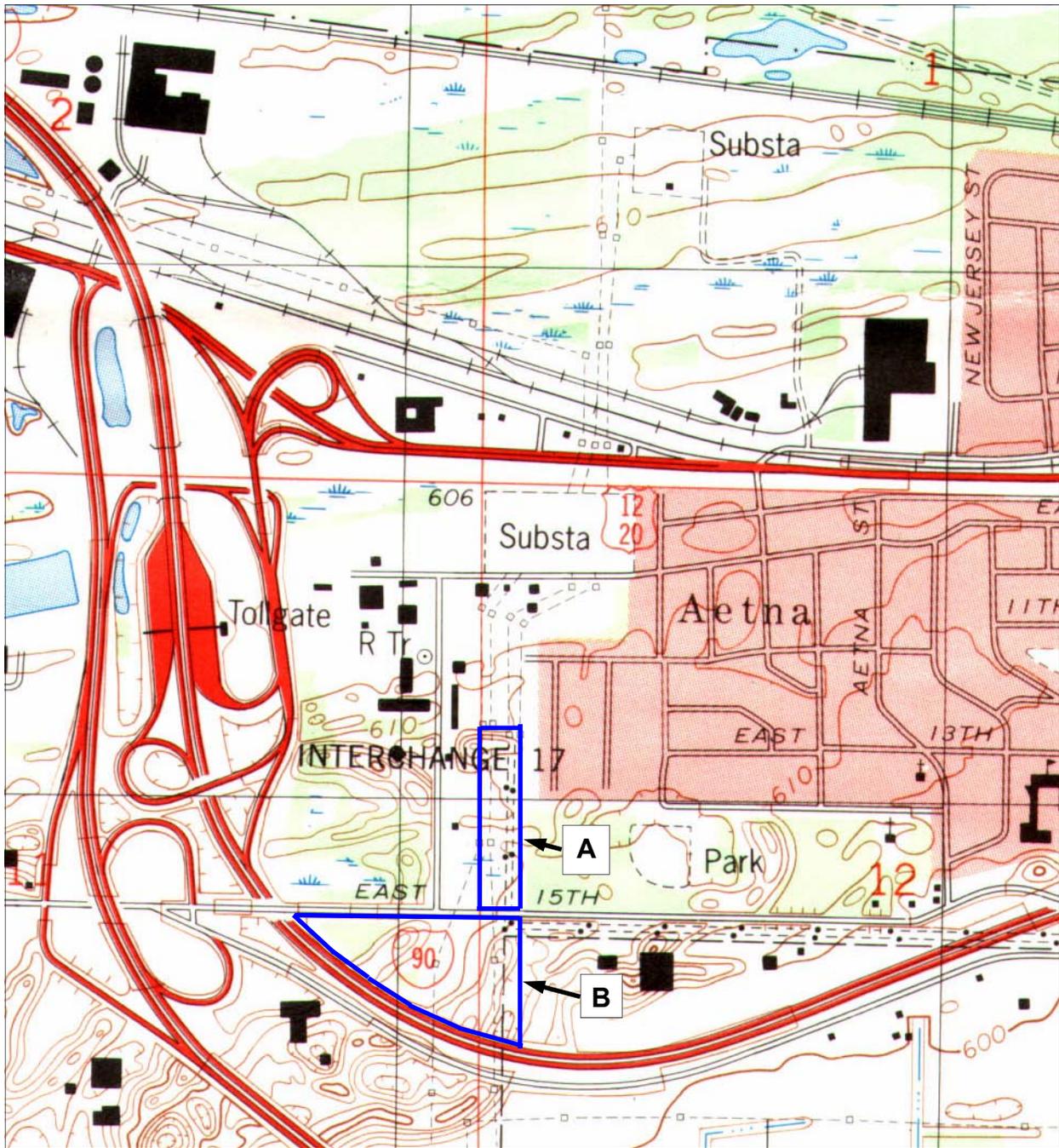


Scale: 1" = 2.5 mi.

JFNew #02-04-13M2-3



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**Figure 2: Aetna Right-of-Way
Wild Lupine/KBB Surveys
NiSource
Lake and Porter Counties, Indiana**



Scale: 1" = 1,000'

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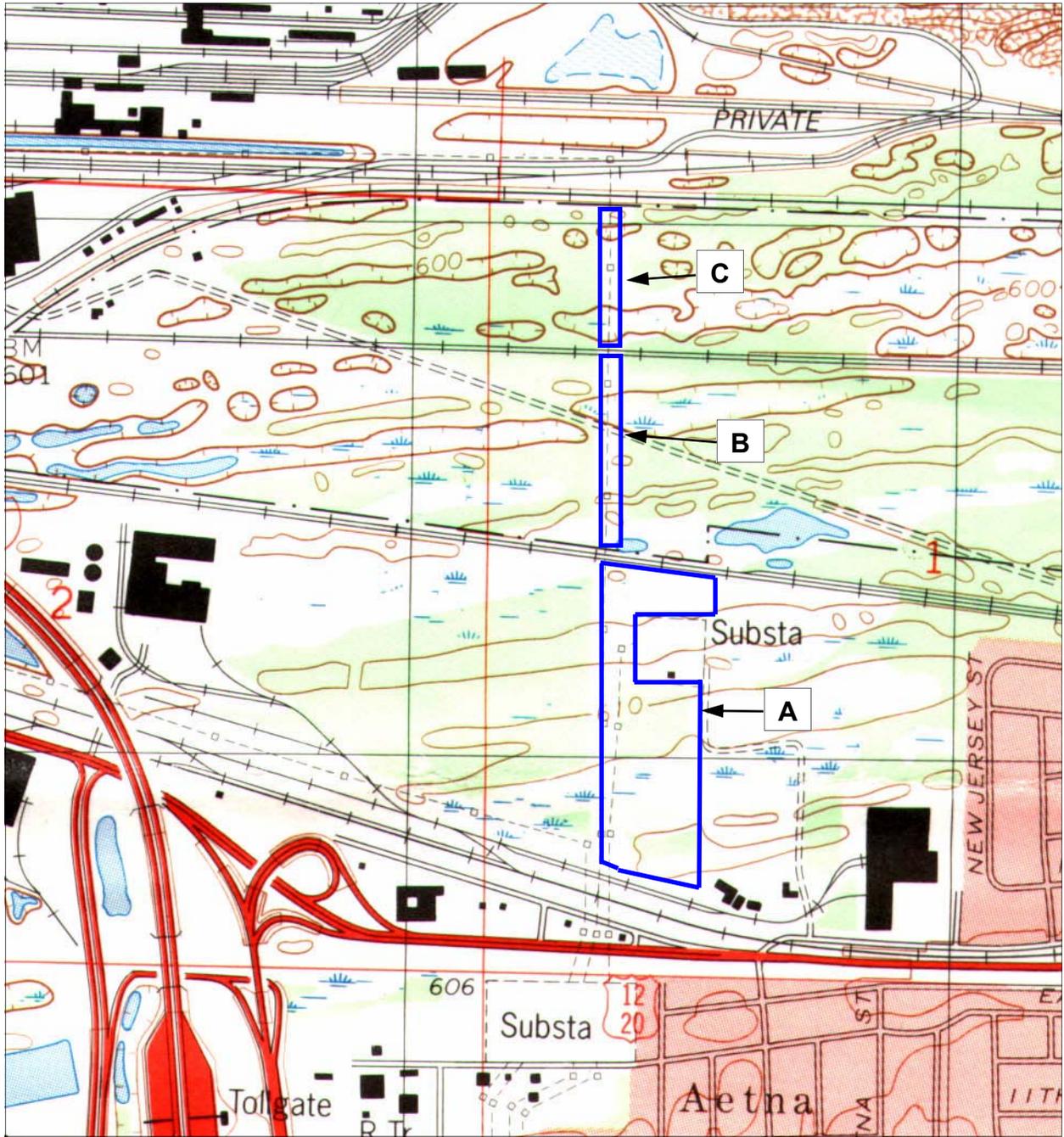
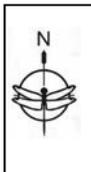


Figure 4: Miller Right-of-Way
 Wild Lupine/KBB Surveys
 NiSource
 Lake and Porter Counties, Indiana



Scale: 1" = 1,000'

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