# Final Environmental Assessment

## NiSource Inc.
## Revised Multi-Species Habitat Conservation Plan

Application for an Amendment to NiSource's Incidental Take Permit

April, 2015

# Contents

# Chapter 1 Purpose and Need for Action

## 1.1 Introduction

The U.S. Fish and Wildlife Service (Service) is in receipt of an application from NiSource Inc. for an amendment to its Incidental Take Permit (hereafter "ITP"), pursuant to Section 10(a)(1)(B) of the Endangered Species Act of 1973 (hereafter "ESA"), as amended. On September 13, 2013, NiSource Inc. was issued an ITP from the Service for 10 federally listed species that occur in portions of their operating territory. Those species include: the Indiana bat (*Myotis sodalis*), bog turtle (*Glyptemys muhlenbergii*), Madison Cave isopod (*Antrolana lira*), clubshell mussel (*Pleurobema clava*), northern riffleshell mussel (*Epioblasma torulosa rangiana*), fanshell mussel (*Cyprogenia stegaria*), James spinymussel (*Pleurobema collina*), sheepnose mussel (*Plethobasus cyphyus*), Nashville crayfish (*Orconectes shoupi*), and the American burying beetle (Nicrophorus americanus). The requested amendment would add the northern long-eared bat (*Myotis septentrionalis*) (hereafter "NLEB") to the NiSource Inc. ITP. No other changes to the original ITP are requested.

On October 2, 2013, the Service proposed listing the northern long-eared bat (NLEB) under the ESA. The NLEB was not included in the NiSource MSHCP or the programmatic ESA Section 7 consultation for federal agency actions associated with its MSHCP. Although 42 species were analyzed in the original MSHCP and an additional 47 species were considered by the Service during its ESA Section 7 consultation on the ITP application, the NLEB was not included in the analysis as it was not a candidate for potential listing under the ESA at that time.

Issuance of an ITP by the Service, including major amendments to ITPs, are federal actions subject to review under the National Environmental Policy Act (hereafter "NEPA"). To comply with the NEPA, the Service prepared this draft Environmental Assessment (hereafter "EA"). The EA analyzes and discloses potential effects that could result from amending the NiSource ITP to include the NLEB, and through subsequent implementation of its revised Multi-Species Habitat Conservation Plan (hereafter "MSHCP").

The NiSource MSHCP covers a 50-year timeframe and includes a suite of conservation measures designed to avoid, minimize, and mitigate potential impacts to species covered by its ITP and associated MSHCP. The MSHCP includes a monitoring and adaptive management strategy designed to minimize risk associated with temporal and spatial uncertainty, and to allow for continuous improvement of the MSHCP through revisions and amendments, when appropriate. According to NiSource Inc., the primary purpose for developing its MSHCP was to "implement an innovative approach to both conserve listed species under the ESA and to streamline regulatory compliance requirements for their activities".

Activities addressed in the NiSource MSHCP are those necessary for the safe and efficient operation of its inter-state natural gas pipeline system. These activities (hereafter referred to as "Covered Activities") include: (1) operation and maintenance; and (2) construction and expansion. The Covered Activities are specific to NiSource Inc.'s wholly owned pipeline subsidiaries: NiSource Inc. Gas Transmission, LLC, NiSource Inc. Gulf Transmission Company, Crossroads Pipeline Company, Central Kentucky Transmission Company, and NiSource Gas Transmission and Storage Company (collectively referred to as Columbia Pipeline Group or Columbia).

The geographic area covered by the NiSource MSHCP (hereafter referred to as "Covered Land") includes a one-mile wide corridor centered upon a majority of NiSource's existing interstate natural gas transmission system in 14 states (Louisiana, Mississippi, Tennessee, Kentucky, Virginia, West Virginia, North Carolina, Indiana, Ohio, Pennsylvania, New York, New Jersey, Delaware and Maryland) for approximately 15,562 miles (Figure 1). In addition to the designated one-mile corridor, the ITP and associated MSHCP cover 12 counties in Ohio, Pennsylvania, Maryland, and West Virginia collectively, where NiSource operates some of its underground natural gas storage fields. NLEBs are found in each of the 14 states associated with the NiSource Covered Land.

Preparation of this EA has been conducted in accordance with the requirements of NEPA, its implementing regulations (40 Code of Federal Regulations (CFR) Parts 1500-1508), the U.S. Department of the Interior's (USDOI) NEPA Procedures (43 CFR Part 46), and other Service

guidance for compliance with those regulations. The Service is the lead federal agency for preparation of this EA.

## 1.2 Purpose and Need

Private landowners, corporations, State or local governments, or other non-federal entities who wish to conduct activities that might incidentally "take" animals listed as threatened or endangered under the Endangered Species Act (ESA) must first obtain an ITP from the Service to avoid liability under the ESA. Section 9 of the ESA and its implementing regulations prohibit the take of animals listed as federally threatened or endangered. Take, as defined by the ESA, means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Incidental take is defined by the ESA as take that is "incidental to, and not the purpose of, the carrying out of an otherwise lawful activity." The ESA includes mechanisms that provide exceptions to the Section 9 take prohibitions. These are addressed in Section 7(a)(2) for federal actions and Section 10(a)(1)(B) for non-federal actions 16 U.S.C. §§ 1536(a)(2), 1539(a)(1)(B), respectively.

When Congress passed the ESA in 1973, it declared that "all federal departments and agencies shall seek to conserve [listed] species, and shall utilize their authorities in furtherance of the purposes of this chapter." While all federal agencies are directed to utilize their authorities in furtherance of the ESA, the Service has unique responsibilities for administering and carrying-out the purposes of the ESA. Those purposes include: "to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, and to provide a program for the conservation of such endangered species and threatened species" (ESA, section 2(b)).

In addition to our responsibility for administering and carrying-out the purposes of the ESA, the Service has many other responsibilities that are defined by legislation, regulation, treaty, or similar authorities. These include enforcing Federal wildlife laws, protecting migratory birds, restoring nationally significant fisheries, conserving and restoring wildlife habitats, such as wetlands, and helping foreign governments with their international conservation efforts. The

Service also administers a Federal Aid program that distributes hundreds of millions of dollars to state fish and wildlife agencies each year.

In carrying out these responsibilities, the Service must comply with a number of environmental laws and regulations, executive orders, agency directives, and policies. In fulfilling these responsibilities and obligations, the Service will:

- Ensure that issuance of the ITP and implementation of the HCP achieves long-term species conservation objectives at ecologically appropriate scales;

- Ensure that the conservation actions approved by the ITP occur within the context of a spatially explicit Landscape Conservation Design that is capable of supporting species mitigation projects over the long-term;

- Ensure that issuance of the ITP and implementation of the HCP is in compliance with applicable Federal laws, regulations, treaties, and executive orders, including the MBTA, BGPA, and NHPA.

The need for the Proposed Action is based solely on the decision by NiSource to seek incidental take authorization for the NLEB under Section 10 (a)(1)(B) of the ESA. Section 10 of the ESA specifically directs the Service to issue ITPs to non-Federal entities for the take of endangered and threatened species provided the criteria in Section 10(a)2(B) are met. The need for federal action therefore is NiSource's application to the Service for an amended ITP, which the Service is legally obligated to respond to.

## 1.3 Proposed Action

The Proposed Action evaluated by this EA is the potential issuance of an ITP by the Service for the purpose of authorizing take of the NLEB within the framework of an HCP that meets the statutory and regulatory criteria in Section 10(a)(2)(B) of the ESA and 50 C.P.R.§§ 17.22 (b)(l) and 17.32(b)(l). Beyond potential inclusion of the NLEB to the NiSource Inc. ITP, no other changes to the NiSource Inc. ITP and associated MSHCP are being proposed at this time.

## 1.4 Decision Framework

The decision whether to issue NiSource Inc. an amended ITP is based upon the statutory and regulatory criteria found in Section 10(a)(2)(B) of the ESA, and the Service's implementing regulations for the ESA found at 50 CFR 17.22(b)(2)/17.32(b)(2). In applying these criteria, the Service must analyze potential impacts associated with NiSource Inc. incidentally taking NLEB's as a result of its Covered Activities, as well as the appropriateness of the conservation measures in its MSHCP at minimizing and mitigating the impacts of that take. Specifically, before the Service can issue an amended ITP to NiSource Inc., the Service must find:

- All taking of federally-listed fish and wildlife species must be incidental to otherwise lawful activities;
- The applicant will, to the maximum extent practicable, minimize and mitigate the impacts of such taking;
- The applicant will ensure that adequate funding for the HCP and procedures to deal with changed circumstances, including adequate funding to address such changes will be provided;
- The taking will not appreciably reduce the likelihood of survival and recovery of the species in the wild;
- The applicant will ensure that other measures that the Service may require as being necessary or appropriate will be provided; and
- The Service has received such other assurances as may be required that the HCP will be implemented.

With regard to the NEPA, the purpose of an EA is to determine the significance of environmental impacts associated with proposed federal actions (i.e., issuance of an amended ITP to NiSource). In determining whether a proposed federal action will result in significant environmental impacts, two distinct factors are considered: context and intensity. Context refers to the significance of an action in different settings (e.g., what are possible impacts to local, regional and/or national northern long-eared bat populations from authorizing take in the NiSource covered land). "Intensity" refers to the severity of the impacts relative to these different settings (i.e., to what degree will take of northern long-eared bats in the NiSource

covered land impact the viability of local, regional, and/or national northern long-eared populations).

The NEPA process will culminate with a decision by the Service's Regional Director on one of three alternatives found in Chapter 2 of this EA. Once an alternative is selected, the Regional Director will then decide whether issuance of an amended ITP to NiSource Inc., including subsequent implementation of their revised MSHCP, will significantly affect the quality of the human environment, as defined by the NEPA.

## 1.5 Scope of Analysis

A basic tenet underlying ITP permit applications is the Service does not authorize the applicant's activities that cause the take. Rather, the Service authorizes the take that results from the applicant's activities. NiSource Inc. activities are authorized by a number of federal, state, and local authorities, including the Federal Energy Regulatory Commission (FERC), U.S. Department of Transportation (USDOT), U.S. Forest Service (USFS), National Park Service (NPS), and U.S. Army Corps of Engineers (USACE), to name a few. Notwithstanding, activities covered by the ITP and associated HCP (i.e., "Covered Activity") were analyzed to determine whether implementation of the HCPs conservation measures for the NLEB would change the environmental impacts that result from the Covered Activities. The scope of the analysis therefore covered the direct, indirect, and cumulative effects (i.e., impacts) of the proposed incidental take, and the mitigation and minimization measures proposed from implementation of the MSHCP (Service MSHCP Handbook at 5-1 to 5-2). Incidental take authorization for the NLEB is conditioned on NiSource Inc. having obtained all the necessary approvals, permits, and/or licenses prior to undertaking Covered Activities within the Covered Land.

## 1.6 Issues and Concerns

The protection of federally-listed T&E species is the responsibility of numerous federal agencies that operate under various statutory and regulatory authorities. Although NiSource's activities generally fall within FERC jurisdiction, they may be subject to the review and oversight of other federal agencies (such as USACE, USFS, and NPS). Section 1.5 in the referenced EIS provides information regarding these governing legal authorities. In response to the Service's Proposed Action, and from questions and comments raised in conversations and correspondence with

individuals and organizations within and outside the Service, the Service identified four primary issues and concerns surrounding the proposed action:

1. What are the potential impacts to the NLEB as a result of NiSource Inc. Covered Activities?
2. How will NiSource Inc. minimize and mitigate its take of NLEBs?
3. Given the uncertain status of the NLEB due to White-nose Syndrome, and the fact that the species has yet to be listed as either threatened or endangered by the Service (as of the writing of this EA), how will NiSource Inc. (and the Service) ensure that its MSHCP remains fully protective of the NLEB?
4. How would the listing decision of the NLEB change the proposed action?


**Figure 1: NiSource Covered Land.**

# Chapter 2 Alternatives

## 2.1 Introduction

Pursuant to the NEPA, federal agencies must consider a range of reasonable alternatives to the proposed action when evaluating the impacts of its actions (40 CFR 1505.1(e)). Therefore, alternative development for this EA focused primarily on identifying actions that would achieve the proposed action's purpose and need, with an emphasis on those that could be practicably implemented.

## 2.2 Elements Common to all Alternatives, including the No Action Alternative

Common to any alternative in this EA is NiSource Inc. continuing to implement its businesses consistent with requirements set forth from federal, state, and local regulatory agencies, including requirements of the Service, which oversees implementation of its existing ITP and associated MSHCP for the ten species listed above. A summary of those common elements is as follows.

## 2.3 Implementation of the NiSource ITP and Associated MSHCP

On September 13, 2013, NiSource was issued an ITP for ten species that covers 50 years. Regardless of the alternative selected, NiSource will continue to utilize that ITP, including implementation of its associated MSHCP.

## 2.4 Covered Land

As discussed in Chapter 1, the Covered Land for the NiSource Inc. MSHCP includes a one-mile wide corridor centered upon a majority of NiSource's existing interstate natural gas transmission system in 14 states (Louisiana, Mississippi, Tennessee, Kentucky, Virginia, West Virginia, North Carolina, Indiana, Ohio, Pennsylvania, New York, New Jersey, Delaware and Maryland) for approximately 15,562 miles (Figure 1). In addition to the designated one-mile corridor, the ITP and associated MSHCP cover 12 counties in Ohio, Pennsylvania, Maryland, and West Virginia collectively, where NiSource operates some of its underground natural gas storage fields. In total, the NiSource Inc. Covered Land spans approximately 9.8 million acres, of which approximately 9.3 million acres contain NLEBs, which represents approximately 3% of the

overall NLEB range. Section 6.2.11.1 in the revised MSHCP lists those states and counties where NLEB are found.

## 2.5 Covered Activities

NiSource Inc. Covered Activities (see MSHCP section 2.4) are those activities necessary for the safe operation of its interstate natural gas transportation infrastructure. Over the next 50 years, NiSource anticipates its Covered Activities will result in 904 acres of new disturbance and 18,505 acres of disturbance on previously disturbed land (most of which is vegetation maintenance) on an annual basis (see NiSource MSHCP Table 2.1). This equates to a total annual disturbance of approximately 0.2% of the total Covered Land (0.19% within the existing ROW and 0.0092% in areas outside of its existing ROWs).

The following Columbia O&M and new construction activities could adversely impact the NLEB: tree clearing associated with a wide variety of activities, tree side-trimming, access roads maintenance and construction, well plugging, presence of the pipeline corridor, construction and maintenance of waste pits, and herbicide application (Appendix M, Table 6.2.11.1-1).

## 2.6 Conservation Strategy/Program

NiSource's conservation strategy in its MSHCP includes a number of conservation goals, practices, and measures that the company will take to avoid, minimize, and mitigate impacts to covered species, including NLEBs. Both the original MSHCP and the revised MSHCP were developed in coordination with the Service. Through its MSHCP and associated ITP, NiSource has committed to:

- Protect species and their habitats through the implementation of an environmental compliance program (e.g., practices, standards, training, etc.) that meets or exceeds federal, state, and local regulations and requirements;
- Enhance the conservation of species through the application of rigorous planning, adaptive management, and sound scientific principles; and
- Support species conservation actions using a landscape approach, maximizing conservation benefits to take species and the ecosystems that support them.

## 2.7 Monitoring and Reporting

ESA Section 10 regulations require permit holders to monitor, report, and assess any species impacts due to take from implementation of their Covered Activities. Moreover, the Service's 5-point policy outlines specific criteria that an MSHCP must follow. Namely, an HCP must evaluate compliance, determine if the biological goals and objectives outlined in the HCP are met, and provide information that will serve as a feedback loop for adaptive management.

The Service has determined that NiSource's monitoring methods will adequately document implementation of AMMs and mitigation measures; take of species; effectiveness of the conservation program, and implementation and effectiveness of adaptive management measures.

## 2.8 Assurances

The "No Surprises Rule" (63 FR 8859 (Feb. 23, 1998) (codified at 50 CFR §§ 17.3, 17.22(b)) provides assurances to Section 10 permit holders that, as long as the permittee is properly implementing the MSHCP, the IA, and the ITP, no additional commitment of land, water, or financial compensation will be required with respect to Covered Species (i.e., "take species"), and no restrictions on the use of land, water, or other natural resources will be imposed beyond those specified in the MSHCP without the consent of the permittee.

The "No Surprises" Rule has two major components: changed circumstances and unforeseen circumstances. In response to this rule, NiSource has prepared its MSHCP to respond to a variety of circumstances (see MSHCP Chapter 10). Changed circumstances reasonably anticipated and planned for in its MSHCP include; (1) Climate Change; (2) Droughts; (3) Floods; (4) Fires; (5) Tornados; (6) Disease; (7) Invasive Species; 8) Species Range Expansion/Contraction; and 9) Species Listing/Delisting.

In a letter dated November 19, 2012, to the Service's Midwest Regional Director Tom Melius, NiSource agreed to a one-time waiver of the No Surprises Assurances. NiSource envisions that through the five-year review meeting that will occur at year 25, NiSource and the Service – with the input of other stakeholders – will evaluate the MSHCP to …"ensure that the implementation of the MSHCP is consistent with conservation needs of listed species". If needed, the MSHCP

will be amended at that time to incorporate any additional commitments and/or needed restrictions, including any additional commitment of land, water, or financial compensation.

## 2.9 Northern Long-eared bat Listing Decision and 4(d) Rule

In October 2013, the Service proposed listing the NLEB as an endangered species under the ESA. When we developed the draft EA, the Service's final determination was not yet made, and a special 4(d) rule was proposed. In the draft EA, we noted that if the Service determined that the NLEB is threatened and a 4(d) rule is adopted, this amendment does not preclude NiSource Inc. from requesting another amendment to put its MSHCP and associated ITP in-line with the final 4(d) rule. Similarly, should NiSource Inc. decide to seek incidental take authorization under Section 7(a)(2) of the ESA, as described in alternative 1, NiSource could be afforded the take exceptions provided for in that rule.

The NLEB was listed as threatened on April 2, 2015 (80 FR 17974). The Service also established an interim rule under the authority of section 4(d) of the ESA. Under the interim 4(d) rule, take that is incidental to certain activities, as long as those activities are conducted in accordance with specified conservation measures, are not be prohibited under section 9 of the ESA. For areas of the country affected by white-nose syndrome, which include the entire NiSource Covered Land, those activities include: forest management practices; maintenance and limited expansion of transportation and utility rights-of-way; removal of trees and brush to maintain prairie habitat; limited tree removal projects, provided these activities protect known maternity roosts and hibernacula; removal of hazardous trees; removal of NLEBs from human dwellings; and research-related activities. The specified conservation measures include:

1. Occur more than 0.25 mile (0.4 km) from a known, occupied hibernacula;
2. Avoid cutting or destroying known, occupied maternity roost trees during the pup season (June 1–July 31); and
3. Avoid clear-cuts within 0.25 (0.4 km) mile of known, occupied maternity roost trees during the pup season (June 1–July 31).

Several NiSource activities (e.g., rights-of-way maintenance; upgrade and replacement of pipelines; relocations; and routine expansions) addressed in the revised MSHCP, and for which

incidental take of the NLEB is requested, are covered by the interim 4(d) rule. However, NiSource elected to revise the MSHCP and apply for the ITP amendment due to uncertainty in the listing decision and the 4(d) rule, which were not completed at the time.

In the interim 4(d) rule, the Service has suggested that the conservation measures described above are "necessary and advisable for the conservation and management of the northern long-eared bat", and has concluded that the activities, when conducted in accordance with the specified conservation measures, will provide "protection for the northern long-eared bat during its most sensitive life stages". Take that is incidental to these activities, when conducted in accordance with the specified conservation measures, would not be prohibited under section 9 of the ESA (80 FR 17974, page 18032).

## 2.10 Description of Alternatives

### 2.10.1 Alternative 1 – No Action (Status Quo)

Under the No Action Alternative, issuance of an amended ITP to include the NLEB and approval of the revised NiSource Inc. MSHCP would not occur. However, all of the Covered Activities within the MSHCP would continue to be implemented by NiSource Inc. within the Covered Land. NiSource compliance with the ESA for the NLEB would occur through informal and formal consultation with the Service under Section 7(a)(2) of the ESA. NiSource would still be subject to full liability under Section 9 of the ESA, unless any future take of NLEB were authorized through formal ESA consultation with the federal action agency (primarily FERC) and the Service or any take was excepted through the special 4(d) rule for the NLEB. The conservation measures that NiSource would follow as part of the ESA Section 7(a)(2) process should be similar to Alternatives 2 and 3, with two possible exceptions.

First, under Section 7(a)(2) of the ESA, mitigation is not a requirement when impacts associated with species take occur. NiSource project goals relative to providing increased certainty for ESA compliance, enhancing conservation and recovery of species through coordinating mitigation projects, and increasing efficient use of time and money, would not be met under the No Action Alternative.

Second, NiSource has the opportunity to utilize the 4(d) rule for the NLEB, which could include take exceptions for activities related to certain NiSource Covered Activities. However, the interim 4(d) rule does not alter in any way the ESA's section 7 procedural requirements, and additional section 7 consultation would be required for all NiSource activities with a federal nexus that may affect the NLEB.

With regard to species risk associated with uncertainty, while the potential impacts to NLEBs under this alternative could be greater than Alternatives 2 and 3 (i.e., no compensatory mitigation under Section 7 or the 4(d) rule), the ability to manage species risk due to uncertainty could also be greater, since Section 7 take authorizations do not include "No Surprises Assurances" and species take would be authorized on a project-by-project basis.

### 2.10.2 Alternative 2 – Amend the NiSource ITP to include the NLEB and Approve the Revised NiSource MSHCP (applicant preferred alternative)

Under Alternative 2, the Service would add the NLEB to the NiSource Inc. ITP and approve the revised NiSource Inc. MSHCP. An assessment of potential NLEB impacts is provided in Section 6.2.11.5 of its revised MSHCP. As noted in the species-specific analysis, accurately predicting the number of individuals that may be taken isn't always possible. Where it is not, the MSHCP explains so and provides a rationale for the surrogate value (e.g. acres of habitat) chosen to calculate and monitor potential take. NLEB take under this alternative would be nearly identical to Alternatives 1 and 3 (see Section 6.2.11.3 of its revised MSHCP for a description of take avoidance and minimization measures).

With regard to uncertainty and the ability to manage risk to NLEBs, NiSource Inc. and the Service developed an adaptive management program as described in the revised MSHCP Sections 7.4.1 and 7.6.4.7. Further, as described in the original NiSource Inc. MSHCP, at the end of year 25, NiSource Inc. and the Service will conduct a review of the MSHCPs conservation program to determine if any changes/updates are needed. This will include, but is not limited to, the AMMs, take analysis, impact of the take, mitigation, monitoring, and adaptive management. This review will be subject to approval by the Service as follows:

- NiSource Inc. will provide a written analysis of MSHCP implementation for the NLEB. This report will include any recommendations for changing the NLEB portions of the MSHCP as a result of changes in the assumptions and analysis of the NLEB.
- The Service will review the current status of the NLEB and determine if any changes are needed to the NLEB portions of the MSHCP or the NLEB portions of the permit.
- NiSource Inc. will convene a meeting with the Service to review the NLEB portions of the MSHCP and MSHCP implementation for the NLEB.
- The Service will assure that the operating NLEB conservation program that NiSource Inc. has implemented in the first 25 years of the permit amendment has been adequately implemented.
- NiSource Inc. will implement any revised MSHCP requirements and/or permit amendments that the Service deems necessary following its review of the NLEB amendment. In the event that NiSource Inc. is unable or unwilling to accept such changes to its MSHCP and permit, it will surrender the NLEB take authorization for the permit.

Following the NLEB 25-year review and any necessary amendments or changes (if applicable), NiSource Inc. will be afforded "No Surprises" assurances for the remainder of its ITP term.

With regard to the issues and concerns discussed in Chapter 1, potential impacts to NLEBs under this alternative are likely lower than Alternative 1, primarily as a result of compensatory mitigation. However, the 25 year No Surprises period in this alternative is likely to be a higher risk to the species than Alternative 1 due to the uncertainty in the analysis within the revised MSHCP. Due to the high level of uncertainty, the net risk of impact is higher under Alternative 2 compared to Alternative 1.

Should NiSource decide to align its MSHCP and ITP with the interim or future final 4(d) rule for the NLEB, it would need to request another ITP amendment from the Service that satisfies the provisions of 50 C.F.R. § 13.23, as well as Service regulations, policies, and procedures for amendments, which are described in the Service's HCP Handbook at http://www.fws.gov/endangered/esa-library/pdf/hcpbk6.pdf and also reflected in section 9.2 of

the MSHCP. Such a request would include a written notice to the Service that includes a description of the proposed minor amendment, an analysis of the potential environmental effects, and an explanation of how the potential environmental effects conform to, and are not different from, those described in the revised MSHCP. The Service will provide NiSource with a written explanation for its decision within 90-days from the time of the request.

With regard to potential environmental effects of such an alignment, the following NiSource activities could be excepted through the interim 4(d) rule: tree clearing and tree side-trimming that is associated with rights-of-way maintenance, access road maintenance and construction, and construction and maintenance of waste pits. Take of NLEBs may occur as a result of habitat loss and degradation, with an understanding that the direct loss of some individuals is unavoidable. The revised MSHCP identifies conservation measures that NiSource will implement to avoid, minimize and mitigate potential impacts to NLEBs from these activities (see MSHCP section 6.2.11.3). Under the interim 4(d) rule, NiSource may have the option to modify certain avoidance, minimization, and mitigation measures specific to tree clearing and tree-side trimming, since take that is incidental to these activities, as long as the activities are conducted in accordance with the conservation measures in the interim 4(d) rule, will not be prohibited. Beyond excepting take of NLEBs from these activities, such an amendment should not have impacts that differ from those disclosed in the revised MSHCP, the Service's environmental impact statement for the original MSHCP, or the environmental assessment for this amendment request.

### 2.10.3 Alternative 3 – Amend the NiSource ITP to include the NLEB and Approve the Revised NiSource MSHCP (with special conditions) (Service preferred alternative)

Under Alternative 3, the Service would add the NLEB to the NiSource Inc. ITP. This Alternative involves the same issuance, approval, and acceptance criteria as detailed above in Alternative 2, except it initially provides No Surprises Assurances only for the first 5 years after ITP implementation. At the end of the 5 year period, NiSource Inc. and the Service will conduct a review of the NLEB amendment to determine if any changes are needed to the NLEB portions of the MSHCP including but not limited to the AMMs, take analysis, impact of the take,

mitigation, monitoring, or adaptive management. This review will be subject to approval by the Service as follows:

- NiSource Inc. will provide a written analysis of MSHCP implementation for the NLEB. This report will include any recommendations for changing the NLEB portions of the MSHCP as a result of changes in the assumptions and analysis of the NLEB.
- The Service will review the current status of the NLEB and determine if any changes are needed to the NLEB portions of the MSHCP or the NLEB portions of the permit.
- NiSource Inc. will convene a meeting with the Service to review the NLEB portions of the MSHCP and MSHCP implementation for the NLEB.
- The Service will assure that the operating NLEB conservation program that NiSource Inc. has implemented in the first 5 years of the permit amendment has been adequately implemented.
- NiSource Inc. will implement any revised MSHCP requirements and/or permit amendments that the Service deems necessary following its review of the NLEB amendment. In the event that NiSource Inc. is unable or unwilling to accept such changes to its MSHCP and permit, it will surrender the NLEB take authorization for the permit.

Following the NLEB 5-year review and any necessary amendments or changes (if applicable), NiSource Inc. will be afforded "No Surprises" assurances for the NLEB until "No Surprises" is removed for the entire permit at the 25th year of the permit term.

With regard to the issues and concerns discussed in Chapter 1, potential impacts to NLEBs under this alternative are likely reduced relative to Alternative 1, primarily as a result of compensatory mitigation. This alternative also represents the least risk to the species because any uncertainty is addressed in year 5 of the permit term through a potential amendment to the ITP.

Should NiSource decide to align its MSHCP and ITP with the interim or future final 4(d) rule for the NLEB, NiSource Inc. would need to request an amendment from the Service that satisfies the provisions of 50 C.F.R. § 13.23, as well as Service regulations, policies, and procedures for amendments, which are described in the Service's HCP Handbook at

http://www.fws.gov/endangered/esa-library/pdf/hcpbk6.pdf and also reflected in section 9.2 of its MSHCP. Such a request would include a written notice to the Service that includes a description of the proposed amendment, an analysis of the potential environmental effects, and an explanation of how the potential environmental effects conform to, and are not different from, those described in the revised MSHCP. The Service will provide NiSource with a written explanation for its decision within 90-days from the time of the request.

With regard to potential environmental effects of such an amendment request, under the interim 4(d) rule, incidental take associated with the following NiSource activities could be exempted: tree clearing and tree side-trimming that is associated with rights-of-way maintenance and access road maintenance and construction. The revised MSHCP identifies conservation measures that NiSource will implement to avoid, minimize and mitigate potential impacts to NLEBs from these activities (see MSHCP section 6.2.11.3). Under the interim 4(d) rule, NiSource may have the option to modify certain avoidance, minimization, and mitigation measures specific to tree clearing and tree-side trimming, since take that is incidental to these activities, as long as the activities are conducted in accordance with the conservation measures in the interim 4(d) rule, will not be prohibited. Beyond exempting the take of NLEBs from these activities, such an amendment should not have impacts that differ from those disclosed in the revised MSHCP, the Service's environmental impact statement for the original MSHCP, or the environmental assessment for this amendment request.

# Chapter 3 Affected Environment

The affected environment is the area and its resources potentially impacted by the Proposed Action and project Alternatives. The purpose of describing the affected environment is to define the context in which the impacts will occur. To make an informed decision about what actions to implement, it is necessary to first identify those resources potentially affected, and the extent of the potential impacts. In describing those resources, we considered the potential impacts associated with the Proposed Action, namely issuance of an ITP to NiSource Inc. for take of the NLEB, and subsequent implementation of its associated revised MSHCP.

## 3.1 Introduction

In 2013, the Service published an Environmental Impact Statement (EIS) for the original NiSource Inc. ITP application. That EIS provides a comprehensive description of the NiSource Covered Land, including its physical resources (e.g., surface water, ground water, geology, topography, soils), biological resources (e.g., vegetation, land cover, wetlands, wildlife, sensitive species, etc), and socio-economic resources (e.g., human population, employment/unemployment, personal income, poverty, housing, public services, etc.). That document, as well as the original NiSource Inc. MSHCP, can be viewed at https://www.fws.gov/Midwest/endangered/permits/hcp/nisource/index.html. The remainder of this Chapter will focus on relevant aspects of the NLEB that were not discussed in that EIS, namely those aspects of the species potentially affected by the Service's Proposed Action and project Alternatives.

## 3.2 The Northern Long-eared Bat

NLEBs are found in each of the 14 states associated with the NiSource Covered Land. As discussed in Chapter 2, the NiSource Inc. Covered Land includes approximately 9.8. million acres; ranging from Louisiana in the south to New York in the north, with the majority of the Covered Land located in the Ohio, West Virginia, and Pennsylvania.

The NLEB is a temperate, insectivorous, migratory bat that hibernates in mines and caves in the winter and spends summers in wooded areas. It has been noted in typically small numbers in numerous hibernacula across its range, but insufficient data are available at this time to estimate a range-wide population. NLEBs are typically associated with upland forests with generally more canopy cover than Indiana bats. NLEB seem to be focused in upland, mature forests (Caceres and Pybus 1997) with occasional foraging over forest clearings, water and along roads (Van Zyll de Jong 1985). Most hunting occurs on forested hillsides and ridges, rather than along riparian areas (Brack and Whitaker 2001; LaVal et al. 1977).

NLEBs are relatively wide-ranging, but they appear to be patchily distributed and found in low numbers in both roosts and hibernacula (Griffin 1940, Barbour and Davis 1969, Caire et al. 1979, Amelon and Burhans 2006). The NLEB occurs across much of the eastern and north

central United States, and all Canadian provinces west to the southern Yukon Territory and eastern British Columbia. Historically, the species has been found in greater abundance in the Northeast and portions of the Midwest and Southeast, and has been more rarely encountered along the western edge of the range. The Service categorizes the U.S. range of the species in four parts, eastern, Midwestern, southern, and western sub-populations (USFWS 2013) (Figure 2). Key stages in the annual life cycle of the NLEB are hibernation, spring staging and migration, pregnancy, lactation, volancy/weaning, fall migration and swarming.

### 3.2.1 Winter Habitat (Hibernation)

Upon arrival at the hibernaculum in mid-August to mid-November, NLEBs "swarm," a behavior in which large numbers of bats fly in and out of cave entrances from dusk to dawn, while relatively few roost in caves during the day. Swarming continues for several weeks and mating occurs during the latter part of the period. After mating, females enter directly into hibernation. A majority of bats of both sexes hibernate by the end of November (by mid-October in northern areas).

Suitable winter habitat (hibernacula) for the NLEB includes underground caves and cave-like structures (e.g. abandoned or active mines, railroad tunnels). There may be other landscape features being used by NLEB during the winter that have yet to be documented. Known hibernacula typically have significant cracks and crevices for roosting; relatively constant, cool temperatures (0-9 degrees Celsius) and with high humidity and minimal air currents. Specific areas where they hibernate have very high humidity, so much so that droplets of water are often seen on their fur. Within hibernacula, surveyors find them in small crevices or cracks, often with only the nose and ears visible. Hibernating population sizes range from a few individuals to around 1,000 (USFWS unpublished data). NLEBs often hibernate in the same hibernacula with other species of bats and are occasionally observed clustered with or adjacent to other federally listed species, including gray bats (*Myotis grisescens*), Virginia big-eared bats (*Corynorhinus townsendii virginianus*), and Indiana bats (Service 1999).

### 3.2.2 Summer Habitat (Maternity)

After hibernation ends in late March or early April (as late as May in some northern areas), most NLEBs migrate to summer roosts. Female NLEBs emerge from hibernation prior to males.

Reproductively active females store sperm from autumn copulations through winter. Ovulation takes place after the bats emerge from hibernation in spring. The period after hibernation and just before spring migration is also referred to as "staging," a time when bats forage and a limited amount of mating occurs. This period can be as short as a day for an individual NLEB but not all bats emerge on the same day.

Suitable summer habitat for NLEB consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures. This includes forests and woodlots containing potential roosts (i.e., live trees and/or snags ≥3 inches dbh that have exfoliating bark, cracks, crevices, and/or cavities), as well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. Individual trees may be considered suitable habitat when they exhibit characteristics of suitable roost trees and are within 1,000 feet of other forested/wooded habitat. NLEBs have also been observed roosting in human-made structures, such as buildings, barns, bridges, and bat houses; therefore, these structures should also be considered potential summer habitat. Suitable NLEB roosts are trees (live, dying, dead, or snag) with a diameter at breast height (DBH) of three inches or greater that exhibits any of the following characteristics: exfoliating bark, crevices, cavity, or cracks. Isolated trees are considered suitable habitat when they exhibit the characteristics of a suitable roost tree and are less than 1000 feet from the next nearest suitable roost tree within a woodlot, or wooded fencerow.

Young are born in late-May or early June to July with females giving birth to a single offspring. Young bats start flying by 18 to 21 days after birth. Adult northern long-eared bats can live up to 19 years.

### 3.2.3 Swarming Habitat

Suitable spring staging/fall swarming habitat for the NLEB consists of the variety of forested/wooded habitats where they roost, forage, and travel, which is most typically within 5 miles of a hibernaculum. This includes forested patches as well as linear features such as fencerows, riparian forests and other wooded corridors. These wooded areas may be dense or

loose aggregates of trees with variable amounts of canopy closure. Isolated trees are considered suitable habitat when they exhibit the characteristics of a suitable roost tree and are less than 1,000 feet from the next nearest suitable roost tree, woodlot, or wooded fencerow.

### 3.2.4 Threats to the Species

The most direct threat from the MSHCP involves the clearing of vegetation (e.g., trees suitable for roosting) associated with Covered Activities while NLEBs are present. This may cause take (e.g., kill, wound, harm, harass) of NLEB by crushing bats when the roost tree is felled. Additional take may result from the entrapment of bats in waste pits (kill), noise associated with construction equipment (harassment), chemical contamination of bats drinking from waste pits (harm leading to the likelihood of death or injury), and predation from bats being flushed from roost trees (harm leading to the likelihood of death or injury). Indirect effects potentially resulting in take of NLEB would result from the loss or degradation of roosting, foraging, and travel corridor habitats along the ROW (harassment).

White-nose syndrome, a fungal disease known to affect bats, is currently the predominant threat to the NLEB, especially throughout the Northeast where the species has declined by up to 99 percent from pre-white-nose syndrome levels at many hibernation sites. White-nose syndrome has spread rapidly throughout the East and is currently spreading through the Midwest. Although the disease has not yet spread throughout the NLEB's entire range (bats with white-nose syndrome are currently found in 28 of 39 states where the NLEB occurs), it continues to spread. Experts expect that where it spreads, it will have the same impact as seen in the Northeast. The current rate of spread has been rapid, spreading from the first documented occurrence in New York in February 2006, to 28 states and five Canadian provinces by December 2014. Prior to the emergence of white-nose syndrome, the NLEB was found in 39 states (including the District of Columbia), with higher abundance in the East and becoming less common in the western part of its range. No other threat is as severe and immediate for the NLEB as this disease. In fact, if this disease had not emerged, it is unlikely that NLEB populations would be declining so dramatically.

Other potential threats to the species include: wind energy development, habitat destruction or disturbance (e.g., vandalism to hibernacula, roost tree removal), climate change, and contaminants. Although no significant population declines have been observed due to these other potential threats, they may now be important factors affecting this bat's ability to persist while experiencing dramatic declines caused by white-nose syndrome. Specifically, declines due to WNS have significantly reduced the number and size of NLEB populations in some areas of its range. This has reduced these populations to the extent that they may be increasingly vulnerable to other stressors that they may have previously had the ability to withstand. These impacts could potentially be seen on two levels. First, individual NLEBs sickened or struggling with infection by WNS may be less able to survive other stressors. Second, NLEB populations impacted by WNS, with smaller numbers and reduced fitness among individuals, may be less able to recover making them more prone to extirpation.

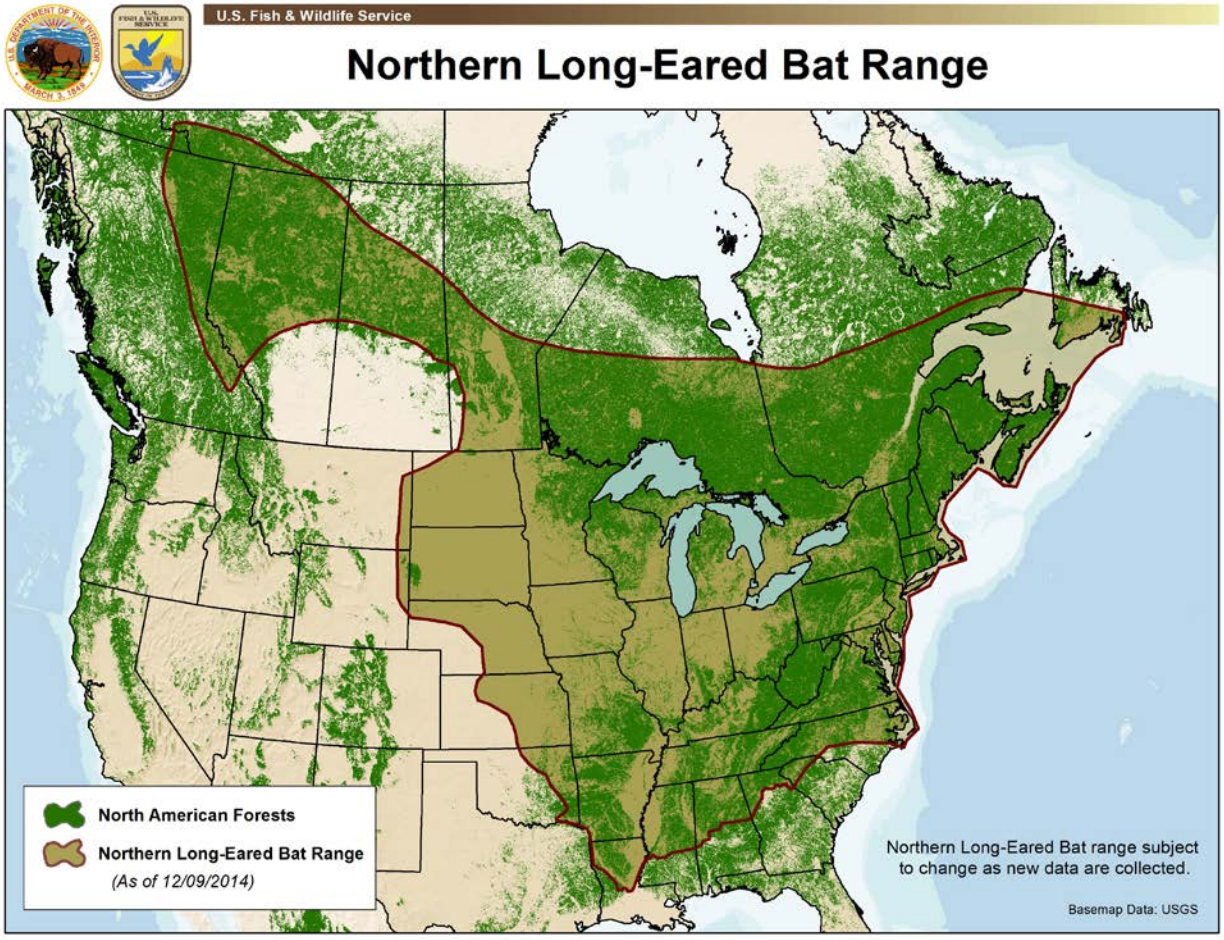


**Figure 2. – Range of the Northern Long-eared Bat**

# Chapter 4 Environmental Consequences

This chapter compares and contrasts the alternatives in Chapter 2 including the potential environmental consequences of the alternatives should they be implemented. The conclusions reached in this EA are based on our analysis of impacts and the following assumptions:

- NiSource Covered Activities would occur at the same rate, location, and point in time for each of the alternatives;
- NiSource Covered Activities would be implemented as described in the revised MSHCP; and
- NiSource would comply with all applicable laws and regulations.

## 4.1 General Impact Analysis

As discussed in Chapter 3, the Service published an EIS in 2013 for the original NiSource Inc. ITP application. That EIS provides a comprehensive description of the NiSource Covered Land, including its physical, biological, and socio-economic resources. It also includes a discussion of potential impacts to these resources as a result of NiSource Covered Activities, which are summarized below.

### 4.1.1 Physical Resources

Pipeline activities have the potential to impact surface water resources that provide habitat for several listed species (primarily mussels). This includes hydrostatic testing (water removal and disposal), clearing and grading of stream-banks, in-stream trenching or other work, trench dewatering, blasting, and weed spraying. Impacts may arise from lack of shading, suspension of sediments (turbidity), direct impact to aquatic organisms, and release of drilling fluids during horizontal directional drilling. Implementation of regulatory requirements for impact avoidance (e.g., erosion control, stream setbacks for herbicide use, agency approved crossing techniques, equipment bridges, wetland mats, seasonal restrictions, etc.) are expected to reduce or eliminate potential for long-term or otherwise significant impacts the vast majority of the time. No long-term significant impacts to surface water resources are expected to result from NiSource activities.

Future NiSource construction activities and storage field operations have the potential to directly or indirectly impact localized ground water resources. Impacts could include contamination associated with blasting activities, turbidity associated with trench construction (in shallow aquifers), reductions in ground water quantity due to dewatering, contamination associated with hydraulic fracturing activities associated with storage field construction and operations. Implementation of standard environmental construction standards (BMPs) and other regulatory requirements associated with permitting is expected to reduce the potential for significant or long term impacts.

NiSource operation and construction activities are expected to have minimal impacts to local or regional geology, topography, or geologic hazards. An example of a potential geologic impact

and measures that will be used to avoid the impact would be the practice of surveying and clearly marking karst features, and identifying adequate buffers around such features during ground disturbing activities. No long-term significant impacts to geological resources are expected to result from NiSource activities.

Future impacts to soil resources from NiSource activities could include impacts to soil stability impacts, erosion, compaction, and contamination. NiSource's standard construction practices include measures to reduce or avoid potential soil impacts including temporary erosion control, stockpiling topsoil for reclamation, and standard spill prevention, containment, and control practices. No long-term significant impacts to soil resources are expected to result from NiSource activities.

NiSource future activities would not be expected to result in large-scale changes to local or regional climate. Future operations and construction activities may potentially influence local air quality, though they would not be expected to influence climate either directly or indirectly. Required compliance with the Clean Air Act and National Ambient Air Quality Standards, as well as any local or site-specific regulations for air quality within the Covered Lands footprint, is expected to minimize impacts to air quality. Impacts from future activities may include short-term local air quality degradation related to ground disturbance (dust) and/or internal combustion exhaust.

### 4.1.2 Fish and Wildlife Resources

NiSource's future activities could potentially impact a variety of native fish and wildlife resources, including migratory birds, depending on the nature of the activity, timing, and location. Potential impacts could include direct mortality from vehicle traffic, vegetation maintenance or mowing, noise-related impacts from construction, habitat degradation from construction, or habitat loss due to impacts to aquatic resources. Compensatory mitigation for the NLEB (e.g., enhancement of riparian areas) could potentially benefit a number of native fish and wildlife species. NiSource's current standard construction requirements, including stipulations and standards related to mowing, clearing, grading, trenching, water body crossing, spill

prevention, and restoration would serve to minimize the potential for adverse impacts to fish and wildlife from future Covered Activities.

### 4.1.3 Socioeconomic Resources

Approval of the ITP amendment and revised MSHCP are not expected to have any direct or indirect impact to future land use within the Covered Land footprint, with the exception of activities associated with NiSource mitigation projects, which could protect and restore land for the benefit of the NLEB. No measurable direct or indirect impact to employment, income, population (including low income/minority populations), housing, or public services are expected to occur as a result of the Service's Proposed Action and/or project alternatives.

With all alternatives, future NiSource projects would be subject to regulatory and utility approval, including permits for ROW encroachment, and many would also require additional state or federal level permits or review. Conditions of approval within transportation-related permits might include notification requirements and traffic control measures during construction and maintenance, depending on the activity. Mitigation related to utilities could include efforts to avoid temporary construction-related disruptions in service, coordination with utility providers prior to construction, and schedule planning to minimize disruption during construction.

Public lands that are available for recreation have existing land use restrictions that guide allowable development and uses on this land. As such, these restrictions would guide all NiSource activities regardless of the issuance of the ITP, and would not be influenced or impacted by the ITP or implementation of the MSHCP.

Future NiSource projects may result in short-term impacts to localized recreation resources during construction and/or maintenance activities, though these are not expected to be large scale or of long duration. NiSource mitigation projects could increase recreation opportunities, as land is restored and enhanced for the benefit of the NLEB would also provide benefits to other game and non-game resources.

Implementation of any of the alternatives would not directly affect the quality of visual resources within the Covered Lands footprint. To the extent that these modifications are subject to future site-specific approval, the activities would be subject to conditions of approval applied at the time of occurrence.

### 4.1.4 NLEB Impact Analysis

#### 4.1.4.1 Take Analysis

Specific to the NLEB and its habitat, the revised NiSource Inc. MSHCP provides an assessment of potential take to the NLEB as a result of NiSource Covered Activities (see Appendix M, Table 6.2.11.1-1 of the NiSource Inc. MSHCP). That assessment was done using reasonable worst-case assumptions to predict the manner and extent of anticipated take, which we believe capture the full range of possible effects into the future. That assessment is applicable to each of the action alternatives, since take of NLEBs is expected to be nearly identical under each of the alternatives. The Service was a primary author for that assessment. Based on that assessment, it was determined that the following NiSource Inc. Covered Activities could adversely impact the NLEB:

- Tree clearing associated with a wide variety of activities,
- Tree side-trimming along ROWs,
- Access roads maintenance and construction,
- Well plugging,
- Presence of the pipeline corridor,
- Construction and maintenance of waste pits, and
- Herbicide applications.

These activities could produce a variety of stressors that could rise to the level of "take". As such, NiSource Covered Activities could result in impacts to known and potentially suitable summer habitat that could support up to 4,590 individuals within 51 maternity colonies (2 colonies for O&M, 34 colonies for ROW new construction, and 15 colonies for storage fields new construction). Similarly, NiSource Inc. Covered Activities could also impact spring staging/fall swarming habitat that could support up to 28 individuals (1 individual for O&M, 12

individuals for ROW new construction, and 15 individuals for storage fields new construction). Combined, this could support a total of 4,618 individuals. However, NiSource Inc. and the Service were unable to estimate with precision the actual number of individuals that will be taken as a result of NiSource Inc. Covered Activities. For this reason, NiSource Inc. and the Service used habitat as a surrogate to the number of individuals potentially taken. The maximum acreage of potentially suitable NLEB habitat that could be impacted over the life of the permit is 93,500 acres, and the estimates of take, through modeling, have been calculated as a subset of that total acreage.

With regard to where take is likely to occur, NiSource Inc., in consultation with the Service, has determined that NiSource Inc. Covered Activities **may affect** the NLEB in the states and counties listed below. For those states and counties not listed below, but which fall within the NiSource Inc. Covered Land, NiSource Inc., in consultation with the Service, have determined that the Covered Activities will have **no effect** on the NLEB. Note: counties listed in italics contain NLEBs but do not contain Indiana bats.

- Delaware –*New Castle*;
- Indiana - DeKalb, Elkhart, Lake, LaPorte, Marshall, Noble, Porter, and St. Joseph counties;
- Kentucky - Adair, Allen, Barren, Bath, Bourbon, Boyd, Bracken, Campbell, Carter, Casey, Clark, Clay, Estill, Fayette, Floyd, Garrard, Greenup, Jackson, Johnson, Knott, Lawrence, Lee, Letcher, Lewis, Lincoln, Madison, Martin, Mason, Menifee, Metcalfe, Monroe, Montgomery, Morgan, Nicholas, Owsley, Pendleton, Perry, Pike, Powell, Robertson, and Rowan counties;
- Louisiana - *Avoyelles, Catahoula, East Carroll, Franklin, Grant, La Salle, Madison, Rapides, Richland*;
- Maryland - Allegany, *Baltimore, Cecil*, Garret, *Harford, Howard, Montgomery* and Washington counties*;*

- Mississippi - *Alcorn, Calhoun, Carroll, Grenada, Humphreys, Issaquena, Lafayette, Leflore, Pontotoc, Prentiss, Sharkey, Sunflower, Tippah, Union, Warren, Washington, and Yalobusha counties;*
- New Jersey –*Gloucester,* Hunterdon, Morris, *Salem, and* Warren *counties*;
- New York – *Allegany, Broome, Cattaraugus, Chemung, Delaware,* Orange, Rockland, *Schuyler, Steuben, Sullivan, Tioga* and *Yates* counties;
- North Carolina – *Northampton;*
- Ohio - Adams, Allen, Ashland, Ashtabula, Athens, Belmont, Brown, Butler, Carroll, Champaign, Clark, Clermont, Clinton, Columbiana, Coshocton, Crawford, Cuyahoga, Defiance, Delaware, Erie, Fairfield, Fayette, Franklin, Gallia, Geauga, Greene, Guernsey, Hancock, Hardin, Harrison, Henry, Hocking, Holmes, Huron, Jackson, Jefferson, Knox, Lawrence, Licking, Logan, Lorain, Lucas, Madison, Mahoning, Marion, Medina, Meigs, Monroe, Montgomery, Morgan, Morrow, Muskingum, Noble, Ottawa, Paulding, Perry, Pickaway, Putnam, Richland, Ross, Sandusky, Scioto, Seneca, Stark, Trumbull, Tuscarawas, Union, Vinton, Warren, Washington, Wayne, Wood, and Wyandot counties;
- Pennsylvania - Adams, Allegheny, Armstrong, Beaver, Bedford, Bucks, Butler, Cambria, Cameron, Centre, Chester, Clarion, Clearfield, Clinton, Cumberland, Delaware, Elk, Fayette, Franklin, Fulton, Greene, Indiana, Jefferson, Lancaster, Lawrence, Lehigh, McKean, Monroe, Montgomery, Northampton, Pike, Somerset, Washington, Westmoreland and York counties;
- Tennessee - Davidson, Hardin, Lewis, Macon, Maury, McNairy, Sumner, Trousdale, Wayne, Williamson, and Wilson counties;
- Virginia - Albemarle, Alleghany, Augusta, Botetourt, *Chesterfield, Chesapeake,* Clarke, *Culpeper, Dinwiddie, Fairfax, Fauquier,* Frederick, Giles, Goochland, Greene, G*reensville, Hampton, Hanover, Henrico, Isle of Wight, James City, Loudoun, Louisa,* Madison, *Newport News,* Orange, Page, Powhatan, *Prince George, Prince William,* Rockbridge, Rockingham, Shenandoah, *Southampton, Surry, Sussex, Suffolk,* and Warren

counties as well as the independent cities of *Colonial Heights*, *Hopewell*, Lexington, *Petersburg*, *Richmond City* and Waynesboro; and

- West Virginia –Boone, Braxton, Brooke, Cabell, Calhoun, Clay, Doddridge, Fayette, Gilmer, Grant, Greenbrier, Hampshire, Hancock, Hardy, Harrison, Jackson, Kanawha, Lewis, Lincoln, Logan, Marion, Marshall, Mason, McDowell, Mercer, Mineral, Mingo, Monongalia, Monroe, Morgan, Nicholas, Ohio, Pendleton, Pocahontas, Preston, Putnam, Raleigh, Randolph, Roane, Summers, Taylor, Tucker, Tyler, Upshur, Wayne, Webster, Wetzel, Wirt, Wood, and Wyoming counties.

### 4.1.4.2 Impact of the Take Analysis

Section 6.2.1.5 of the revised MSHCP provides a discussion of potential impacts associated with the take of NLEBs. As a reference for that discussion, a summary of the type of take anticipated within each habitat/specific life stage is provided in Table 6.2.11.5-1 of the revised MSHCP. The impact of the take analysis focuses on impacts at the individual and population levels. These findings apply to all of the action alternatives, as the type and amount of take for each alternative is nearly identical. A summary of those findings follows.

Individual NLEBs may experience impacts that range from minor nuisance (e.g., short-term nearby noise) to death (e.g., clearing of an occupied roost tree while bats are present and entrapment of bats in waste pits). NiSource Inc. will avoid direct take of lactating females and immobile pups throughout the Covered Land (AMM#29 and Assumption 11). Death is likely to occur in both known and suitable habitat when roost trees may be occupied during clearing activities outside of the non-volant window. However, AMM #29 will reduce the likelihood of mortality because available data (Cope et al. 1974; Belwood 2002) suggest that most, if not all, healthy and volant individuals within felled roosts immediately flee to nearby escape roosts. In addition, most bats that remain in a fallen roost are juveniles, which could be rescued by their mothers (Belwood 2002). While the potential for mortality does exist within known spring staging/fall swarming habitat, known and suitable summer habitat from tree clearing activities, and the operation of waste pits associated with well construction, reconditioning, and abandonment, the frequency in which it is expected to occur is low due to the small scale of the

impact. Despite this, a low, but immeasurable amount of mortality is expected to occur to individuals over the 50-year permit term.

Clearing of known and suitable summer and/or spring staging/fall swarming habitat will displace all bats within the action area. This includes NLEBs, as well as all other species of bats that are present within the action area. These displaced bats are expected to move into the remaining suitable habitat present immediately adjacent to the action area. These bats are potentially harmed in the following ways: they are likely exposed to a higher level of predation during the move (Sparks et al. 2000; Sparks 2008), the escape/alternative roost might be less suitable, and time is expended for the colony to reassemble (Sparks 2003). The displaced bats also may need to increase energy expenditures since they may be required to increase commuting distances to traditional foraging areas, and/or expend additional energy seeking new foraging and roost sites. This increased energy expenditure is anticipated to "harm" and "harass" individuals by affecting fitness, nutrition, and reproductive success. However, NLEB have been known to use dead and dying trees that sometimes fall; therefore, bats are likely adapted to punctuated movements and, overall, the effects on bats are likely temporary. In addition, interspecific and intraspecific competition between displaced bats and bats within adjacent undisturbed areas may significantly increase as the displaced bats attempt to locate new roosting and foraging areas.

Indirect take (i.e., unoccupied habitat impacts) could also result because NLEBs show fidelity to individual trees (Foster and Kurta 1999; Johnson et al. 2009) and roosting areas (Sasse and Perkins 1996; Partriquin et al. 2010; Perry 2011), within and among years. Thus, removing known and/or presumed occupied roosting habitat while the bats are absent from their habitat still causes harassment when bats return to an altered summer and/or spring staging/fall swarming habitat. Individual bats returning to summer habitat will be forced to locate new roosts in the spring at a time when they are stressed from hibernation, migration, the increased energy costs of reproduction, and potentially WNS infection depending on their location. The impact is lessened because roost trees are ephemeral habitats (bats inherently must be prepared to deal with sudden loss of roosts), roost switching occurs every two to three days, and trees used by individual bats tend to be clustered in the environment making it less likely, given the small percentage of a bat's home range (i.e., 0.8%) or staging/swarming zone (i.e., 0.24% or 4.6%)

impacted, that large numbers of roosts would be removed. Indirect take from the operation of waste pits associated with well construction, reconditioning, and abandonment is possible if an individual bat drinking from the pit was not entrapped. Although we are not able to measure the amount of harm that is expected to occur due to the lack of knowledge, assessing the impact of this effect (e.g., bats are small and not usually observed or recovered when impacted by similar activities), NiSource Inc. and the Service anticipate harm may occur to those bats from the ingestion of waste fluids while cleaning themselves after their escape by affecting fitness and reproductive success. It is important to note that these pits are temporary features on the landscape used by NiSource Inc. during the construction, reconditioning, and abandonment of drilling well sites. Thus, long-term effects to individuals are not anticipated to occur.

As described above, individual NLEBs may experience decreased reproductive success and increased mortality as a result of Covered Activities. Of importance here though, is how these potential adverse effects to individual bats affect the overall health and viability of a maternity colony and/or spring staging/fall swarming populations present within the Covered Land. The Covered Land lies near the center of the NLEB's range and contains numerous hibernacula and forestlands known to contain and provide summer maternity and spring staging/fall swarming habitat for the species. The analysis that follows describes impact of the incidental take requested on NLEBs at the maternity colony and spring staging/fall swarming population levels.

*Maternity Colony Populations within the Covered Lands*

The available data are insufficient to determine the number of known maternity colonies that occur throughout the covered lands. Through modeling efforts, NiSource Inc. and the Service have estimated that a total of 1,476 maternity colonies may exist within the covered lands. Furthermore, there are estimated to be a total of 90 individuals (45 adult females and 45 pups) present within each of these maternity colonies. Of these 1,476 colonies, NiSource Inc. and the Service anticipate take in the form of mortality, harm, and harassment may occur at a low, but immeasurable level to 4,590 individuals within 51 colonies.

*Spring Staging/Fall Swarming Populations around known and Presumed hibernacula within the Covered Lands*

Approximately 95 hibernacula are known to lie within five miles of the covered lands. Of these hibernacula, at least 16 are located within the Covered Land themselves (10 in NiSource Inc. identified storage field counties and 6 in the ROW covered lands corridor). NiSource Inc.'s Covered Activities may result in impacts to spring staging/fall swarming habitat located within 5 miles of an unspecified number of the 95 known hibernacula. NiSource Inc. and the Service anticipate these impacts may result in the incidental taking of a low, but immeasurable percentage of 28 individual NLEBs present within the populations of these 95 spring staging/fall swarming sites in the form of mortality, harm, and harassment.

As stated previously, a reasonable worst-case scenario approach has been used to calculate the amount of take and analyze the impact of that take in both known and suitable summer and spring staging/fall swarming habitats. In using this approach, NiSource Inc. and the Service have operated under the assumption that all 93,500 acres of impact would occur in each of these habitat types independently. This approach results in a significant overestimation of the actual take incurred during implementation. However, without more information regarding the location of specific projects for the next 50 years, this conservative approach is reasonable to ensure that the mitigation program fully compensates for the impact of the take. Thus, the overall take is represented by no more than 93,500 acres of known or suitable summer and/or spring staging/fall swarming habitat impacts over the life of the permit.

Because the scale of impacts to a summer maternity colony or spring staging/fall swarming population is small compared to other actions on the landscape with significantly larger impact footprints, adverse effects at the population level from reduced colony cohesion, increased stress, or increased energy demands from searching for new roost areas are not expected. Similarly, decreased thermoregulatory efficiency is not expected, nor is it likely that these impacts will lead to reduced reproductive success at the population level. As summarized above, NiSource Inc. and the Service expect that minor, short term effects at the individual level are possible because of the removal of roost trees and the operation of waste pits.

The risk of tree cutting and the operation of waste pits associated with well construction, reconditioning, and abandonment to bats varies depending upon the timing of the clearing activities within the occupied habitat. The use of these habitats by bats varies by season. For the purposes of completing the effects analysis, it is assumed NLEBs could be in spring staging habitat from April 1st to May 31st, known and suitable summer habitat from April 1st to August 15th and fall swarming habitat from August 15th to November 14th. There is some overlap in these time periods due to the variability in when NLEBs leave and arrive in their summer maternity and spring staging and fall swarming habitats as a result of significant climate differences from the northern and southern portions of this wide-ranging species.

Within spring staging habitat of hibernacula, cutting trees and the operation of waste pits associated with well construction, reconditioning, and abandonment while bats are emerging from hibernation and staging before migrating to summer habitats may increase the risk of affecting pregnant females. The death of a pregnant female would result in the take of two NLEBs (the adult female as well as her fetus), affecting both the size and reproductive potential of the maternity colony to which she will migrate. This will increase the risk of affecting NLEBs within these populations. When a female fails to return to her hibernaculum, the size of the hibernating population is reduced. This is magnified by the loss of her unrealized reproductive potential (i.e., lost progeny that will never be part of or contribute to that hibernating population, or any other hibernating population).

A reduction in the numbers of bats present to swarm, mate, and cluster within a source hibernaculum may place the remaining bats at a physiological disadvantage. These remaining bats may be more susceptible to changes in temperature, rapid arousal, and extreme stress during hibernation, thus causing a reduction in survival or reproduction (Clawson et al. 1980). Within summer habitat, the risk may be slightly less in April and early May, when the bats are migrating between their hibernacula and summer habitat. However, NLEBs have been documented to arrive in maternity areas as early as early April (USFWS 2014). Regardless, by mid-May they are usually established in their summer habitat. Cutting trees and operating waste pits associated with well construction, reconditioning, and abandonment in late April and May will increase the risk of affecting pregnant females. Injury to a pregnant female may result in

injury to, or death through spontaneous abortion of her fetus, also resulting in a reduction of the colony's reproductive potential through loss of intra-season recruitment of her pup into the colony. Data regarding the year-to-year recruitment of female NLEBs into a maternity colony is lacking at the current time. NiSource Inc. has avoided any risk to lactating females and immobile pups during the nursing period of June 1 to August 1 by agreeing to not remove known or suitable summer habitat or operating waste pits associated with well construction, reconditioning, and abandonment in known habitat during this time (*see* AMMs #29 and #38).

Cutting trees and the operation of waste pits associated with well construction, reconditioning, and abandonment in early to mid-August may increase the risk of affecting post-lactating females and newly volant juvenile bats, affecting both the size and reproductive potential of the colony in future years.

In summary, NiSource Inc. has agreed to avoid population-level affects within known and suitable summer habitat during the time when lactating females and immobile pups are present. The death, harm, and harassment of NLEBs from clearing activities in occupied habitat outside of the non-volant period is likely to affect individuals, but we do not anticipate that these effects will result in population-level effects given the relatively small amount of NLEBs that may be killed in a felled tree and the small scale, low frequency, and dispersed nature in which these effects are expected to occur. It is unknown whether there are a minimum number of bats that are needed for a colony or staging/swarming population to be viable. However, the severity of these impacts would be minor at best given that a large percentage of the area encompassed by the population will be unaffected outside the impact area. Therefore, NiSource Inc. and the Service do not expect the adverse effects to individual bats will affect the overall health and viability of a maternity colony or spring staging/fall swarming populations present within the covered lands.

#### 4.1.4.3 Compensatory Mitigation

The following mitigation measures apply to both Alternatives 2 and 3 and are required to compensate for impacts associated with take of NLEBs. Where the term "protection" appears,

please refer to Section 6.2 of the revised MSHCP for a further definition and the requirements for securing protection of mitigation lands and other real property interests.

**1. Linear impacts to summer habitat (up to 90,500 acres)**

- Impacts anticipated to habitat and bats within 36 maternity colonies
- Reasonable estimate of impact to a colony = 36.36 acres
- 36.36 acres/colony × 36 colonies = 1,309 acres impacted over life of the permit

*Mitigation Type*

Protection (fee title or conservation easement) of summer habitat as mitigation for linear impacts to 36 maternity colonies using the ratios below.

*Mitigation Ratios*[1]

- Unoccupied (out-of-season) fall swarming - NO RATIO NEEDED - *see* Mitigation package item #3 below
- Occupied (in-season) fall swarming - NO RATIO NEEDED - *see* Mitigation package item #3 below
- Unoccupied (out-of-season) suitable summer (assumed or documented colony) (1.5:1)
- Occupied (in-season) known summer (documented only) (3:1)
- Occupied (in-season) suitable summer (assumed only) (2:1)

**2. Storage field impacts to summer habitat** (up to 3,000 acres)

- Impacts anticipated to bats and habitat within 15 maternity colonies
- Reasonable estimate of impact to a colony = 210 acres
- 210 acres/colony × 15 maternity colonies = 3,150 acres impacted over the life of the permit; however, NiSource Inc. has limited its actual clearing to 3,000 acres total.

[1] In order to mitigate at the appropriate level, ratios will be applied by NiSource to ensure the mitigation is commensurate with the take expected during implementation. The selection of the ratio during implementation of the MSHCP is determined by establishing whether the take will occur in known or suitable habitat and while the habitat impacted would be occupied by NLEBs (i.e., direct take) or while habitat would be unoccupied by NLEBs (i.e., indirect take).

*Mitigation Type*

Protection (fee title or conservation easement) of maternity colony habitat as mitigation for storage field impacts to 15 maternity colonies using the ratios below.

*Mitigation Ratios*

- Unoccupied (out-of-season) fall swarming zone- NO RATIO NEEDED – *see* Mitigation package item #3 below
- Occupied (in-season) fall swarming– NO RATIO NEEDED – *see* Mitigation package item #3 below
- Unoccupied (out-of-season) suitable summer (assumed or documented) (2.5:1)
- Occupied (in-season) known summer (documented only) (4:1)
- Occupied (in-season) suitable summer (assumed only) (3:1)

**3. Impacts to spring staging/fall swarming habitat (up to 93,500 acres)**

Linear and/or storage field impacts anticipated to habitat and bats near 79 documented or assumed hibernacula. Protection includes the development and implementation of a Hibernaculum Protection Plan to address threats (e.g., gating).

*Mitigation Type*

Protection of Hibernacula and associated habitat to compensate for all impacts to spring staging and fall swarming habitat.

*Mitigation Amount*

If all work is done out-of-season (Unoccupied) - protect one hibernaculum that either houses a minimum of 100 NLEBs at the time that mitigation occurs or a hibernacula that currently houses NLEBs and has been shown to historically provide habitat for ≥100 NLEBs pre-WNS. If these conditions cannot be met, protect one Service-approved hibernaculum that will fully mitigate for the amount of take. If any activities also include in-season clearing (Occupied) - protect two hibernacula that either each house a minimum of 100 NLEBs or two hibernacula that currently house NLEB and have each been shown to historically provide habitat for ≥100 NLEBs pre-

WNS. If these conditions cannot be met, protect two Service-approved hibernacula that will fully mitigate for the amount of take.

**Total Maximum Mitigation**

Spring Staging/Fall Swarming = 2 hibernacula projects = **252 Acres**
Gating estimate = $5,000 (estimated)
Summer habitat (known and suitable) = **3,927 Acres**
Storage Field Impacts = **12,000 Acres**

**Sum = 16,179 Acres over 50 years = 324 acres/year**

**Total Minimum Mitigation (estimated without use of non-mandatory AMMs)**

Spring Staging/Fall Swarming = 1 hibernaculum project = **126 Acres**
Gating estimate **= $2,500**
Summer habitat (known and suitable) = **1,964 Acres**
Storage Field = **7,500 Acres**
**Sum = 9,590 Acres over 50 years = 192 acres/year**

**Summer Habitat Mitigation Sideboards:**

- Mitigation projects will occur at sites that are known to be used by NLEBs at the time the project is selected (i.e., documented roost trees present) or assumed to have a very high likelihood of being used based on proximity to known roosting, foraging, and swarming sites (e.g., within 1.5 miles of known colonies or within 5 miles of hibernacula)
- Habitat mitigation projects will be no smaller than 50 acres in size. Mitigation funds will continue to accrue until this minimum project size can be accomplished unless projects are contiguous to other lands protected and managed for the NLEB.
- Projects will be prioritized where summer habitat is fragmented. Options include: protection of roosting or foraging habitat; reforestation of corridors between known roosting and foraging areas; and reforestation of woodlots (blocks of habitat).

- The covered activities' impact(s) to summer habitat should be divided into the actions or impact types described below and then quantified to yield the acreage of impact for each action. For impacts where suitable habitat is sparse[2], each suitable roost tree should be counted, and the number of suitable roost trees should be multiplied by 0.09 acres/tree to determine the acreage of suitable habitat loss (i.e., the single tree method). For impacts involving the loss or alteration of blocks of forested habitat, the acreage of the impact is determined by identifying the perimeter and area of the impact with Global Positioning System or Geographic Information System technology (i.e., the habitat block method).
- The actual mitigation costs to NiSource Inc. will vary with inflation and the price of land; NiSource Inc. will calculate its mitigation funding obligations on an annual basis using current land values specific to the region where the mitigation will occur, and representative of the habitat needed for mitigation.

**Hibernaculum and Spring Staging/Fall Swarming Habitat Mitigation Sideboards:**

- NiSource Inc. will prepare a hibernaculum protection plan that will determine the actual protection measures necessary to protect the hibernacula.
- Protection will include both the hibernaculum itself (i.e., gate) and the surrounding habitat.
- For the purposes of calculating mitigation, it is estimated that a minimum of 0.25 mile around each hibernaculum must be protected which equals approximately **126 acres** per hibernaculum (assumes protection around one opening as the central point) plus gating. A portion (up to 25% of the 126 acres) of the acreage can be protected around a second, previously protected hibernacula if suitable acreage is not available at the first location.
- Implementation of this type of mitigation will be delayed until the Service can identify which hibernacula are appropriate for protection. This delay is due to impact WNS is having on bats in infected hibernacula and uncertainty with the range and speed in which this malady may spread in the future. The Service will evaluate the current status of WNS annually and determine when this portion of the package may be implemented.

[2] Sparse habitat is defined as areas containing widely spaced (i.e., greater than one crown width (35-foot radius) between the trees) or less than 20 trees ≥ three inches dbh. An example of sparse habitat is a single tree fence row that is not connecting forested blocks.

- The focus of this mitigation will be on those hibernacula that are not already in public ownership or have no perpetual protective easements in place.

## 4.2 Cumulative Impacts

The proposed federal action in this EA is the Service's issuance of an amended ESA Section 10(a)(1)(B) incidental take permit (ITP) to NiSource for the purpose of authorizing "take" of NLEBs, within the context of a conservation plan. The scope of the cumulative impact analysis therefore focuses mainly on impacts to the resources that support NLEB. The geographic scope of the analysis corresponds with the NiSource Covered Land. The temporal range, or how far into the past and future the analysis looked, was based on whether the effects would be temporary, short-term, long-term, or permanent.

The NiSource Covered Land is diverse spatially and includes a variety of topographic, geologic, ecological, and unique land-use features. Past and present activities within the Covered Land, including natural gas production, storage, and transmission (i.e., NiSource Covered Activities); agriculture development; wind energy development; commercial timber production; urban development; and transportation infrastructure, have impacted a variety of natural resources. Collectively, these activities have had profound impacts to the Covered Land landscape, the most notable being the loss and/or conversion of native landscapes to intensive agricultural production lands, urban and rural development, and transportation infrastructure. The result is a variety of past and present actions within the Covered Land that has shaped its condition today.

### 4.2.1 Physical Resources

Issuance of an amended ITP to NiSource or approval of the revised NiSource MSHCP are not expected to significantly contribute to loss or degradation of physical resources important to NLEB populations, including surface water, groundwater, geology, soils, or air quality, nor are they considered to create a separate, additive cumulative effect to any physical resources beyond that which already exists with the Covered Land.

Broadly, impacts could occur to surface waters or groundwater due to inadvertent spills or contamination; impacts on geologic resources due to limiting of access to mineral resources;

impacts on soils due to topsoil loss, erosion, and contamination; and impacts on air quality, due to fugitive dust emissions and pollutants. Mitigation projects for NLEBs, such as riparian restorations, could have positive impacts to surface water resources. However, impacts, both negative and positive, would be site-specific and negligible, at best. As such, issuance of an amended ITP and approval of the revised MSHCP should not contribute to significant negative or positive cumulative impacts to physical resources within the Covered Land.

### 4.2.2 Fish and Wildlife Resources

Issuance of an amended ITP to NiSource or approval of the revised NiSource MSHCP are not expected to significantly contribute to, or result in, loss or degradation of fish and wildlife resources, including vegetation, wetlands, and special status species.

Fish and wildlife habitat in some portions of the Covered Land could be impacted over the long-term through deforestation, degradation of vegetation, and/or habitat fragmentation due to future construction activities proposed by NiSource Inc., as well as due to other types of commercial, industrial, or residential development. However, NiSource Inc. mitigation for NLEB, as well as the 10 other species covered by the ITP, should off-set some of these impacts through reforestation and habitat enhancements. In areas where no listed species are present, as a condition of its ITP, NiSource will be required to follow all federal, state, and local laws concerning these and other resources.

Wetlands, an important resource for many fish and wildlife species, including bats, could be adversely impacted by future NiSource Inc. construction through dredging and filling and/or possible contamination due to spills. However, compared to due to other entities, including agriculture, residential and rural development, the impacts would be minor. Further, should any wetland impacts result from NiSource Covered Activities, NiSource Inc. will be required to fully off-set those impacts through compensatory mitigation, unlike other entities (e.g., agriculture), whose impacts are either allowed or go unnoticed.

Past and present actions within the Covered Land have caused the cumulative loss and degradation of large amounts of fish and wildlife habitat that historically supported a diversity of

fish and wildlife species. Clearing and converting land for agricultural use, urban and rural development, utility infrastructure, roads, and other uses has led to cumulatively increased wildlife disturbance from human activity, increased habitat fragmentation, increased wildlife mortality from roads, and the spread of non-native vegetation that reduces habitat diversity. Timber production activities have converted large tracts of old-growth forest to managed forest land, causing human disturbance, habitat loss and fragmentation, and reduced habitat diversity.

Reasonably foreseeable development activities in previously undeveloped areas would incrementally add to cumulative wildlife impacts, both through reduction of potential habitat, and disturbance and mortality of wildlife species in and around the sites of these actions. For instance, evidence shows that certain species of bats are particularly susceptible to mortality from operating wind turbines. Of the 45 species of bats found in North America, 11 have been observed dead at wind energy facilities. Of these, nearly 75% were eastern red bats (*Lasiurus borealis*), hoary bats (*Lasiurus cinereus*), and silver-haired bats (*Lasionycteris noctivagans*). Other bat species documented killed by wind turbines in the U.S. and of special concern to the Service include the little brown bat (*Myotis lucifugus*) and the NLEB (*Myotis septentrionalis*).

Past and present actions have also resulted in cumulative impacts to fish. These include agricultural and timber harvest activities, transportation infrastructure, and other human developments, especially in floodplains. These past actions have caused the loss of streamside riparian cover and function, the loss of large in-stream woody debris sources, and the addition of sediment into streams.

Reasonably foreseeable future actions that could cumulatively impact fish include actions that would remove shade vegetation in riparian areas along rivers or streams and actions that degrade water quality in rivers or streams from soil erosion. These future actions include forest harvest activities, residential and commercial development (especially in floodplains), and creation or expansion of ROWs for gas transmission and/or power transmission lines. NiSource Covered Activities, regardless of the alternative, would, to a small degree, remove forested vegetation in riparian areas along the ROWs and access roads, and these areas would be managed by restricting future vegetation growth. However, projects and practices will also be implemented to

mitigate riparian functions. In particular, riparian area restoration and protection projects by NiSource as mitigation for mussel species take would result in additional riparian habitat being restored and protected, and would likely improve water quality for many fish and aquatic species.

Cumulative impacts of past, present, and future actions on special status species due to future construction activities proposed by NiSource or other entities, as well as due to commercial, industrial or residential development, would be similar to those on other wildlife and fish species. However, through the application of species-specific AMMs and mitigation, impacts on NLEBs would be avoided, minimized, or compensated for with regard to NiSource activities. Similarly, local, state, and federal wildlife laws such as the ESA would serve to reduce the potential for impacts from other potential projects in the area. Overall, NiSource Covered Activities are not expected to result in cumulative impacts to threatened and endangered or special status species.

### 4.2.3 Socioeconomic Resources

Issuance of an amended ITP to NiSource and approval of the revised NiSource MSHCP are not expected to significantly contribute to loss or adverse impacts to social and/or economic resources, including land use, transportation and utilities, cultural resources, recreation, visual resources or noise, nor are they considered to create a separate, additive cumulative effect to any social and/or economic resources beyond that which already exists with the Covered Land area. Potential cumulative impacts due to future construction activities by NiSource or other entities, as well as due to other types of commercial, industrial, or residential development, would vary state-to-state, county-to-county, and city-to-city.

NiSource Covered Activities would not cause significant demands on public services or facilities. During construction, public services such as police, fire, and medical facilities, would be needed only in cases of emergency, which would likely be the case with other construction projects that could potentially coincide with Covered Activities. Covered Activities would not have a noticeable adverse impact on local landfill resources or their ability to handle other

current or future waste streams. NiSource Covered Activities would not contribute to cumulative impacts to public services or facilities.

Future urbanization within the Covered Land, as well as industrial development and associated transportation and infrastructure development, could translate into an increase in population within the general vicinity of that development, along with potential changes to employment, tax revenues, and personal income. No specific environmental justice impacts are anticipated to occur to low income or minority populations due to such cumulative actions.

Employment created by NiSource or other entities would be temporary jobs that would last only through project construction. If construction coincides with construction-related activities from other reasonably foreseeable future actions, such as those described above, this would increase the number and/or duration of temporary jobs, which would increase the cumulative need for temporary construction workers in the area. None of the alternatives would change populations or the need for permanent housing. There likely would be a need for temporary lodging for construction workers not hired from the local area. These impacts would be cumulatively beneficial as they would increase lodging-related revenue and revenue to other ancillary businesses such as restaurants, grocery stores, gas stations, and other businesses necessary to support temporary construction workers.

While beneficial, local construction-related expenditures, employment, and earnings would be small relative to the total amount of economic activity in the Covered Land area, and would, as a result, make a small positive contribution to cumulative impacts on any local economy. Other reasonably foreseeable projects would make similar positive, yet small contributions to local economies. Overall, the cumulative actions combined with the proposed project would have a small beneficial cumulative effect on local economies.

# Chapter 5 Summary

NiSource Inc. has requested that the Service add the NLEB to their existing ITP and provide incidental take coverage for no more than 93,500 acres of summer and/or spring staging/fall swarming habitat that could support up to 4,618 NLEB individuals. NiSource Inc. has included

over 40 conservation measures that will be implemented to avoid, minimize, and mitigate potential impacts to NLEBs. Any take will be mitigated through habitat protection and/or habitat restoration. The death, harm, and harassment of NLEBs from tree clearing activities and waste pit operation is likely to affect individual NLEBs, but the Service does not anticipate that these effects will result in population-level effects given the relatively small amount of NLEBs that may be killed in a felled tree and the small scale, low frequency, and dispersed nature in which these effects are expected to occur.

The Service's preferred alternative is Alternative 3 – Amend the NiSource ITP to include the NLEB and Approve the Revised NiSource MSHCP (with special conditions). Relative to the other alternatives, Alternative 3 results in reduced impacts to NLEBs as a result of compensatory mitigation and reduced risk to NLEBs because any uncertainties will be addressed in year 5 of the permit term. Issuance of an amended ITP to NiSource Inc. and approval of the revised NiSource MSHCP are not expected to significantly contribute to loss or adverse impacts to physical resources, fish and wildlife resources, or social and/or economic resources, nor are they considered to create separate, additive cumulative effects to any of these resources beyond that which already exists with the Covered Land.

# Chapter 6 Literature Cited

Amelon, S. and D. Burhans 2006. Conservation assessment: Myotis leibii (Eastern Small-footed Bat) in the eastern United States. In: Conservation Assessments for five forest bat species in the Eastern United States. Gen. Tech. Rep. NC-260. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Research Station. 82 pp.

Barbour, R. W., and W. H. Davis. 1969. Bats of America. Univ. of Kentucky Press, Lexington.

Belwood, J.J. 2002. Endangered bats in suburbia: observations and concerns for the future. Pp. 193–198 in The Indiana bat: biology and management of an endangered species (A. Kurta and J. Kennedy, eds.). Bat Conservation International, Austin, Texas.

Brack Jr., V. and J. O. Whitaker Jr. 2001. Foods of the northern myotis, *Myotis septentrionalis*, from Missouri and Indiana, with notes on foraging. Acta Chirop. 3:203–210.

Caceres, M. C., and M. J. Pybus. 1997. Status of the northern long-eared bat (*Myotis septentrionalis*) in Alberta. Alberta Environmental Protection, Wildlife Management Division, Wildlife Status Report No. 3, Edmonton, AB.

Caire, W., R. K. Laval, M. L. Laval, AND R. Clawson. 1979. Notes on the ecology of *Myotis keenii* (Chiroptera, Vespertilionidae) in eastern Missouri. The American Midland Naturalist, 102:404–407.

Clawson, R.L., R.K. LaVal, M.L. LaVal, and W. Caire. 1980. Clustering behavior of hibernating *Myotis sodalis* in Missouri. Journal of Mammalogy 61:245-253.

Cope, J.B., A.R. Richter, and R.S. Mills. 1974. A summer concentration of the Indiana bat, *Myotis sodalis*, in Wayne County, Indiana. Proceedings of the Indiana Academy of Science 83:482-484.

Foster, R.W., and A. Kurta. 1999. Roosting ecology of the northern bat (*Myotis septentrionalis*) and comparisons with the endangered Indiana bat (*Myotis sodalis*). Journal of Mammalogy 80: 659-672.

Griffin, D.R. 1940. Notes on the life-histories of New England cave bats. Journal of Mammology 21:181-187.

Johnson, J.B., J.W. Edwards, W.M. Ford, and J.E. Gates. 2009. Roost tree selection by northern myotis (*Myotis septentrionalis*) maternity colonies following prescribed fire in a Central Appalachian Mountains hardwood forest. Forest Ecology and Management 258:233-242.

LaVal, R.K., R. L. Clawson, M. L. LaVal, and W. Caire. 1977. Foraging behavior and nocturnal activity patterns of Missouri bats, with special emphasis on the endangered species *Myotis grisescens* and *Myotis sodalis*. . Journal of Mammology, 58:592-599.

Patriquin, K.J., M.L. Leonard, H.G. Broders, and C.J. Garroway. 2010. Do social networks of female northern long-eared bats vary with reproductive period and age? Behavioral Ecology and Sociobiology 64:899-913

Perry, R.W. 2011. Fidelity of bats to forest sites revealed from mist-netting recaptures. Journal of Fish and Wildlife Management 2(1):112-116.

Sasse, D.B., and P.J. Pekins. 1996. Summer roosting ecology of northern long-eared bats (Myotis septentrionalis) in the White Mountain National Forest. Pp. 91-101 in Proceedings of the bats and forests symposium (R.M.R. Barclay and R.M. Brigham, eds.). British Columbia Ministry of Forests, Victoria, British Columbia, Canada.

Sparks, D. W. 2008. Escape behavior of northern long-eared bats (*Myotis septentrionalis*) following diurnal disturbance. Proceedings of the Indiana Academy of Science 117(2): 203-209.

Sparks, D. W., K. J. Roberts, and C. Jones. 2000. Vertebrate predators on bats in North America north of Mexico. Pp. 229–241. In J.R. Choate (Ed.), Reflections of a Naturalist: Papers Honoring Professor Eugene D. Fleharty. Fort Hays Studies Special Issue 1. 241. pp.

Sparks, D. W., M. T. Simmons, C. L. Gummer, and J. E. Duchamp. 2003. Disturbance of roosting bats by woodpeckers and raccoons. Northeastern Naturalist, 10:105-108.

U.S. Fish and Wildlife Service (Service). 2014. Northern Long-Eared Bat Interim Conference and Planning Guidance. USFWS Regions 2, 3, 4, 5, & 6. 67 pgs.

_____. 2013. Endangered and Threatened Wildlife and Plants; 12-Month Finding on a Petition To List the Eastern Small-Footed Bat and the Northern Long- Eared Bat as Endangered or Threatened Species; Listing the Northern Long-Eared Bat as an Endangered Species; Proposed Rule. October 2, 2013 FR 78, No. 191, 61046-61080.

_____. 1999. Biological Opinion on the Impacts of Forest Management and Other Activities to the Gray Bat, Bald Eagle, Indiana Bat, and Mead's Milkweed on the Mark Twain National Forest, Missouri. June 23, 1999.

van Zyll de Jong, C. G. 1985. Handbook of Canadian mammals. National Museums of Canada, Ottawa, Canada. pp. 116-120.