IROQUOIS GAS TRANSMISSION SYSTEM, L.P.

08/09 EXPANSION PROJECT

DRAFT

RESOURCE REPORT 3

FISH, WILDLIFE AND VEGETATION

PUBLIC

Prepared for:

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RESOURCE REPORT 3 – FISH, WILDLIFE AND VEGETATION

FERC ENVIRONMENTAL CHECKLIST

Part 380 – Minimum Filing Requirements for Environmental Reports	Company Compliance or Inapplicability of Requirement
Classify the fishery type of each surface waterbody that would be crossed, including fisheries of special concern. (§ 380.12 (e)(1)).	Sections 3.1
Describe terrestrial and wetland wildlife and habitats that would be affected by the Project. (§ 380.12 (e)(2)).	Section 3.2
Describe the major vegetative cover types that would be crossed and provide acreage of each cover type that would be affected by construction. (§ 380.12 (e)(3)).	Section 3.3
Describe the effects of construction and operation procedures on the fishery resources and proposed mitigation measures. (§ 380.12 (e)(4)).	Section 3.4
Evaluate the potential for short-term, long-term, and permanent impact on wildlife resources and state-listed endangered or threatened species caused by construction and operation of the Project and proposed mitigation measures. (§ 380.12 (e)(4)).	Sections 3.4
Identify all federally listed or proposed endangered or threatened species that potentially occur in the vicinity of the Project and discuss the results of consultations with other agencies. (§ 380.12 (e)(5)).	Section 3.5
Identify all federally listed essential fish habitat (EFH) that potentially occurs in the vicinity of the Project and the results of abbreviated consultations with the NMFS, and any resulting EFH assessments. (§ 380.12 (e)(4 and 7)).	Section 3.5
Describe any significant biological resources that would be affected. Describe impact and any mitigation proposed to avoid or minimize that impact. (§ 380.12 (e) 4 and 7)).	Sections 3.1, 3.1.2, 3.2, 3.1.1.3.3, 3.1.2.1.3, 3.2.3, 3.4.1.1 and 3.5.1.3.1

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Non Internet Public Information – Please Refer to Volume III – Appendix J

3.0 FISH, WILDLIFE AND VEGETATION

This resource report describes existing conditions of fisheries, wildlife resources, major vegetative communities, significant habitats and the potential presence of Federal and State-listed threatened and endangered species within the project areas associated with the 08/09 Expansion Project. Iroquois proposes to construct the Project in accordance with the FERC (2003) Upland Erosion Control and Revegetation Plan ("Plan"), the FERC (2003) Wetland and Waterbody Construction and Mitigation Procedures ("Procedures"), and Iroquois' Spill Prevention, Control, and Contaminant ("SPCC") Plan (see Volume II for copies of these documents). The assessment of project-related effects on fisheries, wildlife, vegetation and wetland resources are the opinions of ENSR environmental scientists and are based on the assumption that the FERC (2003) Plan and Procedures and Iroquois' SPCC Plan are implemented properly during construction and operation of the Project facilities.

The majority of the existing conditions and impact analysis has been derived from biological field surveys that have been conducted along the majority of the proposed construction corridor. Section 3.1 describes the fishery resources and fish habitat of special concern. Section 3.2 describes wildlife resources, focusing on the habitat types traversed by the Project. Section 3.3 describes the vegetation types, including wetlands, currently found in the vicinity of the Project. Section 3.4 describes the occurrence of state and federally listed threatened and endangered species that have been reported in the vicinity of the Project. Section 3.5 provides a list of references.

3.1 FISHERIES

This section discusses fishery resources, fish species of special concern and construction and operation impacts on fisheries present within waterbodies crossed by the proposed pipeline loop segments, and proposed compressor station facilities. During the field reconnaissance, the preferred alignment was evaluated to determine the presence of waterbodies and water conveyance channels within or adjacent to the proposed Project facilities. Field determinations and examination of USGS 7.5-minute series topographic maps were also used to identify and classify potential waterbody crossings. Based on the results of the background research and field surveys, the proposed alignment does cross or affect waterbodies, perennial or intermittent, capable of supporting fisheries.

3.1.1 Pipeline Facilities

3.1.1.1 Boonville Loop Segment

3.1.1.1.1 Fishery Classification

As detailed within Table 2.2-1 of Resource Report 2, the Boonville Loop segment will cross a total of five perennial waterbodies consisting of four perennial streams and one pond. Eleven intermittent drainages were identified along the Project alignment, some of which are naturally occurring intermittent streams, while others consist of man-made drainage swales. West Kent Creek (M.P. 2.56) is considered to be a significant cold-water fisheries according to the New York State Department of Environmental Conservation ("NYSDEC"), with a state water quality classification of "C(t)" (Wiggins 2007). All other drainages along the Boonville Loop alignment are classified as "C". Representative fish species within coldwater fisheries include brook trout (*Salvelinus fontinalis*), rainbow trout (*Oncorhynchus mykiss*) and brown trout (*Salmo trutta*). Copies of project correspondence are provided in Volume II - Appendix B.

In New York State, waterbodies with a State water quality classification of "C(t)" are protected by the NYSDEC and require a special permit for instream construction. All instream work must be must be conducted between June 15 and September 30. Waterbodies with a water quality classification of "C" are not protected or subject to restrictions on timing or construction methods, though water quality standards relative to sedimentation and turbidity still apply and a US Army Corps of Engineers permit and state water quality certificate may still be required (McBride 2007, Wiggins 2007).

3.1.1.1.2 Fisheries of Special Concern

According to information from the United States Fish and Wildlife Service ("USFWS"), NYSDEC – New York Natural Heritage Program ("NYNHP"), and NYSDEC Region 6 Bureau of Fisheries there are no known State or federally threatened or endangered fish species or fisheries of special concern present along the Boonville Loop Pipeline alignment (Seone 2007, Niver 2007, Wiggins 2007). Copies of project correspondence are provided in Volume II - Appendix B.

3.1.1.2 Wright Loop Segment

3.1.1.2.1 Fishery Classification

The Wright Loop Segment will cross a total of two perennial waterbodies, each consisting of perennial stream crossings of five and thirteen feet in width, respectively (See Table 2.2-1, Resource Report 2). Correspondence from NYSDEC Region 4 Bureau of Fisheries identified King Creek as a coldwater fisheries stream supporting brown and rainbow trout and provides actual spawning habitat for these fish species (New York State Water Quality Classification "C(t)"; McBride 2007). All other drainages along the Wright Loop alignment are non-trout streams with a water quality classification of "C". The New York State restrictions on in-stream construction relative to water quality classification apply. Copies of project correspondence are provided in Volume II - Appendix B.

3.1.1.2.2 Fisheries of Special Concern

According to information from the USFWS, NYSDEC NYNHP and Region 4 Bureau of Fisheries there are no known state or federal fisheries of special concern crossed by or within the Wright Loop segment project area (Niver 2007; Seone 2007; McBride 2007). However, King Creek is a protected coldwater fishery stream by the NYSDEC and any in-stream construction will require a permit and must be conducted between June 15 and September 30. Additionally, work in the water is prohibited and flows must be diverted or pumped around the work area. All other drainages along the Wright Loop alignment are not protected and work can be conducted at any time; however an US Army Corps of Engineers permit may still be required (McBride 2007). Copies of project correspondence are provided in Volume II - Appendix B.

3.1.1.3 Newtown Loop Segment

3.1.1.3.1 Fishery Classification

As detailed within Table 2.2-1 of Resource Report 2, the Newtown Loop segment will cross two perennial waterbodies consisting of Priton Brook, and Ivy Brook. Both waterbodies consisted of small streams approximately five feet in width. Additionally, ENSR identified one intermittent stream drainage within the Project alignment. Consultation with the CTDEP Inland Fisheries

Division – Western District indicated that due to slope, in-stream and riparian habitat, each of the surface waters crossed by the Newtown Loop segment can be classified as coldwater streams (Mysling 2007). Further review of CTDEP files indicates that the only stream supporting coldwater fisheries along the proposed Newtown Loop alignment is an unnamed tributary to Ivy Brook (approximate MP 5.40). Representative fish species within coldwater fisheries in the State of Connecticut include brook trout, rainbow trout and brown trout. All perennial streams crossed by the Newtown Loop alignment have an associated water quality classification of "Class A" by the State of Connecticut. Copies of project correspondence are provided in Volume II - Appendix B.

3.1.1.3.2 Fisheries of Special Concern

According to information received from the USFWS, there are no known federally threatened or endangered fish species present within waterbodies crossed by the Newtown Loop segment alignment (Tur 2007). The CTDEP Natural Diversity Database ("NDDB") as well as the CTDEP Inland Fisheries Division – Western District indicate that there is no known presence of State-listed threatened or endangered fish species occurring in surface waters along the Newtown Loop segment (McKay 2007; Mysling 2007). However, due to the classification of all waters along the Newtown Loop alignment as coldwater fisheries, any unconfined instream construction activities should be scheduled for the time period between June 1 and September 30, and all instream and riparian habitat disturbed during construction should be restored to pre-construction conditions (Mysling 2007). Copies of project correspondence are provided in Volume II - Appendix B.

3.1.2 Aboveground Facilities

3.1.2.1 Milford Compressor Station

3.1.2.1.1 Fishery Classification

During the field reconnaissance, the entire project area was evaluated to determine the presence of waterbodies and water conveyance channels within or adjacent to the proposed Project facilities. Examination of USGS 7.5-minute series topographic maps was also used to identify and classify potential waterbodies within the Project area. Based on the results of the background research and field surveys, there are no surface waterbodies within the subject property, and the construction and operation of the proposed Milford Compressor Station facility will not directly impact or affect any waterbodies, perennial or intermittent, capable of supporting fisheries.

Consultation with the CTDEP Inland Fisheries Division indicates that while the Housatonic River and a tidally influenced embayment of the Housatonic River are located within 0.25-miles of the proposed Milford Compressor Station, construction of the Project should not have an adverse impact on fisheries associated with these waterbodies (Johnson 2007).

3.1.2.1.2 Fisheries of Special Concern

The USFWS did not report any fisheries of special concern in the vicinity of the Project site (Tur 2007). The CTDEP NDDB reported the presence of the Connecticut State Threatened fish species, the Atlantic Sturgeon (*Acipenser oxyrhynchus*), for the Housatonic River, however further consultation with the CTDEP Inland Fisheries Division determined that the Project would not cause any adverse impacts to the Housatonic River or to any fisheries of special concern (Johnson 2007).

3.1.2.2 Brookfield Compressor Station

3.1.2.2.1 Fishery Classification

During the field reconnaissance, the entire property for the proposed Brookfield Compressor Station facility was evaluated to determine the presence of waterbodies and water conveyance channels within or adjacent to the proposed Project facilities. Field determinations and examination of USGS 7.5-minute series topographic maps were also used to identify and classify potential waterbody crossings. Based on the results of the background research and field surveys, the proposed alignment does not cross or affect any waterbodies, perennial or intermittent, capable of supporting fisheries.

At the Brookfield Compressor Station site, the access road is located west of an intermittent channel that conveys drainage to a relatively large wetland complex present in the southern portion of the 65-acre site. Due to the intermittent nature of this drainage system, the waterbody does not provide habitat for fishery resources. This intermittent flow appears to be a direct result of stormwater runoff and; therefore, does not provide suitable habitat to support fisheries resources. The USGS topographic map (Danbury Quadrangle) shows an unnamed perennial tributary of Pond Brook located along the railroad tracks in the southern extent of the 65-acre property. The proposed workspace is at least 100 feet away from this stream.

While Pond Brook and the unnamed perennial tributary to Pond Brook located within the Project site may support fisheries, no direct impact to the waterbody will occur during construction of the Brookfield Compressor Station modifications. Accordingly, there are no fisheries resources located in close proximity to the site that are expected to be impacted by the construction of the proposed compressor station. Indirect impacts to wetlands and waterbodies, and subsequently any fisheries associated with these resources, will be avoided through construction of the Project in accordance with the FERC Plan and Procedures (2003) and Iroquois' SPCC Plan.

3.1.2.2.1 Fisheries of Special Concern

The CTDEP NDDBD and the USFWS did not report the presence of any Fisheries of Special Concern existing in the vicinity of the proposed Project area (McKay 2007; Tur 2007).

3.1.3 Construction and Operation Impacts

Whenever construction occurs within a stream, there is potential for impacts upon fish habitat. Downstream habitat alteration and increased suspended solids concentrations and sedimentation may eliminate or degrade fish spawning and nursery areas, resulting in a temporary reduction in reproductive potential. These impacts are typically temporary in nature as the sediments are flushed during subsequent storm events, and aquatic communities subsequently re-colonize the affected area.

The FERC Plan and Procedures (See Appendix C) will be implemented during construction of the pipeline loop segments. Once installation activities for all pipeline facilities are complete, all areas will be restored to pre-construction contours and stabilized as necessary to mitigate erosion of exposed soils and sedimentation to on- and off-site resource areas. In the State of New York, any stream with a State water quality classification of "C(t)" is a protected coldwater fisheries stream and any instream construction will require a permit and must be conducted between June 15 and September 30. Additionally, work in the water is prohibited and flows must be diverted or pumped around the work area. Any streams with a sole state water quality classification of "C"

are not subject to restrictions on timing or construction methods, though water quality standards relative to sedimentation and turbidity still apply (McBride 2007).

In Connecticut, any unconfined in-stream construction activities should be scheduled for the time period between June 1 and September 30, and all in-stream and riparian habitat disturbed during construction should be restored to pre-construction conditions (Mysling 2007). The protection measures required by both New York and Connecticut are generally consistent with the requirements of the 2003 FERC Plan and Procedures. As such, implementation of the Plan and Procedures should provide adequate protection for coldwater fisheries and fisheries of special concern. Please refer to Table 2.1-1 of Resource Report 2 for information regarding waterbody crossing methodologies.

Post-construction or operational impacts will be minimal. Restoration and maintenance of the vegetation within the right of way will minimize the erosion potential relative to the stream. Removal of streamside trees at the pipeline crossing may temporarily reduce shading of the stream, eliminate escape cover and potentially result in a locally elevated water temperature. Elevated water temperature can lead to a reduction in levels of dissolved oxygen and influence fish survival and fitness. However, following construction of the Pipeline facilities and restoration / stabilization of the right-of-way ("ROW"), Iroquois anticipates limiting the semi-annual maintenance of the cleared ROW to ten feet centered over the proposed pipeline loop segments within riparian corridors. This will allow for the re-establishment of woody and herbaceous vegetation species along the stream banks that will provide needed shading and crucial cover habitat to sufficiently maintain necessary coldwater fisheries habitat characteristics.

No impact is anticipated in relation to the timing of construction, as measures will be taken to use specialized construction techniques or avoid work within streams during the spawning periods for the designated coldwater fisheries species. Iroquois will adhere to the FERC Plan and Procedures to mitigate sedimentation and erosion within and adjacent to all waterbodies crossed by the pipeline loop segments.

The proposed aboveground facilities are not located within the immediate vicinity of any waterbodies. To ensure that no off-site resources are impacted as a result of construction of the aboveground facilities, Iroquois will implement appropriate erosion controls and stormwater management practices in accordance with the FERC Plan and Procedures (2003). These steps are intended to ensure that fishery resources supported in any off-site waterways are not affected by the proposed construction activities. Therefore, Iroquois does not anticipate any impacts to fisheries associated with construction or operation of the proposed aboveground facilities.

3.1.3.1 Minimization of Impacts

All waterbodies crossed by or within temporary workspace associated with the Project areas will be protected by adherence to the FERC Plan and Procedures (Appendix C) as well as any additional state and local requirements. In general, the project will protect and minimize potential adverse impacts to streams by:

- expediting construction and limiting the amount of equipment and activities in water bodies;
- adhering to the FERC "Wetland and Waterbody Construction and Mitigation Procedures" to the greatest extent practicable;
- coordinating construction activities to avoid high flow and spawning periods;

- installing erosion controls to prevent sediment and siltation from entering streams;
- constructing waterbody crossings as perpendicular to the axis of the waterbody channel as engineering and routing conditions allow;
- maintaining ambient downstream flow rates;
- removing all construction material and structures from the waterbody after construction;
- restoring stream channels and bottoms to their original configurations and contours;
- permanently stabilizing stream banks and adjacent upland areas after construction;
- inspecting ROWs periodically during and after construction and repairing any erosion controls and/or performing restoration, as needed, in a timely manner; and,
- reducing clearing and leaving as many trees in place as possible on stream banks.

Any significant or extensive deviations from the FERC Plan and Procedures deemed by Iroquois or their construction contractors as necessary for proper construction and installation of the Project facilities should provide equal or greater protection of the resource, and all deviations from the FERC Plan and Procedures will be submitted to the FERC as soon as practicable for approval prior to implementation.

3.2 WILDLIFE

This section identifies and discusses the various wildlife species associated with the upland and wetland vegetation cover types identified in Section 3.3.1. It also identifies unique or significant habitats such as wildlife refuges, national forests and wildlife management areas occurring within the Project area. A discussion of the existing habitat types to be crossed by the Project is presented in Section 3.3 with additional information provided on mammal, bird, and reptile and amphibian species that utilize these habitats. Section 3.2.2 describes the short-term, long-term and permanent impacts to wildlife habitat anticipated from construction and operation of the Project as well as mitigation measures to avoid and minimize these potential impacts.

Existing terrestrial conditions were established through a combination of field reconnaissance and review of the NYNHP publication *The Ecological Communities of New York State* (Reschke 1990) and information provided on the CTDEP website. The extent of each land cover type and the areas of transition between cover types were established during field reconnaissance. Land with at least 10 percent crown closure was classified as forest, and gradual transitions between land cover types ("soft edges") were included within the maintained right-of-way or maintained road shoulder categories, where applicable. Hard edges that contain abrupt transitions between land cover types were not incorporated as a separate classification. While the majority of the proposed pipeline traverses similar land classifications, species composition, topography and land use provide a variety of habitat conditions within each land classification.

3.2.1 Pipeline Facilities

3.2.1.1 Boonville Loop Segment

3.2.1.1.1 Mammals

According to the American Society of Mammalogists (2005), 57 species have geographic ranges that include Oneida County and the central portion of New York State. These species include 21 species of rodents, nine species of bats, as well as larger species such as white-tailed deer (*Odocoileus virginianus*), moose (*Alces alces*), American black bear (*Ursus americanus*), Eastern coyote (*Canis latrans*) and bobcat (*Lynx rufus*). Although the majority of the proposed alignment is located within existing maintained right-of-way (See Table 8.1-1 of Resource Report 8), limited portions of the construction workspace may also occur within spruce and oak-hickory forest habitat as defined by Reschke (1990). The impacts to habitat are expected to be temporary in nature and should not significantly affect mammal populations or habitats located within the project limits. A list of representative species for each habitat type is presented in Table 3.2-1.

Mammal species with significant recreational and commercial value that inhabit areas to be crossed by the proposed pipeline sections include white-tailed deer, black bear, snowshoe hare (*Lepus americanus*), and eastern gray squirrel. The significance of furbearer trapping for recreational and commercial purposes has declined with the passage of restrictive legislation governing the activity. However, species such as beaver (*Castor canadensis*), mink (*Mustela vision*), muskrat (*Ondatra zibethicus*), bobcat (*Lynx rufus*), eastern coyote (*Canis latrans*), fisher (*Martes pennanti*) and red fox are abundant and may provide for limited recreational trapping opportunities.

3.2.1.1.2 Birds

Central New York possesses a diversity of avian species that utilize the variety of landforms, habitats and vegetative communities within the state. According to the *New York State Breeding Bird Atlas* (NYSDEC 2005), at least 126 species of birds have been identified as breeding within Oneida County, many of which are neo-tropical migrants. Many species also utilize central New York as a wintering area and migrate to other portions of North America to breed in the spring, while other species complete their life cycles within the same area and are considered permanent residents.

The habitats within the project area provide important functions for avian species including breeding and nesting sites, wintering and escape cover, as well as potential food sources in the form of berries, seeds and insects. Any impacts associated with the proposed project are expected to be temporary in nature and should not significantly affect resident or migratory populations located within the project limits. A list of representative bird species for each habitat type is presented in Table 3.2-2.

Several species of upland game birds and waterfowl provide recreational hunting opportunities within the project area. Ruffed grouse (*Bonasa umbellas*), Sora (*Porzana Carolina*), Wilson's snipe (*Gallingo delicata*), American woodcock (*Scolopax ninor*), and wild turkey (*Meleagris gallopavo*) are hunted within Oneida County, while a variety of waterfowl including Canada goose (*Branta canadensis*), mallard (*Anas platyrhynchos*), green-winged teal (*Anas crecca*), and wood ducks (*Aix sponsa*) provide sporting opportunities within freshwater wetland areas located outside of the survey corridor.

3.2.1.1.3 Reptiles and Amphibians

According to the *New York State Amphibian and Reptile Atlas Project* (NYSDEC 1999) there is a total of 31 species of reptiles and amphibians found within Oneida County. These include eight

species of salamanders, five species of freshwater turtles, nine species of frogs and toads, and nine species of snakes. The proposed project traverses several different habitat types including upland forests, and maintained natural gas pipeline rights-of-way, wetlands and waterbodies. While the upland forests and maintained right-of-way provides wintering and escape cover for reptiles and amphibians as well as potential food sources for these species, reptile and amphibian density is likely to be highest within and around the wetlands and waterbodies. Any impacts to reptile and amphibian habitat are expected to be temporary in nature and should not significantly affect resident populations located within the project limits. A list of representative species for each habitat type is presented in Tables 3.2-3. Due to the various habitat requirements of these animals, many of these species may be found in more than one habitat type.

TABLE 3.2-1
REPRESENTATIVE MAMMAL SPECIES FOR HABITAT TYPES
CROSSED BY THE BOONVILLE LOOP SEGMENT

Habitat Type	Common Name	Scientific Name
Maintained Right-of-Way	Gray Squirrel	*Sciurus carolinensis*
	Red Fox	*Vulpes vulpes*
	White-tailed Deer	*Odocoileus virginianus*
	White-footed Mouse	*Peromyscus leucopus*
	Eastern Chipmunk	*Tamias striatus*
Spruce Forest	Black bear	*Ursus americanus*
	Common Porcupine	*Erethizon dorsatum*
	Fisher	*Martes pennanti*
	American Martin	*Martes americana*
	Northern Flying Squirrel	*Glaucomys sabrinus*
Oak-Hickory Forest	Woodland Jumping Mouse	*Napaeozapus insignis*
	White-tailed Deer	*Odocoileus virginianus*
	Red Fox	*Vulpes vulpes*
	Long-tail Weasel	*Mustela frenata*
	Little Brown Bat	*Myotis lucifugus*
Wetlands and Waterways	Water shrew	*Sorex palustris*
	Star-nosed mole	*Condylura cristata*
	Beaver	*Castor canadensis*
	Muskrat	*Ondatra zibethicus*
	Mink	*Mustela vison*

Source: American Society of Mammalogists 2005
Whitaker 1996

TABLE 3.2-2
REPRESENTATIVE BIRD SPECIES FOR HABITAT TYPES
CROSSED BY THE BOONVILLE LOOP SEGMENT

Habitat Type	Common Name	Scientific Name
Maintained Right-of-Way	Field Sparrow	*Spizella pusilla*
	American Kestrel	*Falco sparverius*
	American Crow	*Corvus brachyrhynchos*
	House Sparrow	*Passer domesticus*
	Red-tailed Hawk	*Buteo jamaicensis*
	Brown-headed Cowbird	*Molothrus ater*
	Wild Turkey	*Meleagris gallopavo*
	Eastern Kingbird	*Tyrannus tyrannus*
	Black-throated Green Warbler	*Dendroica virens*
Spruce Forest	Yellow-bellied Flycatcher	*Empidonax flaviventris*
	Golden-crowned Kinglet	*Regulus satrapa*
	Magnolia warbler	*Dendroica magnolia*
	Blackburniun warbler	*Dendroica fusca*
Oak-Hickory Forest	Brown Thrasher	*Toxostoma rufum*
	Ruffed Grouse	*Vermivora pinus*
	Wild Turkey	*Meleagris gallopavo*
	Pileated woodpecker	*Dryocopus auratus*
	Barred owl	*Strix varia*
	Great-Crested Flycatcher	*Myiarchus crinitus*
	Red-eyed Vireo	*Vireo olivaceus*
Wetlands and Waterways	Great Blue Heron	*Ardea herodias*
	Geen Heron	*Butorides virescens*
	Bank swallow	*Riperia riperia*

Source: NYSDEC 2005

TABLE 3.2-3
REPRESENTATIVE REPTILE AND AMPHIBIAN SPECIES
FOR HABITAT TYPES CROSSED
BY THE BOONVILLE LOOP SEGMENT

Habitat Type	Common Name	Scientific Name
Maintained Right-of-Way	Northern Red-bellied Snake	*Storeria occipitomaculata*
	Eastern Garter Snake	*Thamnophis sirtalis*
	Red-backed Salamander	*Plethodon cinereus*
	Eastern Ribbon Snake	*Thamnophis sauritus*
	Snapping Turtle	*Cheldra serpentina*
	Eastern American Toad	*Bufo americanus*
Spruce Forest	Spotted Salamander	*Ambystoma maculatum*
	Red-spotted Newt	*Notophthalmus viridescens*
	Red-backed Salamander	*Plethodon cinereus*
	Eastern American Toad	*Bufo americanus*
	Wood Frog	*Rana sylvatica*
	Eastern Garter Snake	*Thamnophis sirtalis*
Oak-Hickory Forest	Jefferson Salamander	*Ambystoma jeffersonianum*
	Red-backed Salamander	*Plethodon cinereus*
	Eastern American Toad	*Bufo americanus*
	Wood Frog	*Rana sylvatica*
	Eastern Garter Snake	*Thamnophis sirtalis*
	Eastern Milk Snake	*Lampropeltis triangulum*
Wetlands and Waterways	Red-spotted Newt	*Notophthalmus viridescens*
	Northern Dusky Salamander	*Desmognathus fuscus*
	Northern Spring Salamander	*Gyrinophilus porphyriticus*
	Green Frog	*Rana clamitans*
	Eastern Painted Turtle	*Chrysemys picta*
	Snapping Turtle	*Cheldra serpentina*
	Wood Turtle	*Clemmys insculpta*

Source: NYSDEC 1999

3.2.1.1.4 Significant or Sensitive Species and Habitats

Consultation letters regarding the potential presence of significant or sensitive habitats along the Boonville Loop project area were submitted to USFWS and NYNHP in January 2007. Critical habitats for federally threatened and endangered species include designated geographic areas essential to the conservation of the species and which may require special management considerations or protection. Correspondence from the USFWS indicates that there are no federally listed or proposed threatened or endangered species or designated critical habitats under federal jurisdiction known to occur in the vicinity of the Boonville Loop survey corridor (Niver 2007).

The NY Natural Heritage Program provided correspondence indicating that one State-listed plant species, the Schweinitz' Sedge (*Carex schweinitzii*), has been documented along the existing

pipeline ROW (Seoane, 2007). ENSR is in the process of preparing a survey protocol to identify and delineate the boundaries of the population and will further consult NYNHP regarding potential impact avoidance and mitigation measures. No other rare or State-listed plants, animals, significant natural communities, or other significant habitats were identified in the vicinity of the Boonville Loop survey corridor (Seone 2007). Copies of project correspondence are provided in Volume II - Appendix B.

3.2.1.2 Wright Loop Segment

3.2.1.2.1 Mammals

According to the American Society of Mammalogist's (2005), 53 species have geographic ranges that include Schohairie County and the Central portion of New York State. These species include 20 species of rodents, nine species of bats, as well as larger species such as white-tailed deer, American black bear, eastern coyote, and bobcat. Although the majority of the proposed alignment is located within existing maintained rights-of-way (See Table 8.1-1 of Resource Report 8), limited portions of the route also occur within agricultural land and oak-hickory forest. The impacts to habitat are expected to be temporary in nature and should not significantly affect mammal populations or habitats located within the project limits. A list of representative species for each habitat type is presented in Table 3.2-4.

Mammal species with significant recreational and commercial value that inhabit areas to be crossed by the proposed pipeline sections include white-tailed deer, black bear, eastern cottontail, and eastern gray squirrel. The significance of furbearer trapping for recreational and commercial purposes has declined with the passage of restrictive legislation governing the activity. However, species such as beaver, mink, muskrat, eastern coyote, and red fox are abundant and may provide for limited recreational trapping opportunities.

3.2.1.2.2 Birds

Central New York possesses a diversity of avian species that utilize the variety of landforms, habitats and vegetative communities within the state. According to the *New York State Breeding Bird Atlas* (NYSDEC 2005) at least 118 species of birds are known to use portions of Schoharie County as a breeding area, many of which are neo-tropical migrants. Many species utilize central New York as a wintering area and migrate to other portions of North America to breed in the spring, while other species complete their life cycles within the same area and are considered permanent residents.

The habitats within the project area provide important functions for avian species including breeding and nesting sites, wintering and escape cover as well as potential food sources in the form of berries, seeds and insects. Any impacts associated with the proposed project are expected to be temporary in nature and should not significantly affect resident or migratory populations located within the project limits. A list of representative species for each habitat type is presented in Table 3.2-5.

Several species of upland game birds and waterfowl provide recreational hunting opportunities within the project area. Roughed grouse, sora, Wilson's snipe, American woodcock, and wild turkey are hunted within upland areas, while a variety of waterfowl including Canada goose, mallard and wood ducks provide sporting opportunities within freshwater wetland areas located outside of the survey corridor.

3.2.1.2.3 Reptiles and Amphibians

According to the *New York State Amphibian and Reptile Atlas* (NYSDEC 1999) there is a total of 31 species of reptiles and amphibians are found within Schoharie County. These include eight species of salamanders, five species of freshwater turtles, nine species of frogs and toads, and nine species of snakes. The proposed project traverses several different habitat types including upland forests, and maintained natural gas pipeline rights-of-way, wetlands and waterbodies. While the upland forests and maintained right-of-way provides wintering and escape cover for reptiles and amphibians as well as potential food sources for these species, reptile and amphibian density is likely to be highest within and around the wetlands and waterbodies. Any impacts to reptile and amphibian habitat are expected to be temporary in nature and should not significantly affect resident populations located within the project limits. A list of representative species for each habitat type is presented in Tables 3.2-6. Due to the various habitat requirements of these animals, many of these species may be found in more than one habitat type.

TABLE 3.2-4
REPRESENTATIVE MAMMAL SPECIES FOR HABITAT TYPES
CROSSED BY THE WRIGHT LOOP SEGMENT

Habitat Type	Common Name	Scientific Name
Maintained Right-of-Way	Gray Squirrel	*Sciurus carolinensis*
	Red Fox	*Vulpes vulpes*
	White-tailed Deer	*Odocoileus virginianus*
	White-footed Mouse	*Peromyscus leucopus*
	Eastern Chipmunk	*Tamias striatus*
Agricultural Land	Eastern Mole	*Scalopus aquaticus*
	Woodchuck	*Marmota monax*
	House mouse	*Mus musculus*
	Red Fox	*Vulpes vulpes*
	Striped skunk	*Mephitis mephitis*
Oak-Hickory Forest	Woodland Jumping Mouse	*Napaeozapus insignis*
	White-tailed Deer	*Odocoileus virginianus*
	Red Fox	*Vulpes vulpes*
	Long-tail Weasel	*Mustela frenata*
	Little Brown Bat	*Myotis lucifugus*
Wetlands and Waterways	Water shrew	*Sorex palustris*
	Star-nosed mole	*Condylura cristata*
	Beaver	*Castor canadensis*
	Muskrat	*Ondatra zibethicus*
	Mink	*Mustela vison*

Source: American Society of Mammalogists 2005
Whitaker 1996

TABLE 3.2-5
REPRESENTATIVE BIRD SPECIES FOR HABITAT TYPES
CROSSED BY THE WRIGHT LOOP SEGMENT

Habitat Type	Common Name	Scientific Name
Maintained Right-of-Way	Field Sparrow	*Spizella pusilla*
	American Kestrel	*Falco sparverius*
	American Crow	*Corvus brachyrhynchos*
	House Sparrow	*Passer domesticus*
	Red-tailed Hawk	*Buteo jamaicensis*
	Brown-headed Cowbird	*Molothrus ater*
	Wild Turkey	*Meleagris gallopavo*
	Eastern Kingbird	*Tyrannus tyrannus*
	Black-throated Green Warbler	*Dendroica virens*
Agricultural Land	Killdeer	*Charadrius vociferus*
	Mourning dove	*Zenaida macroura*
	Northern Flicker	*Colaptes auratus*
	Common Grackle	*Quiscalus quiscula*
Oak-Hickory Forest	Brown Thrasher	*Toxostoma rufum*
	Ruffed Grouse	*Vermivora pinus*
	Wild Turkey	*Meleagris gallopavo*
	Pileated woodpecker	*Dryocopus auratus*
	Barred owl	*Strix varia*
	Great-Crested Flycatcher	*Myiarchus crinitus*
	Red-eyed Vireo	*Vireo olivaceus*
Wetlands and Waterways	Great Blue Heron	*Ardea herodias*
	Geen Heron	*Butorides virescens*
	Bank swallow	*Riperia riperia*

Source: NYSDEC 2005

TABLE 3.2-6
REPRESENTATIVE REPTILE AND AMPHIBIAN SPECIES
FOR HABITAT TYPES CROSSED
BY THE WRIGHT LOOP SEGMENT

Habitat Type	Common Name	Scientific Name
Maintained Right-of-Way	Northern Red-bellied Snake	*Storeria occipitomaculata*
	Eastern Garter Snake	*Thamnophis sirtalis*
	Red-backed Salamander	*Plethodon cinereus*
	Eastern Ribbon Snake	*Thamnophis sauritus*
	Snapping Turtle	*Cheldra serpentina*
	Eastern American Toad	*Bufo americanus*
Agricultural Land	Eastern American Toad	*Bufo americanus*
	Eastern Garter Snake	*Thamnophis sirtalis*
Oak-Hickory Forest	Jefferson Salamander	*Ambystoma jeffersonianum*
	Red-backed Salamander	*Plethodon cinereus*
	Eastern American Toad	*Bufo americanus*
	Wood Frog	*Rana sylvatica*
	Eastern Garter Snake	*Thamnophis sirtalis*
	Eastern Milk Snake	*Lampropeltis triangulum*
Wetlands and Waterways	Red-spotted Newt	*Notophthalmus viridescens*
	Northern Dusky Salamander	*Desmognathus fuscus*
	Northern Spring Salamander	*Gyrinophilus porphyriticus*
	Green Frog	*Rana clamitans*
	Wood Turtle	*Clemmys insculpta*

Source: NYSDEC 1999

3.2.1.2.4 Significant or Sensitive Species and Habitats

Consultation letters regarding significant or sensitive habitats were sent to the USFWS and NYNHP. The USFWS indicated that the only federally listed threatened or endangered species reported for Schoharie County is the bald eagle (*Haliaeetus leucocephalus*) and advised ENSR to correspond with NYNHP regarding known bald eagle nest locations within or around the survey corridor. The USFWS indicated that no other federally listed or proposed threatened or endangered species or designated critical habitats under federal jurisdiction are known to occur in the vicinity of the Wright Loop survey corridor (Niver 2007).

Correspondence from the NY Natural Heritage Program indicated that no state-listed animals, plants, significant natural communities, or other significant habitats have been identified in the vicinity of the Wright Loop survey corridor (Seone 2007). Copies of project correspondence are provided in Volume II - Appendix B.

3.2.1.3 Newtown Loop Segment

3.2.1.3.1 Mammals

Approximately 46 species of mammals have geographic ranges that include southwestern Connecticut. These species include 21 species of rodents, nine species of bats as well as larger

species such as white-tailed deer, eastern coyote, and bobcat (DeGraaf and Yamasaki 2001). Although the majority of the proposed alignment is located within existing maintained rights-of-way (See Table 8.1-1 of Resource Report 8), limited portions of the route also occur within forested communities. The impacts to habitat are expected to be temporary in nature and should not significantly affect mammal populations or habitats located within the project limits. A list of representative species for each habitat type is presented in Table 3.2-7.

Mammal species with significant recreational and commercial value that inhabit areas to be crossed by the proposed pipeline sections include white-tailed deer, eastern cottontail, and eastern gray squirrel. The significance of furbearer trapping for recreational and commercial purposes has declined with the passage of restrictive legislation governing the activity. However, species such as beaver, mink, muskrat, eastern coyote, and red fox are abundant and may provide for limited recreational trapping opportunities.

3.2.1.3.2 Birds

Southwestern Connecticut possesses a diversity of avian species that utilize the variety of landforms, habitats and vegetative communities within the state. According to *The Atlas of Breeding Bird of Connecticut* (1994) at least 140 species of birds are known to use Fairfield County as a breeding area, many of which are neo-tropical migrants. Many species utilize southwestern Connecticut as a wintering area and migrate to other portions of North America to breed in the spring, while other species complete their life cycles within the same area and are considered permanent residents.

The habitats within the project area provide important functions for avian species including breeding and nesting sites, wintering and escape cover as well as potential food sources in the form of berries, seeds and insects. Any impacts associated with the proposed project are expected to be temporary in nature and should not significantly affect resident or migratory populations located within the project limits. A list of representative species for each habitat type is presented in Table 3.2-8.

Several species of upland game birds and waterfowl provide recreational hunting opportunities within the project area. Roughed grouse, Sora, common snipe (*Gallingo gallinago*), American woodcock, Ring-necked pheasant (*Phasianus colchius*), northern bobwhite (*Colinus virginianus*) and wild turkey are hunted within upland areas, while a variety of waterfowl including Canada goose, mallard and wood ducks provide sporting opportunities within freshwater wetland areas located outside of the survey corridor.

3.2.1.3.3 Reptiles and Amphibians

A total of 33 species of reptiles and amphibians are found within Fairfield County. These include seven species of salamanders, seven species of freshwater turtles, nine species of frogs and toads and 10 species of snakes (Klemens 1993). The proposed pipeline loop segment alignment traverses several different habitat types including upland forests, maintained right-of-way, wetlands and water bodies. While the upland forests and maintained right-of-way provides wintering and escape cover for reptiles and amphibians as well as potential food sources for these species, reptile and amphibian density is likely to be highest within and around the wetlands and water bodies along the project alignment. Any impacts to reptile and amphibian habitat are expected to be temporary in nature and should not significantly affect resident or migratory populations located within the project limits. A list of representative species for each habitat type

is presented in Table 3.2-9. Due to the various habitat requirements of these animals, many of these species may be found in more than one habitat type.

TABLE 3.2-7
REPRESENTATIVE MAMMAL SPECIES FOR HABITAT TYPES
CROSSED BY THE NEWTOWN LOOP SEGMENT

Habitat Type	Common Name	Scientific Name
Maintained Right-of-Way	Gray Squirrel	*Sciurus carolinensis*
	Red Fox	*Vulpes vulpes*
	White-tailed Deer	*Odocoileus virginianus*
	White-footed Mouse	*Peromyscus leucopus*
	Eastern Chipmunk	*Tamias striatus*
Oak-Hickory Forest	Woodland Jumping Mouse	*Napaeozapus insignis*
	White-tailed Deer	*Odocoileus virginianus*
	Red Fox	*Vulpes vulpes*
	Long-tail Weasel	*Mustela frenata*
	Little Brown Bat	*Myotis lucifugus*
Wetlands and Waterways	Water shrew	*Sorex palustris*
	Beaver	*Castor canadensis*
	Muskrat	*Ondatra zibethicus*
	Mink	*Mustela vison*

Source: Whitaker 1996
DeGraaf and Yamasaki 2001

TABLE 3.2-8
REPRESENTATIVE BIRD SPECIES FOR HABITAT TYPES
CROSSED BY THE NEWTOWN LOOP SEGMENT

Habitat Type	Common Name	Scientific Name
Maintained Right-of-Way	Field Sparrow	*Spizella pusilla*
	American Kestrel	*Falco sparverius*
	American Crow	*Corvus brachyrhynchos*
	House Sparrow	*Passer domesticus*
	Red-tailed Hawk	*Buteo jamaicensis*
	Brown-headed Cowbird	*Molothrus ater*
	Wild Turkey	*Meleagris gallopavo*
	Eastern Kingbird	*Tyrannus tyrannus*
	Black-throated Green Warbler	*Dendroica virens*
Oak-Hickory Forest	Brown Thrasher	*Toxostoma rufum*
	Ruffed Grouse	*Vermivora pinus*
	Wild Turkey	*Meleagris gallopavo*
	Great Horned Owl	*Bubo virginianus*
	Great-Crested Flycatcher	*Myiarchus crinitus*
	Red-eyed Vireo	*Vireo olivaceus*
Wetlands and Waterways	Great Blue Heron	*Ardea herodias*
	Geen Heron	*Butorides virescens*
	Bank swallow	*Riperia riperia*

Source: Bevier 1994

TABLE 3.2-9
REPRESENTATIVE REPTILE AND AMPHIBIAN SPECIES
FOR HABITAT TYPES CROSSED
BY THE NEWTOWN LOOP SEGMENT

Habitat Type	Common Name	Scientific Name
Maintained Right-of-Way	Northern Black Racer	*Coluber constrictor*
	Eastern Garter Snake	*Thamnophis sirtalis*
	Red-backed Salamander	*Plethodon cinereus*
	Eastern Milk Snake	*Lampropeltis triangulum*
	Snapping Turtle	*Cheldra serpentina*
	Eastern American Toad	*Bufo americanus*
Oak-Hickory Forest	Eastern American Toad	*Bufo americanus*
	Eastern Garter Snake	*Thamnophis sirtalis*
	Red-backed Salamander	*Plethodon cinereus*
	Eastern American Toad	*Bufo americanus*
	Wood Frog	*Rana sylvatica*
	Black Rat Snake	*Elaphe obseleta*
	Eastern Milk Snake	*Lampropeltis triangulum*
Wetlands and Waterways	Red-spotted Newt	*Notophthalmus viridescens*
	Northern Dusky Salamander	*Desmognathus fuscus*
	Green Frog	*Rana clamitans*
	Spotted Turtle	*Rana clamitans*
	Wood Turtle	*Clemmys insculpta*

Source: Klemens 1993

3.2.1.3.4 Significant or Sensitive Species and Habitats

According to information received from USFWS, there are no known federally threatened or endangered species present along the Newtown Loop Pipeline alignment (Tur 2007). Consultation with the CTDEP NDDB (McKay 2007) indicates that the Newtown Loop alignment may be utilized by the Federal and State Endangered bald eagle and the Connecticut State Special Concern Species the Eastern box turtle (*Terrapene carolina carolina*).

Further consultation with the CTDEP Wildlife Division indicated that while bald eagles regularly over-winter along the shores of the Housatonic River, construction activities associated with the Newtown Loop segment were determined to be at a sufficient distance from the River to pose no adverse impact to bald eagle populations (Victoria 2007).

Eastern box turtles utilize a variety of habitats from old field and deciduous forest habitats, including power lines and logged woodlands, to small streams and ponds. Iroquois' existing mainline pipeline ROW and the area immediately adjacent to the ROW being considered for the Newtown Loop segment are characterized by all of the habitats listed previously. Additionally, the habit of the Eastern box turtle to hibernate in underground burrows from November to April makes this species particularly susceptible to inadvertent mortalities during land clearing and excavation activities conducted during the winter months. Further consultation with the CTDEP

Wildlife Division will be required, including providing information relative to proposed structures and construction timing, before CTDEP can make a final assessment as the potential impact of the proposed Newtown Loop Segment, including whether or not site specific surveys for Eastern box turtles will be required (Victoria 2007). Copies of project correspondence are provided in Volume II - Appendix B.

3.2.2 Aboveground Facilities

3.2.2.1 Milford Compressor Station

Section 3.2.2 provides a listing of typically occurring mammal, bird, reptile and amphibian species associated with the vegetative cover types located in the Milford, CT project site. The vegetative communities are more fully described in Section 3.3 of this resource report. While Iroquois has not conducted a detailed survey of wildlife present within the project area, the information presented below is based upon the habitat conditions and general species listings provided by the Connecticut State Geological and Natural History Survey Unit (1993 & 1994), Connecticut Ornithological Association (2007), DeGraaf and Yamasaki (2001; 1992), Reschke (1990), and others (Alden & Cassie 1998; Broker 2005; Hamilton & Whitaker 1979; National Geographic Society 1983; Whitaker 1996).

Existing terrestrial conditions were established through a combination of field reconnaissance and review of information provided by numerous internet and literature sources. The work areas within the proposed Milford Compressor Station site would occur within two main vegetative habitat cover types as described by Reschke (1990): successional old field habitat and successional shrubland. The project area also includes developed areas such as maintained lawn within the existing sales meter station site. The existing land use surrounding the project area includes idle forested lands as well as extensive development for residential subdivisions and industrial uses including the Milford Transfer Station and an active railroad bed.

3.2.2.1.1 Mammals

Approximately 100 species of mammals can be found in Connecticut including opossums, shrews and moles, bats, rabbits, rodents (squirrels, beavers, rats and mice, and porcupines), carnivores (coyotes, bears, raccoons, weasels and allies, skunks, and cats), and white-tailed deer (*Odocoileus virginianus*) (Broker 2005). Common mammals typically found within the successional old field habitat located on the Milford Compressor Site property are the eastern mole (*Scalopus aquaticus*), short-tailed shrew (*Blarina brevicauda*), white-footed mouse (*Peromyscus leucopus*), raccoon (*Procyon lotor*), gray fox (*Urocyon cinereoargenteus*), red fox (*Vulpes fulva*), Eastern coyote (*Canis latrans*) and white-tailed deer.

The common mammal species typically found within the successional shrubland habitat are similar to those of the old field habitat and include woodchuck (*Marmota monax*) and Eastern cottontail (*Sylvilagus floridanus*).

The majority of the proposed compressor station site is located within successional old field with the balance of the Project site occurring within successional shrubland habitat previously disturbed by the prior land use of the property. The impacts to habitat are expected to be temporary in nature and should not significantly affect mammal populations or habitats located within the project limits. A list of representative species for each habitat type is presented in Table 3.2-10.

Mammal species with significant recreational and commercial value that typically inhabit the cover types found on the Milford Compressor Station property include the white-tailed deer and eastern cottontail. The significance of furbearer trapping for recreational and commercial purposes has declined with the passage of restrictive legislation governing the activity. Species such red fox are abundant and may provide for limited recreational trapping opportunities, however, given the industrialized and developed character of the area surrounding the Project location, potential use of the land for hunting or trapping purposes is highly unlikely.

TABLE 3.2-10
REPRESENTATIVE MAMMAL SPECIES FOR HABITAT TYPES
ON THE MILFORD COMPRESSOR STATION SITE

Habitat Type	Common Name	Scientific Name
Successional Old Field	Eastern Mole	*Scalopus aquaticus*
	Meadow Jumping Mouse	*Zapus hudsonius*
	Little Brown Bat	*Myotis lucifugus*
	Meadow Vole	*Microtus pennsylvanicus*
	Red Fox	*Vulpes vulpes*
	White-tailed Deer	*Odocoileus virginianus*
	White-footed Mouse	*Peromyscus leucopus*
	Northern Short-tailed Shrew	*Blarina brevicauda*
	Raccoon	*Procyon lotor*
	Eastern Coyote	*Canis latrans*
	Eastern Cottontail	*Sylvilagus floridanus*
Successional Shrubland	Woodchuck	*Marmota monax*
	Little Brown Myotis	*Myotis lucifugus*
	Meadow Vole	*Microtus pennsylvanicus*
	Raccoon	*Procyon lotor*
	Striped Skunk	*Mephitis mephitis*
	Red Fox	*Vulpes vulpes*
	Eastern Coyote	*Canis latrans*
	White-tailed Deer	*Odocoileus virginianus*
	White-footed Mouse	*Peromyscus leucopus*
	Northern Short-tailed Shrew	*Blarina brevicauda*
	Meadow Jumping Mouse	*Zapus hudsonius*

Source: DeGraaf and Yamasaki 2000

3.2.2.1.2 Birds

According to the Connecticut Ornithological Association (2006), there are over 414 species of birds that utilize the variety of landforms, habitats and vegetative communities within Connecticut. Many of these species only utilize habitats in Connecticut for specific timeframes throughout the year during migratory, breeding, nesting or foraging behavioral activities. *The Atlas of Breeding Birds of Connecticut* (2004) confirmed 173 species breeding in the state.

The habitats within the project area provide limited functions for avian species including breeding and nesting sites, wintering and escape cover as well as potential food sources in the form of berries, seeds and insects. Any impacts associated with the proposed project are expected to be temporary in nature and should not significantly affect resident or migratory species that utilize the site. A list of representative species for each habitat type is presented in Table 3.2-11.

Several species of upland game birds and waterfowl provide recreational hunting opportunities within the State of Connecticut. Ring-necked pheasant (*Phasianus colchicus*), northern bobwhite (*Colinus virginianus*) and wild turkey (*Meleagris gallopavo*) are hunted within upland areas, while a variety of waterfowl including mallard (*Anas platyrhynchos*), American black duck (*Anas rubripes*), green-winged teal (*Anas crecca*), and wood ducks (*Aix sponsa*) provide sporting opportunities within freshwater wetland areas. Construction of the Milford Compressor Station is not anticipated to impact any valuable species relative to hunting opportunities as there are no wetland areas within the Project property boundaries and, while limited suitable habitat exists on-site for upland game birds, the location of the Project site within an industrial area precludes the presence of a significant population of upland game species.

TABLE 3.2-11
REPRESENTATIVE BIRD SPECIES FOR HABITAT TYPES
ON THE MILFORD COMPRESSOR STATION SITE

Habitat Type	Common Name	Scientific Name
Successional Old Field	White-throated Sparrow	*Zonotrichia albicollis*
	House Sparrow	*Passer domesticus*
	Gray Catbird	*Dumetella carolinensis*
	Brown Thrasher	*Toxostoma rufum*
	House Wren	*Troglodytes aedon*
	Mourning Dove	*Zenaida macroura*
	Yellow Warbler	*Dendroica petechia*
	American Crow	*Corvus brachyrhynchos*
	Brown-headed Cowbird	*Molothrus ater*
	Northern Mockingbird	*Mimus polyglottus*
	Eastern Kingbird	*Tyrannus tyrannus*
	European Starling	*Sturnus vulgaris*
	Tufted Titmouse	*Parus bicolor*
	Blue Jay	*Cyanocitta cristata*
	Black-capped Chickadee	*Parus atricapillus*
	Common Grackle	*Quiscalus quiscula*
	Northern Cardinal	*Cardinalis cardinalis*
Successional Shrubland	Song Sparrow	*Melospiza melodia*
	American Robin	*Turdus migratorius*
	Gray Catbird	*Dumetella carolinensis*
	American Goldfinch	*Carduelis tristis*
	Common Yellowthroat	*Geothlypis trichas*
	Yellow Warbler	*Dendroica petechia*
	Rufous-sided Towhee	*Pipilo erthrophthalmus*
	American Crow	*Corvus brachyrhynchos*
	Tufted Titmouse	*Parus bicolor*
	Blue Jay	*Cyanocitta cristata*
	Black-capped Chickadee	*Parus atricapillus*
	Common Grackle	*Quiscalus quiscula*
	Cedar Waxwing	*Bombycilla cedrorum*
	Common Yellowthroat	*Geothlypis trichas*
	European Starling	*Sturnus vulgaris*

Source: Bevier 1994

3.2.2.1.3 Reptiles and Amphibians

Connecticut's terrestrial and freshwater herpetofauna is composed of 45 species: 12 salamanders, 10 frogs, eight turtles, one lizard, and 14 snakes. In addition, several species of pelagic marine turtles have been reported from the Connecticut portions of Long Island Sound. Of the 45 freshwater and terrestrial amphibians and reptiles, 18 species (40%) are commonly found throughout Connecticut (Klemens, 1993).

As explained by Klemens (1993), the distribution and presence of amphibians and reptiles is affected by multiple factors including:

- The presence of appropriate habitat;
- Past and present land use;
- Topographic elevation; and
- Dispersal capabilities and biogeographical considerations.

Unless appropriate habitat is present in a particular location, the species will not be found. Additionally, many reptiles and amphibians have narrow ecological requirements, and what may appear as suitable habitat for a particular species may not be inhabited due to other habitat deficiencies (temperature, dissolved oxygen, etc.). Similarly, current and former land use can affect species distribution. Changing land uses may have altered species distribution as the change in land use altered the habitat characteristics, making the area more or less suitable for the species. The exact role of elevation in the distribution of certain reptile and amphibian species is not entirely known at this time, however Klemens (1993) states that elevation can be an important factor in species distribution and suggests that species distribution in southern New England may be similarly affected. Lastly, the distribution of reptiles and amphibians in New England is affected by the dispersal ability of a species and the bio-geographical characteristics of suitable dispersal routes.

Reptile and amphibian density is likely to be low due to the lack of wetlands and waterbodies on the Project site. The absence of any wetland or other aquatic habitats on the Milford Compressor Station property limits the suitability of the site for certain animal classes dependent upon aquatic habitats for breeding and foraging, specifically amphibians, while certain species of other classes (e.g. reptiles) are exclusively dependent upon aquatic environments to provide suitable habitat for foraging and overwintering behaviors. Any impacts to reptile and amphibian habitat are expected to be temporary in nature and should not significantly affect resident or migratory populations located within the project limits. A list of representative species for each habitat type is presented in Table 3.2-12.

TABLE 3.2-12
REPRESENTATIVE REPTILE AND AMPHIBIAN SPECIES
FOR HABITAT TYPES ON THE MILFORD COMPRESSOR STATION SITE

Habitat Type	Common Name	Scientific Name
Successional Old Field	Northern Brown Snake	*Storeria dekayi dekayi*
	Eastern Garter Snake	*Thamnophis sirtalis*
	Smooth Green Snake	*Opheodrys vernalis*
	Eastern Milk Snake	*Lampropeltus triangulum*
	Northern Ringneck Snake	*Diadophis punctatus edwardsii*
	Northern Black Racer	*Coluber constrictor*
	Red-backed Salamander	*Plethodon cinereus*
	Eastern Ribbon Snake	*Thamnophis sauritus*
	American Toad	*Bufo americanus americanus*
Successional Shrubland	Eastern Garter Snake	*Thamnophis sirtalis*
	Northern Black Racer	*Coluber constrictor*
	Smooth Green Snake	*Opheodrys vernalis*
	Red-backed Salamander	*Plethodon cinereus*
	American Toad	*Bufo americanus americanus*
	Eastern Milk Snake	*Lampropeltus triangulum*
	Northern Brown Snake	*Storeria dekayi dekayi*

Source: Klemens 1993

3.2.2.2 Brookfield Compressor Station

3.2.2.2.1 Mammals

Approximately 100 species of mammals can be found in Connecticut including opossums, shrews and moles, bats, rabbits, rodents, carnivores (coyotes, bears, raccoons, weasels and allies, skunks, and cats), and artiodactyls (deer) (Broker 2005). The proposed compressor station modifications will be located within a portion of the property that has been previously disturbed and is within the approved boundaries of the Brookfield Compressor Station. The impacts to habitat are expected to be negligible and should not significantly affect mammal populations or habitats located within the project limits. A list of representative species for each habitat type is presented in Table 3.2-13.

TABLE 3.2-13
REPRESENTATIVE MAMMAL SPECIES FOR HABITAT TYPES
ON THE BROOKFIELD COMPRESSOR STATION SITE

Habitat Type	Common Name	Scientific Name
Successional Old Field / Shrubland	Eastern Mole	*Scalopus aquaticus*
	Meadow Jumping Mouse	*Zapus hudsonius*
	Little Brown Myotis	*Myotis lucifugus*
	Meadow Vole	*Microtus pennsylvanicus*
	White-tailed Deer	*Odocoileus virginianus*
	White-footed Mouse	*Peromyscus leucopus*
	Raccoon	*Procyon lotor*
	Eastern Coyote	*Canis latrans*

Source: DeGraaf and Yamasaki 2000

3.2.2.2.2 Birds

According to the Connecticut Ornithological Association (2006), there are over 414 species of birds that utilize the variety of landforms, habitats and vegetative communities within Connecticut. Many of these species only utilize habitats in Connecticut for specific timeframes throughout the year during migratory, breeding, nesting, or foraging behavioral activities. *The Atlas of Breeding Birds of Connecticut* (1994) confirmed 173 species breeding in the state.

The habitats within the project area provide limited functions for avian species including breeding and nesting sites, wintering and escape cover as well as potential food sources in the form of berries, seeds and insects. Any impacts associated with the proposed project are expected to be temporary in nature and should not significantly affect resident or migratory populations located within the project limits. A list of representative species for the habitat types present within the vicinity of the compressor station modifications is presented in Table 3.2-14.

TABLE 3.2-14
REPRESENTATIVE BIRD SPECIES FOR HABITAT TYPES
ON THE BROOKFIELD COMPRESSOR STATION SITE

Habitat Type	Common Name	Scientific Name
Successional Old Field / Shrubland	White-throated Sparrow	*Zonotrichia albicollis*
	House Sparrow	*Passer domesticus*
	Gray Catbird	*Dumetella carolinensis*
	Brown Thrasher	*Toxostoma rufum*
	Mourning Dove	*Zenaida macroura*
	Yellow Warbler	*Dendroica petechia*
	Brown-headed Cowbird	*Molothrus ater*
	Northern Mockingbird	*Mimus polyglottus*
	Eastern Kingbird	*Tyrannus tyrannus*
	European Starling	*Sturnus vulgaris*
	Tufted Titmouse	*Parus bicolor*
	Blue Jay	*Cyanocitta cristata*
	Black-capped Chickadee	*Parus atricapillus*
	Common Grackle	*Quiscalus quiscula*
	Northern Cardinal	*Cardinalis cardinalis*
	Song Sparrow	*Melospiza melodia*
	American Robin	*Turdus migratorius*

Source: Bevier 1994

3.2.2.2.3 Reptiles and Amphibians

Connecticut's terrestrial and freshwater herpetofauna is composed of 45 species: 12 salamanders, 10 frogs, eight turtles, one lizard, and 14 snakes. In addition, several species of pelagic marine turtles have been reported from the Connecticut portions of Long Island Sound. Of the 45 freshwater and terrestrial amphibians and reptiles, 18 species (40%) are commonly found throughout Connecticut (Klemens, 1993).

As explained by Klemens (1993), the distribution and presence of amphibians and reptiles is affected by multiple factors including:

- The presence of appropriate habitat;
- Past and present land use;
- Topographic elevation; and
- Dispersal capabilities and biogeographical considerations.

Unless appropriate habitat is present in a particular location, the species will not be found. Additionally, many reptiles and amphibians have narrow ecological requirements, and what may appear as suitable habitat will not be inhabited by a particular species due to other habitat deficiencies (temperature, dissolved oxygen, etc.). Similarly, current and former land use can affect species distribution.

Changing land uses may have altered species distribution as the change in land use altered the habitat characteristics, making the area more or less suitable for the species. Lastly, the distribution of reptiles and amphibians in New England is certainly affected by the species ability to disperse and the biogeographical characteristics of suitable dispersal routes.

Reptile and amphibian density is likely to be low within the area of the compressor station modifications due to the lack of suitable habitat. Any impacts to reptile and amphibian habitat are expected to be temporary in nature and should not significantly affect resident or migratory populations located within the project limits. A list of representative species for the property is presented in Tables 3.2-15.

TABLE 3.2-15
REPRESENTATIVE REPTILE AND AMPHIBIAN SPECIES
FOR HABITAT TYPES ON THE MILFORD COMPRESSOR STATION SITE

Habitat Type	Common Name	Scientific Name
Successional Old Field	Eastern Garter Snake	*Thamnophis sirtalis sirtalis*
	Smooth Green Snake	*Opheodrys vernalis*
	Northern Ringneck Snake	*Diadophis punctatus edwardsii*
	Red-backed Salamander	*Plethodon cinereus*
	Eastern Ribbon Snake	*Thamnophis sauritus*
	American Toad	*Bufo americanus americanus*

Source: Klemens 1993

3.2.3 Construction and Operation Impacts

3.2.3.1 Pipeline Facilities

Long-term impacts to wildlife habitat due to construction and operation of the proposed project are expected to be limited to minor clearing of upland forests required for temporary workspace. Although limited along the pipeline alignment, the only proposed long term alterations in wildlife habitat would occur from the maintenance of the operational ROW that would permanently convert upland forest habitat to successional old field habitat. Any areas cleared for required temporary workspace and pipeline construction should quickly regenerate and provide additional scrub/shrub and old-field habitat. Areas of early successional habitat that are impacted by construction will be re-vegetated upon completion of construction in accordance with the FERC Plan and Procedures. Forest habitat within the temporary ROW and additional temporary workspace areas would be allowed to revert back to pre-construction conditions and associated wildlife habitat conditions, which may take a number of years depending on site conditions.

The wildlife populations that utilize the project areas should not experience any permanent adverse affects as a result of the proposed Project. While temporary impacts upon food, cover and water sources may occur, none of the species located within the project area is specialized in such a way that construction of the pipeline will inhibit the overall fitness or reproductive output of the populations as a whole.

Most species are not dependent on the right-of-way or transitional areas to provide all of their habitat requirements. Many of the mammal, bird, reptile, and amphibian species are adaptive to changing habitat conditions and possess the capability to expand or shift their home ranges to find alternative sources of food, water and shelter until the right-of-way habitats become reestablished (DeGraaf, et. al., 1992).

Iroquois and their contractors will strive to minimize impacts to wildlife by expediting construction and utilizing the existing Mainline ROW to the greatest extent practicable. Additionally, construction may be scheduled to occur outside of breeding seasons of identified sensitive species as required by NYNHP or CT NDDB. Conversion of forest and scrub-shrub habitats is anticipated to be minimized through restriction of the ROW to the narrowest width practical given the local conditions. The effects associated with the creation of additional edge habitat, both positive and negative, on wildlife should be localized based of the linear nature of the project, co-location within existing maintained rights-of-way and the expansive undeveloped forestland adjacent to much of the project area. Restoration is anticipated to occur immediately after construction has been completed, and the areas of impact will be monitored until final site stabilization is achieved. During construction and restoration activities associated with the Project, Iroquois plans to adhere to the provisions of the FERC Plan and Procedures (See Volume II - Appendix C) to ensure that vegetative cover is successfully re-established in all disturbed areas.

3.2.3.2 Aboveground Facilities

3.2.3.2.1 Milford Compressor Station

The majority of the Project area is sited within previously disturbed, early-successional habitats. Iroquois and their contractors will strive to minimize impacts to wildlife by expediting construction to the greatest extent possible. Smaller and less mobile animals may be temporarily impacted during clearing and grading activities, while larger species such as rabbits, deer and raccoons would move away from the disturbed area and return once restoration is complete. These larger animals may be permanently displaced from the developed portions of the site but would likely continue to use the remainder of the site in a manner consistent with existing use patterns. Restoration will occur immediately after construction has been completed, and the areas of impact will be monitored until final site stabilization is achieved. During construction and restoration activities, Iroquois will adhere to the provisions of the FERC Plan and Procedures (2003) to ensure that vegetative cover and associated wildlife habitat conditions are re-established in temporary workspace areas.

3.2.3.2.2 Brookfield Compressor Station Modifications

The proposed Brookfield Compressor Station modifications will not impact or be located within the immediate vicinity of any waterbody. To ensure that no off-site resources are impacted as a result of construction of the Brookfield Compressor Station modifications, Iroquois will implement appropriate erosion controls and stormwater management practices in accordance with the FERC Plan and Procedures (2003). These steps are intended to ensure that fishery resources supported in any off-site waterways are not affected by the proposed construction activities. Therefore, Iroquois does not anticipate any impacts to fisheries associated with construction or operation of the modifications.

3.3 VEGETATION

This section identifies and discusses the major vegetation cover types crossed by the pipeline loop segments and the proposed Milford Compressor Station. Existing terrestrial conditions were established through review of existing aerial photography and GIS data as well as through the field surveys.

3.3.1 Pipeline Facilities

3.3.1.1 Boonville Loop Segment

The Boonville Loop Segment is located within the spruce flats ecological community type as defined by Reschke (1990). This ecozone is characterized by moist sites along the borders of swamps and in low flats along lakes and streams in the Adirondack Mountains.

Together with human disturbances, these conditions generally dictate the vegetative communities found in the study area. The study area contains, but may not be limited to, the following vegetative communities: mowed roadside; mowed lawn/mowed lawn with trees; pastureland; successional old field/shrubland (includes maintained natural gas pipeline right-of-way); and spruce forest.

3.3.1.1.1 Cover Type Descriptions

Maintained Right-of-Way

Vegetative communities within the existing pipeline right-of-way are subject to periodic vegetation management practices. A variety of habitat types occur within the right-of-way including grassy upland meadows and mixed plant communities comprised of common herbaceous ground covers, forbs, and low shrubs were typically present in the transmission line corridors. Plant communities encountered in the corridor were classified as terrestrial cultural communities according to Reschke (1990). Common to abundant grass species recorded in the field surveys include redtop (*Agrostis gigantea = A.alba*), orchard grass (*Dactylis glomerata*), sweet vernal grass (*Anthoxanthum odoratum*), meadow-fescue (*Festuca pratensis = F. elatior*), velvet-grass (*Holcus lanatus*), little bluestem grass (*Schizachyrium scoparium*), and bluegrass (*Poa* sp.). Common associate grass species include perennial rye-grass (*Lolium perenne*), deer-tongue grass (*Dichanthelium clandestinum*), and several smaller panic-grasses (*Dichanthelium acuminatum, Dichanthelium depauperatum, and Dichanthelium* sp.).

Woody shrubs recorded commonly in the right-of-way include speckled alder (*Alnus incana*), highbush blueberry (*Vaccinium corymbosum*), winged sumac (*Rhus copallinum*), silky dogwood (*Cornus amomum*), bush honeysuckle (*Lonicera morrowii*), black raspberry (*Rubus occidentalis*), alleghany black raspberry (*Rubus alleghansies*), viburnum (*Viburnum sp.*), black huckleberry (*Gaylussacia baccata*), and willow (*Salix sp.*). Aggressive weed species common to waste places and disturbed sites were common to abundant along sections of the pipeline corridor. Non-native species such as vetch (*Vicia* sp.), reed canary-grass (*Phalaris arudinacea*) and common reed (*Phragmites australis*) were observed but were not considered abundant. Oriental bittersweet (*Celastrus orbiculata*) vines were common to occasional species.

Native forbs included such species as wild carrot (*Daucus carota*), New England aster (*Symphyotrichum novae-angliae*), common milkweed (*Ascelepias syriaca*), soft rush (*Juncus effusus*), grass leaved goldenrod (*Euthamia graminifolia*), and common boneset (*Eupatorium perfoliatum*).

Maintained Road Shoulders

Mowed areas along the road shoulders were dominated by grasses, forbs and herbaceous species able to tolerate the mowing regimes used to maintain the road shoulders. Native and introduced grasses recorded in the transmission line corridors were also common in the vegetative community established along the road shoulders. Areas subject to less frequent mowing regimes tended to support a variety of shrubs and saplings.

Spruce Forest

Spruce forest habitat occurs commonly on moist sites along the borders of swamps and in low flats along lakes and streams in the Adirondack Mountains. Common to dominant tree species recorded in the forest habitat include red spruce (*Picea rubens*), black spruce (*Picea mariana*), yellow birch (*Betula alleghansies*), black cherry (*Prunus serotina*), and hemlock (*Tsuga canadensis*). Associate tree species recorded frequently included red maple (*Acer rubrum*) and American beech (*Fagus grandifolia*).

The shrublayer is generally sparse and includes Labrador tea (*Ledum groenlandicum*), sheep laurel (*Kalmia angustifolia*) and lowbush blueberry (*Vaccinium angustifolium*). Characteristic herbaceous species and low ground covers observed in the spruce forest were creeping snowberry (*Gaultheria hispidula*), goldthread (*Coptis trifolia*), dewdrop (*Dalibarda ripens*), bunchberry (*Cornus canadensis*) and Canada mayflower (*Maianthemum canadense*).

Spruce-Fir Swamp

This ecological community is comprised of a conifer swamp often found in drainage basins occasionally flooded by beaver activity. Common to dominant tree species recorded in the forest habitat include red spruce and balsam fir (*Abies balsamea*). The shrub layer is generally sparse and includes green alder (*Alnus viridus*), mountain ash (*Sorbus americana*) and wild raisin (*Viburnum cassinoides*). Characteristic herbaceous species and low ground covers observed in the spruce forest were cinnamon fern (*Osmunda cinnamomea*), goldthread and wood sorrel (*Oxalis acetosa*).

Pastureland

Pastureland is composed of agricultural land permanently maintained (or recently abandoned) as a pasture area for livestock. This community includes hayfields that are rotated to pasture.

3.3.1.1.2 Communities of Special Concern

Communities of special concern include sensitive or protected vegetation types, natural areas and unique plant communities. Iroquois has requested and obtained information regarding unique communities from the NYNHP as well as USFWS. The NYNHP did not identify any sensitive ecological communities in the general project area. The NYNHP reported that Schweinitz' sedge, a State-listed threatened species, occurs within the existing ROW (Seoane 2007). The USFWS correspondence indicated that no federally-designated sensitive habitats or wilderness areas are located within or adjacent to the project facilities (Niver 2007). Copies of project correspondence are provided in Volume II - Appendix B.

3.3.1.2 Wright Loop Segment

The Wright Loop Segment survey area is located in cropland, pastureland and Appalachian oak-hickory forest as defined by Reschke (1990). This ecozone is characterized by well-drained upland forested sites and large areas of human disturbances that generally dictate the vegetative communities found in the study area. The study area contains, but may not be limited to, the following vegetative communities: mowed roadside; mowed lawn/mowed lawn with trees; cropland; pastureland; successional old field/shrubland (includes maintained right-of-way) and; Appalachian oak-hickory forest.

3.3.1.2.1 Cover Type Descriptions

Maintained Right-of-Way

Vegetative communities within the existing pipeline right-of-way are subject to periodic vegetation management practices passage over the service roads. A variety of habitat types occur within the right-of-way including grassy upland meadows and mixed plant communities comprised of common herbaceous ground covers, forbs and low shrubs were typically present in the pipeline easements. Plant communities encountered in the corridor were classified as terrestrial cultural communities according to Reschke (1990). Non-native agricultural grasses are dominant to frequent members of the grass meadow community encountered in the corridor, with occasional populations of native grass species. Common to abundant grass species recorded in the field surveys include redtop, orchard grass, sweet vernal grass, meadow-fescue, velvet-grass, little bluestem grass, and bluegrass. Common associate grass species include perennial rye-grass, deer-tongue grass, and several smaller panic-grasses.

Woody shrubs recorded commonly in the right-of-way include speckled alder, highbush blueberry, winged sumac, silky dogwood, bush honeysuckle, black raspberry, Alleghany black raspberry, viburnum, black huckleberry, and willow. Aggressive weed species common to waste places and disturbed sites were common to abundant along sections of the corridor. Non-native species such as vetch, reed canary-grass (*Phalaris arudinacea*) and common reed (*Phragmites australis*) were observed but were not considered abundant. Oriental bittersweet vines were common to occasional species in the right-of-way. Native forbs included such species as wild carrot, New England aster, common milkweed, soft rush, grass leaved goldenrod and common boneset.

Maintained Road Shoulders

Mowed areas along the road shoulders were dominated by grasses, forbs, and herbaceous species able to tolerate the mowing regimes used to maintain the road shoulders. Native and introduced grasses recorded in the transmission line corridors were also common in the vegetative community established along the road shoulders. Areas subject to less frequent mowing regimes tended to support a variety of shrubs and saplings. Several areas along the surveyed pipeline corridor supported planted ornamental shrubs, including ornamental viburnums (*Viburnum* spp.), blackberry (*Rubus occidentalis*) and bush honeysuckle (*Lonicera* spp.).

Cropland

During field surveys of the Project study corridor, ENSR identified areas of open agricultural field; however due to the time of year during which surveys were conducted and recent management activity on the land, ENSR was unable to determine what species of crops were commonly cultivated within the fields.

Pastureland

Agricultural land permanently maintained (or recently abandoned) as a pasture area for livestock. This community includes hayfields that are rotated to pasture.

Appalachian Oak-Hickory forest

Appalachian oak-hickory forest is comprised of hardwood forest occurring on well drained sites, usually on ridge tops, upper slopes or south and west facing slopes. Common to dominant tree species recorded in the forest habitat include red oak (*Quercus rubra*), black oak (*Quercus veluntina*), white oak (*Quercus alba*), pignut hickory (*Carya glabra*), shagbark hickory (*Carya ovata*), and sweet pignut (*Carya ovalis*). Associate tree species recorded frequently included red maple, white ash (*Fraxinus americana*) and hop hornbeam (*Ostrya virginiana*).

The shrub layer is includes flowering dogwood (*Cornus florida*), witch hazel (*Hamamelis virginiana*) shadbush (*Amelanchier arborea*), choke cherry (*Prunus virginaina*), lowbush blueberry, maple leaf viburnum, gray dogwood and beaked hazelnut. Characteristic herbaceous species and low ground covers observed in the spruce forest were sarsaparilla (*Aralia nudicaulis*), Pennsylvania sedge (*Carex pennsylvania*), tick trefoil (*Desmodium glutinosum*), rattlesnake root (*Prenanthes alba*) and white goldenrod (*Soldago bicolor*).

3.3.1.2.2 Communities of Special Concern

Communities of special concern include sensitive or protected vegetation types, natural areas and unique plant communities. Iroquois has requested and obtained information regarding unique communities from the NYNHP as well as USFWS. The NYNHP did not identify any sensitive ecological community in the general project area and has further stated that no significant vegetative communities are located within 300 feet of the pipeline alignment (Seoane 2007). The USFWS correspondence indicated that no federally-designated sensitive habitats or wilderness areas are located within or adjacent to the project facilities (Niver 2007). Copies of project correspondence are provided in Volume II - Appendix B.

3.3.1.3 Newtown Loop Segment

According to Alden and Cassie (1998), the study area is located in oak-hickory forest. This ecozone is characterized by well drained forested sites and areas of human disturbances. The vegetative communities found in the study area are generally dictated by their level of human disturbance. The study area contains, but may not be limited to, the following vegetative communities: successional old field/shrubland (includes maintained pipeline right-of-way) and oak-hickory forest.

3.3.1.3.1 Cover Type Descriptions

Maintained Right-of-Way

Vegetative communities within the pipeline right-of-way are subject to periodic vegetation management practices, and a variety of habitat types occur within the right-of-way including grassy upland meadows, wetlands and mixed plant communities comprised of common herbaceous ground covers, forbs, and low shrubs. Non-native agricultural grasses are dominant to frequent members of the grass meadow community encountered in the transmission line corridors with occasional populations of native grass species.

Common to abundant grass species recorded in the field surveys include orchard grass, sweet vernal grass, meadow-fescue, velvet-grass, little bluestem grass, and bluegrass. Common associate grass species include perennial rye-grass, deer-tongue grass, and several smaller panic-grasses.

Woody shrubs recorded commonly in the transmission line corridor include sweet fern (*Comptonia perigrina*), multiflora rose (*Rosa multiflora*), steeplebush (*Spirea tomentosa*), highbush blueberry, willow, elderberry (*Sambucus canadensis*), sweet pepperbush (*Clethra alnifolia*) and winterberry (*Ilex verticillata*). Aggressive weed species common to waste places and disturbed sites were common to abundant along sections of the transmission line corridor. Non-native species such as vetch, purple loosestrife (*Lythrum salicaria*) and common reed were observed but were not considered abundant.

Native forbs included such species as hay-scented fern (*Dennstaedtia punctilobula*), wild carrot, New England aster, common milkweed (*Ascelepias syriaca*), sensitive fern, soft rush (*Juncus effusus*), grass leaved goldenrod (*Euthamia graminifolia*), and common boneset.

Oak-Hickory Forest

The Oak-Hickory Forest community is comprised of hardwood forest occurring on well drained sites, usually on ridge tops, upper slopes, or south and west facing slopes. Common to dominant tree species recorded in the forest habitat include red oak, black oak, white oak, pignut hickory, shagbark hickory. Associate tree species recorded frequently included red maple, white ash, sassafras and hop hornbeam. The shrub layer is includes flowering dogwood, witch hazel, shadbush, choke cherry, lowbush blueberry and black huckleberry. Characteristic herbaceous species and low ground covers observed in the forest were sarsaparilla, Pennsylvania sedge, tick trefoil, rattlesnake root and white goldenrod.

Vegetated Wetland

The survey corridor contains areas of palustrine emergent and palustrine scrub-shrub vegetated wetlands. Common to dominant tree species recorded in the forest habitat include red maple, elderberry and willow. The shrub layer includes highbush blueberry, winterberry, sweet pepperbush and steeplebush. Characteristic herbaceous species and low ground covers observed in the wetlands were sensitive fern, soft rush, cattail (*Typha latifolia*), and sedges (*Carex sp*.).

3.3.1.3.2 Communities of Special Concern

According to information received from the USFWS, there are no known federally threatened or endangered plant species or communities of special concern present along the Newtown Loop Segment alignment (Tur 2007). The CTDEP Natural Diversity Database ("NDDB") has been contacted regarding the presence of State-listed threatened or endangered plant species and/or communities of special concern within the Newtown Loop segment; however no response has been received to date. Copies of project correspondence are provided in Volume II - Appendix B.

3.3.2 Aboveground Facilities

3.3.2.1 Milford Compressor Station

The proposed Milford Compressor Station will be located within a parcel of land approximately 4.8 acres in size and currently owned by Iroquois. The existing Milford Sales Meter Station is located on-site and occupies approximately 0.75 acres of the total area. The balance of the project site (approximately 4.05 acres) consists of successional old field and succession shrubland

habitats, located outside of the meter station fencing and on an adjacent 0.9-acre parcel along New Oronoque Road that Iroquois proposes to lease for additional temporary workspace (Reschke 1990). A description of the successional old field and successional shrubland habitats is provided below.

3.3.2.1.1 Cover Type Descriptions

Successional Old Field

Reschke (1990) defines the successional old field community as meadows dominated by forbs and grasses that occur on sites that have been cleared and plowed for farming and development. This is a relatively short-lived community that transitions to a shrubland, woodland or forest community. This vegetative community in the project area includes Queen Anne's lace (*Daucus carota*), bedstraw (*Galium borele*), ragweed (*Ambrosia artemisiifolia*), pokeweed (*Phytolacca americana*), and fox tail (*Setaria glauca*). Shrubs and saplings, which comprise less than 50 percent of this community include Russian olive (*Elaeagnus commutata*), red cedar (*Juniperus virginiana*), staghorn sumac (*Rhus typhina*), black cherry (*Prunus serotina*) and multiflora rose (*Rosa multiflora*).

Successional Shrubland

This vegetation community consists on site that have been cleared or otherwise disturbed during past activities within the site. Often times, this community is found on sites previously occupied by the successional old field community (Reschke 1990). Vegetation in the portions of the Project site characterized as successional shrubland includes many of the same species listed for the old field habitat; however shrubs and saplings comprise more than 50 percent cover within this community type.

3.3.2.1.2 Communities of Special Concern

No significant or unique habitats exist on or near the proposed Milford Compressor Station site (Tur 2007). Significant habitats include areas designated by Federal, state, county, and local governments as valuable to fisheries, wildlife, and scientific research. No such communities were identified during ENSR's field surveys or during previous FERC proceedings.

ENSR has initiated consultation with both the USFWS and the CT NDDB regarding the potential presence of State and/or federally-listed threatened and endangered species within the Project site. Response correspondence from USFWS indicated that there are no federally-listed rare species or significant natural communities in the Project area (Tur 2007). No response correspondence from CT NDDB has been received to date. A copy of all correspondence is provided in Volume II – Appendix B.

3.3.2.2 Brookfield Compressor Station

A majority of the project area has been previously cleared for its use in cement mixing operations, asphalt manufacturing and sand and gravel operations and, as a result, the vegetative communities are in successional stages. Much of these disturbed areas have been colonized by a number of invasive species such as autumn olive (*Elaeagnus umbellata*), black locust (*Robinia psuedoacacia*), bittersweet (*Celastrus* spp.), multiflora rose (*Rosa multiflora*), and common reed (*Phragmites australis*). The site currently supports extremely dense thickets of autumn olive. Mature hardwood forest covers the steep hillsides located east of High Meadow Road, outside of the project area.

3.3.2.2.1 Cover Type Descriptions

Successional Old Field

Successional old field and shrubland habitat cover types are generally interspersed on the site and collectively account for approximately 1.2 acres (16.4 percent) of the project site. Successional old field habitat is a relatively short-lived community that succeeds to a shrubland, woodland, or forest community. Successional old field is dominated by forbs and grasses on sites that have been cleared and plowed for farming and development (Reschke 1990). Typical old field vegetation species at the site include Queen Anne's lace (*Daucus carota*), white clover (*Trifolium repens*), wild strawberry (*Fragaria virginiana*), bedstraw (*Galium borele*), ragweed (*Ambrosia artemisiifolia*) goldenrods (*Solidago spp.*), common reed, horsetail (*Equisetum* sp.), and grasses (*Agrostis* spp.).

Successional Shrubland

The successional shrubland habitat consists of vegetative communities on sites that have been previously cleared and have at least 50 percent cover of shrubs (Reschke 1990). The dominant shrubs and saplings comprising this habitat on the proposed Brookfield Compressor Station site include autumn olive, multiflora rose, red cedar (*Juniperus virginiana*), grey birch *(Betula populifolia*), black locust and quaking aspen (*Populus tremula*).

3.3.2.2.2 Communities of Special Concern

No significant or unique habitats exist on or near the Brookfield Compressor Station site (Tur 2007). Significant habitats include areas designated by Federal, state, county, and local governments as valuable to fisheries, wildlife, and scientific research. No such communities were identified during ENSR's field surveys or during previous FERC proceedings.

ENSR has initiated consultation with both the USFWS and the CT NDDB regarding the potential presence of State and/or federally-listed threatened and endangered species within the Project site. Response correspondence from USFWS indicated that there are no federally-listed rare species or significant natural communities in the Project area (Tur 2007). No response correspondence from CT NDDB has been received to date. A copy of all correspondence is provided in Volume II – Appendix B.

3.3.3 Construction and Operation Impacts

3.3.3.1 Pipeline Facilities

The location of the proposed alignment along a previously disturbed and maintained natural gas pipeline transmission corridor is the preferred alternative as it minimizes the clearing of forested areas and maintains existing vegetation buffers to adjacent residences. In areas where permanent workspace within forested areas is proposed, these areas will be cleared and, following completion of construction activities, restored in accordance with the FERC Plan. Temporary workspace that was identified as forest during the field surveys are anticipated to be allowed to revert back to forest following completion of construction activities. Areas that are already vegetated with grasses or early successional species will also be restored to pre-construction contours after construction has been completed.

Table 3.4-1 summarizes the acreage of vegetative communities potentially affected by the construction and operation of the 08/09 Expansion Project pipeline facilities. The construction of the pipeline loop segments associated with Phase I of the 08/09 Expansion Project to impact a total of approximately 56.8 acres of upland forest. Of this amount, 17.8 acres are located in the temporary and additional temporary workspace areas and would be allowed to revert back to forest upon completion of construction activities. The remaining 39.0 acres would be maintained in an herbaceous / scrub-shrub vegetation state typical of an early-successional old field community to facilitate access for routine safety and inspectional activities to be performed on the new loop pipeline segments. The other vegetative communities affected by construction including maintained right-of-way and maintained road shoulder are expected to revert to pre-construction conditions within one to three growing seasons with no long-term alterations in species composition or density associated with routine pipeline ROW maintenance.

TABLE 3.3-1
ESTIMATED CLEARING OF FOREST VEGETATION COVER TYPES ASSOCIATED WITH THE 08/09 EXPANSION PROJECT PIPELINE FACILITIES

Segment	Palustrine Forest[a/]		Upland Forest	
	Temporary (acres) [b/]	Permanent (acres) [c/]	Temporary (acres) [b/]	Permanent (acres) [c/]
Pipeline				
Boonville Loop	8.8	7.7	13.8	20.9
Wright Loop	0.0	0.0	1.3	3.4
Newtown Loop	0.1	2.5	2.7	14.7
Total	**8.9**	**10.2**	**17.8**	**39.0**

a/ Includes all non-forested open land and overgrown scrub-shrub fields. Also includes existing road crossings, mowed highway ROWs and shoulders, and maintained natural gas pipeline ROW.

b/ Temporary cleared areas consist of that portion of the construction ROW and extra temporary work areas that would be allowed to naturally re-vegetate following construction.

c/ Permanently cleared areas consist of those portions of the construction ROW and aboveground facilities that would be maintained permanently free of woody vegetation during operation of the project.

3.3.3.1.1 Minimization of Impacts

Iroquois has sited the proposed pipeline and related workspaces to minimize short-term, long-term and cumulative impacts to vegetative communities and will adhere to the FERC Plan and Procedures during construction and restoration activities. During the siting of the pipeline, Iroquois may incorporate one or more of the following measures to minimize impacts to vegetative communities:

- Minimization of overland construction distance;
- Avoidance of rare vegetative communities;
- Co-location of Project facilities with existing utility rights-of-way, where possible; and,

The clearing and subsequent restoration of vegetation in the construction ROW would be performed in accordance with the FERC Plan and Procedures. The operation and maintenance of the project ROW is expected to have little additional impact after site clearing and ROW restoration is completed. Maintenance would include surveillance of the permanent ROW, which would be maintained to ensure access and comply with requirements of 49 CFR, Part 192. Regeneration of large woody vegetation would be prevented on permanent ROW to ensure safe pipeline operation. The frequency of ROW maintenance activities would vary with environmental conditions and the rate of vegetative growth.

Iroquois has located the proposed aboveground facilities to minimize short-term, long-term, and cumulative impacts to vegetative communities. Iroquois has used the methods described above for the pipeline facilities, which are expected to minimize overall impacts to vegetative communities along the proposed pipeline routes. A permanent conversion of forested land to non-forested land would result from the construction of the pipeline loop segments, but the adjacent temporary workspaces and additional temporary workspaces associated with pipeline construction are anticipated to be allowed to revert back to pre-construction vegetative cover. Iroquois anticipates working with applicable state agencies to avoid, minimize, and mitigate any impacts to state-listed communities of significance or rare and/or threatened plant and animal communities that may be present along the proposed pipeline loop segment alignments.

3.3.3.2 Aboveground Facilities

3.3.3.2.1 Milford Compressor Station

The total land requirements for the Milford Compressor Station are approximately 4.0 acres. Approximately 0.21 acres would be used as a temporary staging area and would be restored in accordance with the FERC Plan (2003; see Volume II - Appendix C). These areas have been previously cleared, and impacts to successional open field habitats are expected to be short-term in nature. The construction of the proposed compressor station is expected to result in the permanent conversion of approximately 0.55 acres of old field habitat to impervious cover and convert an additional 2.56 acres to maintained lawn. The project is not located in wetland areas or mature forest habitat. Iroquois will install erosion control barriers, stabilize exposed soils, and restore the project area in accordance with the 2003 FERC Plan to protect off-site areas from on-site activities and related soil disturbances.

3.3.3.2.2 Brookfield Compressor Station

The total land requirement of the Brookfield Compressor Station modifications is approximately 2.0 acres. Due to the proximity of the modifications to the Brookfield Compressor Station, impacts to vegetation are likely to be negligible. The construction of the previously certificated Brookfield Compressor Station will result in the establishment of gravel and paved areas as well as maintained lawn. The modifications proposed under Phase III of the 08/09 Expansion Project will be located within these previously disturbed areas, which will minimize any new Project-related impacts to vegetation. Iroquois will restore temporary workspace areas in accordance with the 2003 FERC Plan, and unpaved or un-graveled areas within the fenced compressor station compound will likely be maintained as lawn.

The project is not located in wetland areas or mature forest habitat, however there are wetland areas located within 100 feet of the proposed work areas. Please refer to Volume II – Appendix E (Wetland Delineation Report) for information on the delineation of the project site by ENSR in

November 2005 including descriptions of the wetland areas. Iroquois will install erosion control barriers, stabilize exposed soils and restore the project area in accordance with 2003 FERC Plan and Procedures to protect nearby wetland areas from on-site activities and related soil disturbances.

3.3.3.2.3 Minimization of Impacts

Iroquois has sited the proposed compressor station modifications and related workspaces to minimize short-term, long-term and cumulative impacts to vegetative communities and will adhere to FERC's Plan (2003) during construction and restoration activities. During the siting of the compressor station, Iroquois incorporated the following measures to minimize impacts to vegetative communities:

- Minimization of overland construction distance;
- Use of a previously disturbed site within an industrial setting;
- Revegetation of the temporary workspace areas with native plant species.

The vegetation within the property is comprised of species that are adapted to disturbed conditions, and several of the abundant species such as Russian olive and multiflora rose are aggressive invasive species that out-compete native vegetation and decrease overall species abundance and diversity within the site. Restoration of areas disturbed during construction is anticipated to be conducted in accordance with NRCS recommendations and may result in an increase in the abundance and diversity of native plant species within the site.

The operation and maintenance of the compressor station properties is expected to have little additional impact after site clearing and restoration is completed. Maintenance would include surveillance of the compressor station compound, which would be maintained to ensure access and comply with requirements of 49 CFR, Part 192. Woody vegetation would be limited to landscape plantings within the compound or along the property boundary to serve as a visual buffer.

3.4 ENDANGERED AND THREATENED SPECIES

This section identifies and discusses the presence of federal and state-listed plant and animal species potentially located within or in the vicinity of the Project areas. It also identifies significant habitats such as designated critical habitats and rare plant communities known to occur within, or in the vicinity of the Project area. Volume II - Appendix B includes copies of the correspondence letters between Iroquois and the applicable regulatory agencies.

The federal government protects threatened and endangered species under the Endangered Species Act of 1973 ("ESA", 16 U.S.C.A. 1531-1543, P.L. 93-205). Section 7 of the ESA requires a federal agency to ensure that any action authorized, funded, or carried out by the agency does not jeopardize the continued existence of a federally-listed endangered or threatened species, or result in the destruction or adverse modification of the designated critical habitat of a federally-listed species. Threatened and Endangered species are defined as "species of fish, wildlife and plants [that] have been so depleted in numbers that they are in danger of or threatened with extinction". The act also describes these species as having aesthetic, ecological, educational, historical, recreational, and scientific value. The factors most often cited for causing a species decline include habitat destruction or modification, over utilization, disease, predation,

and lack of regulatory mechanisms. Species in jeopardy of becoming threatened or endangered are listed as rare, protected, or of special concern. In addition to protecting individual plant and animal species, vegetative communities of special concern are also recognized and protected.

Pursuant to Section 7 of the ESA and applicable state requirements, Iroquois has initiated consultation with the USFWS, NYSDEC NYNHP and CTDEP NDDB to assist FERC in meeting requirements of the ESA regarding the occurrence of threatened and endangered species along the proposed pipeline loop segment alignments. Iroquois has received written correspondence from the USFWS, NYNHP, and CTDEP NDDB regarding federal and state-listed threatened and endangered species potentially occurring along or within a 0.25-mile radius of the proposed pipeline loop segment alignments.

3.4.1 Pipeline Facilities

3.4.1.1 Boonville Loop Segment

Consultation letters regarding the potential presence of significant or sensitive habitats along the Boonville Loop project area were submitted to USFWS and NYNHP in January 2007. Critical habitats for federally threatened and endangered species includes designated geographic areas essential to the conservation of the species and which may require special management considerations or protection. Correspondence from the USFWS indicates that there are no federally listed or proposed threatened or endangered species or designated critical habitats under federal jurisdiction known to occur in the vicinity of the Boonville Loop survey corridor (Niver 2007).

The NY Natural Heritage Program provided correspondence indicating that one state-listed plant species, the Schweinitz' Sedge (*Carex schweinitzii*), has been documented along the existing pipeline ROW (Seoane, 2007). ENSR is in the process of preparing a survey protocol to identify and delineate the boundaries of the population and will further consult NYNHP regarding potential impact avoidance and mitigation measures. No other rare or state-listed plants, animals, significant natural communities, or other significant habitats were identified in the vicinity of the Boonville Loop survey corridor (Seone 2007). Copies of project correspondence are provided in Volume II - Appendix B.

3.4.1.1.1 Schweinitz' Sedge

Schweinitz' sedge grows in strongly calcareous, perennially wet, seepy habitats often in association with rich fens. It is commonly found on edges of fens and grows particularly well in and on the margins of rivulets and small drainage channels that have strongly calcareous water. This includes perennially wet roadside ditches which act as drainage channels. It frequently occurs in dense patches sometimes to the exclusion of other plants (NYNHP 2006).

Schweinitz' sedge starts to fruit in the very end of May and sometimes the fruits can persist as late as August. In the early part of this season the fruits are quite immature and late in the season they are shedding readily. Therefore, the best time to survey for this species is from about mid June till mid July.

A survey protocol has been developed by ENSR on behalf of Iroquois for the assessment of the pipeline corridor to determine the presence and extent of populations of Schweinitz' Sedge. The survey protocol provides baseline information including diagnostic characteristics, habitat requirements, peak flowering period, general life history notes and a summary of the proposed field survey methods. Surveys were conducted in July 2007, and no populations of Scweinitz's

sedge were identified within the proposed Project workspace. A copy of the survey summary report is included in Volume V – Appendix S and will be submitted to NYSDEC for review and approval.

TABLE 3.5-1
STATE-LISTED ENDANGERED AND THREATENED SPECIES POTENTIALLY OCCURRING ALONG THE BOONVILLE LOOP SEGMENT

Common Name/ Scientific Name	Status	Habitat	Proposed Survey Period
Schweinitz' Sedge/ *Carex schweinitzii*	Threatened	Bogs, cold stream, pasture, along stream	June to August

Sources: Seoane 2007.

3.4.1.2 Wright Loop Segment

Consultation letters regarding significant or sensitive habitats were sent to USFWS and NYNHP. USFWS reported that the bald eagle is the only known federally listed threatened and endangered species known to occur in Schoharie County, New York. However, since the first consultations with the USFWS relative to threatened and endangered species, the bald eagle has been de-listed by the USFWS from the Federal list of threatened and endangered species (USFWS 2007). Though the bald eagle has been removed from the federal list of threatened and endangered species, it may still remain on listings of state-threatened and endangered species.

USFWS advised that ENSR correspond with the NYSDEC regarding known bald eagle nesting locations within or around the survey corridor. The USFWS has indicated that there are no other federally listed or proposed threatened or endangered species or designated critical habitats under federal jurisdiction known to occur in the vicinity of the Wright Loop survey corridor (Niver 2007). Correspondence received from NYNHP indicated that no federal or State-listed threatened and/or endangered animals, plants, significant natural communities, or other significant habitats have been identified in the vicinity of the Wright Loop Project area (Seoane 2007).

3.4.1.3 Newtown Loop Segment

According to correspondence received from USFWS, there are no known federally threatened or endangered species present along the Newtown Loop Pipeline alignment (Tur 2007). Consultation with the CTDEP NDDB (McKay 2007) indicates that the Newtown Loop alignment may be utilized by the Federal and State Endangered bald eagle and the Connecticut State Special Concern Species the Eastern box turtle (Terrapene carolina carolina). However, since the first consultations with the CTDEP NDDB relative to threatened and endangered species, the bald eagle has been de-listed by the USFWS from the Federal list of threatened and endangered species (USFWS 2007).

Further consultation with the CTDEP Wildlife Division indicated that while bald eagles regularly over-winter along the shores of the Housatonic River, construction activities associated with the

Newtown Loop segment were determined to be at a sufficient distance from the River to pose no adverse impact to bald eagle populations (Victoria 2007).

Eastern box turtles utilize a variety of habitats from old field and deciduous forest habitats, including power lines and logged woodlands, to small streams and ponds. Iroquois' existing mainline pipeline ROW and the area immediately adjacent to the ROW being considered for the Newtown Loop segment is characterized by all of the habitats listed previously. Additionally, the habit of the Eastern box turtle to hibernate in underground burrows from November to April makes this species particularly susceptible to inadvertent mortalities during land clearing and excavation activities conducted during the winter months. Further consultation with the CTDEP Wildlife Division will be required, including providing information relative to proposed structures and construction timing, before CTDEP can make a final assessment as the potential impact of the proposed Newtown Loop Segment, including whether or not site specific surveys for Eastern box turtles will be required (Victoria 2007). Copies of project correspondence are provided in Volume II - Appendix B.

3.4.1.4 Minimization of Impacts

Upon completion of the rare species surveys along the proposed pipeline loop segment alignments in Boonville, NY and Newtown, CT, Iroquois will provide the results to NYSDEC and CTDEP NDDB and Wildlife Division for review. Should any individuals or populations of designated rare species be identified within or adjacent to Project workspace areas, Iroquois will conduct additional consultation with these agencies to develop approved impact avoidance and/or mitigation measures to ensure protection of identified rare species.

3.4.2 Aboveground Facilities

3.4.2.1 Milford Compressor Station

The USFWS has stated that except for the occasional transient individuals, no federally listed or proposed endangered or threatened species are known to exist in the vicinity of the project area and that no Biological Assessment or further Section 7 consultation under the ESA is required (Tur 2007).

Consultation with the CTDEP NDDB reported the presence of the Connecticut State Threatened fish species, the Atlantic sturgeon (*Acipenser oxyrhynchus*), for the Housatonic River, which is located within 0.25-miles of the Project area. Further consultation with the CTDEP Inland Fisheries Division determined that the Project would not cause any adverse impacts to Atlantic sturgeon populations (Johnson 2007). Copies of the USFWS and CTDEP correspondence are provided in Volume II – Appendix B.

3.4.2.2 Brookfield Compressor Station Modifications

Consultation with the USFWS regarding the potential occurrences of federally endangered or threatened species within or in the vicinity of the proposed Brookfield Compressor Station modifications project site has indicated that, except for the occasional transient individuals, no federally listed or proposed endangered or threatened species are known to exist in the vicinity of the project area and that no Biological Assessment or further Section 7 consultation under the ESA is required (Tur 2007).

Review of the CTDEP NDDB map for Brookfield (2006) did not identify the presence of any known or suspected significant communities within or in the vicinity of the Brookfield

Compressor Station Project site. Subsequent correspondence with the CTDEP has confirmed that no known populations of Federal or State Endangered, Threatened, or Special Concern Species occur on the Project site (McKay 2006). Accordingly, construction of the Brookfield Compressor Station modifications is not anticipated to impact any known occurrence of State-listed threatened and endangered species or significant natural communities.

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