

**Rare, Threatened, and Endangered
Raptor Survey Report
for the
Kibby Wind Power Project**

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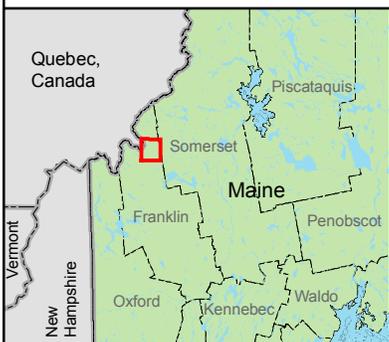
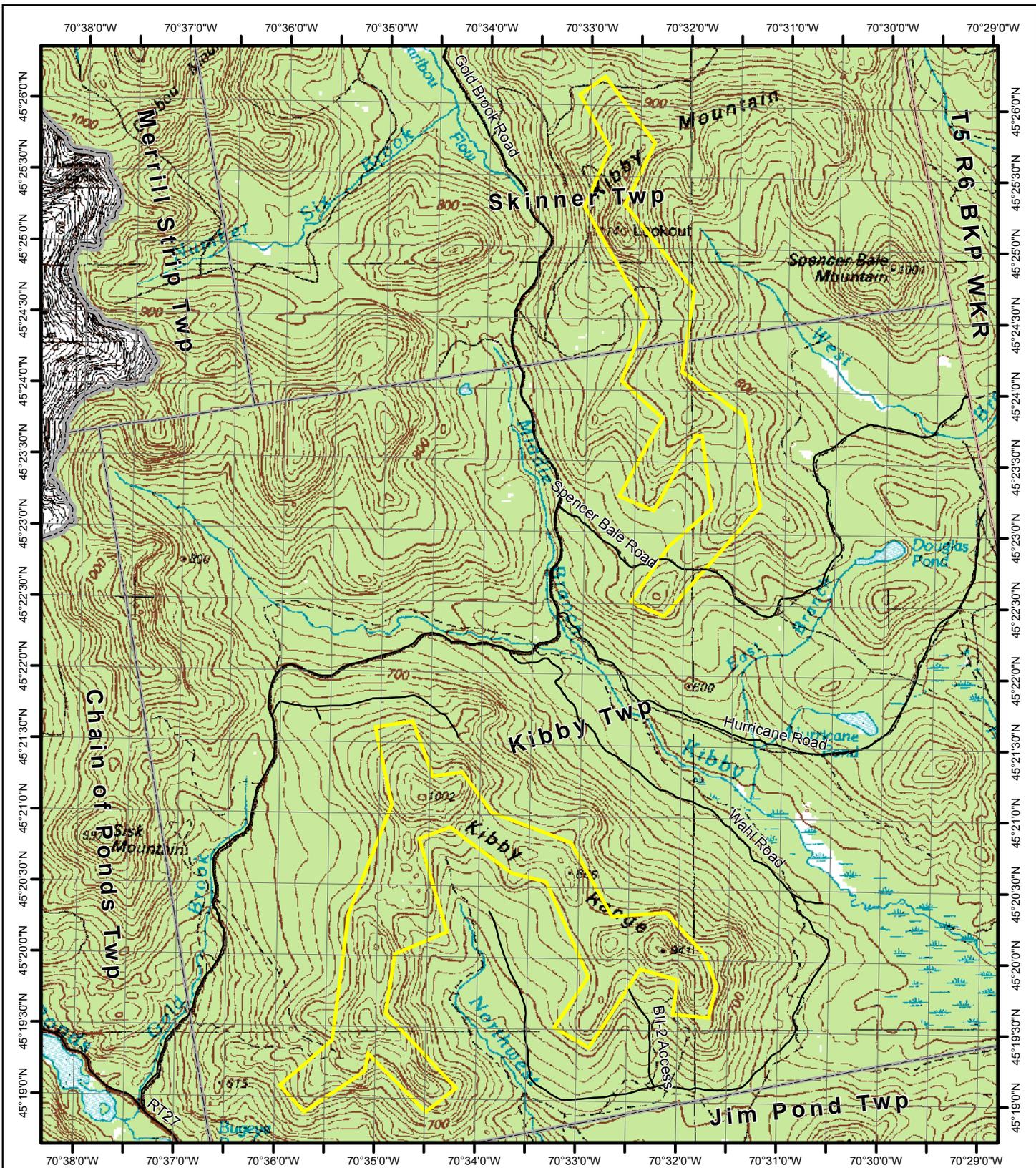
1.0 INTRODUCTION

1.1 Project Description

TransCanada Energy Ltd. (TransCanada) is proposing to develop, own and operate a 100–200 megawatt (MW) wind power generating facility in the Boundary Mountains of Western Maine known as the Kibby Wind Power Project. The project is in a location for which a similar project proposal by U.S. Windpower was previously approved by the Land Use Regulation Commission (LURC).

The project will be located in Kibby and Skinner Townships (Twp.), an unincorporated area of Franklin County, Maine. At the time the study was conducted, up to four ridgelines were under consideration for turbine locations. However, the project area has been reduced to two ridges, as shown in Figure 1. The property is owned by Plum Creek, and the surrounding areas are currently actively managed for forest products. The Kibby Wind Power Project can take advantage of existing logging roads and cleared areas to access the ridgelines, and forestry activities can continue in a complementary fashion with the project in place. The project will utilize the superior wind resource found in this vicinity to create clean, renewable power generation.

The Maine Department of Inland Fisheries and Wildlife (MDIFW) and the United States Fish and Wildlife Service (USFWS) have recommended that TransCanada perform surveys for rare, threatened and endangered raptors in the project vicinity. Surveys for these species have been performed in the project area in 1992, 1993, 2005, and 2006.



	Road
	Town Boundary
	County Boundary
	State Boundary
	Project Area

Data Notes: Base map: 100K USGS map;
Political and road data courtesy of Maine OGIS

TRC	249 Western Ave Augusta, ME 04330
<i>Project Area</i>	
Kibby Wind Power Project	
Figure: 1	

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1.2 Raptor Protection Status

1.2.1 Legal Status of the Bald Eagle in Maine

The bald eagle is currently federally listed as “threatened” under the Endangered Species Act (ESA), 16 U.S.C. § 460 et seq., and state listed as “threatened” under the Maine Endangered Species Act (Maine ESA), 12 M.R.S.A Ch. 713 subchapter 5, which is administered by the Maine Department of Inland Fisheries and Wildlife (MDIFW). In addition to the regulatory protections of listing status, the eagles and their nests are also protected by the Bald and Golden Eagle Protection Act, 16 U.S.C. §§ 668-668d.

Because bald eagles are regulated by both federal and state law, consultation with both the United States Fish and Wildlife Service (USFWS) and MDIFW for any project that has the potential to affect bald eagles is advisable. However, the designation of “Essential Habitat” through the provisions of the Maine Endangered Species Act is the vehicle that protects their habitat in Maine. Specifically, pursuant to state law, significant wildlife habitat (e.g., Essential Habitat) in Maine is protected under the Natural Resources Protection Act (NRPA), 38 M.R.S.A. § 480-A, et seq. The NRPA is administered by the Maine Department of Environmental Protection (MDEP). In Maine, the MDIFW designates Essential Habitats as “those areas that currently or historically provide physical or biological features essential to the conservation of an endangered or threatened species and which may require special management considerations.” Essential Habitats are identified and mapped by the MDIFW.

Bald eagle Essential Habitat areas consist of a mapped habitat circle with a radius of 1,320 feet originating at a center located at the nest site. Bald eagle Essential Habitat areas are described on MDIFW Essential Habitat maps by an alpha-numeric designation and are available digitally. These habitat areas are also elements of a geographic information system (GIS) database that is searched by MDIFW for potential project impacts. Typically, nests are located near larger bodies of water in large trees (primarily white pines). State records of about 1,200 different nest sites locations accumulated over the last 40 years indicate that bald eagle nests are not found more than 1.1 miles from a

large waterbody of open water (ponds greater than 35 acres and rivers at least 200 yards wide) (personal communication with Charlie Todd, March 14, 2006). Bald eagles populations are highest along the coast, but are currently expanded into the interior, with historic nesting areas still being reoccupied.

Projects in Maine requiring a permit or license from a state agency or municipal government partly or wholly within a bald eagle nest site designated as Essential Habitat shall not be permitted, licensed, funded, or carried out unless “the Commissioner determines that the activity will not significantly alter or unreasonably harm the Essential Habitat.” Several factors are considered in determining if a project significantly alters or unreasonably harms essential nesting habitat. These factors are as follows:

- Magnitude and time of year that noise and human activity is generated by the project;
- Physical alteration to the landscape;
- Destruction of or alteration to key habitat components such as perch trees, roost trees or forage areas;
- Reduction in the seclusion of the nest site and adjacent shoreline area;
- Demonstrated tolerance of the particular eagles to human activity or disturbance; and
- Reduction in the future suitability of the nest site to the eagles.

1.2.2 Legal Status of the Golden Eagle in Maine

The golden eagle is not federally listed but is state-listed as “endangered” under the Maine ESA. In addition to the regulatory protections of listing status, the eagles and their nests are also protected by the Bald and Golden Eagle Protection Act, 16 U.S.C. §§ 668-668d.

Currently, there are no known active golden eagle nests in Maine, though there are known historical sites. These sites are found in the mountainous western and

northwestern part of the state, and include nests in both cliff and tree sites (MDIFW 2003). Nesting season for golden eagles begins in February or March, and nesting pairs may occupy a home range up to 600 square miles in size in forested areas such as in the northeast (personal communication with Charlie Todd, December 1, 2006). As the historic nest sites are no longer occupied by golden eagles, MDIFW has not designated Essential Habitat for golden eagles. The golden eagle in the east is found in eastern Quebec and Labrador, and this population may be increasing. MDIFW policy is to protect historical nest sites by cooperative, voluntary agreements with land owners. Therefore, any project that has the potential to affect these historical sites will be of interest to MDIFW, and prior to development or timber harvest in these areas, MDIFW biologists should be consulted (MDIFW 2003). In addition, MDIFW recommends that historical nest site locations should be investigated and documented for inactivity.

1.2.3 Legal Status of the Peregrine Falcon in Maine

The peregrine falcon is no longer listed under the federal Endangered Species Act, as they were removed from the federal list in 1999. The breeding population found in Maine remains listed as endangered on the Maine ESA list. Peregrine falcons nest on cliffs, often near large waterbodies. They utilize cliffs for nesting and perching and also require a large prey base of small to medium-sized birds. The nests themselves are on ledges that are inaccessible to mammalian predators and are protected against the elements (MDIFW 2003).

Currently, the nesting population of peregrine falcons in Maine is low and widely scattered in various cliff locations around the state. Essential Habitat has not been designated for peregrine falcons in Maine. MDIFW policy is to protect nest sites by cooperative, voluntary agreements with land owners, as well as conservation easements, conservation tax abatements and incentives, and acquisition to protect important habitats. Therefore, land development projects that have the potential to affect these nest sites should undertake consultation with MDIFW biologists to assist with project planning (MDIFW 2003).

1.3 Observations within the Project Area

Breeding bald eagles are present in northwestern Maine, and there are known recent nest sites on nearby Flagstaff and Spencer Lakes (personal communication with Charlie Todd, March 14, 2006: see Appendix B). Though the project area is possibly within these nesting eagles' home range, they typically focus their time around larger waterbodies and it is questionable whether they would frequent the ridges within the project area (personal communication with Charlie Todd, March 14, 2006). Three bald eagles were observed in the project area by TRC staff during fall 2005 daytime migration surveys. Bald eagles have not been observed by TRC staff in the project area during the breeding season.

Golden eagles are not known to currently breed in Maine, but MDIFW has identified three historic nest sites within roughly a ten-mile radius (and within potential foraging range) of the proposed project (personal communication with Charlie Todd, March 14, 2006). Each of these locations was surveyed by TRC staff in spring of 2005 and no nesting activity was observed. Two golden eagles were observed passing through the project area by TRC staff during fall 2005 daytime migration surveys. Golden eagles have not been observed by TRC staff in the project area during the breeding season.

Peregrine falcons have nested on at least two cliff sites in northwestern Maine, however these sites are greater than ten miles from the project location. The historic golden eagle sites in the project vicinity can be considered generally suitable for peregrine falcon nesting, though peregrine falcons have not been documented using these sites. TRC staff observed three peregrine falcons passing through the project area during fall 2005 daytime migration surveys. Peregrine falcons have not been observed by TRC staff in the project area during the breeding season.

The following table and sections summarize surveys known to have been conducted in the project area prior to the Spring 2006 raptor nest surveys described in this report.

Table 1-1: Summary of RTE raptor observations

Species	Parameter	Year			
		1992	1993	2005	2006
Bald Eagle	Number		1	3	
	Location		unknown location	Skinner Twp.	
	Survey Type		fall migration survey ¹	fall migration survey ¹	
	Age			2 adult, 1 juv	
Golden eagle	Number		2	2	
	Location		Kibby Twp.	Skinner Twp.	
	Survey Type		Incidental observation in fall ¹	fall migration survey ¹	
	Age		2 adults	1 adult, 1 juv.	
Peregrine falcon	Number	1	3	3	
	Location		unknown location	Skinner Twp.	
	Survey Type	fall migration survey ¹	fall migration survey ¹	fall migration survey ¹	
	Age			2 juv., 1 unknown	

¹ Observation occurred in September

1.3.1 U.S. Wind Power Survey Results (1992-1994)

In 1992 and 1993, U.S. Wind Power performed surveys to document summer use by raptors by surveying logged areas, overlooks with good visibility, and cliff faces within or near the project area. No RTE raptors were observed during these surveys, or incidentally during other summer surveys. U.S. Wind Power also conducted raptor migration surveys in the Kibby vicinity. Their work consisted of day-long surveillance during peak migration and identified numbers and species of raptors crossing the project area. The goals were to identify raptor species' relative abundance, composition, and flight characteristics (flight height, direction, and consistency of use) in the project area. During the course of these studies, one peregrine falcon was observed in September 1992, three peregrine falcons were observed in September 1993, and one bald eagle was observed in the project area in September 1993. (NEWES 1993; U.S. Windpower 1994). Two golden eagles (paired) were observed incidental to the migration surveys in September 1993.

Based on data from MDIFW and USFWS, at the time of U.S. Windpower's studies, there was no evidence of any active or historic nest sites for golden or bald eagles in Kibby, Skinner, or Merrill Strip Townships. Also during the course of field work, U.S. Windpower determined that there were no good nesting sites for golden eagles in the project area: exposed cliffs were not prevalent in the area, and foraging opportunities were below average. They also noted that the physical characteristics of historic nest sites were very different from potential habitat found in those townships where the project was proposed (U.S. Windpower 1994). This does appear to be true for the immediate project development area, however several historic sites are as close as 2 miles to the project area. Charlie Todd, MDIFW, reports that golden eagles have also nested in trees in Maine, and cliff sites are not the only suitable habitat for nests (personal communication with Charlie Todd, August 16, 2005).

1.3.2 TRC Preliminary Reconnaissance (Spring 2005)

TRC conducted a preliminary reconnaissance of the project area in April 2005 as part of a project feasibility due diligence assessment. This reconnaissance was also considered useful for refining study protocol recommendations for discussion with the MDIFW.

Based on location information included in the U.S. Windpower project files, TRC noted that three historical golden eagle nest sites had been identified, but were no longer active by the inception of U.S. Windpower studies. These three sites were observed by TRC on April 14 and 15, 2005. Each of the sites was scanned multiple times, using binoculars and spotting scopes, over the course of 5-6 hours. No stick nests were visible at any of these sites, and no eagles were observed. Ravens, however, were observed to spend a significant amount of time at two of the sites. Presence of ravens is considered a strong indication that golden eagles are not present at a given location (Mark McCollough, USFWS, personal communication, February 23, 2006; Tom Hodgman, MDIFW, personal communication, February 23, 2006). This is because golden eagles are typically

dominant birds at preferred nest sites; if present, they have been known to displace ravens (Marquiss et al. 1978).

1.4 Purpose and Objectives

The purpose of 2006 eagle and falcon nest surveys was to monitor the project area and surrounding vicinity for bald eagle (*Haliaeetus leucocephalus*), golden eagle (*Aquila chrysaetos*), and peregrine falcon (*Falco peregrinus*) nesting activity. Study objectives for 2006 included:

- Confirm presence or absence of bald eagle nesting activity at any known nest sites or suitable habitat within roughly a 10-mile radius of the project area;
- Per agency consultation, survey the proposed transmission corridor for potential bald eagle nesting activity;
- Confirm presence or absence of golden eagle nesting activity at any known historic nest sites within roughly a 10-mile radius of the project area;
- Confirm presence or absence of peregrine falcon nesting activity at suitable habitat within roughly a 10-mile radius of the project area;
- Monitor the Kibby vicinity through incidental observations during other field surveys for bald eagle, golden eagle, or peregrine falcon activity that may indicate nesting at previously undocumented sites; and
- Map historic and current (if found) bald eagle, golden eagle, or peregrine nest site locations within the Kibby vicinity.

2.0 METHODS

2.1 Background Research/Consultation

Both state and federal biologists were consulted in order to develop and refine the survey protocols utilized. Prior to implementing the field program, the draft protocol was distributed for agency review on March 28, 2006. Comments were received and incorporated through April, 2006. Agency personnel were consulted and invited to participate throughout the survey effort.

MDIFW currently has an annual program to locate active bald eagle nests consisting primarily of observation from fixed-wing aircraft. Data collected from the annual surveys are then mapped and incorporated into an MDIFW GIS project. During the consultation process, TRC obtained these data and has overlaid nest site locations on project maps. There is limited information on golden eagle and peregrine falcon nest sites; however, whatever historical information is available from MDIFW has also been overlain on project maps. These maps will be used to facilitate the eagle and falcon nesting surveys in spring 2006. The locations of these protected species nest sites are not provided in this document due to the sensitive nature of this information.

2.2 Survey Protocol

2.2.1 General Breeding Eagle and Falcon Surveys

Based on suggestions made by Mark McCollough of the USFWS, and Tom Hodgman of MDIFW, a general survey for breeding eagles and falcons entailed visual searches from good vantage points on the ground during the months of April and May. Because these dates corresponded with timing for 2006 daytime migration surveys, the breeding eagle and falcon surveys were performed in conjunction with migration surveys. During such surveys, biologists watched for any birds moving through the project area and any eagle or falcon observed would be scrutinized for behavior indicative of nesting activities.

Such behaviors include observation of paired birds, habitual observations in the same general area, observation of eagles or falcons flying with food items, and observed territorial interactions with other birds.

In addition to formal observations during daytime migration surveys, any eagle and falcon activity observed whenever biologists were in the Kibby vicinity was documented as an incidental observation. This will continue throughout project field work.

If observations indicate suspected eagle or falcon nesting, MDIFW and USFWS biologists were to be notified as soon as possible. No eagles, falcons, or suspected nest sites were observed during these surveys.

2.2.2 Ground-Based Golden Eagle and Peregrine Falcon Nest Surveys

Ground-based golden eagle and peregrine falcon nest surveys were performed in early April, before leaf-out, as this timeframe provides optimal seasonal conditions for documentation of active nest use. Nest surveys focused on three known historic golden eagle nest sites. Though peregrine falcons have not been documented at these sites, these cliff sites are generally suitable habitat for falcon nesting (personal communication with Charlie Todd, March 14, 2006). As noted above, TRC's preliminary reconnaissance work concluded that, as of 2005, there were no golden eagle nests evident at any of the three historic sites. Peregrine falcons were also not observed at or near these sites at that time.

Surveys were conducted at a suitable distance (1,200 to 2,200 feet) from the sites from or adjacent to existing roads by scanning each cliff face multiple times (10 to 60 times) with binoculars and spotting scopes. Surveyors looked for any sign of potential nest sites or activity. Perches or nest sites often have large "white-washed" areas below them from raptor liquid droppings, and the location of such perches will be documented. TRC personnel performing this work were in close communication with MDIFW and USFWS

throughout the survey efforts. If any evidence of nesting had been discovered, MDIFW and USFWS personnel were to be informed immediately; no such evidence was noted.

2.2.3 Aerial Eagle Surveys

An aerial bald and golden eagle nest survey was conducted using a helicopter, flying as low and slow as safety and practicality allowed. A single aerial survey was conducted in the spring prior to leaf-on conditions, which corresponded to the time frame and conditions typically used by MDIFW for aerial surveying Maine nesting pairs of bald eagles. The area surveyed included the Dead River from Chain of Ponds to the North Branch of the Dead River (Flagstaff Lake), waterbodies in close proximity with that portion of the Dead River (such as Jim Pond and Tea Pond), and the proposed transmission line route from its beginning at the base of Kibby Mountain to its eastern terminus at Bigelow Substation. Additional existing ROW was also surveyed, east of Bigelow Substation to Wyman Substation in Moscow, because of the potential for system upgrades along this ROW (see Figure 2). Cliffs in close proximity to these areas were also surveyed for stick nests, which would be indicative of golden eagle nesting.

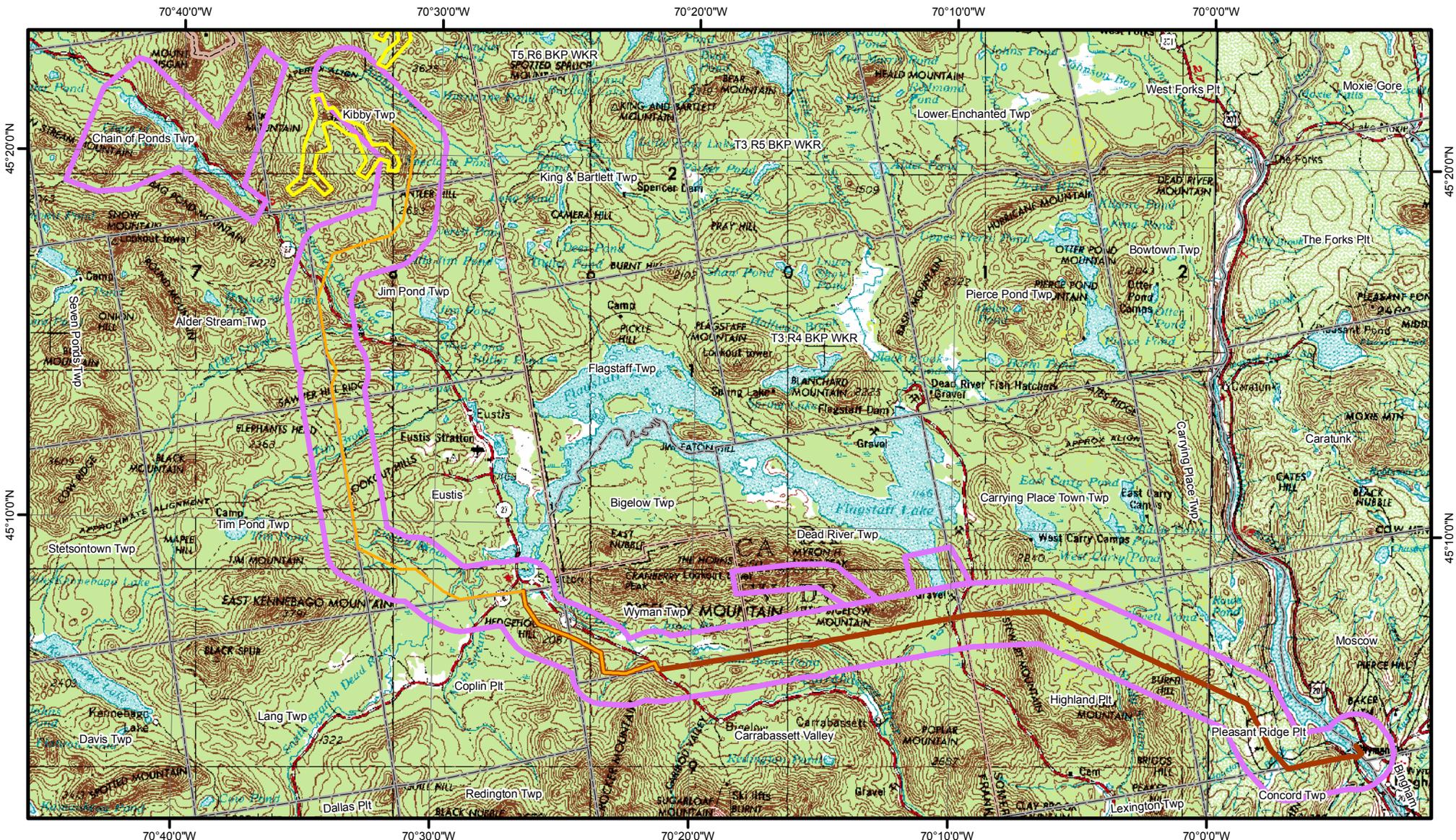
Flights were conducted only when conditions were conducive to the survey, including skies with at least one-mile visibility and winds less than 15 mph. The location of any new nests or other pertinent information observed was recorded. Information recorded included areas surveyed, location of any nests observed, and status of nests (active/inactive). Active participation by regional MDIFW and USFWS biologists who are familiar with the area was sought.

2.2.4 Surveyor Preparedness

Personnel performing breeding eagle surveys and ground-based golden eagle nest surveys were experienced in bird identification and familiar with the logistics involved with work in remote settings. Personnel performing aerial nest surveys were experienced in bird identification and experienced conducting wildlife observations from the air.

2.2.5 Data Collection

Breeding eagle observations were recorded among field notes collected during spring daytime migration surveys. Observations from ground-based golden eagle nest surveys and from aerial bald eagle nest surveys were recorded into field notebooks, which were translated into electronic format upon return to the office from the field.



- Proposed Electrical Transmission Line
- Existing Electrical Transmission Line
- Survey Area
- Project Area
- State Boundary
- County Boundary
- Town Boundary

5
Kilometers

E·PRO 249 Western Ave
Augusta, ME 04330

*Aerial
Raptor Survey
Kibby Wind Power Project*

Figure: 2

Data Notes: Base Map: 250k USGS map; Municipality data courtesy Maine OGIS

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3.0 SURVEY RESULTS

3.1 General Surveys

Eagle and falcon surveys were conducted during daytime migration surveys, which were performed between April 12, 2006 and May 5, 2006 at three sites, for a total of 78.75 hours of observation time. Two of the observation sites were on Kibby Range, and one was at the fire tower on Kibby Mountain. No RTE raptors were observed during these observations. Additionally, during the course of other spring and summer 2006 migrant and breeding bird surveys between May 4 and June 20, 2006, no bald eagles, golden eagles, or peregrine falcons have been observed.

As previously noted in Sections 1.3, bald eagles, golden eagles, and peregrine falcons have been observed in the vicinity of the project during fall migration surveys by both U.S. Windpower (1992, 1993) and TRC (2005).

3.2 Ground Surveys

Surveys were performed on April 14 and 15, 2005 and April 14 and 28, 2006, for RTE cliff-nesting species such as peregrine falcon and golden eagle. These surveys were performed at three different sites in Chain of Ponds Township and Coburn Gore, Franklin County, Maine. Specifically, these sites are found on Indian Stream Mountain and Sisk Mountain in Chain of Ponds Township and at Moosehorn in Coburn Gore. The sites visited were all historic cliff nest sites for the golden eagle, and potential sites for peregrine falcon.

No peregrine falcons or golden eagles were observed during these surveys and no evidence of raptor nesting was observed on the cliffs. Ravens were nesting at the Indian Stream Mountain site in Chain of Ponds Township and in a tree close to the Moosehorn site in Coburn Gore. Turkey vultures were observed perching on the cliffs at the Sisk Mountain site in Chain of Ponds Township and at the Moosehorn site in Coburn Gore.

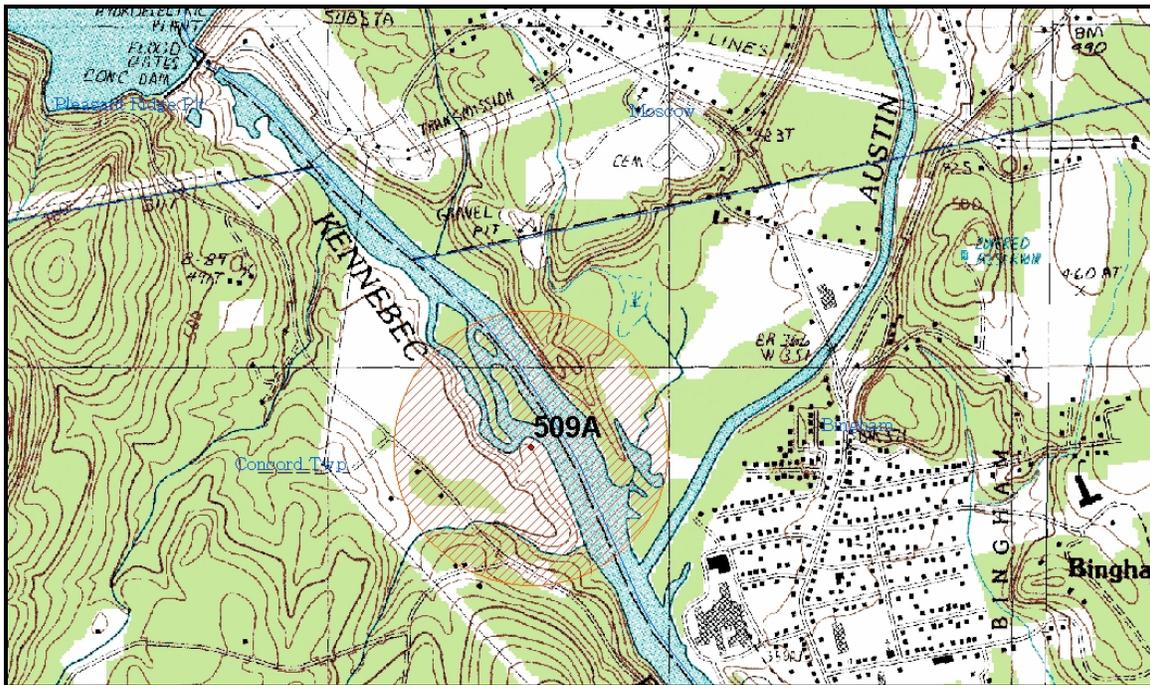
3.3 Aerial Eagle Surveys

An aerial survey of a potential transmission line route and the proposed project area was conducted via helicopter on May 5, 2006, by TRC staff and included Charlie Todd, MDIFW. The route flown started in Moscow, Maine, with the western extent of the area surveyed just west of the Chain of Ponds in Chain of Ponds Township. A survey area that extended one mile on each side of the potential transmission line corridor (that is, a corridor two miles wide) was surveyed for bald eagles, golden eagle, peregrine falcons, or eagle nests (see Figure 2).

The search for nests was focused on waterbodies and suitable super-canopy nest trees for bald eagles as well as suitable ledges within the flight corridor for cliff nesting species.

One previously undocumented bald eagle nest was observed during this survey. The nest was located in Concord Township, near the Kennebec River below the Florida Power and Light Energy Maine Hydro (FPLE) Wyman Hydro Electric station, approximately 3,200 feet away from the potential transmission line route (see Figure 3). One adult eagle was in brooding position on the nest and did not leave the nest while being observed. This nest has been designated bald eagle nest BE 509A by MDIFW, and Figure 3 depicts the candidate Essential Habitat radius circle. A biologist from FPLE climbed the tree on June 1, 2006, and banded two large, healthy chicks (personal communication with Bill Hanson, July 7, 2006).

Figure 3: Bald Eagle Nest Location



Few suitable ledges were observed within the study corridor, with one possibly suitable cliff observed in Wyman Township, located just north of Stratton Brook Pond. A small area that was possible “whitewash” was observed on this cliff; however, it was not associated with a nest. Suitable ledges outside of the study corridor were also surveyed, and included areas along Little Bigelow Mountain, Bigelow Mountain, Sisk Mountain, on either side of the Chain of Ponds, and Indian Stream Mountain. Several of these sites are also historical golden eagle nest sites. No golden eagles or peregrine falcons were observed at or near these sites.

An area of “whitewash” was observed at one of the cliffs on Sisk Mountain in Chain of Ponds. It was not associated with a stick nest. From the location, size, lack of a stick nest, and configuration of the whitewash area, Charlie Todd surmised the “whitewash” was likely from perching turkey vultures and not from golden eagles or peregrine falcons. This site was observed from the ground on April 14, 2006, and although the “whitewash” area was not seen, turkey vultures were perching on the cliffs.

3.4 Summary of Study Conclusions

The following section reviews the status of each planned study objective.

- *Confirm presence or absence of bald eagle nesting activity at any known nest sites or suitable habitat within roughly a 10-mile radius of the project area.*

No bald eagle nesting was noted within a 10-mile radius of the project area during an aerial survey performed with a MDIFW biologist. Several suitable waterbodies within 10-miles were not checked and include King and Bartlett Lake, Baker Pond, and Jim Pond. One bald eagle nest was observed in Concord Township, that was located over 20 miles from any project-related potential work area. MDIFW surveys identified 4 pairs of nesting bald eagles on Flagstaff Lake (9.5 to 11.5 miles southwest of the project area) and one on Spencer Lake (11.5 miles to the northwest).

- *Per agency consultation, survey the proposed transmission corridor for potential bald eagle nesting activity.*

The survey was conducted via helicopter, with representation from MDIFW participating. One bald eagle nest was observed within the survey area but over 20 miles from the potential project work area. MDIFW has recommended that, just prior to project construction activities, the transmission line corridor be surveyed again to ensure that no new nesting activity has occurred that would be affected by construction activities associated with transmission line construction.

- *Confirm presence or absence of golden eagle nesting activity at any known historic nest sites within roughly a 10-mile radius of the project area.*

No golden eagle nesting activity has been observed.

- *Confirm presence or absence of peregrine falcon nesting activity at suitable habitat within roughly a 10-mile radius of the project area.*

No peregrine falcon nesting activity has been observed.

- *Monitor the Kibby vicinity through incidental observations during other field surveys for bald eagle, golden eagle, or peregrine falcon activity that may indicate nesting at previously undocumented sites.*

During Spring 2006 migration surveys and 2006 breeding bird surveys, no bald eagles, golden eagles, or peregrine falcons were observed. Incidental observations will continue throughout project field efforts. A credible unverified report of a golden eagle sighting just north of the Moosehorn site in Coburn Gore was reported to Charlie Todd during August 2006. Subsequent monitoring by MDIFW staff on August 16 and August 23 failed to verify the report, although “falcon-like” whitewash was seen on the cliff at the Moosehorn site on the second date.

- *Map historic and current (if found) bald eagle, golden eagle, or peregrine nest site locations within the Kibby vicinity.*

Historic nest sites are known and were mapped in order to aid the survey efforts. One new bald eagle nest site was observed during the course of the raptor nesting surveys, and the location coordinates of this nest has been shared with MDIFW.

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