

Bipole III Transmission Project

Birds



INTRODUCTION

- Approximately 400 bird species in Manitoba
- Most species are migrants
- Less year-round residents

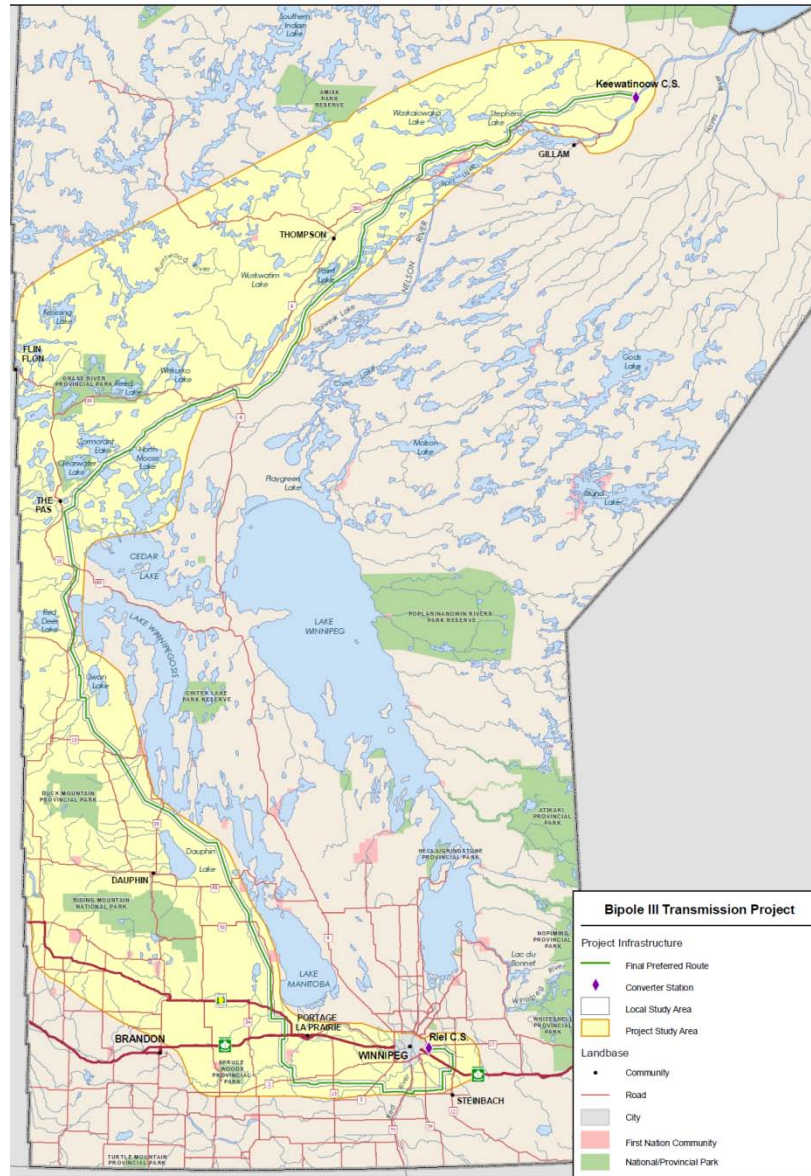


INTRODUCTION

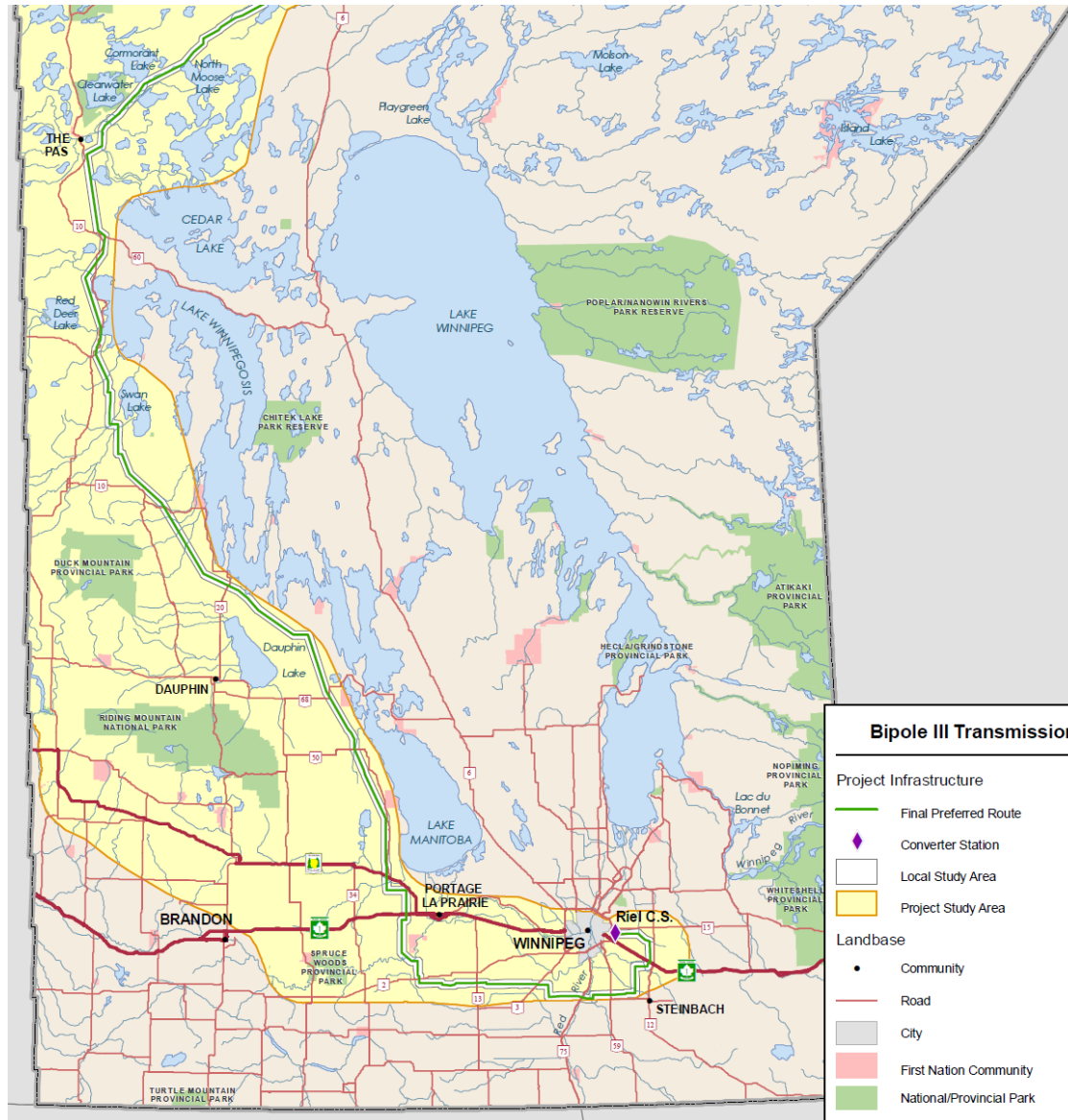
- Migration routes located throughout the province
 - Routes are influenced by water, topography, other
- Staging – resting and feeding places of migratory birds
 - Sites: e.g., Delta Marsh, Big Grass Marsh, Saskatchewan River Delta



INTRODUCTION



EXAMPLE - MIGRATION AND STAGING



INTRODUCTION

- Nesting – mainly spring and summer
 - Associated with vegetation that supplies food and cover



VEC SELECTION

- Bird are ecologically and socially important
 - Biodiversity, seed dispersal, pollination
 - Domestic, cultural, recreational and commercial importance
- Criteria
 - Indicator species of ecological and social importance
 - Population status (Species at Risk)
 - Represent ranges, communities and habitats
- 21 bird VECs in total
 - 6 groups including waterfowl-waterbirds, colonial waterbirds, birds of prey, upland game birds, woodpeckers, songbirds/other birds

VECS - WATERFOWL AND WATERBIRDS

- Wetland types (marsh, fen, bog)
- Mallard, sandhill crane, yellow rail



VECS - COLONIAL WATERBIRDS

- Water, forest, marsh
- Great blue heron, least bittern



VECS - BIRDS OF PREY

- Grasslands, wetlands and forest
- Bald eagle, ferruginous hawk, burrowing owl, short-eared owl



VECS - UPLAND GAME BIRDS

- Grasslands, wetlands, forest and burns
- Sharp-tailed grouse, ruffed grouse



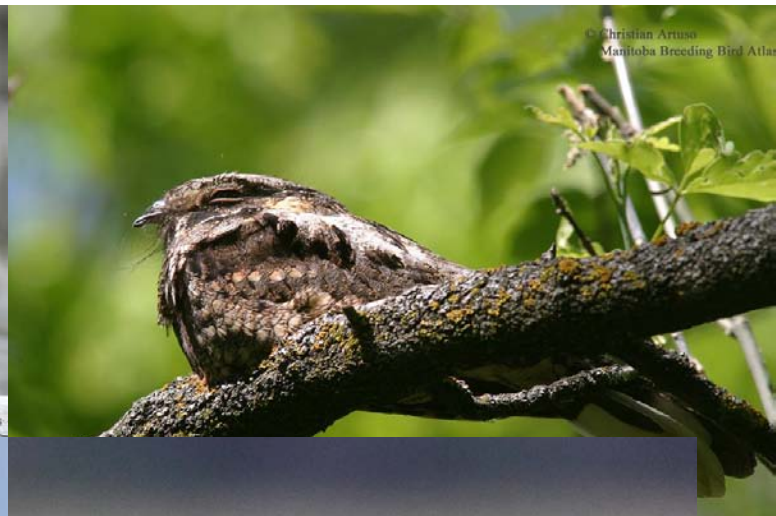
VECS - WOODPECKERS

- Mature forest and parkland
- Pileated woodpecker, red-headed woodpecker



VECS - SONGBIRDS AND OTHER BIRDS

- Forest edges, shrublands, disturbed and open areas
- Common nighthawk, whip-poor-will, olive-sided flycatcher, loggerhead shrike



VECS - SONGBIRDS AND OTHER BIRDS

- Grasslands, shrublands, forests and northern wetlands
- Sprague's pipit, golden-winged warbler, Canada warbler, rusty blackbird



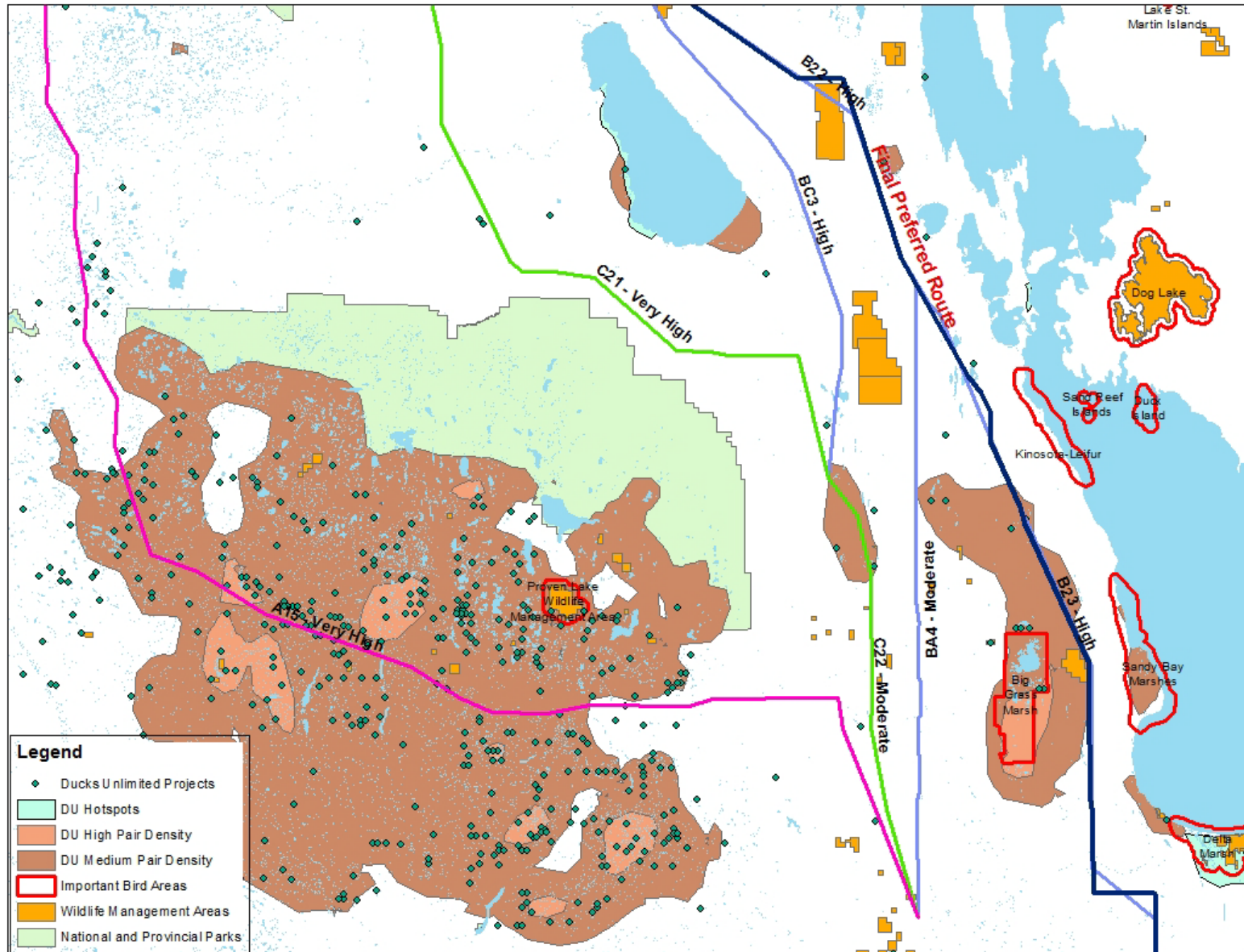
ALTERNATIVE ROUTE SELECTION

- SSEA process is a tool to reduce potential project effects
 - Avoidance: e.g., important bird areas, duck densities, parks, wildlife management areas
 - Avoidance of larger, intact habitat (e.g., forests and wetlands)
 - VEC species habitat models
- Alternative routes compared with potential project effects on birds
- Routing preference generally open areas over wetland and forest

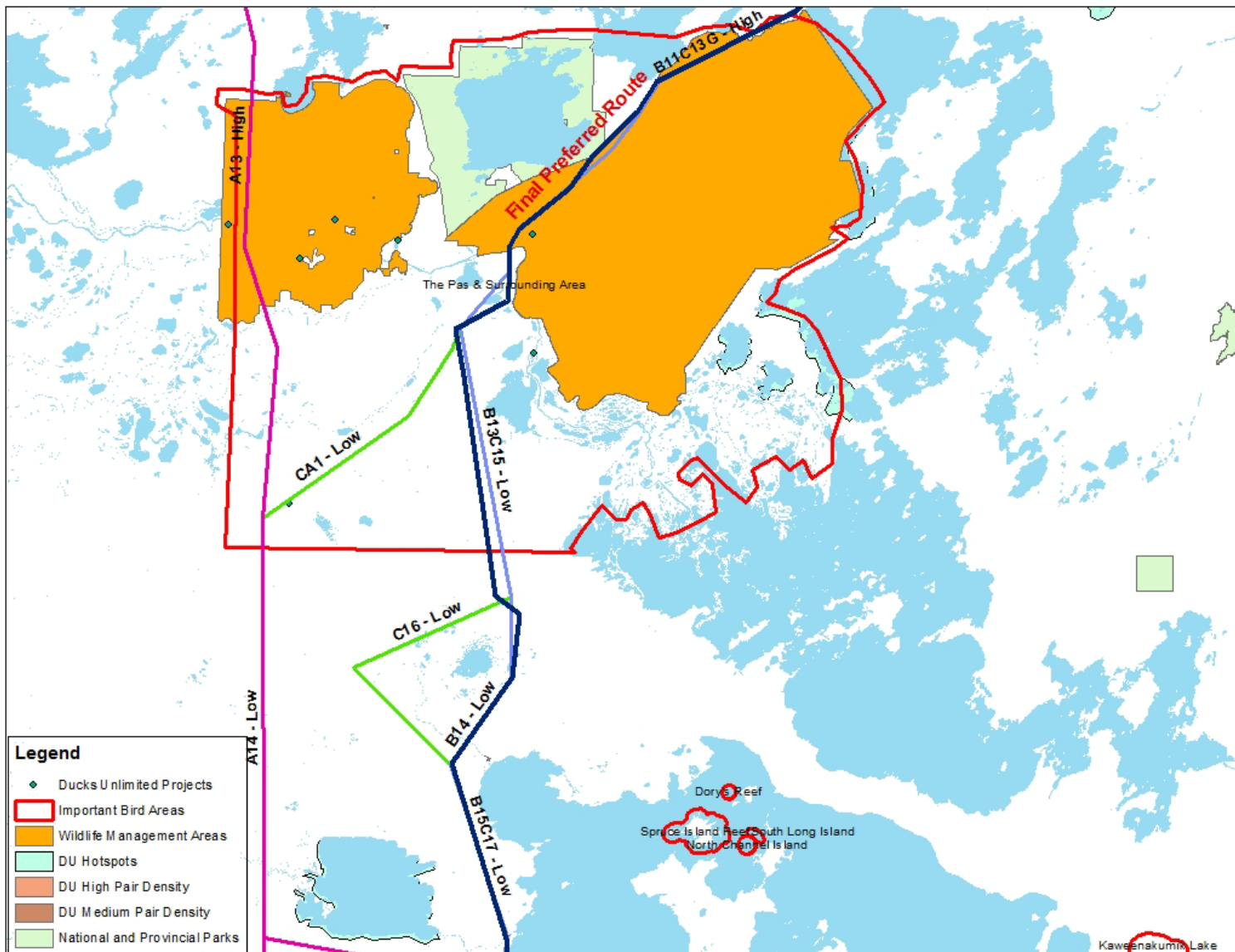
ALTERNATIVE ROUTE SELECTION



ROUTE SELECTION - EXAMPLE



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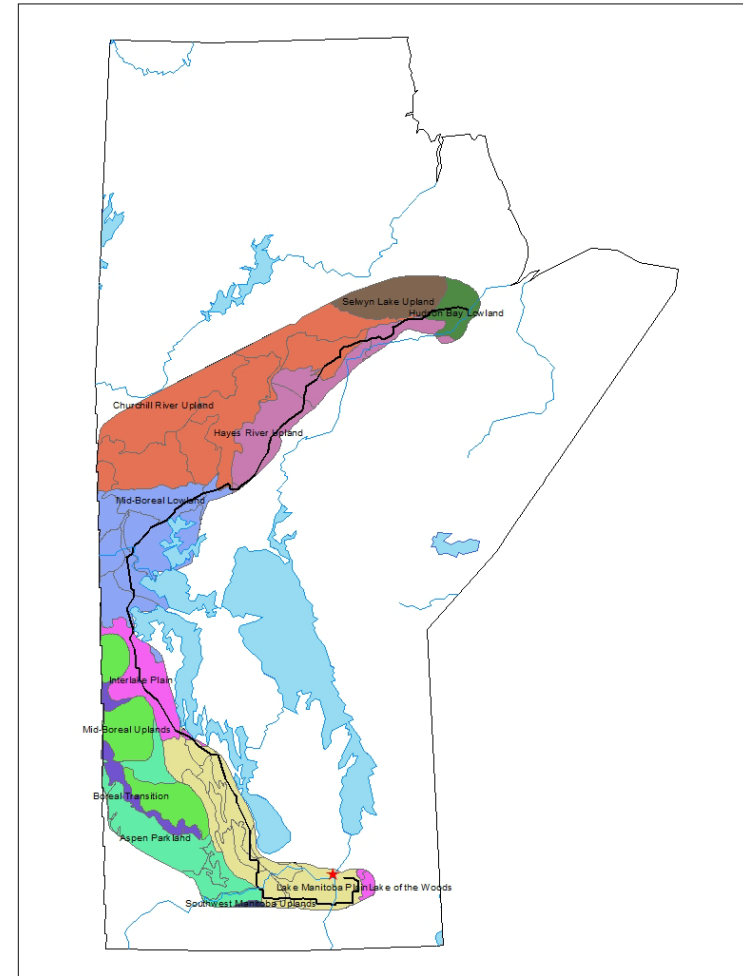


ENVIRONMENTAL ASSESSMENT - METHODS

- Literature
- Field surveys used to show extent of bird species and distribution in Project Study Area
- Ground surveys (approximately 4,800 plots)
 - Breeding Birds
 - Bird of Prey Surveys
 - Nocturnal Owl
 - Raptor Migration
- Aerial surveys for colonial waterbirds and waterfowl

FIELD SURVEYS

- Ecoregion focus
 - Variation in species based on geography
- Habitat modelling used to improve understanding of habitat effects for species by Ecoregion
 - LCCEB classification was used

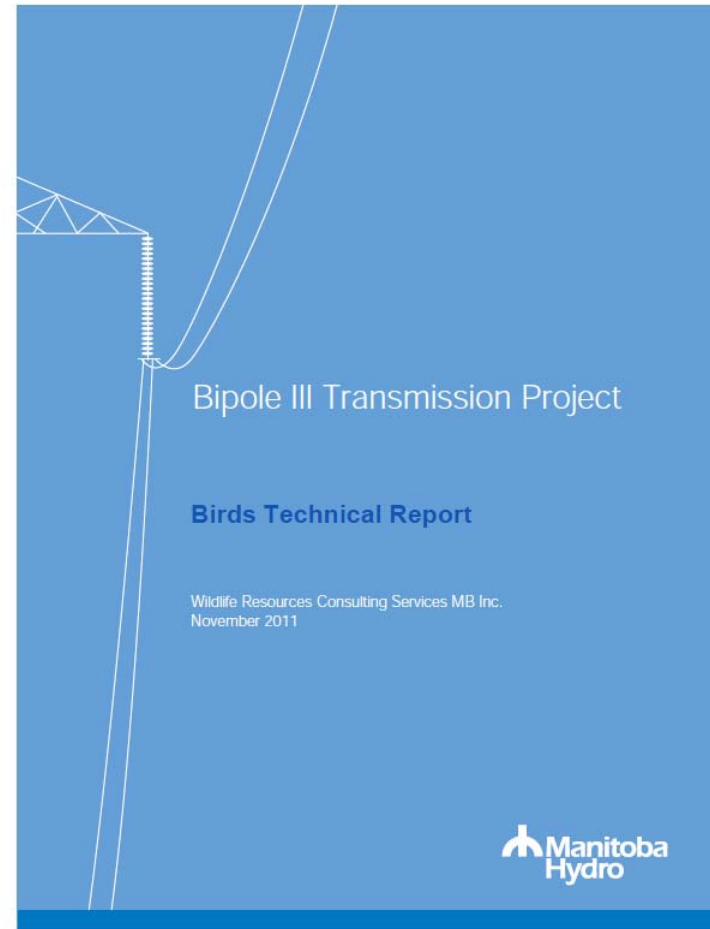


ABORIGINAL TRADITIONAL KNOWLEDGE

- All wildlife is important, including birds
 - bald eagle
 - mallard
 - sandhill crane
 - sharp-tailed grouse
 - common nighthawk
 - great blue heron
 - whip-poor-will
 - many other species
- Identified bird population changes in different regions (e.g., eagles, geese)

FINAL PREFERRED ROUTE

- Project effects
- Environmentally sensitive sites
- Mitigation
- Other factors



PROJECT EFFECTS

- Mortality
- Habitat loss or alteration
- Disruption of movement



PROJECT EFFECTS - MORTALITY

- Collisions with man-made structures a factor resulting in bird mortalities worldwide
 - Location, height of structures and lighting are determining factors
- Species
 - Some species more susceptible to collisions
 - E.g., Flocking behaviour, maneuverability, flight height, bird age, timing of movements
 - Groups (e.g., waterfowl, shorebirds and grouse)
- Environmental factors
 - Weather events can result in collisions

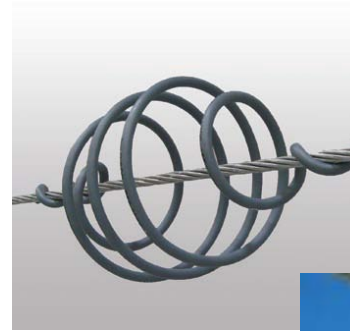
PROJECT EFFECTS - MORTALITY

- Bird collisions with transmission lines
 - Multiple studies
 - Mortality rates reported between 0 -18 birds/km
 - Higher mortalities rates reported
 - Collisions can be reduced through use of buffering and bird diverters
 - Proposed mitigation measures at environmentally sensitive sites



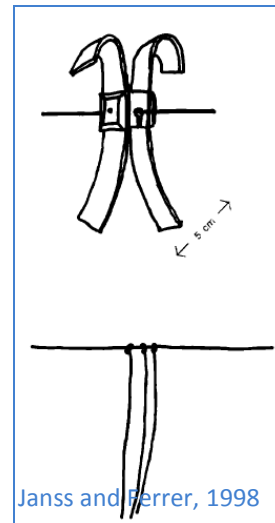
PROJECT EFFECTS - MORTALITY

- Diverter types
 - Spirals
 - Plates (“flappers”)
 - Bands
 - Aviation markers
- Effectiveness
 - 50-80% reduction in bird-wire collisions using bird diverters



SWAN-FLIGHT™ DIVERTER
www.preformed.on.ca/PDF/SwanFlightDiverter

FireFly™ Bird Fight Diverter
www.birdbusters.com/bird_flight_diverter



PROJECT EFFECTS - MORTALITY

- Use of RoWs by avian and mammalian predators
 - Increased risk of predation
- Increased incidences of nest parasitism
 - Brown headed cowbirds
 - Southern & western MB
- Access for hunting



PROJECT EFFECTS – HABITAT LOSS/ALTERATION

- Removal of trees
- Variable responses by bird species
 - Forest-interior species
 - Edge species
 - Grassland/shrubland species



PROJECT EFFECTS – DISRUPTION OF MOVEMENTS

- Cleared RoWs may provide barriers to movement for interior-forest specialist species
- Species normally found in sparsely treed, wetland or other open habitat not affected



PROJECT FOOTPRINTS

- Effect of project by component
 - Bipole III HVdc Transmission Line
 - Northern Collector System
 - Keewatinoow Converter Station and Ground Electrode
 - Riel Converter Station and Ground Electrode
- Variability in mortality, habitat loss or alteration, disruption of movements expected

ENVIRONMENTALLY SENSITIVE SITES

- 145 environmentally sensitive sites identified
 - Ranked at high (80) or moderate (65) risk
 - 32 point sites (i.e. colonies)
 - 113 larger areas (i.e. staging areas, wetland peripheries and across feeding-roosting corridors)



SPECIES AT RISK

- 35 Species at Risk
- Some species are unlikely to nest, are rare transients, or have known breeding locations in the province not affected by the project
- Species occurrences were considered in relation to breeding habitat, timing, project overlap and potential effects

MITIGATION MEASURES

- Mitigation includes:
 - Timing of clearing and construction based on breeding and nesting periods
 - Maintenance of buffers in sensitive areas
 - Prohibiting hunting by construction workers
 - Bird diverters

MITIGATION MEASURES

- Mitigation includes:
 - Setback distances using provincial, federal and industry guidelines (i.e. buffers)
 - Placement of perch deterrents near sharp-tailed grouse leks to prevent predation by raptors
 - Relocation of large stick nests if not avoided

OTHER FACTORS

- Habitat loss and alteration
 - Forestry, mining, farming, and hydro-electric development
 - Grasslands, wetlands and forests
- Winter range
- Contaminants
- Hunting



OTHER FACTORS

- Stochastic events
 - flooding, fires
- Climate change
- Regulation, conservation practices and initiatives



CONCLUSIONS

- Negligible to small loss and alteration of habitat (project footprints)
- Increased habitat for some species, displacement into alternate habitat for others
- Negligible to small increase in mortality (predation, hunting, bird-wire collisions)
- Negligible to small decrease in productivity (brood parasitism)
- Decrease in movements of some species across the right-of-way during breeding season