

# Site Selection and Environmental Assessment for Terrestrial Invertebrates, Amphibians and Reptiles

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# Site Selection and Environmental Assessment

- Constraints
- Valued Environmental Components
- Alternative Routes Evaluation
- Preferred Route and Components
  - Existing Environment
  - Environmentally Sensitive Sites
  - Project Effects and Mitigation

# Constraints

- Used to Identify Alternative Routes
- Species at Risk
  - Provincial *Endangered Species Act* (ESA)
  - Federal *Species at Risk Act* (SARA)
  - Designated at risk by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC)
- Native prairie and sand prairie areas

# Site Selection and Environmental Assessment

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# Valued Environmental Components (VEC)

- Components of the Biophysical Environment that are considered important and potentially sensitive to the Project.
- Species at Risk
- Wide ranging species
- Species that rely on rare and fragmented habitats

# Valued Environmental Components (VEC)

- State of the VEC's – Terrestrial Invertebrates
  - Dakota, Ottoe and Uncas Skippers
  - All three VEC species are Threatened or Endangered Species
  - Habitat is limiting and isolated (native prairie and sandy-soil prairie).
  - Concern is loss or degradation of habitat



# Valued Environmental Components (VEC)

- State of the VEC's – Amphibians
  - Wood frog is common and widespread throughout Manitoba
  - Plains Spadefoot has isolated distribution, tied to sandy-soil prairie habitats and wetlands
  - Northern Leopard Frog listed as a species of Special Concern (SARA)
  - Issue for all three species is loss or degradation of breeding habitats (sandy-soil prairie or wetlands)



# Valued Environmental Components (VEC)

- State of the VEC's – Reptiles
  - Northern Prairie Skink – Endangered with isolated population
  - Red-sided Garter Snake is common, but hibernacula sites are limiting
  - Issue for prairie skink is loss or degradation of habitat and effects on population size
  - Issue for garter snake is disturbance or destruction of hibernacula

# Site Selection and Environmental Assessment

- Constraints
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# Alternative Routes Evaluation

- Alternative Routes evaluated within 3 mile buffer
- Each segment ranked as High, Moderate or Low based on VEC's and Constraints
- The Preliminary Preferred Route included two segments that were ranked as High (B22 and B23)
- Segments B22 and B23 contained garter snake hibernacula, large areas of wetlands and sandy-soil prairie

# Site Selection and Environmental Assessment

- Constraints
- Valued Environmental Components
- Alternative Routes Evaluation
- Preferred Route and Components

# Preferred Route and Components

- Existing Environment
  - Describe the occurrences and habitats of VEC's in the Local Study Area and Project Footprint
    - Literature, government databases
    - Habitat Models for VEC's
    - Field Studies to verify predicted sites and to validate the models
    - Aboriginal Traditional Knowledge to identify potential constraint areas
    - Identify Environmentally Sensitive Sites

# Preferred Route and Components

- Habitat Models

- Habitat models were developed for all VEC species based on life requisites of the species.
- Models used GIS habitat data sets
  - Land Cover Classification – Enhanced for Bipole (LCCEB)
  - Forest Resource Inventory (FRI)
  - National Hydro Network (NHN)
- Habitat Models used to predict VEC locations



# Preferred Route and Components

- Field Studies

- Sweep-net surveys for invertebrates
- Call surveys for frogs and toads
- Cover board surveys for prairie skink
- Visual encounter surveys for garter snakes





# Preferred Route and Components

- ATK
  - Community Workshops
  - Self-Directed Studies
    - Barrows ATK Group Workshops
      - presence of garter snakes and potential hibernacula were identified along Hwy 10 between Red Deer Lake and Dawson Bay.
    - Pelican Rapids ATK Group Workshops
      - area with a large frog population was identified near the south end of the Pelican Rapids townsite.

# Preferred Route and Components

- Environmentally Sensitive Sites
  - Sites were identified using results from:
    - Desktop Analysis
    - Habitat Models
    - ATK
    - Field Studies

# Preferred Route and Components

- Environmentally Sensitive Sites
  - Sandy-soil Prairie
    - Uncas and Ottoe Skipper Habitat
    - Plains Spadefoot Toad Habitat
    - Prairie Skink Habitat
  - Wetlands
    - Northern Leopard Frog
    - Wood Frog
  - Garter Snake Hibernacula
    - Garter Snake Hibernacula Habitat and Known Sites

# Preferred Route and Components

- Project Effects
  - Alteration or disturbance of habitats
  - Direct loss of habitat at towers and other infrastructure
  - Sensory disturbance and mortality

# Preferred Route and Components

- Project Effects – Terrestrial Invertebrates
  - Sandy-soil prairie is the habitat of concern
  - Alteration or disturbance of habitats
  - Rutting or disturbance to sandy-soil prairie
  - Loss of habitat from tower footprint





# Preferred Route and Components

- Project Mitigation – Terrestrial Invertebrates
  - 30 m buffer around Sandy-soil prairie, with minimal vegetation removal or vehicle traffic
  - Minimize ground disturbance within Sandy-soil prairie
  - Where feasible, avoid tower placement in Sandy-soil prairie habitat
  - Pre-construction surveys in Sandy-soil prairie to avoid sensitive sites

# Preferred Route and Components

- Project Effects – Amphibians
  - Sandy-soil habitat and Wetlands
  - Alteration or disturbance of habitats
  - Rutting or disturbance to sandy-soil prairie and wetlands
  - Direct mortality of individuals





# Preferred Route and Components

- Project Mitigation – Amphibians

- Construction

- Winter construction
- 30 m buffer around sandy-soil habitat and wetlands, with minimal vegetation removal or vehicle traffic
- Minimize ground disturbance within Sandy-soil habitat and wetlands
- Where feasible, avoid tower placement in Sandy-soil habitat and wetlands

- Operation

- Vegetation management outside breeding season (April 1-August 15)
- 30 m buffer around sandy-soil habitat and wetlands, with minimal vegetation removal or vehicle traffic

# Preferred Route and Components

- Project Effects – Reptiles:  
Prairie Skink
  - Alteration or disturbance of skink habitat
  - Direct impact to nest sites during construction and operation



# Preferred Route and Components

- Project Mitigation – Reptiles: Prairie Skink
  - Construction
    - 100 m buffer around skink habitat, with minimal vegetation removal or vehicle traffic
    - Minimize ground disturbance within skink habitat
    - Avoid tower placement in skink habitat
    - Where towers must occur within skink habitat, skink nest surveys to be conducted
    - Towers located >200 m from skink nest
  - Operation
    - 100 m buffer around skink habitat, with minimal vegetation removal or vehicle traffic
    - 200 m buffer around skink nests



# Preferred Route and Components

- Project Effects – Reptiles: Garter Snake
  - Sensory disturbance to hibernating garter snakes
  - Destruction of hibernacula during construction



# Preferred Route and Components

- Project Mitigation – Reptiles: Garter Snake
  - Construction
    - Avoid tower placement in garter snake hibernacula habitat
    - 200 m buffer around garter snake hibernacula habitat, where blasting, ground disturbance, vegetation removal and vehicle traffic is limited
    - Where towers must occur within hibernacula habitat, tower construction will occur in summer (June 1 to August 31) or surveys will be conducted to confirm hibernacula locations
  - Operation
    - 200 m buffer around garter snake hibernacula habitat within which ground disturbance is minimized

# Preferred Route and Components

- Effects of Future Projects on VEC's
  - Potential for future projects to effects VEC's through:
    - Loss or degradation of sandy-soil prairie
    - Loss or degradation of wetlands
    - Disturbance or degradation of garter snake hibernacula
  - Potential effects reduced through application of appropriate mitigation

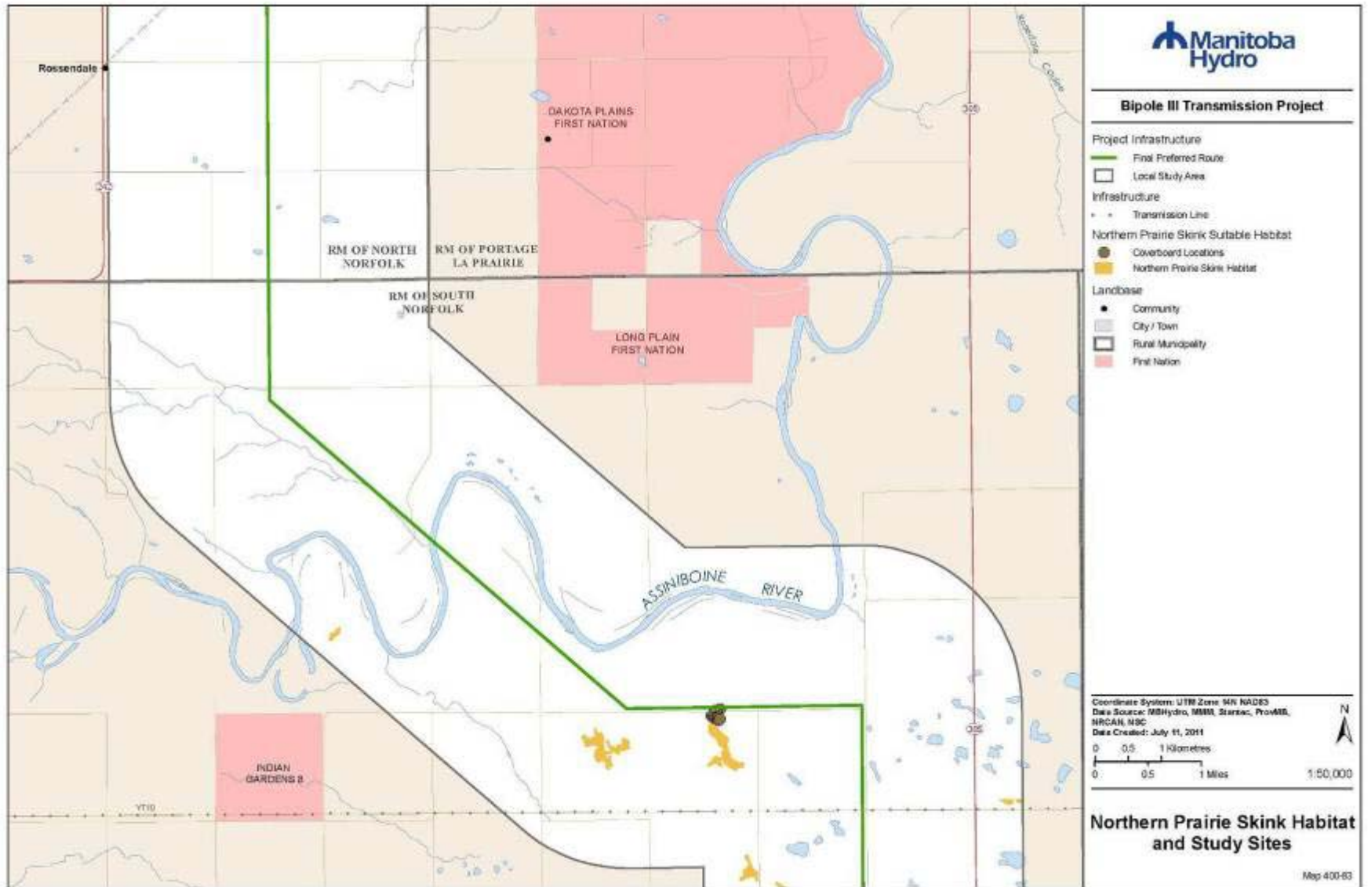
Thank You



# Glenboro Area T-line and Skink Nest

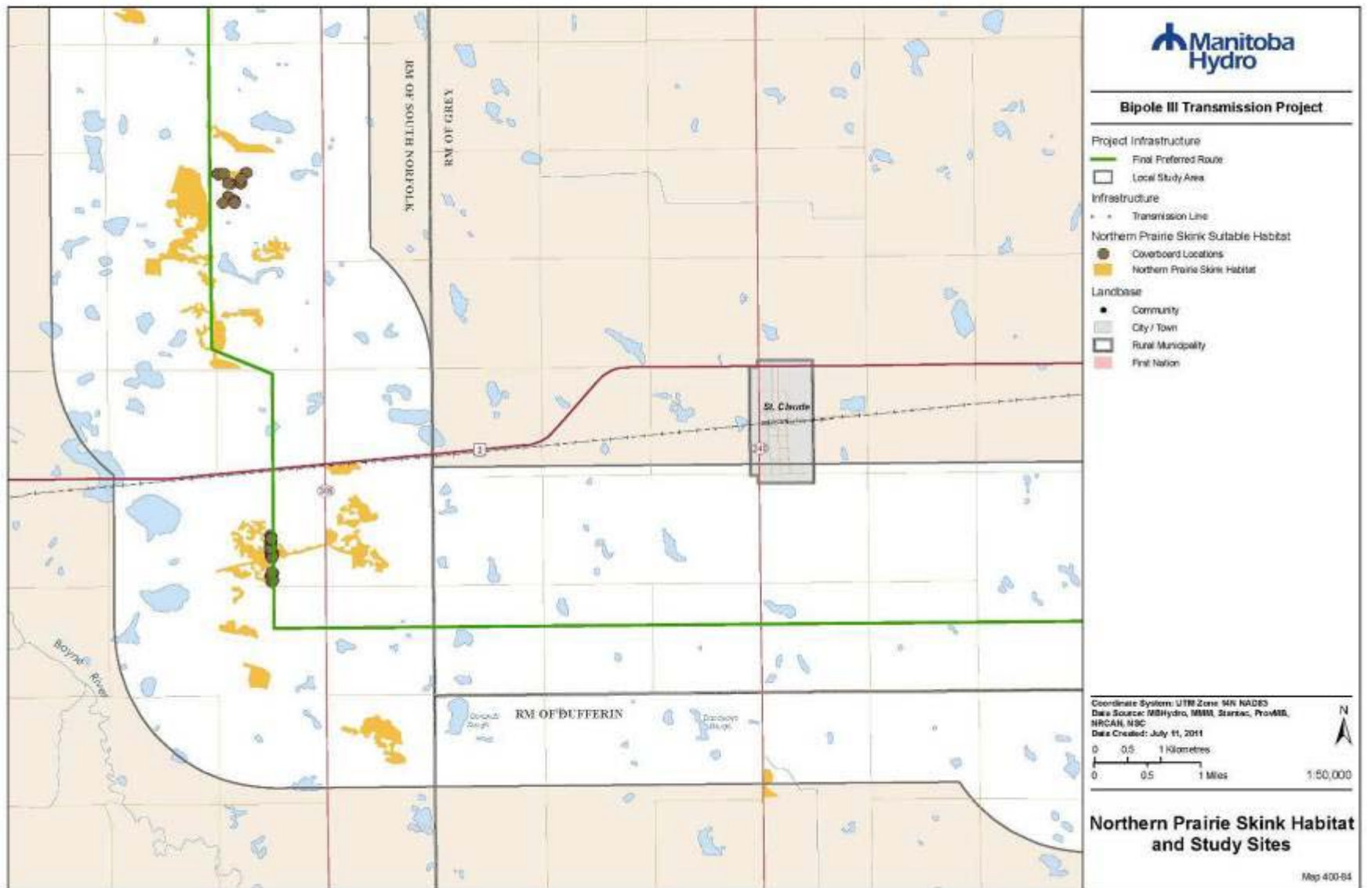


# Skink Habitat and Survey Locations

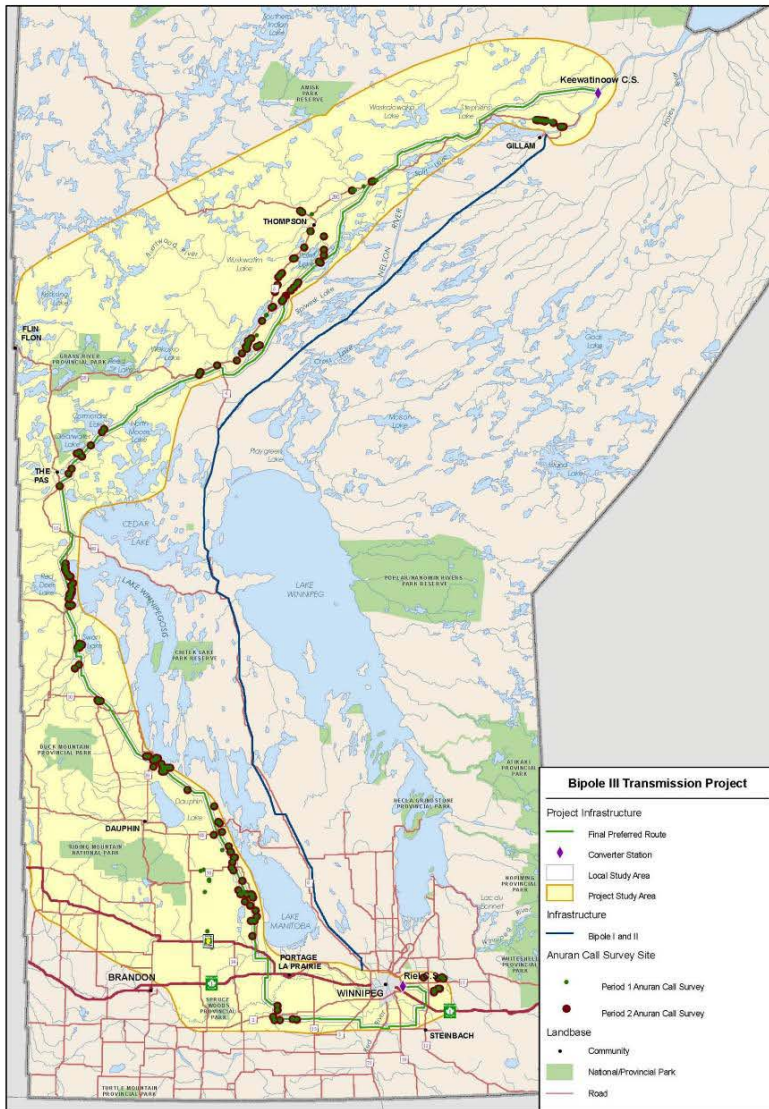




# Skink Habitat and Survey Locations



# Frog Call Survey Locations



Manitoba Hydro

Coordinate System: UTM Zone 14N NAD83  
 Data Source: MB Hydro, MMM, Stantec, ProvMB, NRCan, NSC  
 Date Created: July 11, 2011

0 25 50 Kilometres  
 0 1 25 50 Miles

1:2,500,000

Anuran Call Surveys Period 1 and 2

Map 3



# Northern Leopard Frog Locations

