



STAR-ORION SOUTH DIAMOND PROJECT  
ENVIRONMENTAL IMPACT ASSESSMENT

**APPENDIX 5.4.2-F**

**Muskoday First Nation - Traditional Knowledge Report**



**Muskoday First Nation**

**Traditional Knowledge Report**

**August 2011**

**SLR Project No.: 208.04556.00001**

**Traditional Knowledge Report**

**Muskoday First Nation**

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## EXECUTIVE SUMMARY

SLR Consulting (Canada) Ltd. (SLR) and Dillon Consulting Limited (Dillon) were retained by Muskoday First Nation to assist in documenting Traditional Land Use in the vicinity of the proposed Shore Gold Inc. (Shore Gold) Star-Orion South Diamond Project (Diamond Project). The purpose of this study is to advise Shore Gold on cultural/spiritual sites and traditional land uses to which the proposed Diamond Project could create an impact. Information gathered would permit Shore Gold to inform the Crown and regulators of the potential impacts through the Environmental Impact Statement (EIS). Where adverse impacts are identified, this information could be used to assist in developing avoidance, mitigation or compensation strategies and enable the Crown and regulators to better consult with Muskoday First Nation (Information Gathering Agreement, 2011).

The theme that continues to resonate is the need to understand the interests of Muskoday First Nation on this landscape. If this report had been available, a suitable method to ensure inclusion of these interests would include recommendation of Valued Ecosystem Components derived from the Traditional Knowledge and Land Use study early in the impact assessment. The failure to do so does not affect the responsibility of Shore Gold to interpret the existing data in the context of Muskoday First Nation interests, to identify the impact of the mine proposal on their interests, and to identify a mitigation and implementation plan that will result in a net benefit to Muskoday First Nation. Key factors that need clarification in the Environmental Impact Statement include, but are not limited to:

- The effect of habitat loss to fish, big game, fur bearers, birds, and plants;
- The effect of barriers to landscape connectivity posed by the scale, duration and intensity of the mine proposal;
- The effect of the groundwater drawdown effects that extend beyond the local study area;
- Methods to investigate historic and sacred sites during mine development;
- Identification of a mitigation and rehabilitation plan that is meaningful to the Muskoday First Nation and their descendants.
- Potential effects of water quality changes on fish and wildlife directly, and potential effects to humans from animal consumption; and
- Vegetation mapping should be re-interpreted from the viewpoint that each of these vegetation types provide habitat for support of the resources identified by Muskoday First Nation.

Recommendations are provided in the report to assist Muskoday First Nation and Shore Gold to work collaboratively to better understand the associated impacts of the proposed Star-Orion Diamond project and to ensure the recognition and protection of the way of life of Muskoday First Nation.

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## 1.0 INTRODUCTION

SLR Consulting (Canada) Ltd. (SLR) and Dillon Consulting Limited (Dillon) were retained by Muskoday First Nation to assist in documenting Traditional Land Use in the vicinity of the proposed Shore Gold Inc. (Shore Gold) Star-Orion South Diamond Project (Diamond Project). The purpose of this study is to advise Shore Gold on cultural/spiritual sites and traditional land uses to which the proposed Diamond Project could create an impact. Information gathered would permit Shore Gold to inform the Crown and regulators of the potential impacts through the Environmental Impact Statement (EIS). Where adverse impacts are identified, this information could be used to assist in developing avoidance, mitigation or compensation strategies and enable the Crown and regulators to better consult with Muskoday First Nation (Information Gathering Agreement, 2011).

In addition to supporting the Shore Gold's EIS, the purpose of this report is to provide Muskoday First Nation with a database of traditional knowledge, sites and uses, for its ownership, use and control (Information Gathering Agreement, 2011). All Traditional Knowledge collected to develop this report is of the sole ownership of Muskoday First Nation, and will be returned to Muskoday First Nation upon the completion of the traditional land use project.

## 2.0 MUSKODAY FIRST NATION

### 2.1 Background

The Muskoday First Nation #99 (formerly the John Smith First Nation), is located in Saskatchewan, Canada, composed of Cree and Saulteaux peoples. Muskoday First Nation has a registered population of 1,552 as of December 2007, of which approximately 560 Members of the Nation live on-reserve, and approximately 980 live off-reserve.

Muskoday First Nation's territory is located in the aspen parkland biome, comprised of prairie and grassland landscape. The 9,686.8 ha reserve is approximately 19 kilometres (km) southeast of Prince Albert, Saskatchewan and is bordered by the rural municipalities of Birch Hills No. 460 and Prince Albert No. 461.

### 2.2 History

Muskoday First Nation's land was settled after Chief John Smith, from a Cree and Saulteaux band, settled along the South Saskatchewan River in the 1870s. Chief Smith signed onto Treaty Six at Fort Carlton in 1876, legally making the settlement an Indian reserve.

The reserve and First Nation was initially named after Chief John Smith, who was a brother of Chief James Smith, the founder of the James Smith First Nation.

During the 1970s, Provincial Highway #3 was completed through the reserve that linked the town of Birch Hills with Prince Albert. The Muskoday Bridge was then built over the South Saskatchewan River, which divides the reserve lands roughly in half.

In 1992, the reserve formally changed its name from John Smith to Muskoday First Nation.

Unlike many other Cree Nations in the area, in the 19th and 20th century the reserve was almost entirely Anglican, with no Roman Catholic influence. However, traditional spirituality and practices remained strong. Today, the two church congregations serving the Muskoday First Nation are St. James Anglican Church and the Muskoday Baptist Church.

### **2.3 Treaty Land Entitlement**

Like many First Nations in Canada, Muskoday First Nation is engaged in ongoing discussions, agreements and lobbying efforts with the federal government. Land ownership and entitlement are at the core of these efforts. In 1993, Muskoday First Nation made a Treaty Land Entitlement claim to Canada on the basis that it did not receive the proper amount of land under Treaty 6 in 1876. The original submission was rejected and subsequent submissions were made until Canada accepted the claim for negotiation in 2003. In 2007, members of the First Nation ratified the Treaty Land Entitlement Agreement in the amount of \$10 million to buy land not included in the reserve at the time of Treaty 6. To date, 6180 acres has been purchased, but none has yet to become reserve through the Additions to Reserve process.

### **2.4 Governance and Accomplishments**

The Muskoday First Nation follows a democratic process for determining their elected leaders. The current leadership consists of a Chief and five Councillors. Muskoday First Nation is affiliated with the Saskatoon Tribal Council, along with six other First Nations. The Saskatoon Tribal Council was established on February 23, 1982, as an institution to assist the individual and collective governments of the First Nations in the Saskatoon area.

In 1987, Muskoday became one of the first aboriginal communities in Canada to negotiate a 5 year funding agreement with Indian and Northern Affairs Canada. Prior to this, all funding was done on a yearly basis.

In 1993 Muskoday and the Prince Albert Rural Water Utility signed an agreement to bring municipal water from the City of Prince Albert to the reserve and its residents.

In 1998, members of Muskoday First Nation voted overwhelmingly to approve and implement a Land Code to manage its own lands, rather than have them be managed by the federal government, thus eliminating approximately one third of the Indian Act from the day to day affairs of land management.

In 2005, a new Kindergarten - Grade 9 community school was opened. Major services in the core community area include a large subdivision housing development, water plant, community health centre, administration building, and community hall. Other services include a day care centre, volunteer fire department, post office, gas bar and restaurant.



### 3.0 STUDY SCOPE AND PARAMETERS

The purpose of this study is to advise Shore Gold on cultural/spiritual sites and traditional land uses, to which the proposed Star-Orion South Diamond Project could create an impact. In addition, this study will assist Muskoday First Nation in developing a database of Traditional Knowledge, sites and uses for its ownership, use and control (Information Gathering Agreement, 2011).

#### 3.1 Traditional Land Use Study

The purpose of a Traditional Land Use Study is to gather and record Traditional Knowledge and patterns of traditional use through interviews with Elders, traditional users and/or hunters and trappers. The following is a list of information gathered and mapped for this project:

- Locations of animals (e.g., birds, fish, big game) harvested for food, clothing, medicines, tools, trade and other purposes;
- Places where plants are gathered for food, clothing, medicines, tools, shelter and fuel;
- Habitats and sites critical to the survival of important animal populations;
- Locations of settlements, trading posts, cabins, camps, and burial grounds;
- Spiritual or sacred places such as ceremony sites, special places, birth and death sites; and
- Trap lines, travel, and trade routes.

The areas mapped represent both historical and current uses by the Muskoday First Nation. The polygons are generalized and do not correspond to specific habitat types because the landscape has changed, especially in the last thirty to fifty years as a result of more intensive agriculture, and the way in which the Muskoday First Nation use the lands has also evolved through time.

#### 3.2 Benefits of Gathering Traditional Knowledge

Gathering quality Traditional Knowledge can improve decision-making and inform many different projects and activities some of which include (Tobias, 2000 and AAND, 2003):

- Documenting oral history before knowledge is lost;
- Providing evidence for court cases involving Aboriginal Rights and Title;
- Settling treaty and claims under federal land claims processes;
- Supporting compensation claims;
- Providing a mechanism for input into managing the natural resources and negotiating co-management agreements;

- Providing baseline data for long-term community planning and resource management;
- Supporting administrative programs such as land use permitting;
- Preserving a way of life to pass on to the younger generation;
- Improving industry's awareness of the impacts development can have on traditional uses; and
- Sustaining the culture and identity of the community.

### 3.3 Study Approach

The following approach was used to undertake this study:

- Muskoday First Nation owns and controls their Traditional Knowledge;
- Muskoday First Nation assigned a liaison to identify Elders, traditional users and hunters;
- All Traditional Knowledge meetings, sessions and interviews were facilitated on the Nation;
- All engagement and communication with Elders and Muskoday First Nation was respectful;
- All participants acknowledged and signed a Data Sharing Agreement to participate in the study; and
- Respect for traditional channels of authority and levels of approval within Muskoday First Nation were followed.

### 3.4 Traditional Knowledge Team

Undertaking a Traditional Knowledge/Land Use Study requires a variety of people with a diversity of skills and knowledge. The following provides a description of team members and their roles:

#### ***Traditional Knowledge Community Liaison/Coordinator***

James A. Smith served as the Traditional Knowledge Community Liaison/Coordinator. James is a Member of Muskoday First Nation and was invaluable to the team. James was selected by Muskoday First Nation because of his previous experience undertaking Traditional Knowledge work in his community, his familiarity with the Shore Gold project, and his relationships with Elders and Traditional Knowledge holders.

James assisted the team by selecting participants for the Working Group, collaborating on project team meetings, organizing logistics, ensuring a suitable location for the Traditional Knowledge workshop and validation meeting, workshop facilitation, and acted as a communication conduit between Muskoday First Nation, Elders and the consultants. He also prepared Section 2 of this report.

### ***Elders Working Group***

Muskoday First Nation selected the Elders for the Working Group. Participants were selected based on their knowledge of community history and land use. Both genders were represented in the Working Group, however, women comprised a larger majority of participants.

The Working Group participated in the study by providing input into the Traditional Knowledge Gathering Workshop and Validation Meeting. All participants signed a consent form and were provided honoraria for their involvement in the study.

### ***Traditional Knowledge Facilitators/Consultants***

The Facilitators were responsible for creating the framework for the Traditional Knowledge gathering and validation sessions, interviews and facilitation, mapping, and reporting. This was done through on-going consultation and coordination with Muskoday First Nation.

## **4.0 METHODOLOGY**

### **4.1 Study Area**

Originally the Traditional Knowledge Study Area encompassed a 30 km radius around the proposed Star-Orion South Diamond Mine project footprint and was extended to the south to include the Muskoday First Nation reserve land. This report provides the information that is relevant to the Shore Gold project area (refer to Figure 1: Base Map). Information captured for the larger study area is presented to Muskoday First Nation separately as it forms the development of their Traditional Knowledge database beyond and inclusive of the Shore Gold project.

### **4.2 Traditional Knowledge Categories**

In order to focus the study, a series of standard land use categories were identified prior to the Traditional Knowledge Gathering Workshop and approved by Muskoday First Nation. The categories included: Berries, Big Game, Birds, Fur Bearers, Fish, Historical and Spiritual, and Medicinal Plants (Medicinal Plants evolved into additional subcategories as described below). An "Other" category was available were any member of the Working Group to have information that did not fall into one of the identified categories.

### **4.3 Questionnaires**

For each category, a questionnaire was developed to assist the facilitator in undertaking the study in a consistent manner. The questionnaires asked a series of questions for each site identified by a member of the Working Group. Information collected through the questionnaires was captured in an Excel spreadsheet and is useable for additional Geographic Information Systems (GIS) purposes outside the scope of this project.

A general questionnaire was developed for each category. These general questionnaires allowed the facilitators to gain additional information about a specific category without having to

ask the same questions each time a participant identified a location on the map. This approach helped to alleviate participant fatigue.

#### 4.4 Geographic Information Systems (GIS)

##### *Data Collection*

A variety of data collection methods can be used to gather Traditional Knowledge Land Use information. For this project, participants were asked to identify areas on a map using one of the following features:

- **Point** representing a fixed location (e.g. hunting camp);
- **Line** representing a linear landmark or activity (e.g. trap line); or
- **Polygon** representing an area (e.g. berry picking location).

NTS map sheets (1:250,000 scale) were displayed on the wall to help orientate participants and provide more detailed information about the area, should they need it. A base map was used to capture information and was freely marked up with one of the above mentioned features (point, line, or polygon). Each feature was assigned a site number, represented by a numbered sticker. The numbered site/sticker corresponded to a questionnaire form.

##### *Data Analysis & Interpretation*

The paper copy maps were converted into images and then georeferenced into ESRI's ArcGIS. Shapefiles were created by digitizing (tracing) the land use locations and creating a field in the attribute table that joined the responses provided in the questionnaire to the shapefile. Once the questionnaire responses were converted into Excel format, this information was linked to the shapefile by connecting the unique identifiers for each sticker found both in the shapefile and questionnaire. Once the digitizing was complete, four maps were created to display information gathered from the discussions with the Elders.

##### *Data Output & Verification*

Four maps were printed and brought back to the Elders for a validation meeting (see Section 4.5 below). Following the validation meeting, all changes and additions were added to the data and the final maps were produced.

#### 4.5 Traditional Knowledge Gathering Workshop

The Traditional Knowledge Gathering Workshop was hosted on May 23, 2011, at the Administrative Office at Muskoday First Nation. The workshop ran from 1:00 pm to 4:00 pm. The workshop began with an opening prayer and introductions. The facilitators provided a more in-depth introduction to provide context on who they were and their previous experience working with First Nation communities. Background on the Traditional Knowledge Land Use Study was provided and participants were given a breakdown of how the workshop was going to be undertaken.

Originally, the Traditional Knowledge Gathering Session was proposed as one-on-one interviews; however, through consultation with Muskoday First Nation it was determined that group sessions would be preferred. Groups were divided to include both men and women and each group worked through the session based on the Traditional Knowledge gathering methodology described above.

With the permission of Muskoday First Nation and the Elders Working Group, audio recordings were made of the session.

#### **4.6 Validation Meeting**

The Validation Meeting was held on July 12, 2011, at the Administrative Office at Muskoday First Nation from 10:00 am to 4:00 pm and included multiple energy breaks and a sit-down lunch. The meeting began with an opening prayer by Edith Dreaver and group introductions.

The meeting was conducted as a large group using an open-dialogue format. The group format helped to keep the participants focussed, yet allowed the opportunity for additional information to be collected and provided a time for participants to reflect on information previously captured.

The morning session consisted of:

- Reviewing the goals and objectives of the Traditional Knowledge Study;
- Presenting an overview of the information assembled to-date including inputting the Traditional Knowledge questionnaires into an electronic database and developing the draft Traditional Knowledge Maps;
- Conducting a presentation on GIS including how it is being used in the Muskoday First Nation Traditional Knowledge Study; and
- Discussing the proposed Shore Gold project including location, project components, and potential impacts.

The afternoon session consisted of validating and adding to the Traditional Knowledge information collected during the first meeting. To validate the information, the Draft Traditional Knowledge maps were projected onto a screen and the questionnaires were reviewed as a group to ensure that information and locations were properly recorded. Participants were encouraged to elaborate on the information already presented and asked to contribute new information.

Only minor errors were noted and were rectified immediately. Additional information was also captured and included in the Traditional Knowledge database.

Following closing comments, Edith Dreaver concluded the Validation Meeting with a prayer. Each participant was presented with a “thank-you” gift for his or her contribution to the study.

## **4.7 GIS Workshop/Capacity Building**

A GIS Workshop was held with Dean Bear and James A. Smith on July 13, 2011. This session, approximately one day in length, was an opportunity to demonstrate the use of GIS and to discuss the opportunities this software has as an integral part of data collection and mapping.

The workshop was divided into two parts: the first part consisted of a discussion of Muskoday First Nation's software and experience, and how GIS was used to create the Traditional Knowledge mapping; the second part consisted of a closer look at the functions and capabilities of GIS and a short introduction to ESRI (Environmental Systems Research Institute) software and available online/course lead training.

## **5.0 TRADITIONAL KNOWLEDGE AND LAND USE RESULTS**

The following Traditional Knowledge and Land Use discussion was created from the information that was shared during the Traditional Knowledge sessions and discussions with Muskoday First Nation. It is intended to inform the Environmental Impact Statement process for the Shore Gold project.

In the section below, under each land use category (e.g., Fish), knowledge shared by Elders and Muskoday First Nation is captured under a section titled "Traditional Knowledge". A second section titled "Translation of Knowledge" is a brief synopsis comparing Traditional Knowledge to Western Science to better understand a variety of factors, including: habitats, wildlife movement, growing seasons, etc.

Scientific names have been provided by the consultant where possible, and are attached to the common names of animals and plants that were identified. In some cases, the Elders did not distinguish between species of small mammals; therefore a whole group of species is commonly identified (e.g., ground squirrels).

### **5.1 Big Game**

#### **5.1.1 Traditional Knowledge**

Big Game hunted by Muskoday First Nation members include: White-tailed Deer, Elk and Moose, whose habitats tend to be associated with watercourses and food sources. Moose and Elk are most often seen near the main rivers, including the South Saskatchewan River, and follow the valleys when travelling. Moose also use the main watercourse and feed in the swamps and marshes.

Two traditional trails exist that connect Muskoday First Nation with the Fort à la Corne Forest linked by a crossing of the river. Gathering places are located within the areas on Figure 2: Big Game and Fur-Bearers, where tents were pitched, or a few rough cabins may have been erected. Muskoday First Nation men are known to "rough it out" (i.e., camp without tents) in the forest, a practice shared with peoples from the James Smith Reserve.

Of the species identified, there is equal importance across a range of uses. They provide an important food source and in some cases the hides are tanned for leather (sometimes the fur is left on). Antlers were historically worked for tools.

### **5.1.2 Translation of Knowledge**

The emphasis for big game is on the watercourses and valleys year round, and on the habitat that provides seasonal food sources (swamps, areas of secondary growth and areas with berry production). Wintering areas, such as deeryards, are critical to the survival of populations in addition to areas kept open in the winter by groundwater seepage. White-tailed Deer are also known to concentrate in the secondary growth.

## **5.2 Fur Bearers**

### **5.2.1 Traditional Knowledge**

The following fur bearers were identified as being trapped by the Muskoday First Nation: Black Bears, Coyote, Rabbit, Red Fox, Gopher, Squirrel, Beaver, Lynx, Marten, Mink, Muskrat, Otter, Skunk, Weasel, and Wolf. Trap lines are still maintained by Muskoday First Nation members and Elders recall trap lines along the North Saskatchewan River. The Black Bear, American Beaver, Coyote, Mink, Muskrat and Wolf were identified as being of high importance to the Muskoday First Nation. The fur is important for making garments and as a source of income for trappers.

In the summer and fall, when berries are ripening, the Black Bear are most often found close by in both upland and wetland areas. The bears were identified as a source of grease, used medicinally.

Muskrat was identified in association with Rat Root as they share the same habitat. Skunk oil is used for the treatment of bad colds. Refer to Figure 2: Big Game and Fur Bearers.

### **5.2.2 Translation of Knowledge**

Of the fur bearers identified, the Beaver, Muskrat, Otter and Mink are largely aquatic and dependant on watercourses, lakes and wetlands, key habitat and important pathways of connectivity. The remainder of species are largely terrestrial. The carnivores likely also include access to water in their home ranges; the herbivores are less likely to do so.

These widely diverse collections of fur bearers make use of all habitats identified in the Fort à la Corne area; however, they are not evenly distributed across the landscape. Relatively high concentrations of species, especially aquatic species, cluster near the land water interface and along the watercourses. Thus the watercourses, lakes, wetlands and land area fringing these environments are of greater biological importance than other parts of the Fort à la Corne forest.

Table 1 provides a summary of fur bearing animals identified by Muskoday First Nation for Traditional Uses.

**Table 1**  
**Furbearers Identified by Muskoday First Nation**

<b>Common Name</b>	<b>Scientific Name(s)</b>
Black Bear	<i>Ursus americanus</i>
Coyote	<i>Canis latrans</i>
Rabbit – two species of hares	<i>Lepus americanus</i> and <i>L. townsendii</i>
Red Fox	<i>Vulpes vulpes</i>
Northern Pocket Gopher	<i>Thomomys talpoides</i>
Squirrel – possibly five species	
• Red Squirrel	<i>Tamiasciurus hudsonicus</i> ,
• Northern Flying Squirrel	<i>Glaucomys sabirinus</i> ,
• Richardson’s Ground Squirrel	<i>Spermophilus richardsonii</i> ,
• Thirteen-lined Ground Squirrel	<i>S. tridecemlineatus</i> ,
• Franklin’s Ground Squirrel	<i>S. franklinii</i>
American Beaver	<i>Castor canadensis</i>
Canadian Lynx	<i>Lynx canadensis</i>
American Marten	<i>Martes americana</i>
Mink,	<i>Mustela vison</i>
Muskrat	<i>Ondatra zibethicus</i>
North American River Otter	<i>Lontra canadensis</i>
Striped Skunk	<i>Mephitis mephitis</i>
Weasel – possibly three species	
• Ermine (Short-tailed Weasel)	<i>Mustela ermine</i>
• Long-tailed Weasel	<i>Mustela frenata</i>
• Least Weasel	<i>Mustela nivalis</i>
Northern Gray Wolf	<i>Canis lupus occidentalis</i>

### 5.3 Birds

#### 5.3.1 Traditional Knowledge

Some of the birds traditionally used by Muskoday First Nation include: Geese, Pelican, Duck, Swan, Heron, Partridge, Pheasant, Crane, and Eagle. The most important species to the Muskoday First Nation were Geese, Ducks, Partridge, Prairie Chicken, Grouse and Eagle. Some of the uses for these birds included: food, feathers for pillows and blankets and ceremonial headdresses for pow wow outfits. Eagle feathers also hold unique significance for spiritual reasons and matters of governance. Refer to Figure 3: Birds and Fish

#### 5.3.2 Translation of Knowledge

Watercourses, lakes and wetlands are important for the maintenance of healthy waterfowl and herons. Herons nest in colonies, and therefore, they are more vulnerable to removal of habitat during nesting season. Although the specific species of ducks relied upon has not been specified, most species require nest sites outside of wetland boundaries, often in upland meadows associated with wetlands, lakes and watercourses. The Elders noted the importance of nest sites around sloughs and close to water. Some species require cavities in large trees,



such as Wood Duck (*Aix sponsa*) and Common Merganser (*Mergus merganser*). Maintenance of connectivity between nest sites and rearing/foraging habitat is important.

Bald Eagles and Osprey rely on a fish diet, so nest sites in large trees close to water are important. Swainson's Hawk, Red-tailed Hawk and Golden Eagle (likely non-breeding winter resident only) prefer open spaces.

Gray Partridge, Ring-necked Pheasant and Sandhill Crane are all birds of the open prairie and/or edges of cultivated fields. In contrast, Ruffed Grouse are found in the "bush" as are Spruce Grouse and require large patches for breeding success. The reference to "prairie chicken" is ambiguous as this Greater Prairie Chicken does not occur in Saskatchewan and is considered to be extirpated (no longer occurs) in Canada<sup>1</sup>: a victim of farming practices.

Table 2 provides a summary of birds identified by Muskoday First Nation for Traditional Uses and has been divided into species that are mainly aquatic vs. those whose habitat is primarily upland (forest, brushland and grassland).

**Table 2**  
**Birds Identified for Traditional Uses Identified by Muskoday First Nation**

Common Name	Scientific Name(s)
<b>Aquatic Habitat</b>	
Geese	
• Canada Goose	<i>Branta canadensis</i>
• Snow Goose	<i>Chen caerulescens</i>
White Pelican	<i>Peecanus erythrorhynchos</i>
Ducks (23 species are known to occur)	
Whistling Swan	<i>Olor columbianus</i>
Great Blue Heron	<i>Ardea herodias</i>
<b>Upland Habitat</b>	
Gray Partridge	<i>Perdix perdix</i>
Ring-necked Pheasant	<i>Phasianus colchicus</i>
Sandhill Crane	<i>Grus canadensis</i>
Eagle	
• Bald Eagle	<i>Haliaeetus leucocephalus</i>
• Golden Eagle	<i>Aquila chrysaetos</i>
Hawk	
• Swainson's Hawk	<i>Buteo swainsoni</i>
• Red-tailed Hawk	<i>Buteo jamaicensis</i>
• Broad-winged Hawk	<i>Buteo platypterus</i>
• Osprey	<i>Pandion haliaetus</i>
Greater Prairie Chicken <sup>2</sup>	<i>Tympanuchus cupido</i>
Grouse	
• Spruce Grouse	<i>Falcpennis canadensis</i>
• Ruffed Grouse	<i>Bonasa umbellus</i>

<sup>1</sup> [http://www.rom.on.ca/ontario/risk.php?doc\\_type=fact&id=109&lang=en](http://www.rom.on.ca/ontario/risk.php?doc_type=fact&id=109&lang=en)

<sup>2</sup> Likely extirpated from study area and may refer to grouse in error

## 5.4 Fish

### 5.4.1 Traditional Knowledge

The Elders identified several fish species of importance including: Whitefish, Goldeye, Jackfish, Pickerel, Sucker, Sturgeon, and Burbot. Fish were caught for food or sport by throwing a line or nets into the river or lakes. Elders expressed concern about mercury contamination in the fish. Elders heard news stories on the radio and from other Nation Members that the fish were not good to eat. Concerns were also raised about motorboats and the effects they have on the fish.

It was noted that Goldeye were plentiful and they were traded for butter and cream. Elders indicated some of the other important fish were: Whitefish, Pickerel and Sturgeon. Pickerel were especially valued for the quality of the meat, but not as common as Goldeye. A catch of Sturgeon was especially notable, because of the size of the fish, which was infrequently caught.

Beyond being a food source for the Elders, the South Saskatchewan River was the focus of year-round activity: skating, hockey, sliding (tobogganing), swimming, and fishing. Historically, the river also provided a source of direct drinking water. Refer to Figure 3: Birds and Fish.

### 5.4.2 Translation of Knowledge

Of the species recorded in the Environmental Impact Statement, 13 are not likely used for direct consumption by the Muskoday First Nation; however, these species form a valuable component of the ecosystem by providing forage to fish-eating fish and other organisms, including diving ducks. Effects on these forage species may be of indirect significance to the Muskoday First Nation through potential effects on hunting and fishing opportunities.

The Muskoday First Nation identified six fish species observed in the South Saskatchewan River within the study area and one observed in the study area tributaries (AMEC 2010). Of these species, Whitefish, Pickerel (some may be identified as Sauger, *Sander canadensis*, in the Environmental Impact Statement [AMEC 2010]), and Lake Sturgeon likely complete all of their life cycle requirements (spawning, rearing young, adult growth) in the South Saskatchewan River. Whitefish spawn in the fall in water depths less than 7.5 m; eggs must incubate in waters that do not freeze during the winter for successful emergence of fry in the spring. Table 3 provides a summary of important fish identified by Muskoday First Nation.

**Table 3**  
**Fish of Importance to Muskoday First Nation**

Common Name	Scientific Name(s)
Lake Whitefish	<i>Coregonus clupeaformis</i>
Goldeye	<i>Hiodon alosoides</i>
Jackfish	<i>Esox lucius</i>
Pickerel	<i>Sander vitreus</i>
White Sucker	<i>Catostomus commersoni</i>
Lake Sturgeon	<i>Acipenser fulvescens</i>
Burbot a.k.a. Maria or oiaw	<i>Lota lota</i>

Goldeye typically spawn in pools in turbid rivers, backwater lakes and ponds connected to flowing water. Jackfish typically spawn in vegetated floodplains of rivers and marshes. White Sucker is known to spawn in small and large bodies of flowing water. Each of these species spawn in the spring and some individuals may spawn in suitable areas of the tributaries flowing into the South Saskatchewan River, where access is suitable. Burbot (sometimes referred to as Maria) spawn in mid-winter in shallow areas of 0.3 - 1.2 m. These species may seek areas of groundwater upwelling and seepage to prevent eggs from freezing while incubating.

Whitefish, Goldeye, White Sucker, and Lake Sturgeon feed primarily on aquatic invertebrates, molluscs, crustaceans and amphipods; however the Goldeye will occasionally consume small fish. The Burbot, Pickerel and especially Jackfish consume fish primarily, but will also feed on amphibians, and crayfish when available.

## **5.5 Plants: Food, Textiles, Medicine and Spiritual Uses**

### **5.5.1 Food - Traditional Knowledge**

The initial meeting with the Elders focused on the importance of berries which was broadened to include all types of fruits, shoots and fungi. The plants that were identified in both meetings included: Highbush Cranberry, Blueberry, Cranberry, Gooseberry, Raspberry, Saskatoon, Strawberry, Chokecherry, Mushroom, and Sugar Maple. Much of the habitat (upland) for these plants has been lost to agriculture over the last 50 to 60 years.

Mushrooms thrive in the manure piles and other areas of rich soil close to where farm animals were kept. Most of the big livestock is now gone and replaced by chickens, so the mushrooms are not seen as often. Caution to avoid poisonous species was needed. Other foods gathered included the spring shoots of Cattail.

Historically, berries were part of a summer and fall food supply. Berry-picking was identified as a family event in the past; berries would be canned in 2-quart sealers. Some of the important berries identified were Chokecherry, Saskatoon, Cranberry, and Blueberry. Refer to Figure 4: Plants – Food, Medicine and Spiritual Uses.

### **5.5.2 Food - Translation of Knowledge**

Muskeg was noted as a preferred location for berry picking. Elders identified muskeg as the most frequent habitat type, but that may be a reflection of the losses of the uplands to agriculture so berry picking is confined to the areas remaining (i.e., muskeg is saturated and not suitable for farming therefore they remain accessible to Muskoday First Nation). Maintenance of water supply to the muskeg is essential to maintain the remaining resource. The habitat of the plants from which berries are collected range from dry sandy uplands to flooded marshes.

Habitat for various berry-producing species has been identified across several issues (food for Muskoday First Nation as well as in support of wildlife populations). The remaining habitat therefore is of greater importance for conservation where possible. Where conservation is not possible due to removals and/or groundwater effects, then a compensation plan should be identified. Shore Gold has already identified plans for rehabilitation of upland habitat, and

inclusion of species of value to Muskoday First Nation would be a good target for upland ecological restoration and satisfy more than one objective.

Similar to the discussion of birds and mammals, the plants that produce berries used by the Muskoday First Nation occur in upland as well as lowland/wetland species (Table 4). Reference was made to “low bush berries” that may be included below or may represent additional species. Five species of currants occur in the area as well as Lingonberry or Bog Cranberry (*Vaccinium vitis-idea*), which may also be gathered as a food source.

Table 4 provides a summary of important food plants indentified by Muskoday First Nation.

**Table 4**  
**Food Plants of Importance to Muskoday First Nation**

Common Name	Scientific Name(s)	Uses
Highbush Cranberry	<i>Viburnum opulus</i> subsp. <i>trilobum</i>	Food: desserts
Blueberry		Food: desserts, pies
<ul style="list-style-type: none"> <li>• Dwarf Blueberry = Dwarf Bilberry</li> <li>• Velvet-leaved Blueberry</li> <li>• Bog Bilberry = Bog Whortleberry</li> </ul>	<ul style="list-style-type: none"> <li><i>Vaccinium caespitosum</i></li> <li><i>Vaccinium myrtilloides</i></li> <li><i>Vaccinium uliginosum</i></li> </ul>	
Cranberry	<i>Vaccinium oxycoccos</i>	Desserts, pies
Gooseberry	<i>Ribes oxycanthoides</i>	Food
Wild Red Raspberry	<i>Rubus ideaus</i> however all species are edible	Traditional, feast
Saskatoon	<i>Amelanchier alnifolia</i>	Food Wine
Strawberry		Food
<ul style="list-style-type: none"> <li>• American Wild Strawberry</li> <li>• Smooth Wild Strawberry</li> </ul>	<ul style="list-style-type: none"> <li><i>Fragaria vesca</i> ssp. <i>americana</i></li> <li><i>Fragaria virginiana</i> ssp. <i>glauca</i></li> </ul>	
Chokecherry	<i>Prunus virginiana</i>	Traditional, feast Jelly Syrup Wine
Mushrooms		Picked for food
Sugar Maple	<i>Acer saccharinum</i> – introduced?	Maple Syrup

The use of plants for crafts and textiles was briefly mentioned. The following two species were identified for weaving:

Red Willow (Red Osier Dogwood - *Cornus stolonifera*) a shrub that grows in moist soils, often on riverbanks; and,

Cord Grass (*Spartina gracilis* or *S. pectinatus*), a tall, tough grass that grows in the sloughs.

### 5.5.3 *Plants: Craft and Textiles - Translation of Knowledge*

Both Red Willow and Cord Grass are associated with lowland and wetland sites.

### 5.5.4 *Medicinal Uses of Plants- Traditional Knowledge*

Table 5 summarizes some of the important medicinal plants and their use as identified by Muskoday First Nation Elders.

**Table 5**  
**Medicinal Plants of Importance to Muskoday First Nation**

Common Name (Cree if available) (Scientific Name)	Comments
Cranberry (likely <i>Vaccinium oxycoccos</i> )	<ul style="list-style-type: none"> <li>• Medicine (roots)</li> </ul>
Blueberry ( <i>Vaccinium</i> sp.)	<ul style="list-style-type: none"> <li>• blueberry root used as medicine</li> </ul>
Seneca Root ( <i>mînisîhkês</i> <sup>3</sup> ) ( <i>Polygala senega</i> )	<ul style="list-style-type: none"> <li>• grows in dry areas “where the prairie chickens dance”</li> <li>• sold green or dry (dry was more valuable) to local people and Hudson Bay Company</li> <li>• family event to gather Seneca</li> <li>• sore throat and cold remedy</li> <li>• hard to find due to losses to agriculture</li> </ul>
Wild Peppermint ( <i>Mentha</i> sp.)	
Puffballs	<ul style="list-style-type: none"> <li>• spores mixed with bear grease and used to treat infection</li> <li>• grew in undisturbed land</li> </ul>
Chokecherry ( <i>Prunus virginianus</i> )	<ul style="list-style-type: none"> <li>• root</li> <li>• cure for diarrhoea</li> </ul>
Wikase, Ratroot a.k.a. Sweet Flag ( <i>Acorus americanus</i> )	<ul style="list-style-type: none"> <li>• Found around lakes and muskeg;</li> <li>• sore-throats and colds</li> <li>• Drink like a tea</li> <li>• People still harvest</li> </ul>
Rose ( <i>Rosa</i> cf. <i>acicularis</i> or <i>R. woodsii</i> )	
Red Willow a.k.a. Red Osier Dogwood ( <i>Cornus stolonifera</i> )	<ul style="list-style-type: none"> <li>• inside skin of bark used for fevers</li> </ul>
White Poplar ( <i>Populus tremuloides</i> )	<ul style="list-style-type: none"> <li>• inside skin of bark used for fevers</li> </ul>
Sweet Grass ( <i>Anthoxanthum nitens</i> subsp. <i>Nitens</i> )	<ul style="list-style-type: none"> <li>• cleansing</li> </ul>
Cattail ( <i>Typha latifolia</i> )	<ul style="list-style-type: none"> <li>• Roots used as poultice</li> </ul>
Colt’s Foot ( <i>Tussilago farfara</i> )	<ul style="list-style-type: none"> <li>• Used fresh, as a poultice</li> <li>• Found along the river; wet places</li> </ul>
Maple ( <i>Acer</i> sp.)	<ul style="list-style-type: none"> <li>• Helped mother’s milk come in</li> </ul>

<sup>3</sup> <http://www.creedictionary.com/>

### **5.5.5 Medicinal Uses of Plants - Translation of Knowledge**

Medicinal plants occupy all different plant communities from wetlands through to uplands; thickets, meadows and forests. Many of the species are difficult to find today and creation of habitat for them would be a positive effect.

### **5.5.6 Spiritual Uses - Traditional Knowledge**

Raspberry and Chokecherry were identified as being used as traditional foods at feasts. Gathering berries, baking and making maple syrup, jelly, wine are all activities that have a community component to them and form a link to the spiritual life of the community.

The fires of sweat lodges were augmented with sage (likely *Artemisia campestris*, *A. biennis* or *A. frigida*), cedar (*Juniperus* sp.) and Sweet Grass (*Anthoxanthum nitens*). *Tobacco was also grown, and often mixed with dried Common Bearberry (Arctostaphylos urva-ursi) and called Kinnikinnick.*

### **5.5.7 Spiritual Uses - Translation of Knowledge**

This component requires further examination to provide more clarity with respect to the way in which plants used for spiritual purposes are related to land use. In general, there is overlap with other resources noted above, and therefore, the importance of the related land use should overlap with habitats already identified above.

## **5.6 Historic and Sacred Sites**

### **5.6.1 Traditional Knowledge**

Gathering sites for food collection became social events where a variety of cultural events occurred. Sites identified by the Elders include:

- Traditional gathering areas
- Hunt camps
- Memorial posts
- Grave sites
- St. James Church
- Cultural camps
- Recreational areas (The Island)
- A Pow Wow campus and Sweat Lodge

The cultural camps are significant as they are the places where the Elders would teach, tell stories and council Members of the Muskoday First Nation. Similar importance is attached to all other features.

### **5.6.2 Translation of Knowledge**

Most of the sites identified are located on or very close to the MFN Reserve, largely as a consequence of recent history that limited access to the land. It is expected that with further investigation and access to archaeological data, that knowledge of these sites will expand.

## **6.0 TRADITIONAL KNOWLEDGE IN RELATION TO ENVIRONMENTAL IMPACT STATEMENT**

It is the intent of this section to make the linkages between the Muskoday First Nation Traditional Knowledge summarized above and what is relevant to the Shore Gold Environmental Impact Statement. The value and interest a First Nation may place on the environment (physical, social, and cultural) are different than those represented by a resource developer and/or regulating body, although the resources measured may be the same. Therefore, it is important to offer impact assessments, mitigation plans and recommendations that are meaningful to the interests of the First Nations.

Through the study the Elders acknowledge that more “modern” pursuits, such as agriculture and other forms of development have created an impact to traditional activities. Traditional Knowledge becomes even more important in the context of what outcomes can be targeted to achieve a net benefit as a result of proposals for land use change. In this case, a proposal to open and operate a diamond mine.

In discussions with Muskoday First Nation, the Elders advised that they would like the land restored to the same condition in which it was found. They stated that they would like the Earth treated well, and in turn it will treat Muskoday First Nation well. If change must occur, then the good must outweigh the negative, and the negative impacts should be as short-lived as possible; they want their grandchildren to have some of what they once had.

### **6.1 Fish and Surface Water**

The key to maintaining water quality and aquatic habitat (including groundwater) is to ensure that water quality and quantity is not affected in the long term.

An assessment of the proposed locations for the overburden pile, the Orion South and Star Pits, the Kimberlite process and containment facilities, indicate that the water management reservoir will eliminate portions of the 101 Ravine, West and West Perimeter Ravines, East Ravine, Duke Ravine, and may reduce some functions in English Creek. Alteration and destruction of this aquatic habitat may reduce production of several forage base fish species and affect spawning for some food fish, including White Sucker and Burbot. A comparative assessment also indicates that Amphibians, Waterfowl, and some breeding birds use these areas. Forage base fish species likely contribute to the diet of the diving ducks. Amphibians, molluscs, crustaceans and other aquatic insects likely contribute to the diet of some of the dabbling ducks and other waterfowl, at least in some seasons. Some of these bird species may be able to relocate if sections of aquatic habitat in the study area tributaries are lost; however, feeding opportunities may be reduced.

Alteration of the aquatic habitat in the study area as a result of the proposed mine may not affect fishing opportunities for the Muskoday First Nation directly because they do not appear to take fish from the study area tributaries. Indirect effects of the loss of aquatic habitat may include reduction of habitat and productivity for amphibians, some of the forage base fish species and spawning habitat for species (such as Burbot, White Sucker, Jackfish, and Goldeye). Reduction in the forage base and spawning areas may affect species fecundity and productivity of those fish and bird species for which fish and amphibians comprise either substantial or key dietary components. This, in turn, may reduce hunting and fishing opportunities for the Muskoday First Nation in the area occupied by the proposed mine, in addition to surrounding areas. Sport or game fish and wildlife populations may be affected by the loss of forage fish and amphibian productivity in the South Saskatchewan River tributaries within or near the Star-Orion South Diamond Project area.

Potential effects of water quality associated with human consumption of fish were not studied adequately in the Environmental Impact Statement. Muskoday First Nation expressed general concern regarding the consumption of fish owing to potentially high body burdens of contaminants harmful to human health. The Environmental Impact Statement compared potential water quality values resulting from mine development and operation with respect to Canadian Council of Ministers of the Environment (CCME) guidelines. However, the Environmental Impact Statement did not contain an account of potential implications of consumption of fish by Muskoday First Nation or how effects from fish consumption may change during the phases of mine development and closure.

## **6.2 Big Game**

The key factors that will affect the large mammals of the study area will be barriers to the South Saskatchewan River posed by the location and scale of the mine, and loss of pathways of connectivity across the landscape in the ravines and wetlands that are in low supply on the landscape. Big game have been shown to concentrate in the valleys and swamps, and at some times of the year, in the uplands to forage on berries. Their distribution is not random, but driven by the pursuit of seasonal resources. Other negative impacts that should be assessed from the perspective of Traditional Land Use include the removal of critical habitat (den sites, seepage, and food sources), the physical impact of mine operations (noise, light, traffic, garbage), discharge of contaminants into their environment and the impact on traditional hunting sites. An evaluation of these impacts and a mitigation plan to restore traditional land is required.

## **6.3 Fur Bearers**

Many of the same effects to big game also apply to fur bearers; however, the dependence on many of these small, largely aquatic animals on watercourses, wetlands and ponds makes them more vulnerable. Muskoday First Nation trap lines occur in the Fort à la Corne Forest that has not been identified. The predicted drawdown of groundwater supply and the extent of that drawdown beyond the study area have not been evaluated in terms of the impact on these species, which depend on a resource as reported by Shore Gold in the Environmental Impact Statement as being in short supply within Fort à la Corne Forest area. An evaluation of these impacts and a mitigation plan to restore traditional lands is required.



## 6.4 Birds

The birds that depend on aquatic sites are more vulnerable in a landscape context, as the loss of aquatic habitat will extend well beyond the local study area due to the groundwater drawdown effects. These effects have not been clearly identified in the Environmental Impact Statement. In addition, there will be a physical removal of habitat and some ravines within the project area and additional disturbances (noise, light, traffic, garbage), and possible discharge of contaminants into the environment from waste piles. The loss of bird habitat has not been translated into how that will affect the traditional hunting of these birds. Muskoday First Nation commented that the eagles are sacred to their culture. Blasting effects should, therefore, be evaluated to determine the effects on eagles and their nest sites.

## 6.5 Plants: Food, Textiles, Medicine and Spiritual Uses

The food sources occur in most habitats from barrens, forests, thickets, lowland forest to wetlands. Evaluation of impacts from the perspective of food, medicinal and other resources, rather than representation on the landscape requires a different approach to the assessment of the rather robust data collection that has been amassed for this project. Plant communities need to be assessed for their contributions to traditional uses and the effects of outright removals, the creation of barriers to plant movement, the effect of changing the soil structure at the reclamation sites and the effect of secondary effects such as groundwater drawdowns.

The groundwater effects are particularly significant to Muskoday First Nation as muskeg has been identified over and over as the location of resources of particular interest to the Muskoday First Nation across a range of factors including: food, medicinal plants, wildlife, birds, as well as traditional sites for hunting. "Muskeg" is a generic term for a collection of northern wetlands that share a common characteristic: organic soils or peat. These areas are maintained by a combination of surface and groundwater; it is important that groundwater is colder than surface water in summer, and warmer in winter, as this contributes to the accumulation of peat. The effects to muskeg should be identified as they relate to Muskoday First Nation interests.

In terms of outcomes following the mining operation, there are resources that could be restored to the landscape that would assist in the maintenance and enhancement of traditional land uses. Restoration of plants that are prominent in Traditional Knowledge may be perceived as a positive outcome. Because so much will be lost, design of post-mining habitats that provide different opportunities is important to Muskoday First Nation, who do not oppose proposed changes, but want to ensure that the long term effects are positive.

## 6.6 Historic and Sacred Sites

The data is not well documented with respect to the important sites within the project area; as such, it will be important to ensure that protocols are in place that will be triggered if a site is detected in the process of mine development. Protocols should describe methods to identify sites as well as how to respond to the need to care for the site, the information and the interest of Muskoday First Nation and others in the sites. There is a need to improve the detection of

these sites, to identify acceptable and respectful investigation methods and appropriate treatment of these sites in the future.

## 6.7 Summary

The theme that continues to resonate is the need to understand the interests of Muskoday First Nation on this landscape. If this report had been available, a suitable method to ensure inclusion of these interests would include recommendation of Valued Ecosystem Components derived from the Traditional Knowledge and Land Use study early in the impact assessment. The failure to do so does not affect the responsibility of Shore Gold to interpret the existing data in the context of Muskoday First Nation interests, to identify the impact of the mine proposal on their interests, and to identify a mitigation and implementation plan that will result in a net benefit to Muskoday First Nation. Key factors that need clarification in the Environmental Impact Statement include, but are not limited to:

- The effect of habitat loss to fish, big game, fur bearers, birds, and plants;
- The effect of barriers to landscape connectivity posed by the scale, duration and intensity of the mine proposal;
- The effect of the groundwater drawdown effects that extend beyond the local study area;
- Methods to investigate historic and sacred sites during mine development;
- Identification of a mitigation and rehabilitation plan that is meaningful to the Muskoday First Nation and their descendants.
- Potential effects of water quality changes on fish and wildlife directly, and potential effects to humans from animal consumption; and
- Vegetation mapping should be re-interpreted from the viewpoint that each of these vegetation types provide habitat for support of the resources identified by Muskoday First Nation.

## 6.8 Study Recommendations

The following recommendations have been provided to assist Muskoday First Nation and Shore Gold to work collaboratively to better understand the associated impacts of the proposed Star-Orion Diamond project and to ensure the recognition and protection of the way of life of Muskoday First Nation.

### 1) Focus Traditional Land Use Effects of the Star-Orion South Diamond Mine

A range of uses have been identified by Muskoday First Nation that can be correlated to specific vegetation communities and drainage features. The detailed database compiled by the Shore Gold consultants should be reviewed to identify those areas that correspond with Traditional Land Use and Traditional Knowledge outcomes, the scale of the removals of the habitats and impact to landscape connectivity, and the scale of the impact of lowered

groundwater levels for many generations and potential for effects of water quality on fish and wildlife directly, and potential effects to humans from animal consumption. Based on this altered paradigm of impact assessment, a mitigation and rehabilitation plan should be identified that is meaningful to the Muskoday First Nation and their descendants.

## **2) Identification Sacred and Spiritual Sites**

There is a need to improve the detection of these sites, to identify acceptable and respectful investigation methods and appropriate treatment of these sites in the future. Protocols should be in place that will be triggered if a site is detected in the process of mine development. Protocols should describe methods to identify sites as well as how to respond to the need to care for the site, the information and the interest of Muskoday First Nation and others in the sites.

## **3) Ground Truthing Traditional Sites, Trails, and Significant Sites**

Through this study, important sites, trails and other significant area were discussed. Ensuring the protection of these sites is important to ensuring the way of life for Muskoday people. Gathering Traditional Knowledge is the first step in knowing where these sites are located, however, it is important to ground truth the sites with Elders, traditional land users, and hunters to document the precise location to ensure that appropriate mitigation, compensation and/or rehabilitation plans are identified. The Muskoday First Nation could assist Shore Gold with this inventory, in addition to refinements as recommended in item 1 above.

**Recommendation:** Muskoday First Nation could develop a ground truthing project to locate traditional sites, trails, and significant sites and import this data into a GIS.

## **4) Co-Management & Co-Planning**

It was understood through the course of this study that Muskoday First Nation has a deep respect and understanding for all things (e.g., food, wildlife, water, etc) within their traditional territory. Translation of Traditional Knowledge to enable impact assessment (see Section 5) is vital to protecting the way of life for the Muskoday people. By co-planning and co-managing with industry, neighbouring landowners, provincial, regional and local governments and other First Nations valued resources will be available for future generations. In particular, Muskoday First Nation could provide an important function in the development of closure and redevelopment plans.

**Recommendation:** Muskoday First Nation and Shore Gold look at developing a co-planning/co-management agreement.

## **5) Environmental Monitoring**

Knowing how the environment is changing within the traditional territory is critical to understanding the potential future impacts, and whether traditional land uses will be affected by land use change. For example, knowing how wildlife numbers are changing is important to identifying appropriate mitigation strategies to stabilize populations and ensure the survival of certain wildlife essential to Muskoday First Nation's way of life. As residents and users of

the land, Muskoday First Nation is uniquely positioned to provide information and monitoring services.

**Recommendation:** Muskoday First Nation could work collaboratively with Shore Gold to develop an on-going environmental monitoring programs (e.g., water quality, water quality, wildlife movements) for the Star-Orion South Project. This would involve the employment of trained environmental monitors, capacity building, and on-going education for the Muskoday First Nation community and to the benefit of Shore Gold

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## 8.0 CLOSURE

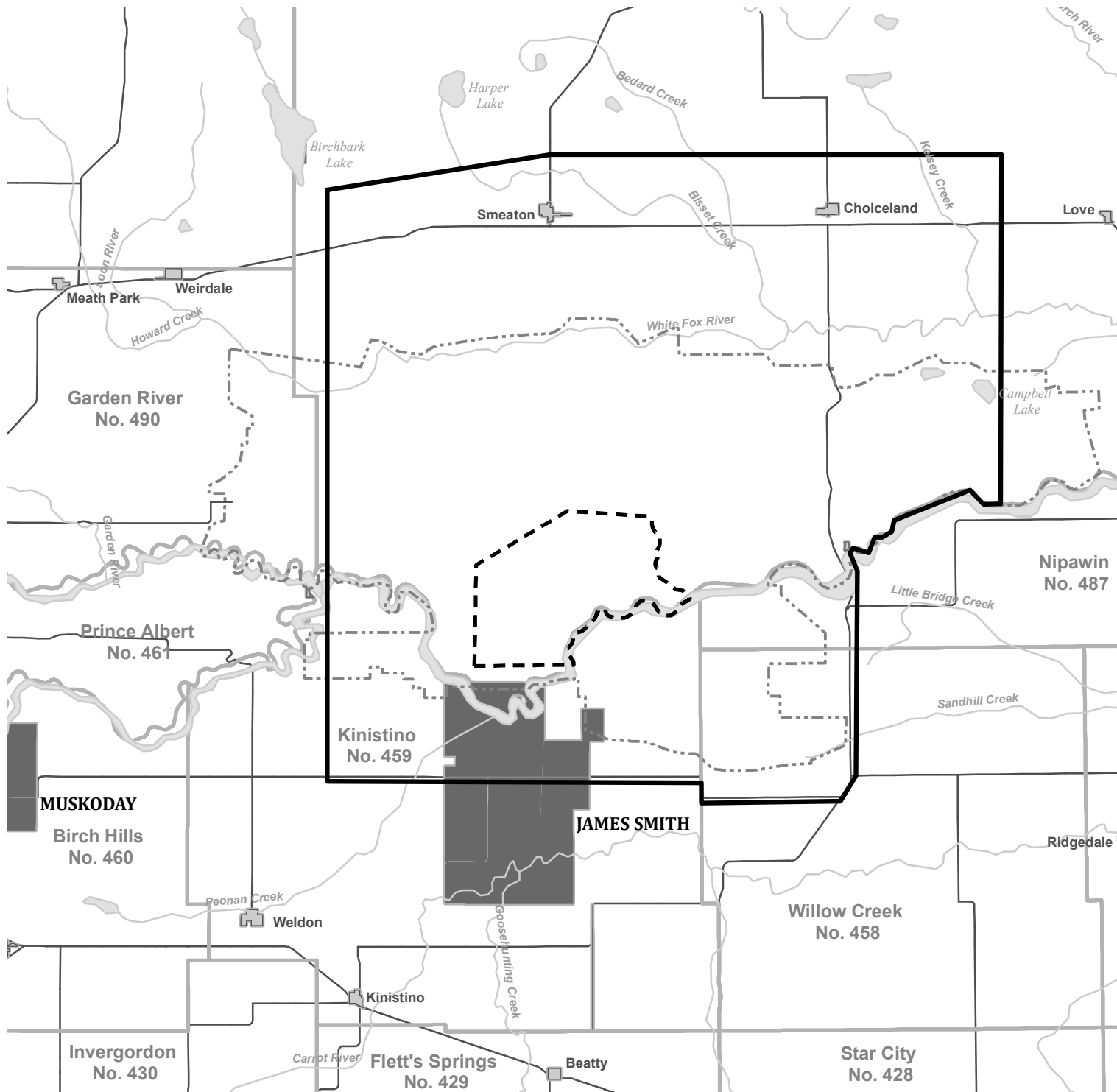
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








## **FIGURES**

Traditional Knowledge Report  
Muskoday First Nation  
Muskoday, Saskatchewan  
SLR Project No: 208.04556.00001



## MUSKODAY FIRST NATION TRADITIONAL KNOWLEDGE

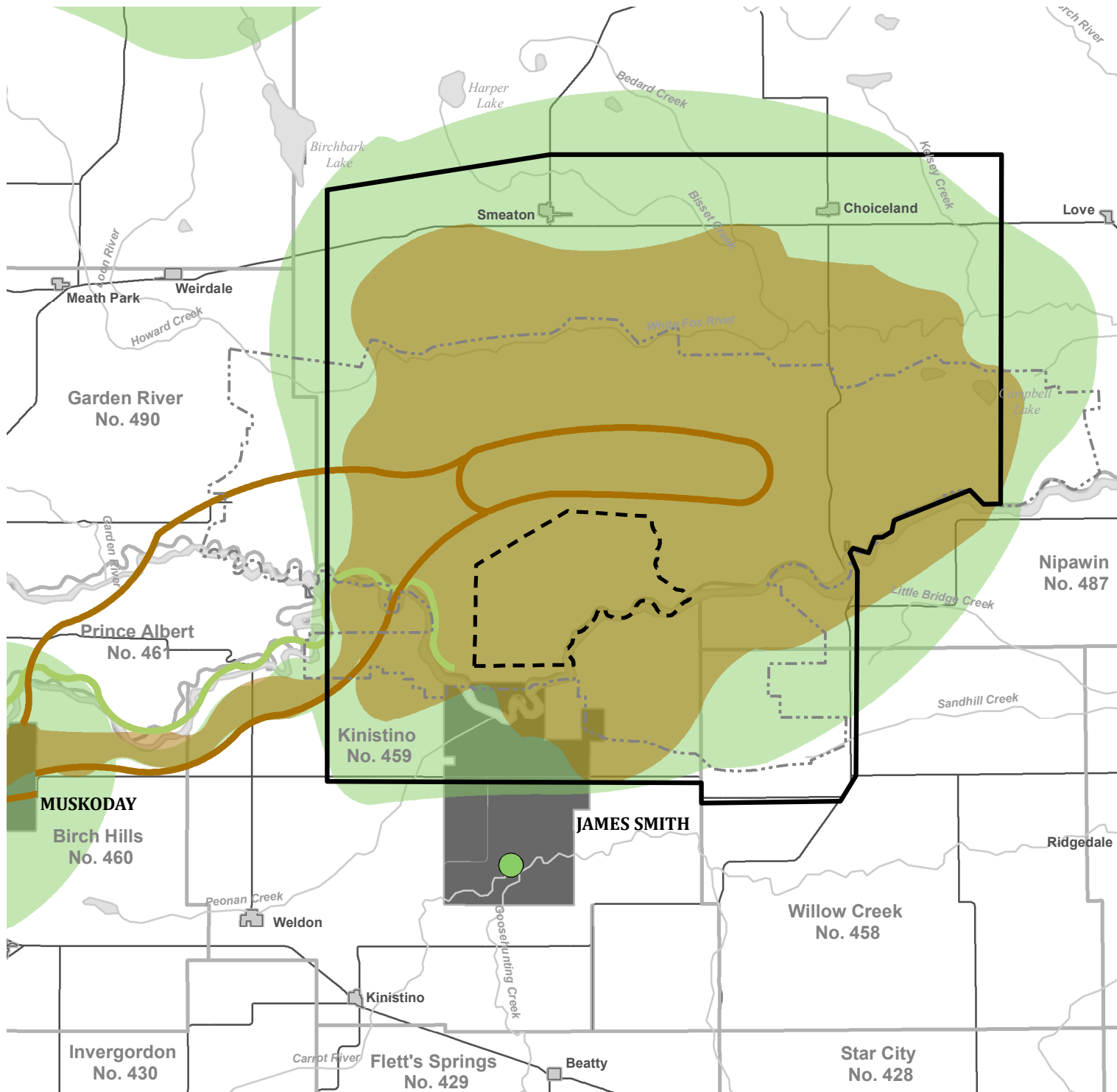
**FIGURE 1  
BASE MAP**

-  HIGHWAY/EXPRESSWAY
-  WATERCOURSE
-  LOCAL STUDY AREA
-  REGIONAL STUDY AREA
-  FIRST NATIONS RESERVE
-  FORT A LA CORNE FORESTRY AREA
-  MUNICIPAL BOUNDARY
-  CITY/VILLAGE
-  WATERBODY



Base data provided by: GeoSask, Geobase & Geogratis  
 Map created by Sarah Galloway. Map checked by Aaron Aubin.  
 File Location: I:\GIS\115031 - Muskoday First Nation\Mapping\ Figure 2 Big Game and Furbearers.mxd





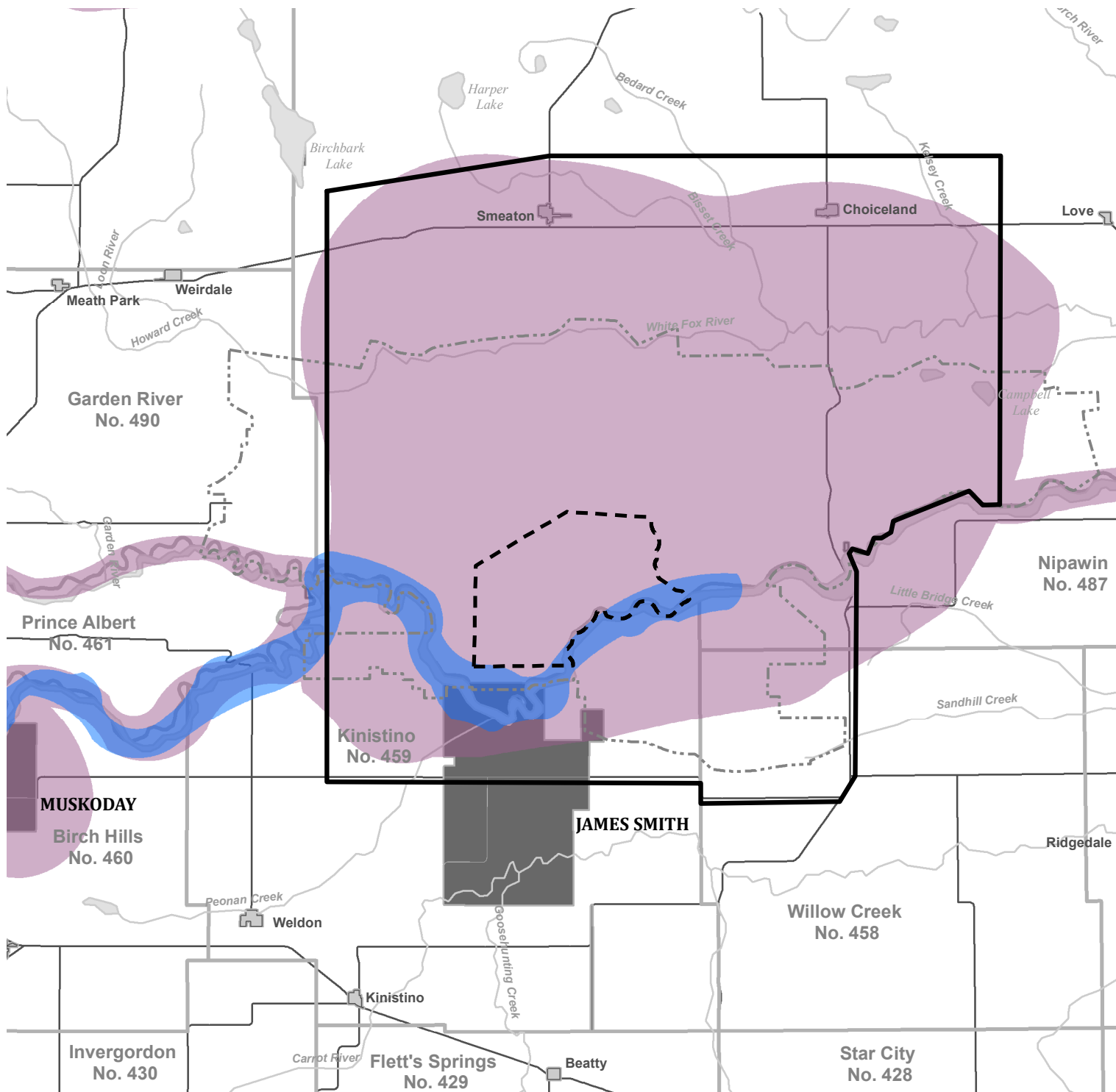
**MUSKODAY FIRST NATION  
TRADITIONAL KNOWLEDGE**

**FIGURE 2  
BIG GAME AND FURBEARERS**

- BIG GAME
- FURBEARERS
- WALKING/ACCESS TRAIL
- TRAPPING TRAIL
- HIGHWAY/EXPRESSWAY
- WATERCOURSE
- LOCAL STUDY AREA
- REGIONAL STUDY AREA
- FIRST NATIONS RESERVE
- FORT A LA CORNE FORESTRY AREA
- MUNICIPAL BOUNDARY
- CITY/VILLAGE
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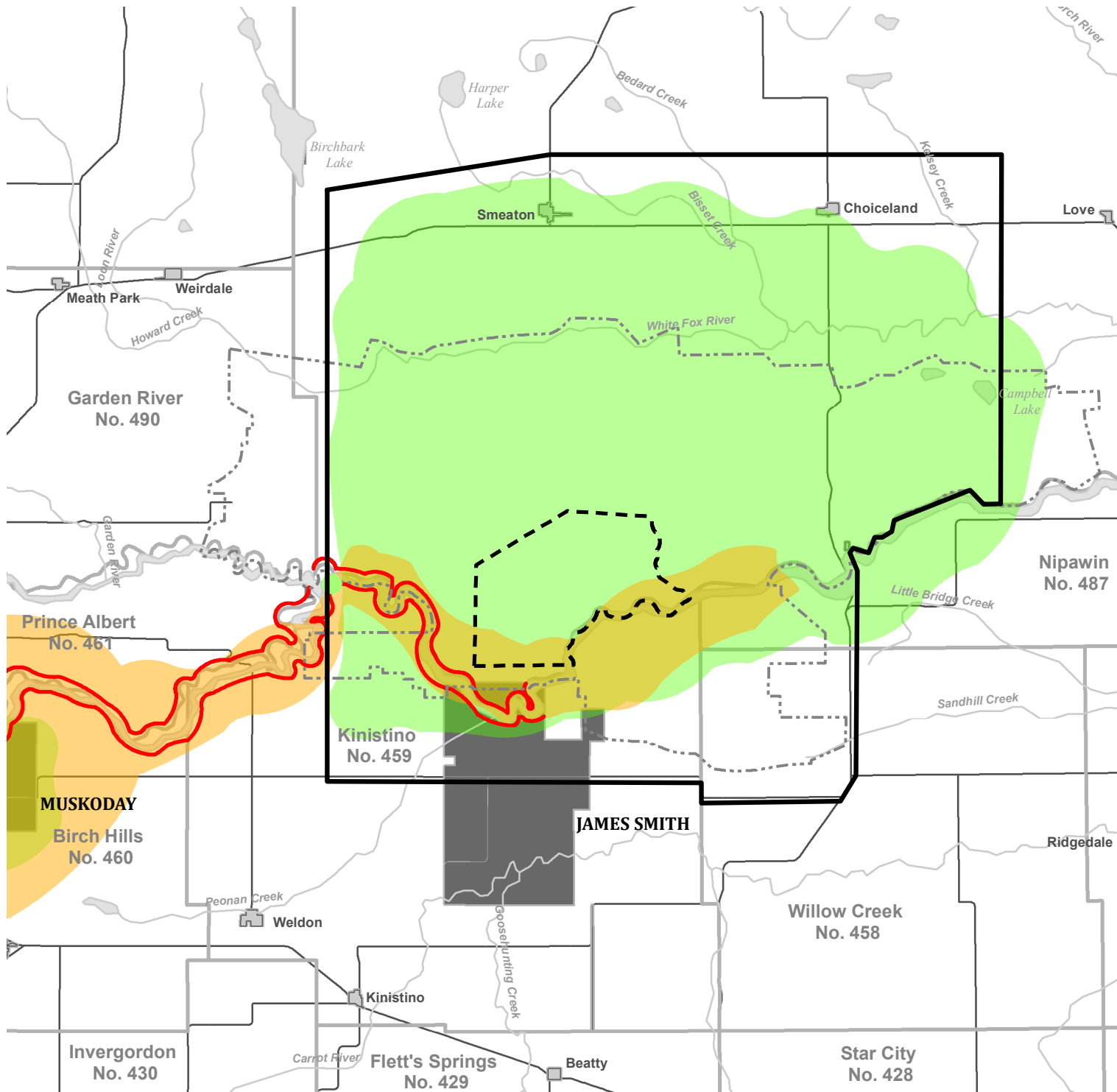
**MUSKODAY FIRST NATION  
TRADITIONAL KNOWLEDGE**

**FIGURE 3  
BIRDS AND FISH**

- BIRDS
- FISH
- HIGHWAY/EXPRESSWAY
- WATERCOURSE
- LOCAL STUDY AREA
- REGIONAL STUDY AREA
- FIRST NATIONS RESERVE
- FORT A LA CORNE FORESTRY AREA
- MUNICIPAL BOUNDARY
- CITY/VILLAGE
- WATERBODY



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## MUSKODAY FIRST NATION TRADITIONAL KNOWLEDGE

**FIGURE 4  
PLANTS: FOOD, MEDICINE  
AND SPIRITUAL USES**

- BERRIES AND OTHER PLANTS
- MEDICINAL PLANT
- SPIRITUAL TRAIL
- HIGHWAY/EXPRESSWAY
- WATERCOURSE
- LOCAL STUDY AREA
- REGIONAL STUDY AREA
- FIRST NATIONS RESERVE
- FORT A LA CORNE FORESTRY AREA
- MUNICIPAL BOUNDARY
- CITY/VILLAGE
- WATERBODY



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 File Location: I:\GIS\115031 - Muskoday First Nation\Mapping\Figure 4 Plants - Food, Medicine and Spiritual Uses.mxd