



**RED MOON RESOURCES INC.
Flat Bay Historic Tailings Waste Pile Processing to Recover
Gypsum**

Environmental Assessment Registration

***Pursuant to the Newfoundland & Labrador Environmental Protection Act (Part 3, section 43:
Non-metallic mineral product)***

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1.0 Introduction

Project Name: Flat Bay Historic Tailings Waste Pile Processing to Recover Gypsum

Red Moon Resources Inc. (RMR) proposes to screen waste piles and recover saleable gypsum from previous historic mining occurring on the Flat Bay Quarry B area (the Project), near St. George's, in western NL. The proposed Project involves screening upwards of 1,000,000 tonnes of waste material from previous historic mining on the Project area. The Project area will comprise approximately 28.4 ha of previously disturbed area. The reclamation process consists of screening previous historic mining waste stock piles to recover gypsum greater than 6 mm (¼ inch) in size. The piles contain crushed gypsum rock less than 3 inch in diameter with grades exceeding 80% gypsum. The reclamation of these waste piles will not only provide a source of saleable gypsum, but will help rehabilitate the site to its original topographic relief.

Screened materials will be loaded directly into tandem trucks or temporarily stockpiled on site prior to being loaded for transportation to the Turf Point deep water port and loading facility, located in the town of St. George's, for shipping. The port facility is currently being used by RMR to ship gypsum from it's Ace Mine, located 5 km southeast. No new development for infrastructure is required in respect to the use of this shipping facility.

The proposed Project involves permitting, operations, closure and rehabilitation activities.

1.1 Proponent Information

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1.2 Rationale/Purpose/Need for the Undertaking

RMR and its parent company, Vulcan Minerals, have been conducting exploration work in the St. George's and surrounding area for over 20 years and has an excellent record with respect to environmental protection and stewardship, as well as working with local contractors and communities in the execution of their projects.

The purpose of the proposed Project is to produce gypsum on a commercially competitive basis in order to acquire a share of the gypsum market, and contribute in positive ways to the local and provincial economy. The proposed Project is expected to provide 8 to 10 seasonal jobs over a project life of 4-6 years depending on the annual rate of production.

RMR plans to conduct its processing operations where previous mining/quarry activities were terminated by previous operators in the early 1990's. RMR will reclaim existing waste stockpiles from previous historic mining. No trees or vegetation will be disturbed during RMR's reclamation activities. Unsaleable screened material will be stockpiled at various strategic locations around the perimeter of the site for re-use and contouring topography at closure.

Gypsum extraction at the proposed site will occur on an as-needed basis depending on sales volumes. Approximately 50,000 – 100,000 tonnes of annual production is currently expected. The total recoverable resource within the lease area is estimated to be 400,000 tonnes, and the duration of the project is likely to be 4 to 6 years.

1.3 Environmental Assessment Process and Requirements

The Newfoundland and Labrador Environmental Protection Act (NL EPA) requires anyone who plans a project that could have a significant effect on the natural, social or economic environment (an "Undertaking") to present it for examination through the provincial Environmental Assessment (EA) process.

Under the NL EPA (definitions), an Undertaking "includes an enterprise, activity, project, structure, work or proposal and a modification, abandonment, demolition, decommissioning, rehabilitation and an extension of them that may, in the opinion of the minister, have a significant environmental effect".

The associated Environmental Assessment Regulations (Part 3) list those projects (potentially including proposed modifications and extensions of same) that require registration and review. These include, for example:

"33(2) An undertaking that will be engaged in the mining, beneficiating and preparing of a mineral as defined in the Mineral Act whether or not these operations are to be performed in conjunction with a mine or at mills that will be operated separately."

Following public and governmental review of this EA Registration, the Minister of Municipal Affairs and Environment will determine whether the Project may proceed, subject to any terms and conditions and other applicable legislation, or whether further assessment is required.

2.0 Project Description

The proposed Project is described in the following sections. Please note that all figures depicting the Project location and features are located in Appendix A.

2.1 Property Description and Location

RMR's proposed Project involves the screening of existing gypsum tailings waste piles from previous historic mining activities to extract gypsum for sale to market. The reclamation process consists of physical screening of existing stockpiles and will not require the use or addition of any chemicals for extraction and therefore there will be no associated settling or tailings ponds. The processing does not require any drilling or blasting. The processing consists of physical screening to remove material less than 6 mm in diameter that consists of sand and clay. The saleable material consists of the coarser fraction (>6 mm). Production from this project will supplement and replace some production from the Ace Mine as it becomes depleted of minable gypsum (currently operated by RMR).

The proposed Project is located in a lightly populated area of western Newfoundland (Figure 1). The site is located approximately 9 km southwest of the town center of St. George's. The site is in an area previously developed by past-producing gypsum operations (the Flat Bay quarry B area – Figure 2). The site is accessible by vehicle via existing site/haul roads (1960's – 1990) that run from the site, through past-producing quarry operations, and connect to Route 403, which runs from the Trans-Canada Highway, approximately 6 km east of the property, to Flat Bay and other communities (Figure 2 & 3).

The project area consists of approximately 28.4 ha, and is named the RMR Tailings Zone. The location of RMR Tailings Zone is depicted in Figures 2 and 3. The Project footprint is shown in Figure 4. Details of the site, including the existing disturbed area, and the area to be disturbed as part of this proposed Project, are shown on Figure 4.

The Project is situated approximately 9 km from the Turf Point deep water port and loading facility, located in the town of St. George's (Figure 5). The port was originally developed to ship gypsum from the former Flat Bay quarry, and is currently used to ship gypsum from the Ace mine operated by RMR.



Figure 1. Location of Flat Bay Historic Tailings Processing to Recover Gypsum Project

RMR used a drone survey, field data and elevation surfaces to estimate the resource potential over the property. Modelling suggests there is an estimated 1 million tonnes of tailings waste - gypsum contained in the project area. Of which, 40-60% will be recoverable as saleable product for industrial purposes. The remaining finer material may be used in the agricultural markets, but these markets have not yet been accessed.

Land Tenure

Gypsum mining in the area started in the 1950's and continued until 1990 when the former Flat Bay Gypsum Mine closed. Some remediation occurred at that time with the removal of on-site buildings. The edges of open pits were safeguarded. Roads within the area remained largely passable and now provide access to the proposed Project area.

RMR's proposed processing operations will be carried out pursuant to a development and rehabilitation plan to be reviewed and permitted by the Department of Industry, Energy and Technology. The project area is contained entirely within RMR's mineral exploration licenses 027060M, 027059M, and 023781M, which consists of 20 claims (Table 1).

Table 1: Mineral License Description

Held By	License	Claims	Area (ha)	Issued Date	Renewal Date
Red Moon Resources Inc.	027060M	13	325	12-Apr-04	12-Apr-24
Red Moon Resources Inc.	027059M	2	50	08-June-98	08-June-21
Red Moon Resources Inc.	023781M	5	125	04-Mar-16	04-Mar-21

2.2 Alternatives to the Project

The alternatives to the proposed Project include:

- Delay of the proposed Project; and
- Alternative screening methods or approaches.

RMR has not considered alternate processing locations due to the nature of the proposed project. The project is feasible only in areas with existing waste stockpiles, where reclamation will help rehabilitate the site to its original topographic relief.

The proposed Project will allow RMR to acquire and maintain a share of the gypsum market. Delay of the Project will likely impact RMR's competitive edge with respect to existing and accessible infrastructure, allowing existing and new competitors outside the province to take a greater share of the market.

The proposed screening method has been tested on select samples and excavated on site and has proven to efficiently extract volumes of gypsum product for which RMR believes there is a market.

2.3 Project Components

The main components associated with the proposed Project include the following:

- Parking and Laydown Areas;
- Mobile Office/Lunch Trailer;
- Mobile Screener;
- Fines Stockpiles;
- Security Gate;
- Portable Water Supply;
- Portable Waste and Septic Management.

Each of these components is discussed below. Refer to Figure 4 for location and identification of Project components.

The site is accessible via existing gravel roads (Figure 2) that run from the site, through past-producing quarry operations, and connect to Route 403. The Trans-Canada Highway is located approximately 6 km east of the property.

New road construction will not be required for the proposed Project. Tandem dump trucks will transport the recovered gypsum product along the existing gravel road (Flintkote Road) on to the Turf Point port facility utilizing a small section of municipal road (Figure 5). This route is currently used by trucks moving material from the Ace Mine.

No permanent power is required at the site. A small gas-powered generator will be used to power the site trailer as needed. The mobile screener as well as the necessary heavy equipment will be fuel powered and fuel will be delivered, via a fuel truck, as required. Fuel required for the proposed Project will be provided by a local service provider and fuel handling will be the responsibility of the contractor. No bulk fuel storage is required on site.

All fuel handling and storage associated with equipment operation will comply with the *Storage and Handling of Gasoline and Associated Products Regulations*. If generated, waste oil will be disposed of by a licensed contractor and no significant quantities of fuel or lubricants will be stored onsite.

The processing equipment will consist of a tracked excavator, a front-end loader, tandem dump trucks, a mobile screening unit, a stacker to allocate piles, and a grader. The processing equipment and operators will be contracted from a local contractor for the duration of the project. The contractor will be responsible for the care and maintenance, fueling, operation, etc. of all

equipment. Equipment may be removed from the Project site if processing ceases based on customer order and shipping schedules, or other breaks in the processing schedule.

2.3.1 Parking and Laydowns

The parking and laydown areas for equipment and personnel vehicles will be located on the project site. All of the project site has been previously disturbed by past operations and remains unvegetated.

2.3.2 Mobile Office and Lunch Trailer

The office and lunch room will be contained in a modular/mobile trailer located on the project site.

2.3.3 Mobile Screener

The screening unit will be relocated to optimal areas as the waste stock piles are exhausted. From there the processed material will either be placed in temporary (short term) stockpiles for later transport, or placed directly into trucks for transport to the Turf Point port facility. The typical screening unit intended to be used is a McCloskey 733 RE Trommel. Photos of the trommel can be found in Appendix B.

2.3.4 Fines Stockpiles

As previously indicated, a mobile screening unit will be relocated throughout the project area as needed. The screener will separate saleable gypsum product from gypsum fines, where saleable materials will be trucked immediately or stored short term.

Fine material will either be sold or used to recontour the site.

2.3.5 Security Gate

A security gate will be installed at the only access road to the site. The gate will be locked whenever operations are ceased. Company or contracted personnel will regularly inspect the site during the shut-down periods.

2.3.6 Portable Water Supply

The office/lunch trailer will contain washroom facilities complete with water and septic storage tanks. The water tank will be filled as needed by a contracted water supply truck. Drinking water will be delivered to site in bottles.

A water truck will be used for dust suppression, as required. Water will be sourced from on site water management ditches/collection or an alternate approved source.

2.3.7 Portable Waste and Septic Management

The washroom facility located in the office/lunch trailer will be equipped with a portable septic system. RMR will ensure the portable units are maintained according to any regulatory

requirements. Sewage management will be handled by an approved contractor. The holding tank will be emptied via a septic/vacuum truck as needed by a local contractor and disposed of at an approved facility.

Domestic waste will be generated in small quantities and will be disposed of offsite in a proper manner. Any food or organic garbage onsite will be stored in animal-proof containers to prevent attracting wildlife.

No hazardous waste will be generated onsite. If any waste oil is generated, it will be disposed of by a licensed contractor.

2.4 Site Development and Operations

The start of Project activities is currently planned for May 15, 2021 after all required permits and approvals are received from the appropriate regulatory departments. Where other regulatory approvals and permits are required prior to the start of Project activities, RMR will work to ensure those approvals and permits are complete and submitted to the appropriate regulators as soon as possible. RMR anticipates operations beginning as soon as the necessary equipment is mobilized to the site.

2.4.1 Description of Operations

The operation will utilize a tracked excavator, a front-end loader, tandem dump trucks, a mobile screening unit, a stacker to allocate piles, and a grader. The number of tandem dump trucks used will depend on the rate of production but is not expected to exceed six at any one time over a two-week period to transport sufficient material to port to load a ship. The tracked excavator will be used to load material from the waste piles into the mobile screener. The mobile screening will separate material less than 6 mm in diameter where the stacker will distinguish piles of saleable gypsum and gypsum fines. A front-end loader will then be used to place processed material in temporary (short term) stockpiles for later transport, or placed directly into tandem dump trucks for transport to the Turf Point port facility. The mobile screening unit will then be relocated to optimal areas and the above process will be repeated until all of the viable waste stockpiles have been screened. Gypsum extraction at the proposed site will occur on an as-needed basis depending on sales volumes. Approximately 50,000 – 100,000 tonnes of annual production is currently expected. The total recoverable resource within the lease area is estimated to be 400,000 tonnes, and the duration of the project is likely to be 4 to 6 years.

The operation will generate dust through excavating and screening, and from the stockpiles. Dust-control measures will be applied as required for vehicle traffic on the access road and to ensure that no fugitive dust will be an issue as a result of any short-term gypsum stockpiling. Noise is also expected; however, the operating schedule and distance to the nearest community is such that a disturbance to local residences is not anticipated.

An accidental spill of fuel or oil is also a possibility during any operation involving heavy equipment. RMR will ensure all fuel handling and storage associated with equipment operation will comply with the Storage and Handling of Gasoline and Associated Products Regulations. If generated, waste oil will be disposed of by a licensed contractor and no significant quantities of fuel or lubricants will be stored onsite. Typical fuel-burning vehicle emissions are also expected during this operation.

RMR does not recognize any potential causes of resource conflicts during this operation.

2.5 Environmental Protection Plan

RMR will develop an EPP based on current industry standards that will be implemented for all site activities. An EPP provides concise instructions to personnel regarding protection procedures and descriptions of techniques to reduce potential environmental effects associated with specific Project Activities. The EPP will reflect that the processing consists of simple physical screening of existing stockpiles. The EPP will include procedures and measures relative to activities such as vegetation clearing, grubbing, dust control, waste and sewage disposal, as well as contingency plans for unplanned events such as spills as well as for rehabilitation and compliance monitoring.

2.6 Possible Accidents and Malfunctions

Human health and safety and environmental protection are important to RMR during all phases of this proposed Project. RMR has, or will establish, safety procedures for all phases of their operations at this site. RMR's EPP will address contingency plans for unplanned events such as spills and accidental events.

Potential accidental events that may occur include, but are not limited to, the following:

- An accidental spill of fuel;
- A fire;
- Equipment failure; and
- Traffic mishaps.

2.7 Rehabilitation and Closure

The Rehabilitation and Closure Plan, as required under the *Mining Act*, for this site will involve:

- Removal of all infrastructure/equipment from site;
- Stabilization of any slopes; and
- Revegetation of disturbed areas.

Upon completion of the Project and removal of the office/lunch trailer and mobile equipment, rehabilitation and closure of the site will include spreading of the organics/overburden from the stockpiles and seeding. Only minor slopes are expected to be left based on the existing topography, these will be addressed as per Newfoundland and Labrador's Department of Industry,

Energy and Technology (NLIET's) requirements, e.g., berms and signage, flattening etc. The ground surface sloping and rehabilitation will be conducted to minimize potential surface water collection or concentrated flows. All Rehabilitation and Closure activities will comply with NLIET's and the department of Environment, Climate Change and Municipalities' requirements.

2.8 Project Schedule

The permitting phase will take place in the 1st quarter of 2021. No site development is necessary for the proposed project. Trailer/ equipment mobilization, etc., and operations will commence when the appropriate permitting is in place, currently planned in early 2021. The life of the operation is expected to be approximately 4-6 years. Site rehabilitation and closure, i.e., removal of equipment, sloping, spreading of organics and overburden etc., will commence during the final production season. Any deviations from this proposed schedule will be presented in the development plan, and in annual operational plans required by NLIET.

3.0 Existing Environment

The sections below provide an overview of the existing natural and socioeconomic environments for the proposed Project.

3.1 Geology and Topography

The proposed Project occurs in the St. George's Bay subregion, a subregion of the Western Newfoundland Forest Ecoregion. This area is generally characterized by rolling hills, wetlands/bogs, and a broad plain typical of the Appalachian Region. It is also characterized by sandy to stony glacial till cover of variable thickness that blankets nearly all bedrock exposure in the lowlands. The bedrock contains primarily young sandstones and shales about 300 million years old. The subregion is almost uniformly covered by these rocks. Most soils in this subregion are either "humo ferric podzols" (brown soils containing mostly inorganic material that occur in relatively dry sites) or "ferro humic podzols" (dark soils with a high organic content and a high amount of iron and aluminum). (<https://www.gov.nl.ca/eccm/files/publications-parks-ecoregions-island-1d-st-georges-bay-2007.pdf>)

3.2 Atmospheric Environment

There is an operating quarry located 5 km southeast of the proposed Project and, similar to other quarrying and processing operations, there is some associated noise and dust associated with this operation.

3.3 Regional Climate

The area can be classified as northern boreal climatic zone with cooler, shorter summers than the Codroy subregion, but longer and warmer summers than other subregions in the Western Newfoundland Forest Ecoregion. The area also experiences cold winters. Refer to Table 2 for average monthly conditions.

Table 2: 1981 to 2010 Canadian Climate Normal Station Data for Black Duck

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Daily Average (°C)	-7.3	-8.1	-4.5	1.9	7.3	11.8	16.1	16.1	12.2	6.6	1.7	-3.1
Rainfall (mm)	30.5	29.9	40.4	67.2	111.9	108.7	136.7	139.1	141.7	132.5	105.3	50.8
Snowfall (cm)	119.8	84.8	53.3	16.2	2.3	0.0	0.0	0.0	0.0	2.1	28.2	97.4
Precipitation (mm)	150.3	114.7	93.8	83.4	114.2	108.7	136.7	139.1	141.7	134.6	133.5	148.2

3.4 Vegetation

The St. George's subregion is characterized by forests of balsam fir with an understory of mostly wood ferns. Black spruce can be found on poorly drained locations, or in areas with exposed bedrock. Alder swamps also occur in this subregion and are typically found where the soil is water-logged or poorly drained.

The Atlantic Canada Conservation Data Centre (ACCDC) database was consulted for any potentially occurring rare flora species in the proposed Project area. That search identified fourteen plant species occurring within five kilometres of the proposed Project location (Table 3).

Table 3: Rare Flora Species

Species	Provincial Status	Description of Habitat (ACCDC)
American Beachgrass <i>Ammophila breviligulata</i>	Vulnerable to apparently secure	Beach at back of a long, vegetated strip of land offering protection from the open ocean, except perhaps for storms; substrate moist sand; with <i>Sueda</i> , <i>Atriplex</i> , <i>Spergularia</i> and <i>Plantago maritima</i> .
Long-stalked yellow sedge <i>Carex viridula</i> subsp. <i>brachyrrhyncha</i> var. <i>elator</i>	Vulnerable to apparently secure	Rich fen along road.
Small Spikerush <i>Eleocharis parvula</i>	Vulnerable to apparently secure	Sandy beach at bottom of large bay, on the mainland side, behind a long, vegetated strip of land offering protection from the open ocean, except perhaps for storms; exposed at low tide, flooded at high tide; substrate sand and gravel.
foxtail barley, squirreltail grass <i>Hordeum jubatum</i> subsp. <i>Jubatum</i>	Imperiled to vulnerable	Upper part of beach at back of a long, vegetated strip of land offering protection from the open ocean, except perhaps for storms; substrate moist sand; at high tide mark; vegetation cover 25%, dominated by <i>Sueda</i> , <i>Atriplex</i> and <i>Leymus mollis</i> .
Black Holly <i>Ilex verticillate</i>	Vulnerable	Shore of pond with low water near out flow at beaver swamp, tall shrubs at edge.
Bayonet Rush <i>Juncus Militaris</i>	Vulnerable	Shore of pond with low water near out flow at beaver swamp, tall shrubs at edge.
Knotted Rush <i>Juncus nodosus</i>	Imperiled	Rich fen along road.
Sea-Lavender <i>Limonium carolinianum</i>	Imperiled to vulnerable	Sandy beach.
American Water-Lily <i>Nymphaea odorata</i>	Vulnerable	Shore of pond with low water near out flow at beaver swamp, tall shrubs at edge.
Hard-Stemmed Bulrush <i>Schoenoplectus acutus</i>	Vulnerable	Shore of pond with low water near out flow at beaver swamp, tall shrubs at edge.
Sort-Stem Bulrush <i>Schoenoplectus tabernaemontani</i>	Imperiled	N/A

Saltwater Cordgrass <i>Spartina alterniflora</i>	Imperiled	Sandy beach at bottom of large bay, on the mainland side, behind a long, vegetated strip of land offering protection from the open ocean, except perhaps for storms; exposed at low tide, flooded at high tide; substrate sand and gravel.
Salt-Meadow Cordgrass <i>Spartina patens</i>	Imperiled	Beach at back of a long, vegetated strip of land offering protection from the open ocean, except perhaps for storms; substrate moist sand; with <i>Sueda</i> , <i>Atriplex</i> , <i>Spergularia</i> and <i>Plantago maritima</i> .
American Sea-Blite <i>Suaeda calceoliformis</i>	Critically imperiled to imperiled	

Complete details of the ACCDC search can be found in Appendix C.

3.5 Wildlife, Avifauna and Species at Risk (SAR)

Typical wildlife species that can be encountered in this subregion include moose, mink, snowshoe hare, lynx, black bear, red fox, beaver, muskrat, and otter. Other mammals that can also occur in the area include eastern chipmunk, masked shrew, short-tailed weasel, and red squirrel. Birds occurring in forested areas of this region include osprey, yellow-bellied and alder flycatchers, finches, a wide variety of woodpeckers, and several species of thrushes. Some warblers, including yellow, magnolia, yellow rumped, and black-throated green, also occur here. <https://www.gov.nl.ca/eccm/files/publications-parks-ecoregions-island-1d-st-georges-bay-2007.pdf>

Near waterbodies and coastlines in this subregion, aquatic birds including the American widgeon, black duck and green-winged teals can be found. Shorebirds such as the greater yellowlegs, common snipe and spotted sandpiper can also be found.

The ACCDC database was consulted for any potentially occurring SAR or rare fauna species in the proposed Project area. That search identified four species occurring within five kilometres of the proposed Project location (Table 4).

Table 4: Rare Fauna Species

Species	Provincial Status	Habitat
Mummichog <i>Fundulus heteroclitus</i>	Vulnerable	Aquatic Habitat
Banded Killifish <i>Fundulus diaphanous</i>	Vulnerable	Aquatic Habitat
Piping Plover <i>Charadrius melodus</i>	Endangered	Cobble beaches, barrier island sandspits in marine environments
Newfoundland Marten <i>Martes americana</i>	Threatened (on the Island)	Old growth coniferous and mixed-wood forests with dense overhead cover.

Complete details of the ACCDC search can be found in Appendix C.

3.6 Water Resources

Due to the high elevation of the piles and the fact the piles are manmade, it is unlikely that groundwater will be encountered within the planned processing elevations of the gypsum piles. As the excavation progresses, surfaces will be graded to promote positive surface runoff to follow existing drainage and any surface water accumulation will be collected in shallow ditches and sumps and pumped to nearby vegetation, as required.

It should be noted that drainage from gypsum deposits is chemically inert and as such, will not negatively impact the surrounding environment. The processing consists of simple physical screening without the use or addition of any chemicals for extraction and no associated tailings or settlement ponds.

There are no waterbodies within the project area. The closest downgradient tributary (Flat Bay Brook) showing on 1:50,000 scale map is approximately 560 meters away (Figure 6).

There is a small, downstream pond in the abandoned Quarry B pit 180 m northwest of the project area.

3.7 Historic Resources

RMR previously consulted with the Provincial Archaeology Office (PAO) to determine the potential for historic resources in the region of the Ace Gypsum quarry. The PAO indicated they had no concerns with the location of RMR's proposed development and indicated that the potential for locating historic resources there was low. Given the fact that the proposed project area has been 100% previously disturbed, the risk of historic resources is not material.

4.0 Environmental Effects Analysis

4.1 Natural Environment

The Natural Environment is comprised of relevant components of the biophysical environment that may interact with the Project, including vegetation, avifauna, wildlife, atmospheric and water resources.

Given that the access roads are existing and the processing operations will continue from where previous operations terminated, there are no construction activities required for this proposed Project. Minor site preparation may be required for the lunch/office trailer and mobile screening equipment. No additional footprint will be required for the placement of the mobile crushing/screening equipment. This equipment will be strategically placed in excavated areas and relocated as the processing advances.

There are no organics and overburden on the tailings-waste piles and therefore no sampling and stockpiling will be required. The site will be rehabilitated progressively as the gypsum resource is extracted or when operations cease. Given the preferred wet habitat of the rare flora species that occur within five kilometers of the site, it is highly unlikely the Project will have any negative effects on those species.

4.1.1 Atmospheric Environment

RMR intends to operate at the proposed Project site during daylight hours and the site is located a considerable distance from any residential areas. Given the proposed operating schedule and distance to the nearest community, it is not anticipated that Project activities will result in any noise disturbance to local residences.

RMR's activities will generate dust through excavating and screening, and from the stockpiles. Standard dust suppression protocols will be in place to ensure the air quality in the vicinity of the Project site is acceptable. There is no drilling or blasting involved with the processing of the tailings waste piles.

All equipment in use for Project activities will have the appropriate emission-control features in place. In addition, dust control measures (i.e., water application) will be applied as required for vehicle traffic on the access road and to ensure that no fugitive dust will be an issue as a result of any short-term gypsum stockpiling.

4.1.2 Wildlife, Avifauna and SAR

RMR does not anticipate any significant adverse effects to wildlife, avifauna or SAR as a result of the activities associated with the proposed Project. The Project will occur in a previously mined area with significant disturbance and activity. Given the habitat preferences of the SAR that may occur within five kilometres of the Project site, it is highly unlikely that Project activities will have any direct or indirect impacts on those species. Based on the abundance of undisturbed habitat

surrounding the proposed Project site, it is unlikely that Project activities will have any negative effects on wildlife, avifauna, SAR or their habitats.

A number of measures will be implemented to further reduce the potential for interactions between Project activities and any wildlife that may occur in the area:

- Project area will be kept clear of garbage;
- Project personnel will not hunt or harass wildlife while on site;
- Equipment and vehicles will yield the right-of-way to wildlife; and
- Any nuisance animals will be dealt with in consultation with the NL Wildlife Division.

No clearing of vegetation is anticipated at the processing site and there is no threat to the migratory bird breeding season for this area, May to mid-July. During processing activities and where applicable RMR will ensure the following:

- Monitoring for bird nests will be conducted in advance of any site clearing during the breeding season (May – mid-July) and efforts will be made to avoid trees with nests during that time;
- Should a nest of a migratory bird be found, the following steps will be taken (in accordance with guidelines outlined in the Migratory Birds Convention Act (MBCA):
 - all activities in the nesting area should be halted until nesting is completed (*i.e.*, the young have left the vicinity of the nest);
 - any nest found should be protected with a buffer zone appropriate for the species and the surrounding habitat until the young have left their nest; and
 - nests should not be marked using flagging tape or other similar material as these increase the risk of nest predation.

4.1.3 Water Resources

Minimal site run-off is expected during site development however RMR will ensure proper ditching/check dams are installed to mitigate the potential for any runoff leaving the site. As gypsum tends to absorb water, and due to the elevated ridge topography of the site, only limited, direct precipitation is expected to accumulate during higher precipitation events or spring runoff. Any collected water will be pumped to nearby vegetation to provide natural attenuation. Note that there is no deleterious chemistry associated with drainage from gypsum deposits. No chemicals are used in the processing and as such there are no associated tailings or settlement ponds.

There are no surface waterbodies within the Project footprint and RMR does not anticipate any direct or indirect impacts to any waterbodies in the vicinity, *i.e.*, within 2-3 kilometers. There are two small open pit ponds located less than 100 m north and 100 m south of the project boundary. However, the amount of water accumulation during higher precipitation events is expected to be limited (as mentioned above). Therefore, RMR anticipates no adverse effects to nearby waterbodies.

4.2 Socioeconomic Environment

Current resource use of the Project area appears to be minimal due to the rugged environment, limited access to the area and a small local population. Resource conflicts, if any, during Project activities are likely restricted to big and small game hunting, berry harvesting and domestic wood cutting. RMR acknowledges the presence of a water park on Flat Bay Pond approximately 2 km west of the project area and will take necessary precautions to minimize any impact. Activities at this processing site will have net positive effects on the local economy as new employment will be created over the medium to long-term, i.e. 4 to 6 years.

4.2.1 Employment

The anticipated employment opportunities are presented in Table 5.

Table 5: Occupations Required

Position	# of Personnel	National Occupation Code
Heavy Equipment Operator (loader, excavator, grader, and screener)	4	7521
Truck Driver	4	7511
Senior Manager/ Supervisor	1	0016
Geologist	1	2113
Total	10	

4.2.2 Historic Resources

Given that the project area has been 100% disturbed by previous mining activity, there is a low potential for heritage or historic resources in the area. If, however, during Project activities, historic resources are encountered, work in the area of the discovery will stop and appropriate measures, including contacting the PAO at (709) 729- 2462.

5.0 Approval of the Undertaking

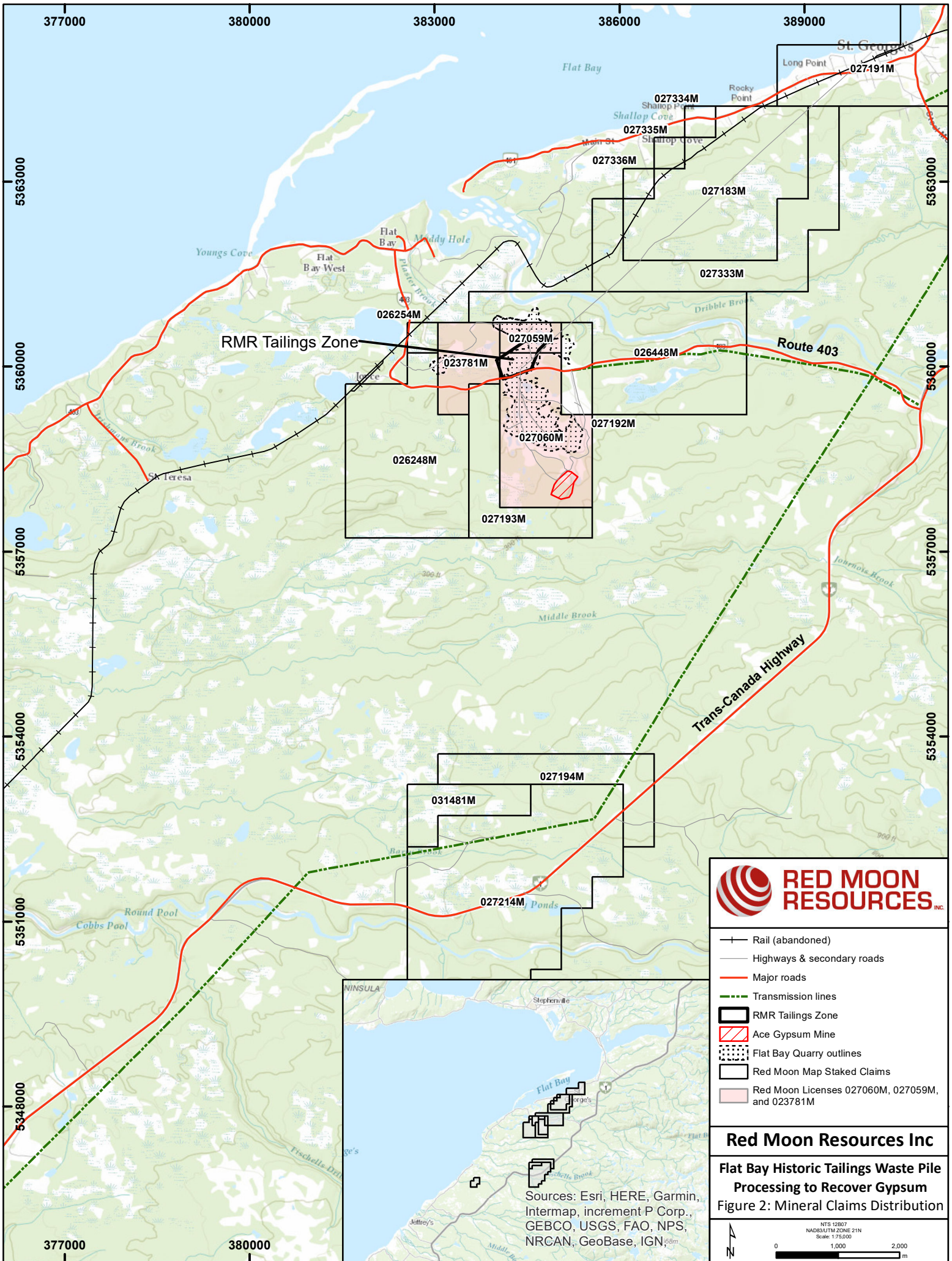
RMR holds minerals rights for the Project site. The Project requires a decision from the Minister of Environment, Climate Change, and Municipalities relative to this EA review of the proposed Project. RMR commits to obtain all necessary permits and approvals to develop, operate, and close the proposed Project in accordance with applicable legislation and industry standards.

6.0 Funding

No Government funding is required. Funding for this Project will be wholly provided by RMR.

Appendix A

Project Figures

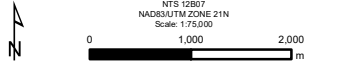


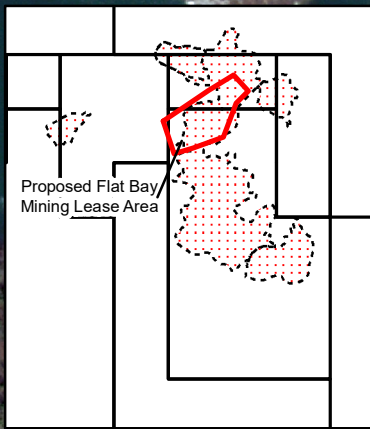
- +— Rail (abandoned)
- Highways & secondary roads
- Major roads
- Transmission lines
- ▭ RMR Tailings Zone
- ▭ Ace Gypsum Mine
- ▭ Flat Bay Quarry outlines
- ▭ Red Moon Map Staked Claims
- ▭ Red Moon Licenses 027060M, 027059M, and 023781M



Red Moon Resources Inc

Flat Bay Historic Tailings Waste Pile Processing to Recover Gypsum
Figure 2: Mineral Claims Distribution

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, 66m



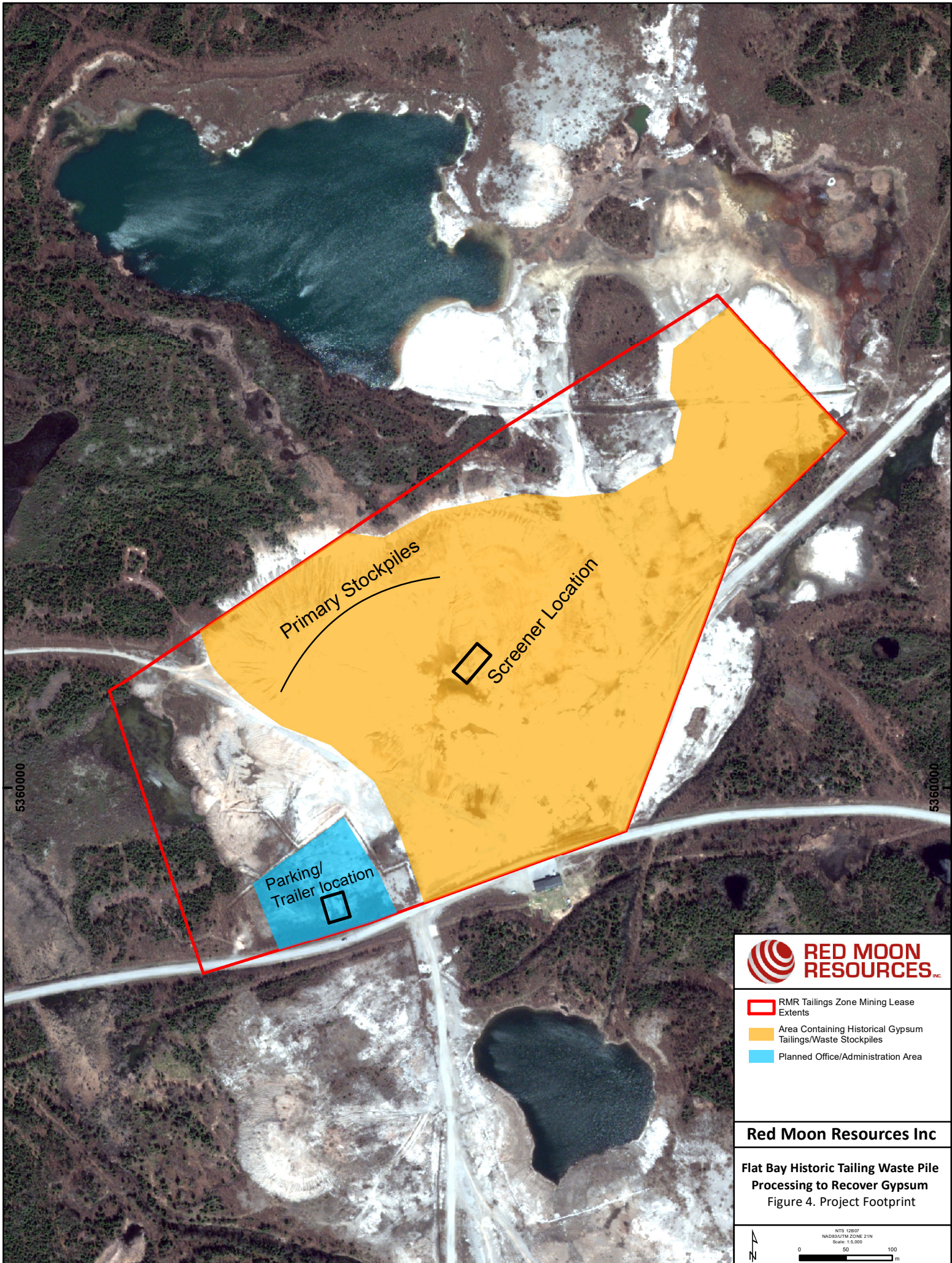


-  Red Moon Survey Corners
-  RMR Tailings Zone Extents

Red Moon Resources Inc

**Flat Bay Historic Tailing Waste Pile
Processing to Recover Gypsum**
Figure 3. Mining Lease
Aerial View (Google Earth)





- RMR Tailings Zone Mining Lease Extents
- Area Containing Historical Gypsum Tailings/Waste Stockpiles
- Planned Office/Administration Area

Red Moon Resources Inc

Flat Bay Historic Tailing Waste Pile Processing to Recover Gypsum
 Figure 4. Project Footprint



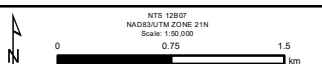


- Route to Turf Point
- RMR Tailings Zone Mining Lease Extents

Red Moon Resources Inc

**Flat Bay Historic Tailing Waste Pile
Processing to Recover Gypsum
Figure 5. Transportation Route**

Sources: Esri, HERE, Garmin, Intermap, inc, FAO, NPS, NRCAN, GeoBase, IGN, Kadast METI, Esri China (Hong Kong), (c) OpenStreet User Community



386000

Flat Bay Brook

Chilina Brook

Dribby

5360000

5360000

405

405

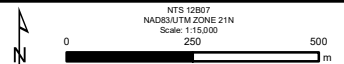
150 ft



- Rail (abandoned)
- Highways & secondary roads
- Major roads
- Transmission lines
- Red Moon Proposed Project
- Waterbody (1:50,000)
- Historical Quarry Outlines

Red Moon Resources Inc

Flat Bay Historic Tailings Processing to Recover Gypsum
Figure 6: Waterbody Location



Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Appendix B

Site and Mobile Screener Photos



Trommel and Waste Piles Location at RMR's Tailings Zone



Trommel testing on-site at RMR's Tailings Zone



Trommel testing on-site at RMR's Tailings Zone



Tailings waste piles at RMR's Tailings Zone

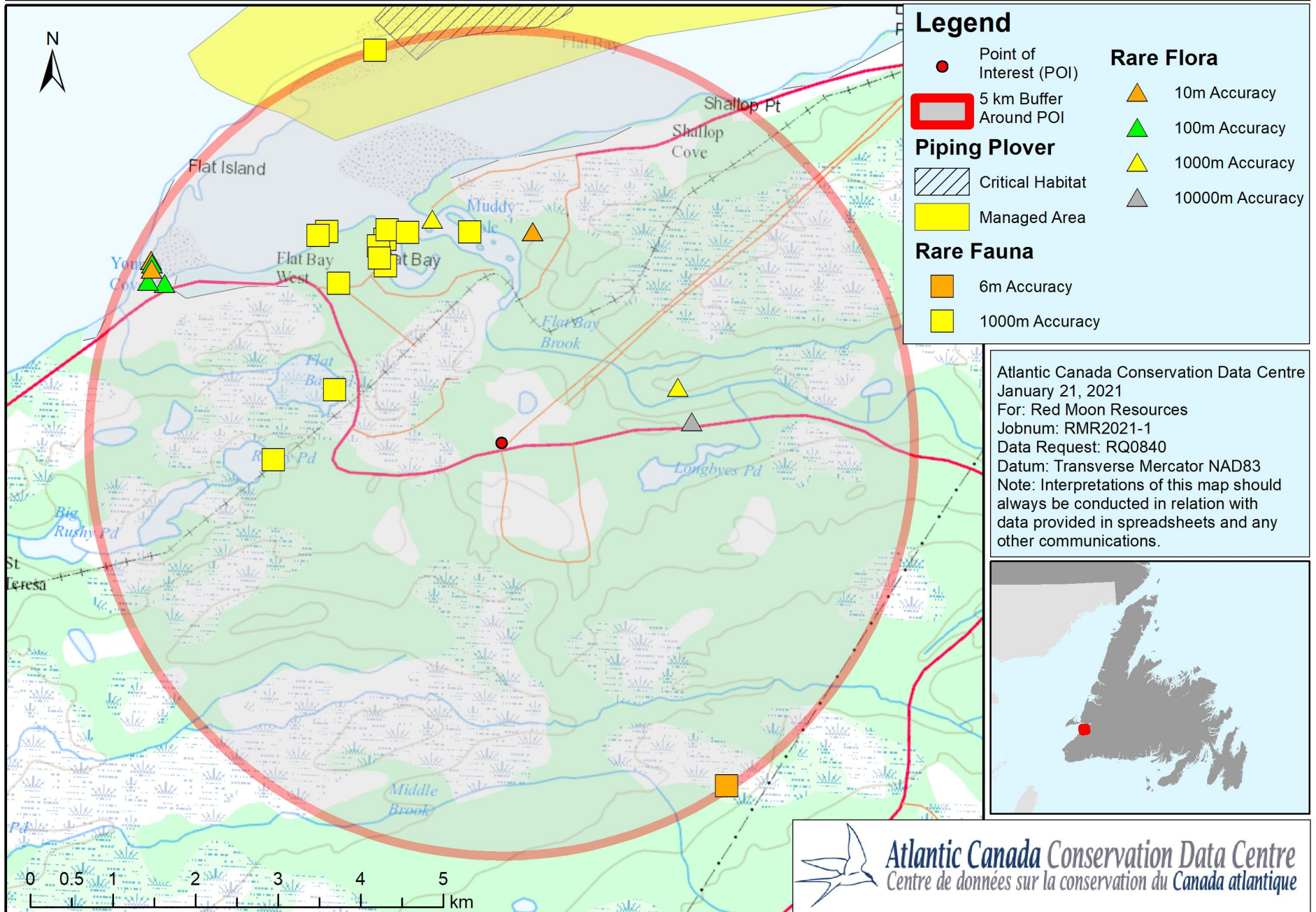


McCloskey 733 RE Trommel in-use (Taken from: <https://mccloskeyinternational.com/product/733-re/>)

Appendix C

ACCDC Information

GIS Scan of Rare and Provincially/Federally Listed Species for Rock Screening near Flat Bay, Newfoundland and Labrador



DATA SOURCES:

All data housed at Atlantic Canada Conservation Data Centre (ACCDC). Refer to 'CITATION' field for data sources.

CAVEATS:

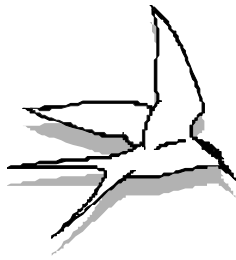
ACCDC rare taxa occurrence records are offered as a guide recognizing that the ability to find plants and animals will depend upon the season. The ACCDC makes a strong effort to verify the accuracy of all the data it obtains, generates and manages, but it will not be held responsible for inaccuracies in data that it provides.

PLEASE NOTE:

- * ACCDC data is restricted for use by the specified data user only; any third party requiring data must make its own request to the ACCDC.
- * Specified data users may not publish any information provided by the ACCDC or its partners without prior permission.
- * To ensure the currency of the data, the ACCDC requires Data Users to destroy all copies of data 18 months after the date of receipt.
- * ACCDC data reports are restricted to that data in our Data System at the time of the request.
- * Data accuracy is qualified as to location (Accuracy) and time (Date)
- * ACCDC data reports are not to be constructed as exhaustive inventories of taxa in an area.
- * The non-occupancy of a taxon cannot be inferred by its absence in an ACCDC data report.
- * Museum databases, which are the basis for more accessible public databases, such as those of the ACCDC, are works in progress. Essentially, they are finding aids and dynamic data records, constructed primarily to serve scientists engaged in the continuing, active process of plant systematics and taxonomy. Ongoing additions of new collections, and frequent upgrades to the identifications of all plant specimens housed in museum herbaria, may not always be reflected, in real time, by databases such as those of the ACCDC. Specifically, the conservation status of individual species recorded in the ACCDC database may not be absolutely current. It is therefore the responsibility of the data user to contact the relevant museums directly, in order to check for the most current identifications of specimens of interest, and to ascertain from the scientists concerned, their current understanding of the conservation status of individual species in question. The absolute conservation status of any given species is dynamic, and subject to change over short periods of time.

DATA DICTIONARY

GNAME	Scientific Name of taxon
GCOMNAME	Common name of taxon
FAMILY	Family of taxon
OBSERVER	Person or persons who observed the taxon
TOTAL NUMBER	The number of specimens at a given observation.
MONTH	Month of survey
DAY	Day of survey
YEAR	Year of survey
SRANK_2010	Subnational rank - CDC ranking system
SRANK_2015	Subnational rank - CDC ranking system
NRANK	National Rank - CDC ranking system
GRANK	Global Rank - CDC ranking system
GeneralStatusRanks	General Status text for the province
COSEWIC_STATUS	Denotes the COSEWIC status.
PROVINCIAL_STATUS	Denotes if the species is on the provincial endangered species list.
SARA	Denotes if the species is on the federal SARA list.
HABITAT	Description of the habitat where plant or animal was found
SITE_NAME	The name of the place where the occurrence occurred
ACCURACY	The accuracy in metres of the location.
SYNAME	Synonym for the plant or animal name in cases it is known by more than one scientific name.
ACRONYM OF HERBARIA	Acronym of the herbarium where this specimen is kept, see the complete definitions of the acronyms in the HERBARIA.xls
COLLECTION NUMBER	The collection number assigned to the specimen by the collector, this should be used to refer to the specimen when contacting the herbarium
CITATION	Primary source of the data
IDNUM	Field Office Number: Internal ACCDC record reference (not the EONUM)



Part I. Conservation Data Centre Subnational Rarity Ranks

Biological diversity or biodiversity can be described at a number of levels, from molecules to ecosystems. Biodiversity is a combination of species diversity (the variety of species), genetic diversity (the genetic variability among individuals of that species), and ecological diversity (the variety of ecosystems/habitats in which they live). Conservation Data Centres (CDCs), as part of The NatureServe* international network, track biodiversity at two levels: species and ecological communities. Species and ecological communities are referred to as **elements** of biodiversity. Elements are ranked in each jurisdiction (province or state) and at global and national levels in order to help prioritize conservation efforts.

NatureServe and all CDCs (called Heritage Programs in the US) use a standardized element ranking system that has evolved over some 30 years, with input from hundreds of scientists, managers and conservationists. The following material describes this element ranking system at the subnational (S) or provincial level and explains how ranks are assigned for species elements of biodiversity. (The community ranking process is slightly different.)

* Formerly known as The Nature Conservancy (TNC)

Definitions of Provincial (subnational) ranks - SRANKS

- S1 Critically Imperiled**—Critically imperiled in the jurisdiction because of extreme rarity or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the jurisdiction.
- S2 Imperiled**—Imperiled in the jurisdiction because of rarity due to very restricted range, very few populations, steep declines, or other factors making it very vulnerable to extirpation from jurisdiction.
- S3 Vulnerable**—Vulnerable in the jurisdiction due to a restricted range, relatively few populations, recent and widespread declines, or other factors making it vulnerable to extirpation.
- S4 Apparently Secure**—Uncommon but not rare; some cause for long-term concern due to declines or other factors.
- S5 Secure**—Common, widespread, and abundant in the jurisdiction.
- SX Presumed Extirpated**—Species or ecosystem is believed to be extirpated from the jurisdiction (i.e., nation or state/province). Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered.

- SH Possibly Extirpated**— Known from only historical records but still some hope of rediscovery. There is evidence that the species or ecosystem may no longer be present in the jurisdiction, but not enough to state this with certainty. Examples of such evidence include (1) that a species has not been documented in approximately 20-40 years despite some searching or some evidence of significant habitat loss or degradation; (2) that a species or ecosystem has been searched for unsuccessfully, but not thoroughly enough to presume that it is no longer present in the jurisdiction.
- S#S# Range Rank** — A numeric range rank (e.g., S2S3 or S1S3) is used to indicate any range of uncertainty about the status of the species or ecosystem. Ranges cannot skip more than two ranks (e.g., SU is used rather than S1S4).
- SU Unrankable**—Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
- SNR Unranked**—National or subnational conservation status not yet assessed.
- SNA Not Applicable** —A conservation status rank is not applicable because the species or ecosystem is not a suitable target for conservation activities.

Not applicable cases:

Hybrid – Element represents an interspecific hybrid without conservation value. (Note that hybrids may be assigned a numeric rank if they do have a conservation value.)

Exotic Origin – Element is not native to the nation or subnation.

Accidental/Nonregular – Element is not regularly found in the nation or subnation, in other words, infrequent and outside of normal range.

Not Confidently Present – Element’s presence in the nation or subnation has been reported, but the report is unconfirmed or doubtful; Element has been falsely reported, and may or may not potentially occur; Element may potentially occur (e.g., habitat is suitable); Element was never present in the nation or subnation despite presence in surrounding areas.

No Definable Occurrences – Element is native and appears regularly but lacks practical conservation concern in the subnation because it is transient or occurs in a dispersed, unpredictable manner.

Synonym – Element reported as occurring in the nation or subnation, but the national or provincial data center does not recognize this taxon; therefore the Element is not assigned a national or subnational rank.

Rank Qualifier

- S#?** **Inexact Numeric Rank**—Denotes inexact numeric rank. This designation should not be used with any of the variant national or subnational conservation status ranks or NX, SX, NH, or SH.

Breeding Status Qualifiers⁴

- B Breeding**—Conservation status refers to the breeding population of the species in the nation or state/province.
- N Nonbreeding**—Conservation status refers to the non-breeding population of the species in the nation or state/province.
- M Migrant**—Migrant species occurring regularly on migration at particular staging areas or concentration spots where the species might warrant conservation attention. Conservation status refers to the aggregating transient population of the species in the nation or state/province.

⁴ 4A breeding status is only used for species that have distinct breeding and/or non-breeding populations in the nation or state/province. A breeding-status S-rank can be coupled with its complementary non-breeding-status S-rank if the species also winters in the nation or state/province. In addition, a breeding-status S-rank can also be coupled with a migrant-status S-rank if, on migration, the species occurs regularly at particular staging areas or concentration spots where it might warrant conservation attention. Multiple conservation status ranks (typically two, or rarely three) are separated by commas (e.g., S2B,S3N or SHN,S4B,S1M).

Part II. The Ranking Process

To rank species elements, 8-10 different biological criteria are assessed for each species. The ten factors considered in assigning status ranks are described below.

Ranking Matrix Eight ranking criteria and value of letter scores for each criterion.

CRITERIA	MATRIX SCORE								
	A	B	C	D	E	F	G	H	I
Population size	1-50	50-250	250-1000	1000-2500	2500-10000	10000-100000	100000-1000000	>1000000	
Range Extent	<100km ²	100-250km ²	250-1000km ²	1000-5000km ²	5000-20000 km ²	20000-200000 km ²	200000 – 2500000 km ²		
Short-term Trend	Decline >90%	Decline of 80-90%	Decline of 70-80%	Decline of 50-70%	Decline of 30-50%	Decline of 10-30%	Relatively Stable (<10% change)	Increase of 10-25%	Increase of >25%
Long-term Trend	Decline >90%	Decline of 80-90%	Decline of 70-80%	Decline of 50-70%	Decline of 30-50%	Decline of 10-30%	Relatively Stable (<10% change)	Increase of 10-25%	Increase of >25%
Area of Occupancy	<0.4km ²	0.4-4km ²	4-20km ²	20-100km ²	100-500km ²	500-2000km ²	2000-20000km ²	>20000 km ²	
Number of Element Occurrences (EOs)	0-5	6-20	21-100	>100					
Number of EOs with Good Viability	No occurrences with excellent or good viability or ecological integrity	Very few (1-3) occurrences with excellent or good viability or ecological integrity	Few (4-12) occurrences with excellent or good viability or ecological integrity	Some (13-40) occurrences with excellent or good viability or ecological integrity	Many (41-125) occurrences with excellent or good viability or ecological integrity	Very Many (>125) occurrences with excellent or good viability or ecological integrity			
Environmental Specificity	Very Narrow	Narrow	Moderate	Broad					
Threat Scope	Pervasive (71-100%)	Large (31-70%)	Restricted (11-30%)	Small (1-10%)					
Threat Severity	Pervasive (71-100%)	Large (31-70%)	Restricted (11-30%)	Small (1-10%)					

1. Population Size

Population size is the estimated current total population of the species which is naturally occurring and wild within the area of interest (globe, nation, or subnation), and that is of reproductive age or stage (at an appropriate time of the year), including mature but currently non-reproducing individuals, which should be included in counts or estimates. Abundance is measured in different ways depending on the biology of the species. For animal populations it is usually measured by the number of individuals, for plants it may be measured by the area occupied by a distinct population, and for aquatic invertebrates it may be measured by the stream length that the species occupies:

Z = Zero, no individuals believed extant (i.e., species presumed extinct)

A = 1–50 individuals

B = 50–250 individuals

C = 250–1,000 individuals

D = 1,000–2,500 individuals

E = 2,500–10,000 individuals

F = 10,000–100,000 individuals

G = 100,000–1,000,000 individuals

H = >1,000,000 individuals

U = Unknown

Null = Factor not assessed

*A value range (e.g., DE) can also be used to indicate uncertainty.
(DE would indicate between 1000 – 10000 individuals).

2. Range Extent

This denotes the approximate range of the species as a percentage of the province's area. It is defined as the current area contained within the shortest continuous imaginary boundary which can be drawn to encompass all the known, inferred or projected sites of occurrence, but, *excluding* significant areas where the species does not occur due to unsuitable habitat. Thus the estimate of range for a species exhibiting a linear use of coastal forests or riverine habitats would not consider tracts of unsuitable habitat in the interior of the polygon.

Z = Zero (no occurrences believed extant; species presumed extinct or ecosystem believed eliminated throughout its range)

**A = <100 km²
(less than about 40 square miles)**

**B = 100–250 km²
(about 40–100 square miles)**

**C = 250–1,000 km²
(100–400 square miles)**

**D = 1,000–5,000 km²
(400–2,000 square miles)**

**E = 5,000–20,000 km²
(2,000–8,000 square miles)**

**F = 20,000–200,000 km²
(8,000–80,000 square miles)**

**G = 200,000–2,500,000 km²
(80,000–1,000,000 square miles)**

**H = >2,500,000 km²
(greater than 1,000,000 square miles)**

3. Short-term Trend

The rating code that best describes the observed, estimated, inferred, or suspected degree of change in population size, extent of occurrence (range extent), area of occupancy, number of occurrences, and/or number of occurrences or percent area with good viability or ecological integrity over the short term, whichever most significantly affects the conservation status assessment in the area of interest (globe, nation, or subnation). Consider short-term historical trend within ten years or three generations (for long-lived taxa), whichever is the longer (up to a maximum of 100 years), or, for communities and systems, typically 30 years, depending on the characteristics of the type.

The trend may be recent or current, and the trend may or may not be known to be continuing. Trends may be smooth, irregular, or sporadic. Fluctuations will not normally count as trends, but an observed change should not be considered as merely a fluctuation rather than a trend unless there is evidence for this. Conservation Status Assessments: Factors for Assessing Extinction Risk 25
In considering trends, do not consider newly discovered but presumably long existing occurrences, nor newly discovered individuals in previously poorly known areas.

Also, consider fragmentation of previously larger occurrences into a greater number of smaller occurrences to represent a decreasing area of occupancy as well as decreasing

number of good occurrences or populations.

- A = Decline of >90%**
- B = Decline of 80–90%**
- C = Decline of 70–80%**
- D = Decline of 50–70%**
- E = Decline of 30–50%**
- F = Decline of 10–30%**
- G = Relatively Stable ($\leq 10\%$ change)**
- H = Increase of 10–25%**
- I = Increase of >25%**
- U = Short-term trend unknown**
- Null = Factor not assessed**

4. Long-term Trend

The rating code that best describes the observed, estimated, inferred, or suspected degree of change in population size, extent of occurrence (range extent), area of occupancy, number of occurrences, and/or number of occurrences or percent area with good viability or ecological integrity over the long term (ca. 200 years) in the area of interest (globe, nation, or subnation).

- A = Decline of >90%**
- B = Decline of 80–90%**
- C = Decline of 70–80%**
- D = Decline of 50–70%**
- E = Decline of 30–50%**
- F = Decline of 10–30%**
- G = Relatively Stable ($\leq 10\%$ change)**
- H = Increase of 10–25%**
- I = Increase of >25%**
- U = Long-term trend unknown**
- Null = Factor not assessed**

5. Area of Occupancy

Area of occupancy for taxa can be defined as (modified from the International Union for the Conservation of Nature 2001):

“...the area within its ‘extent of occurrence’, which is occupied by a taxon or ecosystem type, excluding cases of vagrancy. The measure reflects the fact that a taxon or type will not usually occur throughout the area of its extent of occurrence, which may contain unsuitable or unoccupied habitats. In some cases, (e.g., irreplaceable colonial nesting sites, crucial feeding sites for migratory taxa) the area of occupancy is the smallest area essential at any stage to the survival of existing populations of a taxon. The size of the area of occupancy will be a function of the scale at which it is measured, and should be at a scale appropriate to relevant biological or ecological aspects of the taxon or type, the nature of threats and the available data.”

- A = <0.4km²
- B = 0.4-4
- C = 4-20 km²
- D = 20-100 km²
- E = 100-500 km²
- F = 500-2000 km²
- G = 2000-20000 km²
- H = >20000 km²

5b. Linear Distance of Occupancy

Ecosystems that occur as linear strips. They are often ecotonal between terrestrial and aquatic ecosystems. In undisturbed conditions, typical occurrences range in linear distance from 0.5 to 100 km.

- A = <4km²
- B = 4-40
- C = 40-200 km²
- D = 200-1000 km²
- E = 1000-5000 km²
- F = 5000-20000 km²
- G = 20000-200000 km²
- H = >200000 km²

6. Number of Element Occurrences (EOs)

An “element occurrence” is the mapping unit of CDC methodology. It is generally defined as an area of land or water on which an “element of biodiversity” (plant and animal species or natural community) is or was present. It is a physical location important to the conservation of a species or community, an area worth preserving to insure the survival of a community or species at risk. For a species it is generally the habitat occupied by a local population, for a community it is the area containing a stand or patch. What constitutes an occurrence also varies between species (e.g. hibernacula, den sites, breeding ponds where adults, egg masses and/or larvae have been identified, breeding colonies, etc.). Some species can have more than one type of occurrence, for example breeding and wintering occurrences.

A single letter code (below) represents the number of estimated occurrences believed extant for the species in the province. When a species’ distribution is extremely limited and there are very few site occurrences, it is very susceptible to any number of ecological disturbances, both predictable and unpredictable. This criteria is therefore an important factor influencing SRANK when the number of occurrences is few. If the letter code for this field is A or B, the species usually qualifies for a rank of S1 or S2.

- A = 0 - 5 occurrences
- B = 6 - 20 occurrences
- C = 21 - 100 occurrences
- D = 101+ occurrences

7. Number of EOs with Good Viability

For species, an occurrence with at least good (i.e., excellent-to-good) viability exhibits favorable characteristics with respect to population size and/or quality and quantity of occupied habitat; and, if current conditions prevail, the occurrence is likely to persist for the foreseeable future (i.e., at least 20–30 years) in its current condition or better. See Hammerson et al. (2008) for more details. For ecosystems, an occurrence has excellent-to-good ecological integrity when it exhibits favorable characteristics with respect to reference conditions for structure, composition, and function, operating within the bounds of natural or historic disturbance regimes, and is of exemplary size (Faber-Langendoen et al. 2008). One would expect only minor to moderate alterations to these characteristics for an occurrence to maintain good ecological integrity.

For many occurrences, viability or ecological integrity assessments or ranks have been applied by biologists and ecologists throughout the NatureServe network. For species, these Element Occurrence (EO) ranks estimate the probability of persistence of the occurrence. For ecosystems, the rank is a succinct assessment of the degree to which, under current conditions, an occurrence of an ecosystem matches reference conditions for that system, without any presumptions made about future status or persistence. Ranks for species and ecosystems are based on a set of “occurrence rank factors,” namely size (including population size and/or occupied area), abiotic and biotic condition, and landscape context. These factors may be further refined to specific indicators or metrics. The overall ranks range from A = Excellent viability/integrity, to D = Poor viability/integrity

A = No occurrences with excellent or good (assessed as A or B) viability or ecological integrity

B = Very few (1–3) occurrences with excellent or good viability or ecological integrity

C = Few (4–12) occurrences with excellent or good viability or ecological Integrity

D = Some (13–40) occurrences with excellent or good viability or ecological integrity

E = Many (41–125) occurrences with excellent or good viability or ecological integrity

F = Very many (>125) occurrences with excellent or good viability or ecological integrity

U = Unknown number of occurrences with excellent or good viability or ecological integrity

Null = Factor not assessed

8. Environmental Specificity

Environmental Specificity is the degree to which a species or ecosystem depends on a relatively scarce set of habitats, substrates, food types, or other abiotic and/or biotic factors within the overall range. Relatively narrow requirements are thought to increase the vulnerability of a species or ecosystem. This factor is most important when the number of occurrences, and the range extent or area of occupancy, are largely unknown.

A = Very Narrow. Specialist or ecosystem with key requirements scarce. For

species, specific habitat(s), substrate(s), food type(s), hosts, breeding/non-breeding microhabitats, or other abiotic and/or biotic factor(s) are used or required by the species or ecosystem in the area of interest, with these habitat(s) and/or other requirements furthermore being scarce within the generalized range of the species or ecosystem within the area of interest, and the population (or the number of breeding attempts) expected to decline significantly if any of these key requirements become unavailable. For ecosystems, environmental requirements are both narrow and scarce (e.g., calcareous seepage fens).

- B =** Narrow. Specialist or ecosystem with key requirements common. Specific habitat(s) or other abiotic and/or biotic factors (see above) are used or required by the species or ecosystem, but these key requirements are common and within the generalized range of the species or ecosystem within the area of interest. For ecosystems, environmental requirements are narrow but common (e.g., floodplain forest, alpine tundra).
- C =** Moderate. Generalist or community with some key requirements scarce. Broad-scale or diverse (general) habitat(s) or other abiotic and/or biotic factors are used or required by the species or ecosystem, but some key requirements are scarce in the generalized range of the species or ecosystem within the area of interest. For ecosystems, environmental requirements are broad but scarce (e.g., talus or cliff forests and woodlands, alvars, many rock outcrop communities dependent more on thin, droughty soils per se than specific substrate factors).
- D =** Broad. Generalist or community with all key requirements common. Broad-scale or diverse (general) habitat(s) or abiotic and/or biotic factors are used or required by the species or ecosystem, with all key requirements common in the generalized range of the species or ecosystem in the area of interest. For animals, if the preferred food(s) or breeding/non-breeding microhabitat(s) become unavailable, the species switches to an alternative with no resulting decline in numbers of individuals or number of breeding attempts. For ecosystems, environmental requirements are broad and common (e.g., forests or prairies on glacial till, or forests and meadows on montane slopes).

9. Threat Severity

Within the scope (as defined spatially and temporally in assessing the scope of the Threat), severity is the level of damage to the species or ecosystem from the Threat that can reasonably be expected with continuation of current circumstances and trends (including potential new threats) (Table 7). Note that severity of Threats is assessed within a ten-year or three-generation time frame, whichever is longer (up to 100 years).

For species, severity is usually measured as the degree of reduction of the species' population. Surrogates for adult population size (e.g., area) should be used with caution, as

occupied areas, for example, will have uneven habitat suitability and uneven population density. For ecosystems, severity is typically measured as the degree of degradation or decline in integrity (of one or more key characteristics).

Extreme	Within the scope, the Threat is likely to destroy or eliminate the occurrences of an ecological community, system or species, or reduce the species population by 71–100%
Serious	Within the scope, the Threat is likely to seriously degrade/reduce the effected occurrences or habitat or, for species, to reduce the species population by 31–70%
Moderate	Within the scope, the Threat is likely to moderately degrade/reduce the effected occurrences or habitat or, for species, to reduce the species population by 11–30%
Slight	Within the scope, the Threat is likely to only slightly degrade/reduce the effected occurrences or habitat or, for species, to reduce the species population by 1–10%

10. Threat Scope

Scope is defined herein as the proportion of the species or ecosystem that can reasonably be expected to be affected (that is, subject to one or more stresses) by the Threat within ten years with continuation of current circumstances and trends (Table 6). Current circumstances and trends include both existing as well as potential new threats. The ten-year time frame can be extended for some longer-term threats, such as global warming, that need to be addressed today. For species, scope is measured as the proportion of the species' population in the area of interest (globe, nation, or subnation) affected by the Threat. For ecosystems, scope is measured as the proportion of the occupied area of interest (globe, nation, or subnation) affected by the Threat. If a species or ecosystem is evenly distributed, then the proportion of the population or area affected is equivalent to the proportion of the range extent affected by the Threat; however, if the population or area is patchily distributed, then the proportion differs from that of range extent.

Pervasive	Affects all or most (71–100%) of the total population or occurrences
Large	Affects much (31–70%) of the total population or occurrences
Restricted	Affects some (11–30%) of the total population or occurrences.
Small	Affects a small (1–10%) proportion of the total population or occurrences.

11. Intrinsic Vulnerability

Note that this factor is not used if the Threats status factor has been assessed.

Intrinsic Vulnerability is the observed, inferred, or suspected degree to which characteristics of the species or ecosystem (such as life history or behavior characteristics of species, or likelihood of regeneration or recolonization for ecosystems) make it vulnerable or resilient to natural or anthropogenic stresses or catastrophes. For ecosystems, Intrinsic Vulnerability is most readily assessed using the dominant species and vegetation structure that characterize the ecosystem, but it can also refer to ecological processes that make an ecosystem vulnerable or lack resiliency (e.g., shoreline fens along estuarine and marine coasts subject to rising sea levels).

Since geographically or ecologically disjunct or peripheral occurrences may show additional vulnerabilities not generally characteristic of a species or ecosystem, characteristics of Intrinsic Vulnerability are to be assessed for the species or ecosystem throughout the area of interest, or at least for its better occurrences. Information on population size, number of occurrences, area of occupancy, extent of occurrence, or environmental characteristics that affect resiliency should not be considered when assessing Intrinsic Vulnerability; these are addressed using other status factors.

Note that the Intrinsic Vulnerability characteristics exist independent of human influence, but may make the species or ecosystem more susceptible to disturbance by human activities. The extent and effects of current or projected extrinsic influences themselves should be addressed in the comments field of the Threats status factor.

A = Highly Vulnerable. Species is slow to mature, reproduces infrequently, and/or has low fecundity such that populations are very slow (>20 years

or five generations) to recover from decreases in abundance; or species has low dispersal capability such that extirpated populations are unlikely to become reestablished through natural recolonization (unaided by humans). Ecosystem occurrences are highly susceptible to changes in composition and structure that rarely if ever are reversed through natural processes even over substantial time periods (>100 years).

B = Moderately Vulnerable. Species exhibits moderate age of maturity, frequency of reproduction, and/or fecundity such that populations generally tend to recover from decreases in abundance over a period of several years (on the order of 5–20 years or 2–5 generations); or species has moderate dispersal capability such that extirpated populations generally become reestablished through natural recolonization (unaided by humans). Ecosystem occurrences may be susceptible to changes in composition and structure but tend to recover through natural processes given reasonable time (10–100 years).

C = Not Intrinsicly Vulnerable. Species matures quickly, reproduces frequently, and/or has high fecundity such that populations recover quickly (<5 years or 2 generations) from decreases in abundance; or species has high dispersal capability such that extirpated populations soon become reestablished through natural recolonization (unaided by humans). Ecosystem occurrences are resilient or resistant to irreversible changes in composition and structure and quickly recover (within 10 years).

U = Unknown

Null = Factor not assessed

12. Other Considerations

Other considerations in determining the rank that are not apparent from the letter codes selected for the above criteria. Generally, these considerations will raise rather than lower the rank, e.g., "Never sexually reproduces" or "All occurrences are in areas under development".

References

Master, L., D. Faber-Langendoen, R. Bittman, G. A. Hammerson, B. Heidel, J. Nichols, L. Ramsay, and A. Tomaino. 2009. NatureServe Conservation Status Assessments: Factors for Assessing Extinction Risk. NatureServe, Arlington, VA.

GNAME	GCOMNAME	OBSERVER	MONTH	DAY	YEAR	Verification	SRANK_2010	SRANK_2015	NRANK	GRANK	FAMILY	PROV_END_A	COSEWIC	DESCR_HABITAT	ACCURACY_MEITRES	SYNAME	SITE_NAME	SURVEYSITE	ACRONYMS_O	COLLECTION	SOURCES	IDNUM	EST_NF_ID
<i>Ammophila breviligulata</i>	American Beachgrass	Djan-Chékar, N., Hanel, C. and Powell, S.	8	17	2000		S3	S3S4	N5	G5	Poaceae			Beach at back of a long, vegetated strip of land offering protection from the open ocean, except perhaps for storms; substrate moist sand, with <i>Sueda</i> , <i>Atriplex</i> , <i>Spergularia</i> and <i>Plantago maritima</i> .	10	<i>Ammophila arenaria</i>	Flat Bay	Bay St. Georges, Flat Bay, beach at SW-end of the bay.				SP08433	626831
<i>Carex viridula</i> subsp. <i>brachyrhyncha</i> var. <i>elator</i>	long-stalked yellow sedge	Wells, D.	8	9	1972	v	S3S4	S3S4	NNR	G5TNR	Cyperaceae			Rich Fen along road.	10000	<i>Carex flava</i> var. <i>elator</i> ; <i>Carex viridula</i> var. <i>elator</i>	St. George's-Stephenville East Distr.(NF)	Road from TCH to Flat Bay	CAN	Herbarium Data Entry, CAN, Canadian Museum of Nature	SP55631	496513	
<i>Eleocharis parvula</i>	Small Spikerush	Djan-Chékar, N., Hanel, C. and Powell, S.	8	17	2000	v	S3S5	S3S4	N4N5	G5	Cyperaceae			Sandy beach at bottom of large bay, on the mainland side, behind a long, vegetated strip of land offering protection from the open ocean, except perhaps for storms; exposed at low tide, flooded at high tide; substrate sand and gravel.	100	<i>Scirpus paniculatus</i> ; <i>Eleocharis pygmaea</i> ; <i>S. nanus</i> ; <i>Chaetocypripus membranaceus</i> ; <i>Eleocharis coloradensis</i> ; <i>E. leptos</i> ; <i>E. leptos</i> var. <i>coloradensis</i> ; <i>E. leptos</i> var. <i>johnstonii</i> ; <i>E. membranacea</i> ; <i>E. parvula</i> var. <i>anachasta</i> ; <i>E. parvula</i> var. <i>coloradensis</i> ; <i>Scirpus na</i>	Flat Bay	Bay St. Georges, Flat Bay, tidal flat at SW-end of the S-side of the bay.	NFM	NDC 00-790	Herbarium Data Entry, NFM, The Rooms Herbarium, St. John's	SP04975	458916
<i>Hordeum jubatum</i> subsp. <i>jubatum</i>	foxtail barley, squirreltail grass	Djan-Chékar, N., Hanel, C. and Powell, S.	8	17	2000		S1S2	S2S3	N5	G5T5	Poaceae			Upper part of beach at back of a long, vegetated strip of land offering protection from the open ocean, except perhaps for storms; substrate moist sand; at high tide mark, sparse vegetation cover 25%, dominated by <i>Sueda</i> , <i>Atriplex</i> and <i>Leymus mollis</i> .	100	<i>Criteseion jubatum</i> ; <i>Sitarianion jubatum</i> ;	Flat Bay	Bay St. Georges, Flat Bay, beach at SW-end of the bay.			Herbarium Data Entry, NFM, The Rooms Herbarium, St. John's	SP05010	273772
<i>Hordeum jubatum</i> subsp. <i>jubatum</i>	foxtail barley, squirreltail grass	Djan-Chékar, N., Hanel, C. and Powell, S.	8	17	2000	v	S1S2	S2S3	N5	G5T5	Poaceae			Upper part of beach at back of a long, vegetated strip of land offering protection from the open ocean, except perhaps for storms; substrate wet coarse sand; at high tide mark, sparse vegetation cover, dominated by <i>Plantago maritima</i> .	10	<i>Criteseion jubatum</i> ; <i>Sitarianion jubatum</i> ;	Flat Bay	Bay St. Georges, Flat Bay, beach at SW-end of the bay.	NFM, MT	NDC 00-798	Herbarium Data Entry, NFM, The Rooms Herbarium, St. John's	SP04988	273772
<i>Ilex verticillata</i>	Black Holly	Claudia Hanel, Shane White	7	27	2015		S3	S3	N5	G5	Aquifoliaceae			Shore of pond with low water near out flow at beaver swamp, tall shrubs at edge.	10	<i>Prinos verticillata</i> ; <i>Ilex bronensis</i> ; <i>I. fastigiata</i> ; <i>I. verticillata</i> forma <i>physsocarpa</i> ; <i>I. verticillata</i> forma <i>terutolia</i> ; <i>I. verticillata</i> var. <i>fastigiata</i> ; <i>I. verticillata</i> var. <i>terutolia</i>	Shallop Cove	South West Coast NF, -2.5km NE of Flat Bay, -2km SW of Shallop Cove, bog -400m SW Muskams Road; 430m NE of Flat Bay Brook and -200m NW of a small pond.			Excel Doc From C Hanel, Aug 2020	SP92673	509055
<i>Juncus militaris</i>	Bayonet Rush	Claudia Hanel, Shane White	7	27	2015		S3	S3	N5	G5	Juncaceae			Shore of pond with low water near out flow at beaver swamp, tall shrubs at edge.	10		Shallop Cove	South West Coast NF, -2.5km NE of Flat Bay, -2km SW of Shallop Cove, bog -400m SW Muskams Road; 430m NE of Flat Bay Brook and -200m NW of a small pond.			Excel Doc From C Hanel, Aug 2020	SP92676	603241
<i>Juncus nodosus</i>	Knotted Rush	Wells, E.D.	8	9	1972	v	S2	S2	N5	G5	Juncaceae			Rich fen along road.	1000	<i>Juncus nodosus</i> var. <i>meridionalis</i> ; <i>J. rostriviti</i> ;	Flat Bay	Flat Bay, rd from TCH.	FFB	1648; 1836	Bouchard, A. Database for Rare Vascular Plants of Newfoundland, 1st. Ed. Université de Montréal	SP25611	49747
<i>Limonium carolinianum</i>	Sea-Lavender	Djan-Chékar, N., Hanel, C. and Powell, S.	8	17	2000		S2	S2S3	N5	G5	Plumbaginaceae			Beach at back of a long, vegetated strip of land offering protection from the open ocean, except perhaps for storms; substrate moist sand, with <i>Sueda</i> , <i>Atriplex</i> , <i>Spergularia</i> and <i>Plantago maritima</i> .	10	<i>Statice caroliniana</i> ; <i>Limonium angustatum</i> ; <i>L. carolinianum</i> var. <i>angustatum</i> ; <i>L. carolinianum</i> var. <i>compactum</i> ; <i>L. carolinianum</i> var. <i>nashii</i> ; <i>L. carolinianum</i> var. <i>angustifolium</i> ; <i>L. carolinianum</i> var. <i>obtusilobum</i> ; <i>L. carolinianum</i> var. <i>trichogonum</i> ; <i>L. nashii</i> ; <i>L.</i>	Flat Bay	Bay St. Georges, Flat Bay, beach at SW-end of the bay.				SP08432	524377
<i>Limonium carolinianum</i>	Sea-Lavender	Djan-Chékar, N., Hanel, C. and Powell, S.	8	17	2000		S2	S2S3	N5	G5	Plumbaginaceae			Sandy beach at bottom of large bay, protected from the open ocean by long, vegetated strip of land, except perhaps during storms; intertidal; vegetation sparse, dominated by <i>Plantago maritima</i> and <i>Glaux maritima</i> ; substrate coarse sand; open.	100	<i>Statice caroliniana</i> ; <i>Limonium angustatum</i> ; <i>L. carolinianum</i> var. <i>angustatum</i> ; <i>L. carolinianum</i> var. <i>compactum</i> ; <i>L. carolinianum</i> var. <i>nashii</i> ; <i>L. carolinianum</i> var. <i>angustifolium</i> ; <i>L. carolinianum</i> var. <i>obtusilobum</i> ; <i>L. carolinianum</i> var. <i>trichogonum</i> ; <i>L. nashii</i> ; <i>L.</i>	Flat Bay	Bay St. Georges, Flat Bay, tidal flat at SW-end of the bay.			Herbarium Data Entry, NFM, The Rooms Herbarium, St. John's	SP04986	524377
<i>Limonium carolinianum</i>	Sea-Lavender	Djan-Chékar, N., Hanel, C. and Powell, S.	8	17	2000		S2	S2S3	N5	G5	Plumbaginaceae			Upper part of beach at back of a long, vegetated strip of land offering protection from the open ocean, except perhaps for storms; substrate moist sand; at high tide mark, sparse vegetation cover 25%, dominated by <i>Sueda</i> , <i>Atriplex</i> and <i>Leymus mollis</i> .	100	<i>Statice caroliniana</i> ; <i>Limonium angustatum</i> ; <i>L. carolinianum</i> var. <i>angustatum</i> ; <i>L. carolinianum</i> var. <i>compactum</i> ; <i>L. carolinianum</i> var. <i>nashii</i> ; <i>L. carolinianum</i> var. <i>angustifolium</i> ; <i>L. carolinianum</i> var. <i>obtusilobum</i> ; <i>L. carolinianum</i> var. <i>trichogonum</i> ; <i>L. nashii</i> ; <i>L.</i>	Flat Bay	Bay St. Georges, Flat Bay, beach at SW-end of the bay.			Herbarium Data Entry, NFM, The Rooms Herbarium, St. John's	SP04997	524377
<i>Limonium carolinianum</i>	Sea-Lavender	Djan-Chékar, N., Hanel, C. and Powell, S.	8	17	2000	v	S2	S2S3	N5	G5	Plumbaginaceae			Upper part of beach at back of a long, vegetated strip of land offering protection from the open ocean, except perhaps for storms; substrate wet coarse sand, at high tide mark, sparse vegetation cover, dominated by <i>Plantago maritima</i> .	10	<i>Statice caroliniana</i> ; <i>Limonium angustatum</i> ; <i>L. carolinianum</i> var. <i>angustatum</i> ; <i>L. carolinianum</i> var. <i>compactum</i> ; <i>L. carolinianum</i> var. <i>nashii</i> ; <i>L. carolinianum</i> var. <i>angustifolium</i> ; <i>L. carolinianum</i> var. <i>obtusilobum</i> ; <i>L. carolinianum</i> var. <i>trichogonum</i> ; <i>L. nashii</i> ; <i>L.</i>	Flat Bay	Bay St. Georges, Flat Bay, beach at SW-end of the bay.	NFM, MT	NDC 00-797	Herbarium Data Entry, NFM, The Rooms Herbarium, St. John's	SP04987	524377
<i>Nymphaea odorata</i>	American Water-Lily	Claudia Hanel, Shane White	7	27	2015		S3	S3	N5	G5	Nymphaeaceae			Shore of pond with low water near out flow at beaver swamp, tall shrubs at edge.	10		Shallop Cove	South West Coast NF, -2.5km NE of Flat Bay, -2km SW of Shallop Cove, bog -400m SW Muskams Road; 430m NE of Flat Bay Brook and -200m NW of a small pond.			Excel Doc From C Hanel, Aug 2020	SP92680	615922
<i>Schoenoplectus acutus</i>	Hard-Stemmed Bulrush	Claudia Hanel, Shane White	7	27	2015		S3	S3	N5	G5	Cyperaceae			Shore of pond with low water near out flow at beaver swamp, tall shrubs at edge.	10		Shallop Cove	South West Coast NF, -2.5km NE of Flat Bay, -2km SW of Shallop Cove, bog -400m SW Muskams Road; 430m NE of Flat Bay Brook and -200m NW of a small pond.			Excel Doc From C Hanel, Aug 2020	SP92687	768321
<i>Schoenoplectus tabernaemontani</i>	Soft-Stem Bulrush	Bell, J.	6	24	1867	v	S2	S2	N5	G5	Cyperaceae				1000	<i>Scirpus tabernaemontani</i> ; <i>S. lacustris</i> subsp. <i>glauicus</i> ; <i>S. lacustris</i> subsp. <i>validus</i> ; <i>S. lacustris</i> var. <i>tabernaemontani</i> ; <i>S. validus</i> Vahl; <i>S. validus</i> var. <i>creber</i> ; <i>Schoenoplectus lacustris</i> subsp. <i>creber</i> ; <i>S. lacustris</i> subsp. <i>tabernaemontani</i> ; <i>S. lacustris</i> subsp. <i>vall</i>	Flat Bay Brook	Flat Bay Brook, St Georges Bay	MT	195/3953	Bouchard, A. Database for Rare Vascular Plants of Newfoundland, 1st. Ed. Université de Montréal	SP25601	302980
<i>Spartina alterniflora</i>	Saltwater Cordgrass	Djan-Chékar, N., Hanel, C. and Powell, S.	8	17	2000	v	S2	S2	N5	G5	Poaceae			Sandy beach at bottom of large bay, on the mainland side, behind a long, vegetated strip of land offering protection from the open ocean, except perhaps for storms; exposed at low tide, flooded at high tide; substrate sand and gravel.	100	<i>Spartina glabra</i> var. <i>alterniflora</i> ; <i>Spartina alterniflora</i> var. <i>glabra</i> ; <i>Spartina stricta</i> var. <i>alterniflora</i> ; <i>Spartina alterniflora</i> var. <i>pilosa</i>	Flat Bay	Bay St. Georges, Flat Bay, tidal flat at SW-end of the S-side of the bay.	NFM, MT	NDC 00-787	Herbarium Data Entry, NFM, The Rooms Herbarium, St. John's	SP04972	551231
<i>Spartina alterniflora</i>	Saltwater Cordgrass	Djan-Chékar, N., Hanel, C. and Powell, S.	8	17	2000		S2	S2	N5	G5	Poaceae			Sandy beach at bottom of large bay, protected from the open ocean by long, vegetated strip of land, except perhaps during storms; intertidal; vegetation sparse, dominated by <i>Plantago maritima</i> and <i>Glaux maritima</i> ; substrate coarse sand; open.	100	<i>Spartina glabra</i> var. <i>alterniflora</i> ; <i>Spartina alterniflora</i> var. <i>glabra</i> ; <i>Spartina stricta</i> var. <i>alterniflora</i> ; <i>Spartina alterniflora</i> var. <i>pilosa</i>	Flat Bay	Bay St. Georges, Flat Bay, tidal flat at SW-end of the bay.			Herbarium Data Entry, NFM, The Rooms Herbarium, St. John's	SP04984	551231
<i>Spartina patens</i>	Salt-Meadow Cordgrass	Djan-Chékar, N., Hanel, C. and Powell, S.	8	17	2000		S1S2	S2	N5	G5	Poaceae			Beach at back of a long, vegetated strip of land offering protection from the open ocean, except perhaps for storms; substrate moist sand, with <i>Sueda</i> , <i>Atriplex</i> , <i>Spergularia</i> and <i>Plantago maritima</i> .	10	<i>Dactylis patens</i> ; <i>Spartina patens</i> var. <i>juicea</i> ; <i>Spartina patens</i> var. <i>monogyna</i>	Flat Bay	Bay St. Georges, Flat Bay, beach at SW-end of the bay.				SP08431	519814
<i>Spartina patens</i>	Salt-Meadow Cordgrass	Djan-Chékar, N., Hanel, C. and Powell, S.	8	17	2000	v	S1S2	S2	N5	G5	Poaceae			Upper part of beach at back of a long, vegetated strip of land offering protection from the open ocean, except perhaps for storms; substrate moist sand; at high tide mark, sparse vegetation cover 25%, dominated by <i>Sueda</i> , <i>Atriplex</i> and <i>Leymus mollis</i> .	100	<i>Dactylis patens</i> ; <i>Spartina patens</i> var. <i>juicea</i> ; <i>Spartina patens</i> var. <i>monogyna</i>	Flat Bay	Bay St. Georges, Flat Bay, beach at SW-end of the bay.	NFM, MT	NDC 00-805	Herbarium Data Entry, NFM, The Rooms Herbarium, St. John's	SP05001	519814
<i>Spartina patens</i>	Salt-Meadow Cordgrass	Djan-Chékar, N., Hanel, C. and Powell, S.	8	17	2000	v	S1S2	S2	N5	G5	Poaceae			Upper part of beach at back of a long, vegetated strip of land offering protection from the open ocean, except perhaps for storms; substrate wet coarse sand; at high tide mark, sparse vegetation cover, dominated by <i>Plantago maritima</i> .	10	<i>Dactylis patens</i> ; <i>Spartina patens</i> var. <i>juicea</i> ; <i>Spartina patens</i> var. <i>monogyna</i>	Flat Bay	Bay St. Georges, Flat Bay, beach at SW-end of the bay.	NFM, MT	NDC 00-800	Herbarium Data Entry, NFM, The Rooms Herbarium, St. John's	SP04996	519814
<i>Suaeda calceoliformis</i>	American Sea-Blite	Djan-Chékar, N., Hanel, C. and Powell, S.	8	17	2000		SNR	S1S2	N5	G5	Amaranthaceae			Beach at back of a long, vegetated strip of land offering protection from the open ocean, except perhaps for storms; substrate moist sand, with <i>Sueda</i> , <i>Atriplex</i> , <i>Spergularia</i> and <i>Plantago maritima</i> .	10	<i>Suaeda depressa</i> var. <i>erecta</i> ; <i>Suaeda americana</i> ; <i>Chenopodium calceoliforme</i> ; <i>Dondia americana</i> ; <i>Salsola depressa</i> ; <i>Salsola salsa</i> var. <i>americana</i> ; <i>Suaeda depressa</i> ; <i>Suaeda maritima</i> var. <i>americana</i>	Flat Bay	Bay St. Georges, Flat Bay, beach at SW-end of the bay.				SP08427	615219
<i>Suaeda calceoliformis</i>	American Sea-Blite	Djan-Chékar, N., Hanel, C. and Powell, S.	8	17	2000	v	SNR	S1S2	N5	G5	Amaranthaceae			Upper part of beach at back of a long, vegetated strip of land offering protection from the open ocean, except perhaps for storms; substrate moist sand; at high tide mark, sparse vegetation cover 25%, dominated by <i>Sueda</i> , <i>Atriplex</i> and <i>Leymus mollis</i> .	100	<i>Suaeda depressa</i> var. <i>erecta</i> ; <i>Suaeda americana</i> ; <i>Chenopodium calceoliforme</i> ; <i>Dondia americana</i> ; <i>Salsola depressa</i> ; <i>Salsola salsa</i> var. <i>americana</i> ; <i>Suaeda depressa</i> ; <i>Suaeda maritima</i> var. <i>americana</i>	Flat Bay	Bay St. Georges, Flat Bay, beach at SW-end of the bay.	NFM, MT	NDC 00-803	Herbarium Data Entry, NFM, The Rooms Herbarium, St. John's	SP04999	615219

Rare Fauna (ACDC)

GNAME	GCOMNAME	FAMILY	Observer	TotalNumber	Month	Day	Year	SRANK_2015	SRANK_2010	NRANK	GRANK	GeneralStatus	COSEWIC_ST	PROVINCIAL	SARA	DESCR_HABITAT	SITE_NAME	Accuracy	SYNAME	CITATION	IDNUM
Charadrius melodus	Piping Plover	Charadriidae	Monique Vassallo	2	6	2	2003	S1B,SUM	S1B	N3B,N3M	G3	At Risk	Endangered	Endangered	Endangered			1000		Nf.Birds, Data Entry by WD Summer Student, 2012	mstr1028930
Fundulus heteroclitus	Mummichog	Cyprinodontidae		-99	0	0	2006	S3	S1?	N5	G5	Secure					Flat Bay	1000		Gallant. R, Old WD Fish Database.	mstr1033456
Fundulus heteroclitus	Mummichog	Cyprinodontidae		-99	0	0	2006	S3	S1?	N5	G5	Secure					Flat Bay	1000		Gallant. R, Old WD Fish Database.	mstr1033454
Fundulus heteroclitus	Mummichog	Cyprinodontidae		-99	0	0	2006	S3	S1?	N5	G5	Secure					Flat Bay	1000		Gallant. R, Old WD Fish Database.	mstr1033453
Fundulus heteroclitus	Mummichog	Cyprinodontidae		-99	0	0	2006	S3	S1?	N5	G5	Secure					Flat Bay	1000		Gallant. R, Old WD Fish Database.	mstr1033452
Fundulus diaphanus	Banded Killifish	Cyprinodontidae		-99	0	0	2006	S3	S1?	N5	G5	Secure	Special Concern	Vulnerable	Special Concern		Flat Bay	1000		Gallant. R, Old WD Fish Database.	mstr1033451
Fundulus diaphanus	Banded Killifish	Cyprinodontidae		-99	0	0	2006	S3	S1?	N5	G5	Secure	Special Concern	Vulnerable	Special Concern		Flat Bay	1000		Gallant. R, Old WD Fish Database.	mstr1033449
Fundulus diaphanus	Banded Killifish	Cyprinodontidae		-99	0	0	2006	S3	S1?	N5	G5	Secure	Special Concern	Vulnerable	Special Concern		Flat Bay	1000		Gallant. R, Old WD Fish Database.	mstr1033448
Fundulus diaphanus	Banded Killifish	Cyprinodontidae		-99	0	0	2006	S3	S1?	N5	G5	Secure	Special Concern	Vulnerable	Special Concern		Flat Bay	1000		Gallant. R, Old WD Fish Database.	mstr1033447
Fundulus diaphanus	Banded Killifish	Cyprinodontidae		-99	0	0	2006	S3	S1?	N5	G5	Secure	Special Concern	Vulnerable	Special Concern		Flat Bay	1000		Gallant. R, Old WD Fish Database.	mstr1033446
Fundulus diaphanus	Banded Killifish	Cyprinodontidae		-99	0	0	2006	S3	S1?	N5	G5	Secure	Special Concern	Vulnerable	Special Concern		Flat Bay	1000		Gallant. R, Old WD Fish Database.	mstr1033445
Fundulus diaphanus	Banded Killifish	Cyprinodontidae		-99	0	0	2006	S3	S1?	N5	G5	Secure	Special Concern	Vulnerable	Special Concern		Flat Bay	1000		Gallant. R, Old WD Fish Database.	mstr1033441
Fundulus diaphanus	Banded Killifish	Cyprinodontidae		-99	0	0	2006	S3	S1?	N5	G5	Secure	Special Concern	Vulnerable	Special Concern		Flat Bay	1000		Gallant. R, Old WD Fish Database.	mstr1033440
Fundulus diaphanus	Banded Killifish	Cyprinodontidae		-99	0	0	2006	S3	S1?	N5	G5	Secure	Special Concern	Vulnerable	Special Concern		Flat Bay	1000		Gallant. R, Old WD Fish Database.	mstr1033438
Fundulus diaphanus	Banded Killifish	Cyprinodontidae		-99	0	0	2006	S3	S1?	N5	G5	Secure	Special Concern	Vulnerable	Special Concern		Flat Bay	1000		Gallant. R, Old WD Fish Database.	mstr1033432
Fundulus diaphanus	Banded Killifish	Cyprinodontidae		-99	0	0	2006	S3	S1?	N5	G5	Secure	Special Concern	Vulnerable	Special Concern		Flat Bay	1000		Gallant. R, Old WD Fish Database.	mstr1033431
Martes americana atrata	Newfoundland Pine Marten		iNaturalist user: cfsare		8	3	2017	S3	S1	N5	G5	Secure	Threatened	Threatened	Endangered		Division No. 4, CA-NF, CA	6		iNaturalist record export 2018	MSTR1052591
Charadrius melodus	Piping Plover	Charadriidae		10			2001	S1B,SUM	S1B	N3B,N3M	G3	At Risk	Endangered	Endangered	Endangered		Flat Bay, Flat Bay Peninsula	1000		WD SAR Shapefile. International PIPL breeding census PIPL plover survey records from box of files in Peter Thomas's office	pip1249