

1 Introduction

Prosper Petroleum Ltd. submitted the Application for Approval of the Rigel Oil Sands Project (the Project) in November 2013 (the Application).

Prosper received the first round of supplemental information requests (SIRs) from the Alberta Energy Regulator (AER) regarding the *Oil Sands Conservation Act* (OSCA) application in May 2014 (OSCA Round 1 SIRs). Prosper provided responses to the OSCA Round 1 SIRs in July 2014. Prosper received the first round of SIRs from the AER regarding the *Environmental Protection and Enhancement Act* (EPEA) application in June 2014 (EPEA Round 1 SIRs) and responded in August 2014. A second round of SIRs regarding the OSCA application (OSCA Round 2 SIRs) and the EPEA application (EPEA Round 2 SIRs) were received from the AER in September 2014. Prosper provided responses to both in November 2014. A third round of SIRs regarding the EPEA application (EPEA Round 3 SIRs) was received from the AER on February 9, 2015 and Prosper responded to them in March 2015.

Prosper received clarification wildlife SIRs related to EPEA Round 3 SIRs on May 5, 2015. Responses to these are provided in this submission of May 2015.

2 EPEA Application Supplemental Information Request Responses

Prosper Rigel – Wildlife SIR (to SIR Round 3 Responses)

| | |
|---|---|
| 1 | <p>AER Round 3 Supplemental Information Request Responses, Table 3-1, Pages 4-5 and Table 3-2, Pages 7-8.</p> <p>Prosper provided tables of habitat requirements for species at risk potentially occurring in the Project area and habitat requirements for culturally important species potentially occurring in the Project area. Associated ecosite phases and AWI Classes identified include types other than those identified in the Project area. There is some inconsistency in ecosites and AWI classes identified for potential habitat disturbance (e.g., horned grebe associated with MONG and WONN habitats with potential habitat loss being 3 ha) whereas the vegetation section of the report does not identify these wetland types as occurring in the Project area.</p> <p>a) Include only those associated ecosite phases and AWI classes occurring in the WLSA.</p> <p>b) Correct the discrepancy between Tables 3-1/Table 3-2 and the vegetation section of the application document</p> |
|---|---|

Response:

The list of associated ecosite phases and AWI classes in Tables 3-1 and 3-2 (EPEA Round 3 SIR responses) included any ecosite phase or AWI classes that could fit the general habitat requirements described for a particular species, regardless of the ecosite phase or AWI class presence in the Wildlife Local Study Area (LSA). A revised Table 3-1 (Table 1-1) containing a column with the ecosite phases and AWI classes present in the Wildlife LSA is provided for clarification. The original column was kept to show which habitat types could be suitable for each species and were used for the queries.

The Vegetation LSA in the Application consisted of a 100 m buffer surrounding the footprint, while the Wildlife LSA comprised a buffer of 500 m around the footprint. Therefore, the areal extent of habitats in Tables 3-1 and 3-2 would not correspond to values reported in the vegetation section of the Application. Some of the habitat types (and area calculations) listed in Table 3-1 occur in the Wildlife LSA, but are not found within the 100 m buffer reported in the Vegetation section of the Application. These include the a1, b3, d3 ecosite phases and the j3/FONG wetland type.

In OSCA Round 1 SIRs Response 26c, the table of vegetation communities in the LSA was updated to encompass a 500 m buffer (Table 26-1, corresponding to Table 6.3-1 in the Application). As noted in OSCA Round 2 Response 2b, a slight footprint change (about 1 ha reduction for Pad 103 in c1 and h1/BTNN habitats) was applied. The areal extents in Tables 3-1 and 3-2 were calculated based on the most recent footprint, which occurred after the vegetation table update. Although the Vegetation LSA boundaries used for the updated Table 26-1 may be similar to the Wildlife LSA used for Tables 3-1 and 3-2, values may differ

slightly between vegetation habitat and those provided for wildlife habitat due to the slight footprint change, and because the areal extents were calculated using different methods and criteria.

Despite the LSAs having similar boundaries, some of the calculated habitat areas in Tables 1-1 and 1-2 cannot be correlated to the areas in the updated vegetation table (OSCA Round 1 SIRs Response 26c) because the habitat areas were based on criteria other than just ecosite phase or AWI class. These include spatial queries of proximity to watercourses and/or water bodies (e.g., bank swallow in Table 1-1; muskrat, beaver, mink, river otter in Table 1-2) or additional criteria like old growth forest or forest structural stage (e.g., bat species in Table 1-1, marten in Table 1-2). Values reported in the vegetation section were calculated based solely on extent of ecosite phases/AWI classes.

In addition, an error was found in the area of available habitat suitable for the horned grebe. Table 3-1 listed 54 ha of available habitat, 3 ha of which would be disturbed. The correct values are 20 ha of available habitat, none of which will be disturbed. This error resulted from a transposition of the l1 and i1 ecosite phases during reporting. These values have been updated in Table 1-1.

Table 1-1 Revised Overview of Habitat Requirements for Species at Risk Potentially Occurring in the Project Area

| Species | General Habitat Requirements ¹ | Potential Associated Ecosite Phases and AWI Classes | Associated Ecosite Phases and AWI Classes Present in the Wildlife LSA | Available Habitat in the Wildlife LSA (ha; % of the Wildlife LSA) | Potential Habitat Disturbance (ha; % of the Wildlife LSA) |
|---------------|--|---|---|---|---|
| Canadian toad | A variety of wetlands and small meandering creeks are used during the breeding season. Summer habitats include upland deciduous dominated forests. Winter habitat consists of sandy habitat usually dominated by jackpine. | a, b, c, d1, d2 | a1, b1, b2, b3, c1, d1, d2 | 388 ha (43% of the Wildlife LSA) | 56 ha (6.2%) |
| Western toad | Generalist. | n/a | n/a | n/a | n/a |
| Horned grebe | Lakes and ponds, but not creeks or rivers. Grebes typically prefer marshy vegetation and water bodies less than 5 ha in area. | l1 MONG, WONN, Lake (NWL) | Lake (NWL) | 20 ha (6.0% of the Wildlife LSA) | 0 ha (0%) |
| Yellow rail | Fens, preferably sedge fens. | j2, j3 FONG, FONS, FOPN | j3 FONG | 1 ha (< 0.1% of the Wildlife LSA) | 0 ha (0%) |

| Species | General Habitat Requirements ¹ | Potential Associated Ecosite Phases and AWI Classes | Associated Ecosite Phases and AWI Classes Present in the Wildlife LSA | Available Habitat in the Wildlife LSA (ha; % of the Wildlife LSA) | Potential Habitat Disturbance (ha; % of the Wildlife LSA) |
|------------------------|--|--|---|---|---|
| Short-eared owl | Fens with a nesting preference for tall grass or sedge areas. | i1, i2, j1, j2, j3 FONG, FONS, FOPN, FTNR, FTNI, FTNN, FTPN | i1, i2, j3 FONG, FONS, FTNI, FTNN | 98 ha (10.9% of the Wildlife LSA) | 5 ha (0.6%) |
| Common nighthawk | Open areas with short cover (e.g., peatbogs, pastures, burnt areas, forest clearings). | a1, h2, clearcuts, wellpads, pipelines and other clearings with low use, regen. Not roads or CPFs. BONS | a1, h2, cutlines, well pads BONS | 13 ha (1.4% of the Wildlife LSA) | 2 ha (0.2%) |
| Canada warbler | Forested riparian habitat. | e1, f1 | (none present in Wildlife LSA) | 0 ha | n/a |
| Olive-sided flycatcher | Cutblocks, burns, regenerating areas. | Burns/regenerating areas of a1, c1, g1, h1, i1 | (none present in Wildlife LSA) | 0 ha | n/a |
| Rusty blackbird | Open habitat such as riparian shrubland and wetland areas. | Riparian Shrubland, Deciduous Swamp, i2, j2, j3 FONG, FONS, FOPN, SONS | i2, j3, Deciduous Swamp FONG, FONS, , SONS | 68 ha (7.5% of the Wildlife LSA) | 2 ha (0.2%) |
| Bank swallow | Riparian areas with banks. | Mapped watercourses (+ 50 m buffer) | Mapped watercourses (+ 50 m buffer) | 75 ha (8.3% of the Wildlife LSA) | 2 ha (0.2%) |
| Barn swallow | Open habitats. | i2, j2, j3, Deciduous Swamp FONG, FONS, FOPN, SONS | i2, j3, Deciduous Swamp FONG, FONS, , SONS | 68 ha (7.5% of the Wildlife LSA) | 2 ha (0.2%) |
| Little brown bat | Old growth, with a preference for river banks and glades. | a, b, c, d, e, f, g, h that are also old growth. | old growth b3, d2, g1, h1 | 61 ha (6.7% of the Wildlife LSA) | 8 ha (1.0%) |
| Northern bat | Old growth, preferably with mixed forests. | a, b, c, d, e, f, g, h that are also old growth. | old growth b3, d2, g1, h1 | 61 ha (6.7% of the Wildlife LSA) | 8 ha (1.0%) |
| Wolverine | Generalist | n/a | n/a | n/a | n/a |
| Woodland caribou | Lowland habitats, including bogs and fens that provide lichen. | h1, h2, i1, i2, j1, j2 BFNN, BTNN, BTNI, BTXN, BONS, FFNN, FTNI, FTNN, FTNR, FTPN, FONS | h1, h2, i1, i2, BTNN, BTNI, BTXN, BONS, FTNI, FTNN, FONS | 339 ha (37.6% of the Wildlife LSA) | 23 ha (2.6%) |

¹ Sources: COSEWIC 2006, 2013; FAN 2007; Garcia et al. 2004; Hamilton 1998; Savignac 2007; Thomas and Gray 2002.

Table 1-2 Revised Overview of Habitat Requirements for Culturally Important Species Potentially Occurring in the Project Area

| Species | General Habitat Requirements ¹ | Potential Associated Ecosite Phases and AWI Classes | Associated Ecosite Phases and AWI Classes Present in the Wildlife LSA | Available Habitat in the Wildlife LSA (ha; % of the Wildlife LSA) | Potential Habitat Disturbance (ha; % of the Wildlife LSA) |
|---------------|---|---|---|---|---|
| Grouse | Open woodlands, muskeg, bogs and burned habitat. | a1, c1, d1, d2, d3, h1, h2, burn, burn regen BFNN, BTNN, BTNI, BTXN, BONS | a1, c1, d1, d2, d3, h1, h2, BTNN, BTNI, BTXN, BONS | 552 ha (61.1 % of the Wildlife LSA) | 72 ha (8.0%) |
| Red squirrel | Dense coniferous stands. | d3, e1, f1, g1 | d3, g1 | 97 ha (10.7% of the Wildlife LSA) | 9 ha (1.0%) |
| Snowshoe hare | Forests of various ages and structural classes with dense understories. | b1, b2, b3, c1, d1, d2, d3, e1, f1, g1, h1, i1, j1 BFNN, BTNN, BTNI, BTXN, FFNN, FTNI, FTNN, FTNR, FTPN, | b1, b2, b3, c1, d1, d2, d3, g1, h1, i1 BTNN, BTNI, BTXN, FTNI, FTNN | 755 ha (83.6% of the Wildlife LSA) | 86 ha (9.5%) |
| Muskrat | Shallow water bodies, graminoid marsh wetland types. | l1, j3 WONN, MONG, FONG, (and proximity to water bodies and watercourses) | j3 FONG | < 1 ha | 0 ha (0 %) |
| Beaver | Water bodies with adjacent woody vegetation. | Deciduous Swamp, l1, Lake (NWL) STNN, SONS, MONG, WONN, (and proximity to water bodies and watercourses) | Deciduous Swamp, Lake (NWL) SONS | 22 ha (2.4% of the Wildlife LSA) | 0 ha (0%) |
| Weasel | Generalist. | n/a | n/a | n/a | n/a |
| Mink | In and along watercourses and wetlands. | Riparian Shrubland, Deciduous Swamp, Lake (NWL), h1, h2, i1, i2, j1, j2, j3 BFNN, BTNN, BTNI, BTXN, BONS, FFNN, FTNN, FTNI, FTPN FTNR, FONS, FONG, SONS, (and proximity to water bodies and watercourses) | Deciduous Swamp, h1, h2, i1, i2, j3 BTNN, BTNI, BTXN, BONS, FTNN, FONS, FONG, SONS | 82 ha (9.1% of the Wildlife LSA) | 1 ha (0.1%) |

| Species | General Habitat Requirements ¹ | Potential Associated Ecosite Phases and AWI Classes | Associated Ecosite Phases and AWI Classes Present in the Wildlife LSA | Available Habitat in the Wildlife LSA (ha; % of the Wildlife LSA) | Potential Habitat Disturbance (ha; % of the Wildlife LSA) |
|-------------|---|--|---|---|---|
| River otter | In and along watercourses and wetlands. | Riparian Shrubland, Deciduous Swamp, h1, h2, i1, i2, j1, j2, j3 BFNN, BTNN, BTNI, BTXN, BONS, FFNN, FTNN, FTNI, FTPN FTNR, FONS, FONG, SONS, (and proximity to waterbodies and watercourses) | Deciduous Swamp, h1, h2, i1, i2, j3 BTNN, BTNI, BTXN, BONS, FTNN, FONS, FONG, SONS | 70 ha (7.7% of the Wildlife LSA) | 1 ha (0.1%) |
| Marten | Mature forests. | a, b, c, d, e1, f1, g1, h1, i1, j1 BFNN, BTNN, BTNI, BTXN, FFNN, FTNI, FTNN, FTPN, FTNR with Structural Stage 6 or higher | g1, i1 FTNN with Structural Stage 6 or higher | 23 ha (2.6% of the Wildlife LSA) | 1 ha (0.1%) |
| Fisher | Continuous coniferous and mixedwood forests. Deciduous forests on occasion. | a1, b1, b2, b3, c1, d2, d3, e1, f1, g1, h1, i1, j1 BFNN, BTNN, BTNI, BTXN, FFNN, FTNI, FTNN, FTPN, FTNR | a1, b1, b2, b3, c1, d2, d3, g1, h1, i1 BTNN, BTNI, BTXN, FTNI, FTNN | 729 ha (80.7% of the Wildlife LSA) | 81 ha (9.0%) |
| Red fox | Open habitats interspersed with brushy shelter. | a1, c1, h1, h2, i1, i2, j1, j2 BFNN, BTNN, BTNI, BTXN, BONS, FFNN, FTNI, FTNN, FTPN, FTNR, FONS | a1, c1, h1, h2, i1, i2 BTNN, BTNI, BTXN, BONS, FTNI, FTNN, FONS | 545 ha (60.4% of the Wildlife LSA) | 71 ha (7.9%) |
| Gray wolf | Generalist. Habitat selection is a function of prey availability. | n/a | n/a | n/a | n/a |
| Canada lynx | Associated with 10-year cycle of snowshoe hare. Thus, forests of various ages and structural classes with dense understories. | b1, b2, b3, c1, d1, d2, d3, e1, f1, g1, h1, i1, j1 BFNN, BTNN, BTNI, BTXN, FFNN, FTNI, FTNN, FTNR, FTPN | b1, b2, b3, c1, d1, d2, d3, g1, h1, i1 BTNN, BTNI, BTXN, FTNI, FTNN | 755 ha (83.6% of the Wildlife LSA) | 86 ha (9.5%) |
| Black bear | Generalist. | n/a | n/a | n/a | n/a |

| Species | General Habitat Requirements ¹ | Potential Associated Ecosite Phases and AWI Classes | Associated Ecosite Phases and AWI Classes Present in the Wildlife LSA | Available Habitat in the Wildlife LSA (ha; % of the Wildlife LSA) | Potential Habitat Disturbance (ha; % of the Wildlife LSA) |
|------------------|---|---|---|---|---|
| Moose | Generalist; use a variety of habitat types throughout the year, shifting between various upland and lowland habitats. | n/a | n/a | n/a | n/a |
| Woodland caribou | Lowland habitats, including bogs and fens that provide lichen. | h1, h2, i1, i2, j1, j2 BFNN, BTNN, BTNI, BTXN, BONS, FFNN, FTNI, FTNN, FTNR, FTPN, FONS | h1, h2, i1, i2 BTNN, BTNI, BTXN, BONS, FTNI, FTNN, FONS | 339 ha (37.6% of the Wildlife LSA) | 23 ha (2.6%) |

¹ Sources: Banks et al. 1999; Bissonette 1997; Coady 1974; FAN 2007; Feldhamer et al. 2003; Griffin and Mills 1997; Hinterland Who's Who 2005; Hodges 1999; Latham 2009; McCord and Cardoza 1982; Mowat and Poole 2005; Naughton 2012; Pastor and Naiman 1992; Pattie and Fisher 1999; Powell and Zielinski 1994; Semenchuk 1992; Smith 1993; Thomas and Gray 2002.

3 References

Species at Risk (Table 1-1)

- Committee on the Status of Endangered Wildlife in Canada (COSEWIC). 2013. *COSEWIC Assessment and Status Report on the Bank Swallow Riparia riparia in Canada*. Ottawa, Ontario. ix + 48 pp.
- Committee on the Status of Endangered Wildlife in Canada (COSEWIC). 2006. *COSEWIC Assessment and Status Report on the Rusty Blackbird Euphagus carolinus in Canada*. Ottawa, Ontario. 28 pp.
- Federation of Alberta Naturalists (FAN). 2007. *The Atlas of Breeding Birds of Alberta: A Second Look*. Altona, Manitoba. April 2007. ISBN: 978-0-9696134-9-7. 626 pp.
- Garcia P.F.J. et al. 2004. *Natural History of the Canadian Toad, Bufo hemiophrys, in the Mixed-wood Boreal Forest of Northeastern Alberta*. Report prepared for Alberta-Pacific Industries Inc.
- Hamilton I.M. et al. 1998. *Status of the Canadian Toad (Bufo hemiophrys) in Alberta*. Alberta Wildlife Status Report No. 12. Alberta Environmental Protection, Wildlife Management Division, and the Alberta Conservation Association. Edmonton, Alberta. March 1998.
- Savignac C. 2007. *COSEWIC Status Report on the Common Nighthawk Chordeiles minor*. Prepared for the Committee on the Status of Endangered Wildlife in Canada. http://novascotia.ca/natr/wildlife/biodiversity/pdf/statusreports/sr_CommonNighthawk.pdf
- Thomas D.C. and D.R. Gray. 2002. "Updated COSEWIC status report on the woodland caribou Rangifer tarandus caribou in Canada." In: *COSEWIC Assessment and Update Status Report on the Woodland Caribou Rangifer tarandus caribou in Canada*. Ottawa, Ontario. 98 pp.

Culturally Important Species (Table 1-2)

- Banks T., Beck B., Beck J., Todd M., Bonar R. and R. Quinlan. 1999. "Red squirrel winter food and cover: habitat suitability index model." *Foothills Model Forest*. 7 pp.
- Bissonette J.A. 1997. *Wildlife and Landscape Ecology: Effects of Pattern and Scale*. Published by Springer-Verlag, New York, USA. 410 pp.
- Federation of Alberta Naturalists (FAN). 2007. *The Atlas of Breeding Birds of Alberta: A Second Look*. Altona, Manitoba. April 2007. ISBN: 978-0-9696134-9-7. 626 pp.
- Coady J.W. 1974. "Influence of snow on behaviour of moose." *Naturaliste Canadien* 101:417-436.
- Naughton, D. 2012. *The Natural History of Canadian Mammals*. Canadian Museum of Nature, University of Toronto Press, Toronto, Ontario. 784 pp.
- Federation of Alberta Naturalists (FAN). 2007. *The Atlas of Breeding Birds of Alberta: A Second Look*. Altona, Manitoba. April 2007. ISBN: 978-0-9696134-9-7. 626 pp.

- Feldhamer G.A., Thompson B.C., and J.A. Chapman (Eds.). 2003. *Wild Mammals of North America: Biology, Management, and Conservation*. Second Edition. Johns Hopkins University Press. Baltimore, Maryland.
- Griffin P.C. and L.S. Mills. 2007. "Precommercial thinning reduces snowshoe hare abundance in the short term." *Journal of Wildlife Management* 71 (2):559-564.
- Hinterland Who's Who. 2005. Caribou. Internet Site Accessed March 23, 2015.
<http://www.hww.ca/en/species/mammals/caribou.html>
- Hodges K.E. 1999. "Chapter 6: The Ecology of Snowshoe Hares in Northern Boreal Forests." In: *Ecology and Conservation of Lynx in the United States*. United States Department of Agriculture (USDA), Forest Service, General Technical Report, RMRS-GTR-30WWW. October 1999. Pages 117-162.
- Latham A.D.M. 2009. *Wolf Ecology and Caribou-Primary Prey-Wolf Spatial Relationships in Low Productivity Peatland Complexes in Northeastern Alberta*. Dissertation. University of Alberta. Edmonton, Alberta.
- McCord C.M. and J.E. Cardoza. 1982. "Bobcat and lynx." Pages 728-766 in: *Wild Mammals of North America: Biology, Management, Economics*. Chapman J.A. and G.A. Feldhamer (Eds.). Johns Hopkins University Press, Baltimore, Maryland.
- Mowat G. and K.G. Poole. 2005. "Habitat associations of short-tailed weasels in winter." *Northwest Science* 79 (1): 28-56.
- Naughton, D. 2012. *The Natural History of Canadian Mammals*. University of Toronto Press, Toronto, Ontario. 784 pp.
- Pastor J. and R.J. Naiman. 1992. "Selective foraging and ecosystem processes in boreal forests." *The American Naturalist* 139 (4): 690-705.
- Pattie D. and C. Fisher. 1999. *Mammals of Alberta*. Lone Pine Publishing. Edmonton, Alberta. 240 pp.
- Powell R.A. and W.J. Zielinski. 1994. "Chapter 3: Fisher." In: Ruggerio L.F. et al (Eds.). *The Scientific Basis for Conserving Forest Carnivores, American Marten, Fisher, Lynx, and Wolverine in the Western United States*. General Technical Report RM-254. United States Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station. Fort Collins, Colorado. Pages 38-73.
- Semenchuk G.P. 1992. "The Atlas of Breeding Birds of Alberta." Federation of Alberta Naturalists (FAN). Edmonton, Alberta. 391 pp.
- Smith H.C. 1993. *Alberta Mammals: An Atlas and Guide*. Provincial Museum of Alberta. Edmonton, Alberta. 239 pp.
- Thomas D.C. and D.R. Gray. 2002. "Updated COSEWIC status report on the woodland caribou *Rangifer tarandus caribou* in Canada." In: *COSEWIC Assessment and Update Status Report on the Woodland Caribou *Rangifer tarandus caribou* in Canada*. Ottawa, Ontario. 98 pp.