

2018-19 Work Plan Template

All fields with an * are mandatory

Project Description Summary			Co-Chair Decision (March 8, 2019)
Date *	Project/Work Plan Identifier (if applicable)	Program Type and Strategic Alignment *	<p>* Decision Pool A: Workplan approved but funding level.</p> <p>* Approved at \$400,250</p> <p>* Deliverables for this level of funding are to be included in an amended workplan submitted before the Oil Sands Monitoring Secretariat.</p> <p>* It is a requirement of funding that key members of the project team participate in a Biological Monitoring Workshop to be informed by the Oil Sands Monitoring Secretariat.</p> <p>* Funding is for one year only (2018-19)</p> <p>* Decisions on future funding are dependent on the outcomes of the Biological Monitoring Integration as well as discussion with the Oil Sands Monitoring Secretariat as coordinated by the OSM Secretariat.</p> <p>* Funding expectations: as a minimum an annual report is required by February 28, 2019. All products resulting from this work require approval of funding from the Oil Sands Monitoring Program and any programmatic communication work funded through the Oil Sands Program for public dissemination.</p>
19/01/2018	B-LTM-E-6-1819	OSM - Long Term Monitoring	
Program Category *	Status *	Dept. ID	
Biodiversity, Land, Ecosystem Health Sciences	Existing Project	1104	
Project Leadership / Contact information			
Project Title *	Key Words (max 10) *		
Biotic Response of Ungulates to Oil Sands Activity	aerial survey, ungulates, moose, white-tailed deer, mule deer, distance sampling, population estimates, density estimates, age/sex ratios, WMU		
Surname *	Given Name *	Title *	
Slater	Simon	Terrestrial Ecologist	
Organization *	Department	Division	
Alberta Provincial	Environment and Parks	Environmental Monitoring and Science	
Branch *	Section/Unit (if applicable)	Phone *	
Science	Biodiversity and Ecosystem Health Sciences	780-229-7287	
Email *	Mailing Address	City	
simon.slater@gov.ab.ca	9888 Jasper Avenue	Edmonton, AB	
Postal Code	EMSD Executive Owner (If Applicable)		
T5J 5C6	Monique Dube		
Project Information			
Project Objective(s) (Bullet Form) *	Assess long-term trends of ungulate populations and demographic parameters (age and gender) in the oil sands region.		
Plain Language Overview (100 words) *	This long-term monitoring project assess ungulate (moose and deer) population trends within the oil sands region. Wildlife Management Units (WMU) within the OSM region will be sampled at a five-year interval. Aerial surveys provide critical information to assess population size, distribution and trends in addition to examining the impacts of harvesting, predation and habitat disturbance on ungulate populations.		
Project Duration *	Project Original Start Date *	Estimated Completion Date *	
Multi-Year	01/04/2013	31/03/2023	
Specify Objectives This Project Will Address in 2018/2019. *	<ol style="list-style-type: none"> 1. Assess long-term trends of ungulate populations and demographic parameters (age and gender) in the oil sands region. 2. Assess the relationship between ungulate populations and patterns of land use and hunter mortality. 3. Compare methods of surveying ungulates from aerial surveys. 		
Specify Objectives This Project Will Address Beyond 2018/19 (if multi-year). *	Same as above		
List Key Questions/Hypotheses Related to Each Objective Stated Above. *	How are ungulate populations changing in the oil sands region?		
Main Assumptions, Constraints, Dependencies. *	<p>Assumptions: Suitable weather conditions to conduct surveys, skilled staff will be retained to deliver the project.</p> <p>Constraints: Aerial Ungulate Surveys can only be conducted during suitable winter weather. Sufficient snow depth, temperatures below -5C, low wind speeds and clear skies. This combination of factors generally limits this type of work to the period between November 1 and February 28.</p> <p>Dependencies: Sufficient staff resources.</p>		
Partner Categories (select all that apply) * A partner is an individual, group, agency, community etc. that is an active participant in the project and in achieving the project deliverables.	Knowledge System *	Location (select all that apply) *	
<input type="checkbox"/> Federal Government <input checked="" type="checkbox"/> Another AEP Division <input type="checkbox"/> Another GoA Department <input type="checkbox"/> University/Academic Institution <input type="checkbox"/> Solely delivered by GoA <input type="checkbox"/> Citizen Science <input type="checkbox"/> Indigenous Community or Organization <input type="checkbox"/> ENGO <input type="checkbox"/> Other	Classical Science	<input type="checkbox"/> Office or Laboratory <input checked="" type="checkbox"/> Sub-regional <input type="checkbox"/> Transboundary (provincial/territorial) <input checked="" type="checkbox"/> Lower Peace Region <input type="checkbox"/> Upper Peace Region <input checked="" type="checkbox"/> North Saskatchewan Region <input type="checkbox"/> Red Deer Region <input checked="" type="checkbox"/> Lower Athabasca Region <input type="checkbox"/> Upper Athabasca Region	
AEP ONLY: Strategic Alignment to EMSD Outcomes			
AEP ONLY: Strategic Alignment to EMSD Science Plan, select 1-2 areas that apply (if Applicable)			
Ecosystems and Predicting Change			
Human Relationship with the Environment			
AEP ONLY: Strategic Alignment to AEP Departmental Outcomes			
AEP ONLY: Environmental and Ecosystem Health and Integrity	AEP ONLY: Sustainable Economic Diversity	AEP ONLY: Social Well-Being	
Biodiversity	No	No	
AEP ONLY: Protected Public Health and Safety from Environmental			
No			
AEP ONLY: IMAG/IMSC Information Needs, Please Specify Which Need(s) is Being Addressed. File location M:\EMSD\Common\Portfolio Mgmt System Shared Docs	Biodiversity Reference Number 19. Provincial scale monitoring of Alberta's aquatic and terrestrial species. This project provides essential information for Lower Athabasca Regional Plan biodiversity indicators and performance measures. Contributes to future state of the environment reporting. Informs EIAs and subsequent monitoring requirements of industrial approval holders. Delivers population estimates necessary for allocation decisions on deer and moose.		

AEP ONLY: How This Project Will Address Each Strategic Theme Selected Above.	This project addresses the theme "Environmental and Ecosystem Health and Integrity" by generating knowledge that is relevant to communities, stakeholders, and decision makers.
Project Methodology	
List the Key Project Phases and Provide Bullets for Each Major Task Under Each Project Phase. *	Q1: a. Prepare WMU reports for 2017-18; b. Submit data and technical reports to FWMIS; c. Identify priority WMUs for survey in 2018-19. Q2: a. Draft RFOs and RFPs; b. Draft work plan for program delivery, including schedules for all personnel. Q3: a. RFPs and RFOs reviewed, air charter companies selected for each WMU; b. Surveys of 1-2 WMUs. Q4: a. Surveys of 2-4 WMUs; b. Data entry, processing (data QA/QC) and analysis.
Describe How Changes in Environmental Condition Will Be Assessed. *	Changes in environmental condition will be assessed by repeated measures of selected parameters at multiple times, and comparing values among measurement events.
Are There Benchmarks (e.g., objectives, tiers, triggers, limits, reference conditions, thresholds, etc.) Being Used to Assess Changes in Environmental Condition? If So, Please Describe, If Not, State "NONE". *	NONE
Provide a Brief Description of the Methods By Project Phase. * Please expand to see entire description	<p>Background: Aerial surveys provide important information on ungulate populations and are used to assess population size, distribution and trends where oil sands development is occurring. Oil sands development is believed to change ungulate population dynamics, especially in areas of higher disturbance. For example, a recent increase in white-tailed deer populations has been documented in the boreal region of Alberta.</p> <p>Alberta Environment and Parks (AEP) uses this information to examine impacts of harvesting or predation on populations and set hunting allocations for specific areas. The province is divided into a series of Wildlife Management Units (WMU). Wildlife within the boundaries of each WMU is managed by AEP according to the regulations established in Alberta's Wildlife Act (Government of Alberta, 2015). Monitoring ungulate populations on an increased frequency will help examine the impacts of industrial development. AEP is responsible for reporting on required biodiversity indicators under the land-use framework. An indicator for moose is currently being developed for the Lower Athabasca Region (LAR) Biodiversity Management Framework (BMF). Data collected from this program could support reporting on this indicator.</p> <p>Methods:</p> <p>a. Study Area: The study area for the OSM ungulate monitoring program is outlined by WMUs with >50% coverage within the oil sands region. This includes 28 WMUs covering an area of 183,098 km² through the Athabasca, Cold Lake and Peace River Oil Sands Deposits (Figure 1).</p> <p>b. Survey Methods: Surveys are conducted using distance sampling methods (Buckland et al. 2001; Peters et al. 2014). Using ArcMap (ESRI ArcMap 10.1) 10 km transects, spaced 1.2 km apart are generated throughout the entire WMU. Transects <2 km are not sampled. A random seed order determines what order the transects are to be flown. Transects are flown with a crew of 3 observers and one pilot at approximately 300 ft AGL at 80 knots with a Jet Ranger helicopter equipped with bubble windows. When a moose or deer are detected, two waypoints are recorded: the first one on the transect line when perpendicular to the ungulate and the second where the ungulate was first observed. Survey crews GPS mark locations on the transect and the location where animal was observed. Animals are classified by sex, age class and antler class if antlers were present. Additional covariates are collected including crown closure, activity, snow cover, light intensity and terrain slope.</p> <p>c. Analysis Methods: Data are analyzed using Distance 6.0 (Thomas et al. 2010). Preliminary analyses include an examination of histograms of all observations by distance and data are truncated and/or binned to improve model fit (Buckland et al. 2001). Five candidate models are fit to the data and model selection is determined using QQ-plots, Chi-square goodness of fit tests and Akaike's Information Criterion (AIC; Buckland et al. 2001).</p> <p>Outcomes: Technical reports are produced for each survey unit. 2018-19 represents the completion on the first round of sampling in each of the OSM WMUs we will take this opportunity to examine the current status of ungulate populations in the oil sands region and provide a foundation for continued monitoring. Based on the different ungulate survey methods we will compare strip and distance survey methods to estimate the population size of moose and deer in the oil sands region. Another priority that will be addressed in the 2018-19 planning year will be documentation of survey standard operating procedures (SOP) and data management quality assurance and quality control (QA/QC) related to this monitoring work.</p> <p>References:</p> <ol style="list-style-type: none"> Buckland, S. T., D. R. Anderson, K. P. Burnham, J. L. Laake, D. L. Borchers, and L. Thomas. 2001. Introduction to Distance Sampling: Estimating Abundance of Biological Populations. Oxford University Press, Oxford. Government of Alberta. 2015. Environment and Parks Wildlife Management Units. http://aep.alberta.ca/fish-wildlife/fishing-hunting-trapping/hunting-alberta/wildlife-management-units.aspx Peters, W., M. Hebblewhite, K. G. Smith, S. M. Webb, M. Russell, C. Stambaugh, and R. B. Anderson. 2014. Contrasting aerial moose population estimation methods and evaluating sightability in west-central Alberta, Canada. Wildlife Society Bulletin 38:639-649. Thomas, L., S. T. Buckland, E. A. Rexstad, J. L. Laake, S. Strindberg, S. L. Hedley, J. R. B. Bishop, T. A. Marques, and K. P. Burnham. 2010. Distance software: design and analysis of distance sampling surveys for estimating population size. Journal of Applied Ecology 47:5-14.
List the Key Indicators Measured. *	ungulate population estimates, density estimates
Describe Sample Handling Procedures, If Not Applicable, State N/A. *	N/A
List SOPs that Will Be Used, If Not Applicable, State N/A. *	Aerial Ungulate Surveys Using Distance Sampling Techniques – Protocol Manual (Draft). 2016. Alberta Environment and Parks, Environmental Monitoring and Science Division. 30 pp.
Describe the QA/QC Plan, If Not Applicable, State N/A. *	N/A
Describe How Indigenous Communities are Involved in the Project Design, Data Collection, and Analysis (Knowledge Co-creation) and How is their Consent Sought. If Not Applicable, State N/A. *	Nothing to date.
Components Delivered by Others	
List by Project or Project Phase Each Component That Will Be Delivered by an External Party (including analytical laboratories) and Name the Party. State None if Not Required. *	Ungulate surveys require rotary-wing aircraft to complete. Contracts will be assigned for each WMU through an open RFP process. The companies will be selected in the fall of 2018 based on the RFP evaluation.
Will These Components be Delivered Under Grant or Contract or Both? Please Describe and Name the Associate Work Plan/Grant/Contract for These Services if Not Included Within This Work Plan. *	Aircraft services will be delivered under contract. Contracts will be in place from November 1 to March 31
Monitoring Site Locations and Coordinates (for all sites, please add them to the Monitoring Site Location tab - a separate excel sheet)	

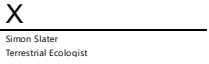
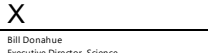
Attach Map of Locations. Distinguish Indicators by Station if Necessary. Distinguish Sampling Frequency by Station if Necessary.	Map of survey area attached.	
Project Schedule		
FOR OIL SANDS MONITORING PROJECTS ONLY: A coordinated field monitoring schedule for the OSM Program is required. Please complete the attached document named "OSM Program Field Monitoring Schedule" in addition to this work plan. Fill as much as you can recognizing that scheduling changes will occur and the scheduling document will be updated regularly. Please note the scheduling document will be shared with stakeholders.	See attached. These aerial surveys and schedule are highly dependent on snow conditions and weather.	
FOR OIL SANDS MONITORING PROJECTS ONLY: Have You Coordinated With Other Project Leads On Field Logistics? If So, Please Specify. *	N/A	
Other		
Additional Details.	N/A	
Will Capacity Building and Training be a Component of the Project and If So, Explain How. If Not, State N/A.*	N/A	
Environmental Impact and Considerations.	N/A	
Data Management and Digital Assets		
Will Data be Produced as a Result Of This Project? *	Type of Quantitative Data Variables	Frequency Of Collection
Yes	Other	Other
Data Collection Period: Start Date - End Date 01/04/2018 - 31/03/2019	Timeline For Upload Period: Start Date - End Date 01/04/2019 - 31/03/2020	
Is There a Data Sharing Agreement? (Yes or No).	No	
Will the Data Include Traditional Knowledge as Defined by and Provided by an Indigenous Representative, Community or Organization (Yes / No).	No	
Platform/Location of Data Storage.	Data will be stored on the EMSD Shared Drive. Survey data and reports will also be submitted to the AEP database: Fisheries and Wildlife Management Information System (FWMIS)	
Project Deliverables		
Proposed 2018-19 Deliverable Type (for each deliverable outline document, presentation, meeting, etc.)		
<input checked="" type="checkbox"/> Peer-reviewed Journal Publication	<input type="checkbox"/> Peer-reviewed Conference Proceeding	<input type="checkbox"/> Non-peer reviewed Conference Proceeding
Q1 - Deliverable, Comments	Q1 - Deliverable, Comments	Q1 - Deliverable, Comments
Q2 - Deliverable, Comments	Q2 - Deliverable, Comments	Q2 - Deliverable, Comments
Q3 - Deliverable, Comments	Q3 - Deliverable, Comments	Q3 - Deliverable, Comments
Q4 - Deliverable, Comments	Q4 - Deliverable, Comments	Q4 - Deliverable, Comments
<input checked="" type="checkbox"/> Technical Report	<input type="checkbox"/> Book Chapter	<input type="checkbox"/> Public Dissemination Document
Q1 - Deliverable, Comments	Q1 - Deliverable, Comments	Q1 - Deliverable, Comments
WMU Survey Reports based on surveys completed in 2017-2018 fiscal year		
Q2 - Deliverable, Comments	Q2 - Deliverable, Comments	Q2 - Deliverable, Comments

Q3 - Deliverable, Comments	Q3 - Deliverable, Comments	Q3 - Deliverable, Comments
Q4 - Deliverable, Comments	Q4 - Deliverable, Comments	Q4 - Deliverable, Comments
<input type="checkbox"/> Conference Presentation(s)	<input type="checkbox"/> Stakeholder Presentation	<input type="checkbox"/> Key Engagement/Participation Meeting *
Q1 - Deliverable, Comments	Q1 - Deliverable, Comments	Q1 - Deliverable, Comments
Choose one	Choose one	Name of Meeting, Year, Location, Dates, Participant Groups and Number of Participants.
Q2 - Deliverable, Comments	Q2 - Deliverable, Comments	Q2 - Deliverable, Comments
Choose one	Choose one	Name of Meeting, Year, Location, Dates, Participant Groups and Number of Participants.
Q3 - Deliverable, Comments	Q3 - Deliverable, Comments	Q3 - Deliverable, Comments
Choose one	Choose one	Name of Meeting, Year, Location, Dates, Participant Groups and Number of Participants.
Q4 - Deliverable, Comments	Q4 - Deliverable, Comments	Q4 - Deliverable, Comments
Choose one	Choose one	Name of Meeting, Year, Location, Dates, Participant Groups and Number of Participants.
<input type="checkbox"/> EMSD Strategic & Operational Publication	<input checked="" type="checkbox"/> Other Documents	
Q1 - Deliverable, Comments	Q1 - Deliverable, Comments	
Q2 - Deliverable, Comments	Q2 - Deliverable, Comments	
Q3 - Deliverable, Comments	Q3 - Deliverable, Comments	
Q4 - Deliverable, Comments	Q4 - Deliverable, Comments	
	1. Annual progress report 2. Survey standard operating procedures and data management QA/QC documentation.	
Proposed Deliverables After 2018/2019 for the project funds received in 2018/2019		
<input checked="" type="checkbox"/> Peer-reviewed Journal Publication	<input type="checkbox"/> Peer-reviewed Conference Proceeding	<input type="checkbox"/> Non-peer reviewed Conference Proceeding
Q1 - Deliverable, Comments	Q1 - Deliverable, Comments	Q1 - Deliverable, Comments
Q2 - Deliverable, Comments	Q2 - Deliverable, Comments	Q2 - Deliverable, Comments
Q3 - Deliverable, Comments	Q3 - Deliverable, Comments	Q3 - Deliverable, Comments

Q4 - Deliverable, Comments	Q4 - Deliverable, Comments	Q4 - Deliverable, Comments
1. Author TBA. 2019. "Biotic response of ungulates to anthropogenic and natural disturbance in the oil sands region". 2. Author TBA. 2019. Comparison of distance vs strip survey methods to estimate the population size of moose and deer in the oil sands region.		
<input checked="" type="checkbox"/> Technical Report	<input type="checkbox"/> Book Chapter	<input type="checkbox"/> Public Dissemination Document
Q1 - Deliverable, Comments	Q1 - Deliverable, Comments	Q1 - Deliverable, Comments
WMMU Survey Reports based on surveys completed in 2017-2018 fiscal year		
Q2 - Deliverable, Comments	Q2 - Deliverable, Comments	Q2 - Deliverable, Comments
Q3 - Deliverable, Comments	Q3 - Deliverable, Comments	Q3 - Deliverable, Comments
Q4 - Deliverable, Comments	Q4 - Deliverable, Comments	Q4 - Deliverable, Comments
<input type="checkbox"/> Conference Presentation(s)	<input type="checkbox"/> Stakeholder Presentation	<input type="checkbox"/> Key Engagement/Participation Meeting *
Q1 - Deliverable, Comments	Q1 - Deliverable, Comments	Q1 - Deliverable, Comments
Choose one	Choose one	Name of Meeting, Year, Location, Dates, Participant Groups and Number of Participants.
Q2 - Deliverable, Comments	Q2 - Deliverable, Comments	Q2 - Deliverable, Comments
Choose one	Choose one	Name of Meeting, Year, Location, Dates, Participant Groups and Number of Participants.
Q3 - Deliverable, Comments	Q3 - Deliverable, Comments	Q3 - Deliverable, Comments
Choose one	Choose one	Name of Meeting, Year, Location, Dates, Participant Groups and Number of Participants.
Q4 - Deliverable, Comments	Q4 - Deliverable, Comments	Q4 - Deliverable, Comments
Choose one	Choose one	Name of Meeting, Year, Location, Dates, Participant Groups and Number of Participants.
<input type="checkbox"/> EMSD Strategic & Operational Publication	<input checked="" type="checkbox"/> Other Documents	
Q1 - Deliverable, Comments	Q1 - Deliverable, Comments	
Q2 - Deliverable, Comments	Q2 - Deliverable, Comments	
Q3 - Deliverable, Comments	Q3 - Deliverable, Comments	
Q4 - Deliverable, Comments	Q4 - Deliverable, Comments	
	Annual Progress Report	
All Completed Products		
If a multi-year project, specify all completed products to date (consistent format for the fields below). Add rows as required.		
Journal Paper		
Required Format: Author (follow APA citation format), Year, Title, Journal, Volume, Page Numbers, Open or Closed and Document Location		

	Example: Jacoby, W. G. (1994). Public Attitudes Toward Government Spending. <i>American Journal of Political Science</i> , 38(2), 336-361. Fearon, J. D., & Laitin, D. D. (2003). Ethnicity, Insurgency, and Civil War. <i>American Political Science Review</i> , 97(01), 75. doi: 10.1017/S0003055403000534
1)	
2)	
3)	
4)	
5)	
Technical Report	
Required Format: Author, Year, Title, Publisher Location, Name of Publisher, Publisher, Document Location	
Example: Author, F.M. (Publication Year). Title of Report (Report No. XXX). Publisher City, State: Publisher	
1)	Chapman, G., and Gilligan, J. 2013. WMU 512 Crow Lake Aerial Moose (Alces alces) Survey January 2013. Environment and Sustainable Resource Development, Government of Alberta. Lac La Biche, Alberta.
2)	Chapman, G., and Gilligan, J. 2013. WMU 517 Winefred Lake Aerial Moose (Alces alces) And White-tailed Deer Survey January 2013. Environment and Sustainable Resource Development, Government of Alberta. Lac La Biche, Alberta.
3)	Alberta Environment and Sustainable Resource Development. 2013. WMU 518 Aerial Moose (Alces alces) Survey February 2013. Environment and Sustainable Resource Development, Government of Alberta. Fort McMurray, Alberta.
4)	Alberta Environment and Sustainable Resource Development. 2013. Wildlife Management Unit 528 Moose Survey January 8-14, 2013. Environment and Sustainable Resource Development, Government of Alberta. Peace River, Alberta.
5)	Alberta Environment and Sustainable Resource Development. 2013. Wildlife Management Unit 541 Moose Survey Northwest Alberta, 21-27 January, 2013. Environment and Sustainable Resource Development, Government of Alberta. Peace River, Alberta.
6)	Neufeld, H. and J. Castle. 2014. Aerial Ungulate Survey (2014), Moose in WMU 511 (Pelican Mountains), Environment and Sustainable Resource Development, Government of Alberta. Edmonton, Alberta.
7)	Chapman, G., Besenski, J., McKenzie, H., and Slater, S. 2014. Aerial Ungulate Survey (2014), Moose and White-tailed deer in WMU 515 (Heart Lake), WMU 651 (Lakeland Provincial Park) and WMU 841 (Lakeland Provincial Recreation Area), Alberta Environment and Sustainable Resource Development, Government of Alberta. Lower Athabasca Region.
8)	Donker, S and Maile, B. 2014. Aerial Ungulate Survey (2014), Moose in WMU 726 (Cold Lake Air Weapons Range), Environment and Sustainable Resource Development, Government of Alberta. Lower Athabasca Region, Edmonton Alberta.
9)	Donker, S and Chapman, G. 2015. Aerial Ungulate Survey (2015) for Moose and White-tailed Deer in WMU 503 (Lac La Biche), Alberta Environment and Parks-Lower Athabasca Region and Alberta Environmental Monitoring, Evaluation and Reporting Agency.
10)	Burgar, J.M., and A. Sztaba. 2015. Aerial Ungulate Survey (2015), Moose in WMU 519. Environment and Parks, Government of Alberta, Lower Athabasca Region, Fort McMurray.
11)	Neufeld, H. and Vander Vennen, L. 2015. Aerial Ungulate Survey (2015), Moose in WMU 527. Alberta Environment and Parks, Government of Alberta. Lower Peace Region, Peace River, Alberta.
12)	Braid A.C.R, Herdman E.J.E. 2016. Wildlife Management Unit 258 Aerial Ungulate Survey, Environmental Monitoring and Science Division, Alberta Environment and Parks. Edmonton, Alberta, Canada.
13)	Maile, B. and B. Sarchuk. 2016. Aerial ungulate survey (2016), moose, white-tailed deer and mule deer in Wildlife Management Unit 500. Environment and Parks, Government of Alberta, Edmonton, Alberta, Canada.
14)	Burgar, J.M., and A.J. Sztaba. 2016. Aerial Ungulate Survey (2016), Moose in WMU 531. Alberta Environment and Parks, Government of Alberta, Fort McMurray, Alberta, Canada.
15)	Sarchuk, B., A. Braid, A.J. Sztaba and K. Downing. 2016. Aerial Ungulate Survey (2016), Moose in WMU 542. Alberta Environment and Parks, Government of Alberta, Edmonton, Alberta, Canada.
16)	Aerial Ungulate Survey Report. WMU 502 2017. In progress. Due March 31, 2018
17)	Aerial Ungulate Survey Report. WMU 514 2017. In progress. Due March 31, 2018
18)	Aerial Ungulate Survey Report. WMU 529 2017. In progress. Due March 31, 2018
19)	Aerial Ungulate Survey Report. WMU 540 2017. In progress. Due March 31, 2018
20)	
Book Chapter	
Required Format: Author, Year, Title of Paper, Editors, Title of Book, Page Numbers, Location of Publisher, Name of Publisher, Document Location	
Example: Hemingway, E. (1999). The Killers. In J. Updike & K. Kenison (Eds.), <i>The Best American Short Stories of the Century</i> (pp.78-80). Boston, MA: Houghton Mifflin)	
1)	
2)	
3)	
4)	
5)	
Conference Proceeding	
Required Format: Author, Year, Title of Paper, Editors, Title of Proceedings, Name of Conference, Location of Conference, Publisher Location, Name of Publisher, Document Location	
Example: Author of Paper, A., & Author of Paper, B. (Year, Month date). Title of Paper. In A. Editor, B. Editor, & C. Editor. Title of Published Proceedings. Paper Presented at Title of Conference: Subtitle of Conference, Location (inclusive page numbers). Place of Publication: Publisher.)	
1)	
2)	
3)	
4)	
5)	
Public Dissemination Document	
Required Format: Author, Year, Title, Journal / Report, Volume, Publisher, Page Number, Number of Pages, Document Location	
1)	
2)	
3)	
4)	
5)	
AEP ONLY: EMSD Strategic and Operational Publication	
Required Format: Author, Year, Title, Publisher Location, Name of Publisher, Publisher, Document Location	
1)	
2)	
3)	
4)	
5)	
Other Documents	
Detailed Information of Other Documents	
1)	
2)	
3)	
4)	
5)	
Conference Presentation	

Required Format: Presenter, Date, Location, Title, Platform or Poster, Conference Name		
1) Slater, S. 2015. Use of aerial survey methods to estimate ungulate populations in the oil sands region. Oil Sands Symposium, Edmonton AB, Feb 24-25 2015. Oral Presentation.		
2) Donker, S, Chapman, G, Slater, S. 2015. An assessment of Forward Looking Infrared Technology (FLIR) to survey ungulate populations in Northeastern Alberta. 11th Biennial Western States and Provinces Deer and Elk Workshop. Canmore, AB May 11-14, 2015. Poster Presentation.		
3)		
4)		
5)		
Stakeholder Presentation		
Required Format: Presenter, Date, Location, Title, Platform or Poster, Name of Meeting		
1)		
2)		
3)		
4)		
5)		
Key Engagement/Participation Meeting		
Required Format: Meeting Host, Date, Location		
1)		
2)		
3)		
4)		
5)		
Human Resources / Staffing Plan (roles and responsibilities)		
Name & Role	Organization	Responsibilities
Dan Farr	EMSD	OSM Program lead - personnel recruitment, timely delivery of outcomes, reporting
Simon Slater	EMSD	Project lead - project administration, human and resource allocation, work planning, logistics, operational delivery of project, data
Agnieszka Sztaba	EMSD	Project staff - Logistics, planning, conducting ungulate surveys, data entry, data analysis and report writing
Andrew Braid	EMSD	Project staff - Logistics, planning, conducting ungulate surveys, data entry, data analysis and report writing
Brett Sarchuk	EMSD	Project staff - Logistics, planning, conducting ungulate surveys, data entry, data analysis and report writing
Wildlife Biologists	Operations	Survey Biologist - conducting ungulate surveys, planning, report writing
AEP ONLY: Additional Human Resources		
Name & Role	Branch - Section	Estimated time (% of annual FTE)
Simon Slater / Terrestrial Ecologist	Science – Land, Biodiversity and Ecosystem	30
Agnieszka Sztaba / Terrestrial Biologist	Science – Land, Biodiversity and Ecosystem	20
	Health	
Andrew Braid / Terrestrial Biologist	Science – Land, Biodiversity and Ecosystem	15
	Health	
Dan Farr	Science – Land, Biodiversity and Ecosystem	15
	Health	
Brett Sarchuk / Terrestrial Biologist	Science – Land, Biodiversity and Ecosystem	20
	Health	
Financial Details and Budget Request		
Source of Funding Requested Year 1 - 2018/19		
	AEP ONLY: EMSD	OSM
Salaries and Benefits - AEP Chargeback		120,000
Salaries and Benefits - New OSM Staff		0
Operations and Maintenance		10,000
Consumable materials and supplies		0
Conferences and meetings travel		5,000
Field work travel		35,250
Field work overtime (EMSD and Operations)		20,000
Engagement		0
Reporting		0
External Contracts - Aircraft contracts		210,000
Overhead		0
Grants		0
Capital		0
Total budget request for the year	0	400,250
Total budget approved		
Source of Funding Requested Year 2 - 2019/20		
	AEP ONLY: EMSD	OSM
Salaries and Benefits - AEP Chargeback		
Salaries and Benefits - New OSM Staff		
Salaries and Benefits - in-kind support from		
Operations - regular salary time		
Operations and Maintenance		
Consumable materials and supplies		
Conferences and meetings travel		
Field work travel		
Field work overtime (EMSD and Operations)		
Engagement		
Reporting		
External Contracts - Aircraft contracts		
Overhead		
Grants		
Capital		
Total budget request for the year	0	
Total budget approved		
Source of Funding Requested Year 3 - 2020/21		
	AEP ONLY: EMSD	OSM
Salaries and Benefits - AEP Chargeback		
Salaries and Benefits - New OSM Staff		
Salaries and Benefits - in-kind support from		
Operations - regular salary time		
Operations and Maintenance		
Consumable materials and supplies		
Conferences and meetings travel		
Field work travel		
Field work overtime (EMSD and Operations)		
Engagement		
Reporting		

External Contracts - Aircraft contracts		
Overhead		
Grants		
Capital		
Total budget request for the year	0	
Total budget approved		
Source of Funding Requested Year 4 - 2021/22		
	AEP ONLY: EMSD	OSM
Salaries and Benefits - AEP Chargeback		
Salaries and Benefits - New OSM Staff		
Salaries and Benefits - in-kind support from Operations - regular salary time		
Operations and Maintenance		
Consumable materials and supplies		
Conferences and meetings travel		
Field work travel		
Field work overtime (EMSD and Operations)		
Engagement		
Reporting		
External Contracts - Aircraft contracts		
Overhead		
Grants		
Capital		
Total budget request for the year	0	
Total budget approved		
Budget Request for the Entire Project	0	400,250
Project Approval(s)		
Proposal Submitted by		
Surname	Given Name	Organization
Slater	Simon	EMSD
Signature	Date	
 Simon Slater Terrestrial Ecologist	12/02/2018	
Proposal for OSM Reviewed by		
EMSD Executive Director	Signature	Date
Dan Farr for Bill Donahue	 Bill Donahue Executive Director, Science	12/02/2018
AEP Administrator/Coordinator - Review	Signature	Date
ECCC Administrator/Coordinator - Review	Signature	Date
OSM Project Approved by		
AEP Co-Lead for OSM	Signature	Date
ECCC Co-Lead for OSM	Signature	Date
AEP ONLY: Proposal for EMSD Reviewed by		
EMSD Director	Signature	Date
AEP ONLY: EMSD Project Approved by		
EMSD Executive Director	Signature	Date
EMSD Chief Scientist	Signature	Date
OSM / EMSD Project Has Not Been Approved		
Project Status	Date Notified	Date Required
The project is conditionally approved. The following conditions are required before approval is granted.		
List the Condition(s)		
Condition(s) Addressed / Approval Granted		
Choose one		
OSM / EMSD Approval Post Removal of Condition(s)		
Name & Title	Signature	Date

Add All Monitoring Site Locations and Coordinates (insert more rows if required)

Site Identifier *	Location Name *	Long/Lat *Centre of WMU
Site 1		
256	256	110° 28' 36.50" W 53° 32' 43.77" N
258	258	111° 14' 51.61" W 53° 54' 31.95" N
500	500	110° 22' 33.11" W 53° 58' 18.36" N
501	501	110° 26' 20.86" W 54° 23' 6.41" N
502	502	111° 27' 6.81" W 54° 21' 43.41" N
503	503	112° 15' 36.34" W 54° 50' 22.36" N
511	511	113° 58' 50.51" W 55° 31' 23.91" N
512	512	111° 56' 51.01" W 55° 37' 45.89" N
514	514	110° 42' 35.21" W 54° 39' 10.07" N
515	515	111° 45' 3.72" W 55° 5' 3.60" N
516	516	113° 4' 6.23" W 55° 37' 37.20" N
517	517	110° 35' 30.68" W 55° 38' 8.53" N
518	518	112° 50' 30.15" W 56° 35' 25.73" N
519	519	111° 41' 37.48" W 56° 18' 15.31" N
520	520	116° 10' 28.07" W 56° 36' 18.37" N
523	523	116° 56' 16.67" W 55° 49' 54.39" N
527	527	117° 37' 15.55" W 56° 52' 4.21" N

528	528	116° 11' 8.24" W 57° 31' 40.56" N
529	529	110° 26' 8.28" W 56° 20' 53.61" N
530	530	110° 41' 56.96" W 57° 48' 18.46" N
531	531	112° 42' 55.45" W 57° 34' 30.91" N
540	540	114° 44' 10.77" W 57° 57' 18.15" N
541	541	114° 26' 50.14" W 56° 58' 3.15" N
542	542	114° 37' 18.93" W 56° 10' 16.53" N
544	544	115° 48' 12.12" W 55° 45' 53.24" N
651	651	111° 33' 26.10" W 54° 45' 33.28" N
726	726	110° 38' 40.53" W 55° 3' 13.61" N
841	841	111° 23' 53.52" W 54° 43' 17.01" N
Site 29		
Site 30		