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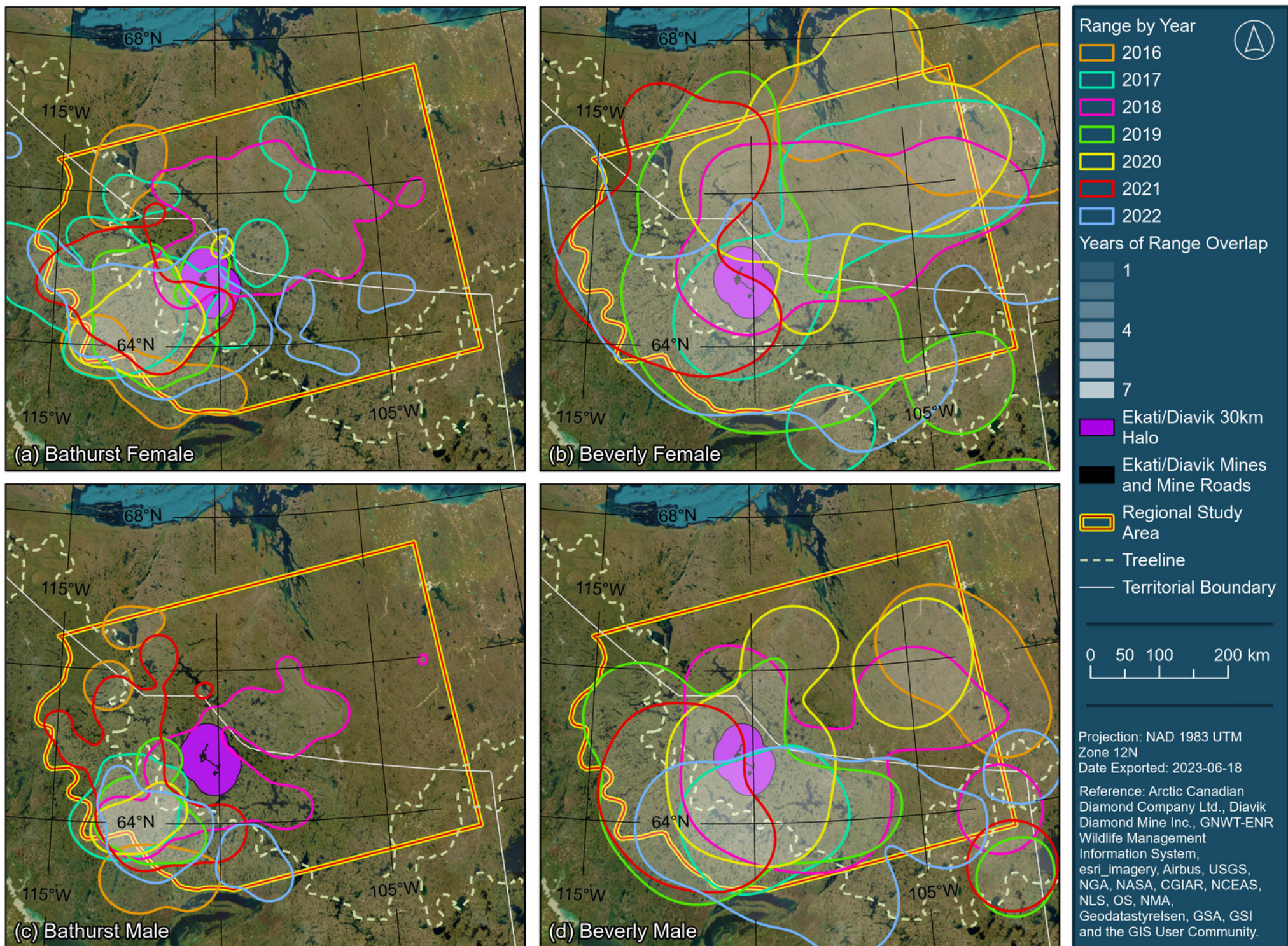


Figure A-1: Winter Range 90% Utilization Distributions for Bathurst and Beverly Caribou for 2016 to 2022

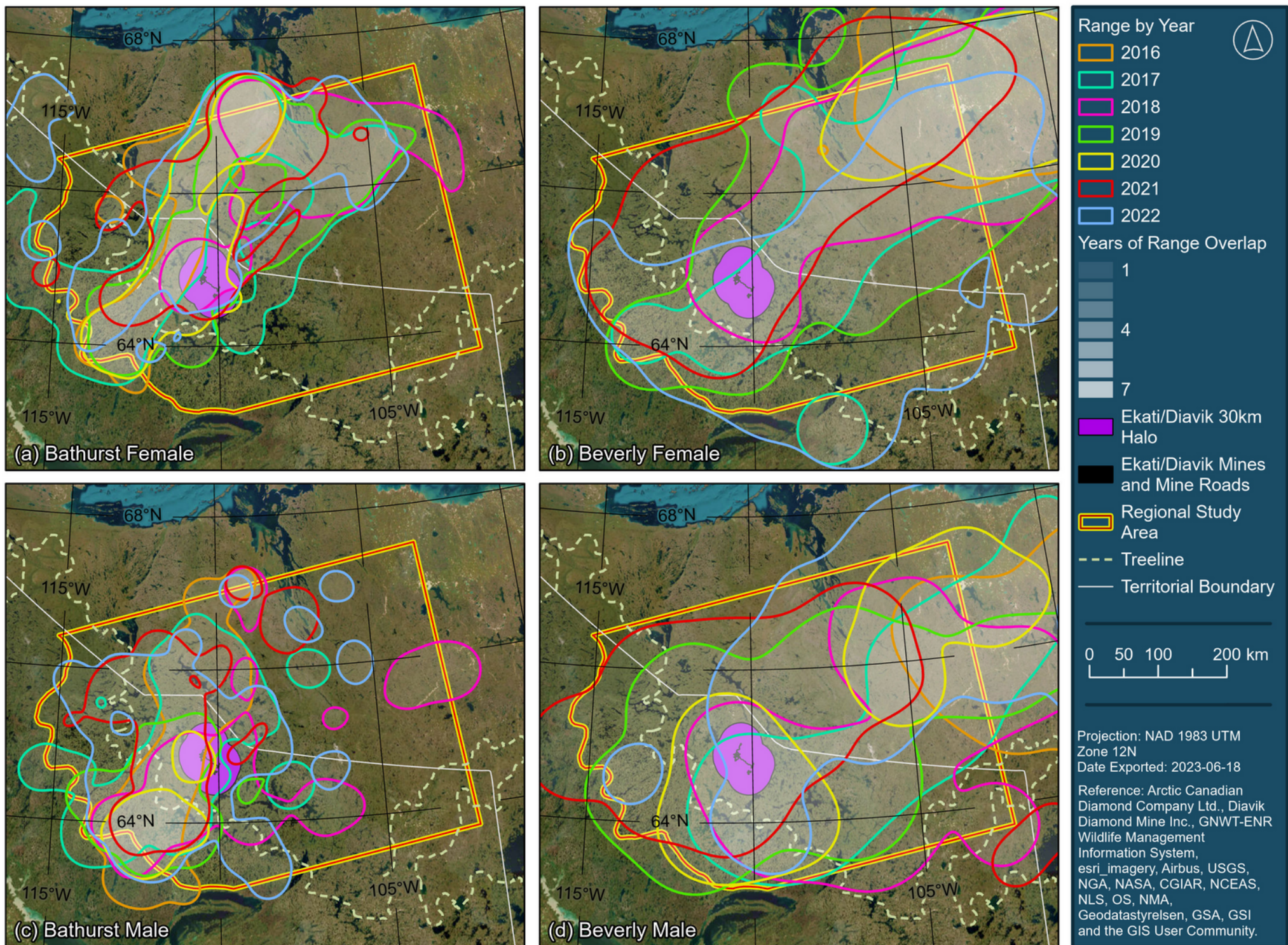


Figure A-2: Spring Migration Range 90% Utilization Distributions for Bathurst and Beverly Caribou for 2016 to 2022

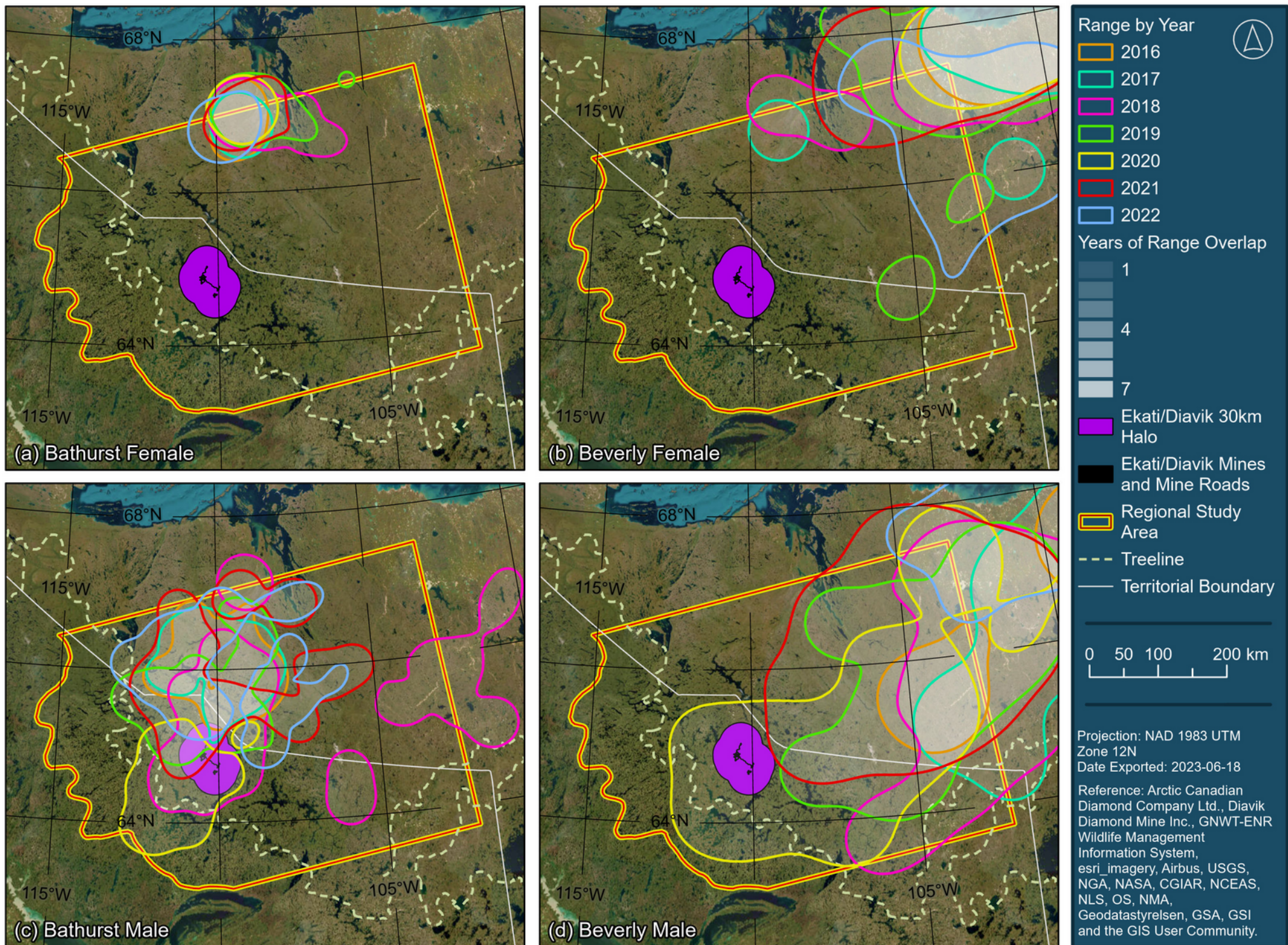


Figure A-3: Calving Range 90% Utilization Distributions for Bathurst and Beverly Caribou for 2016 to 2022

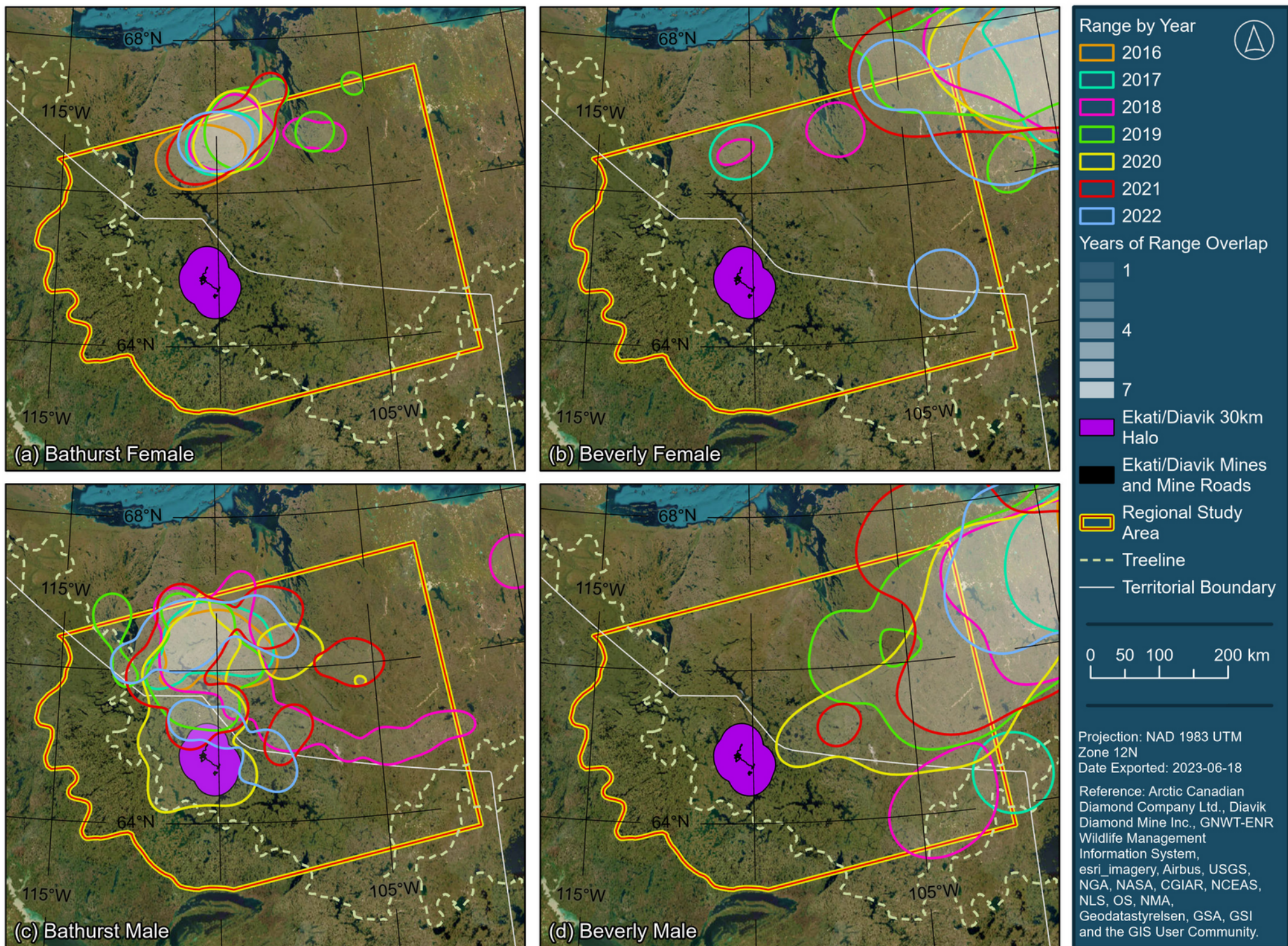


Figure A-4: Post-Calving Range 90% Utilization Distributions for Bathurst and Beverly Caribou for 2016 to 2022

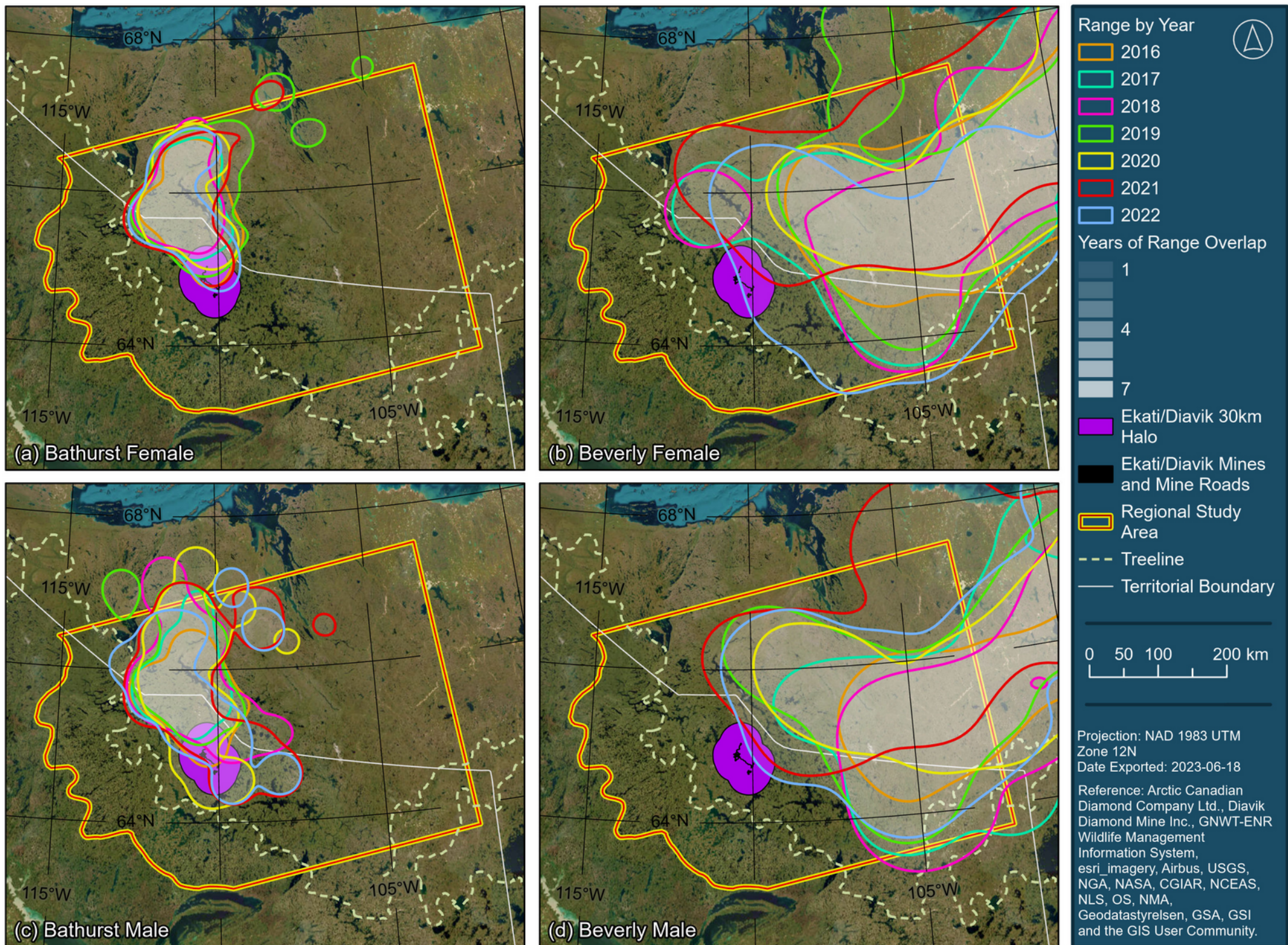


Figure A-5: Summer Range 90% Utilization Distributions for Bathurst and Beverly Caribou for 2016 to 2022

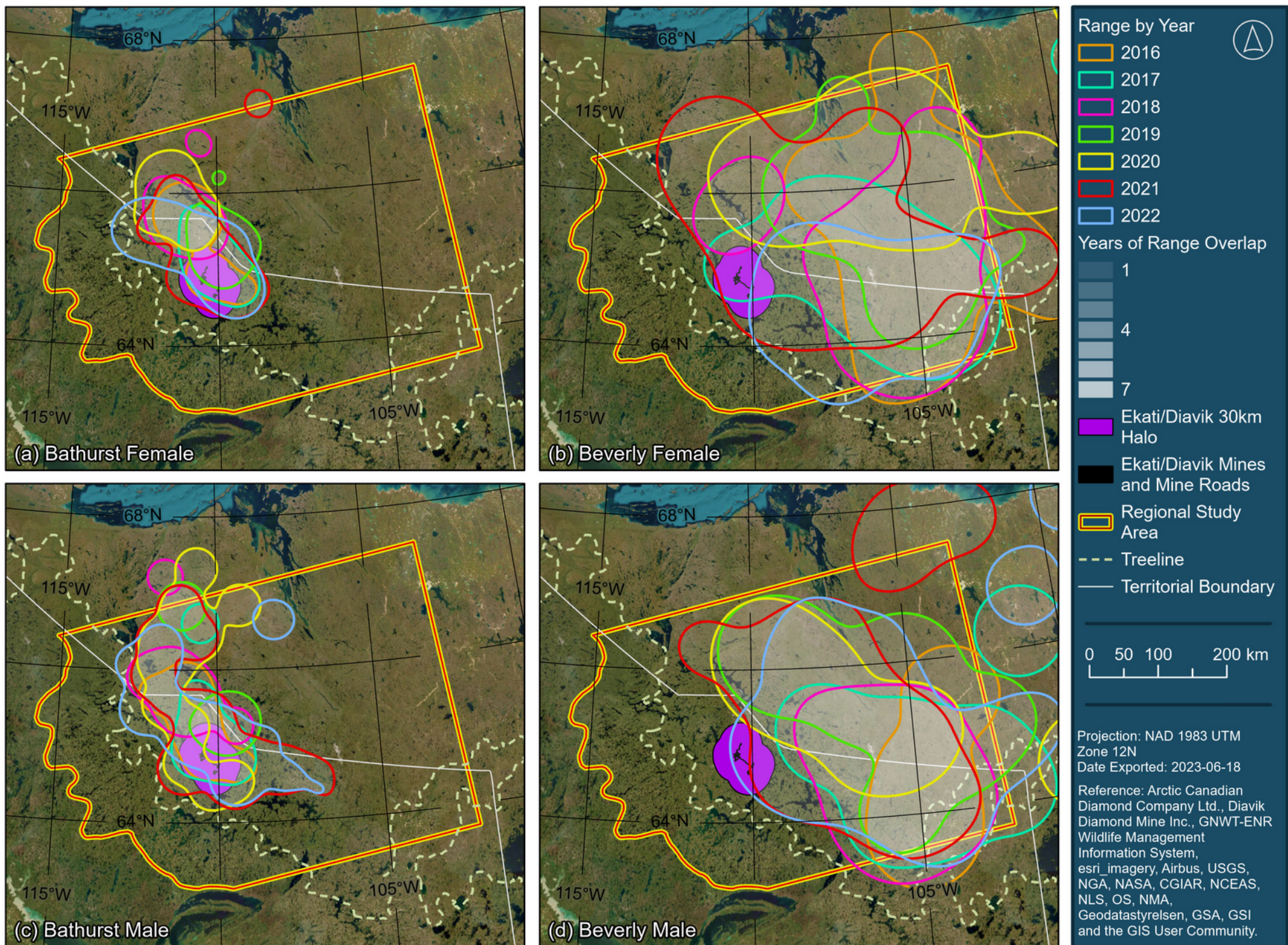


Figure A-6: Late Summer Range 90% Utilization Distributions for Bathurst and Beverly Caribou for 2016 to 2022

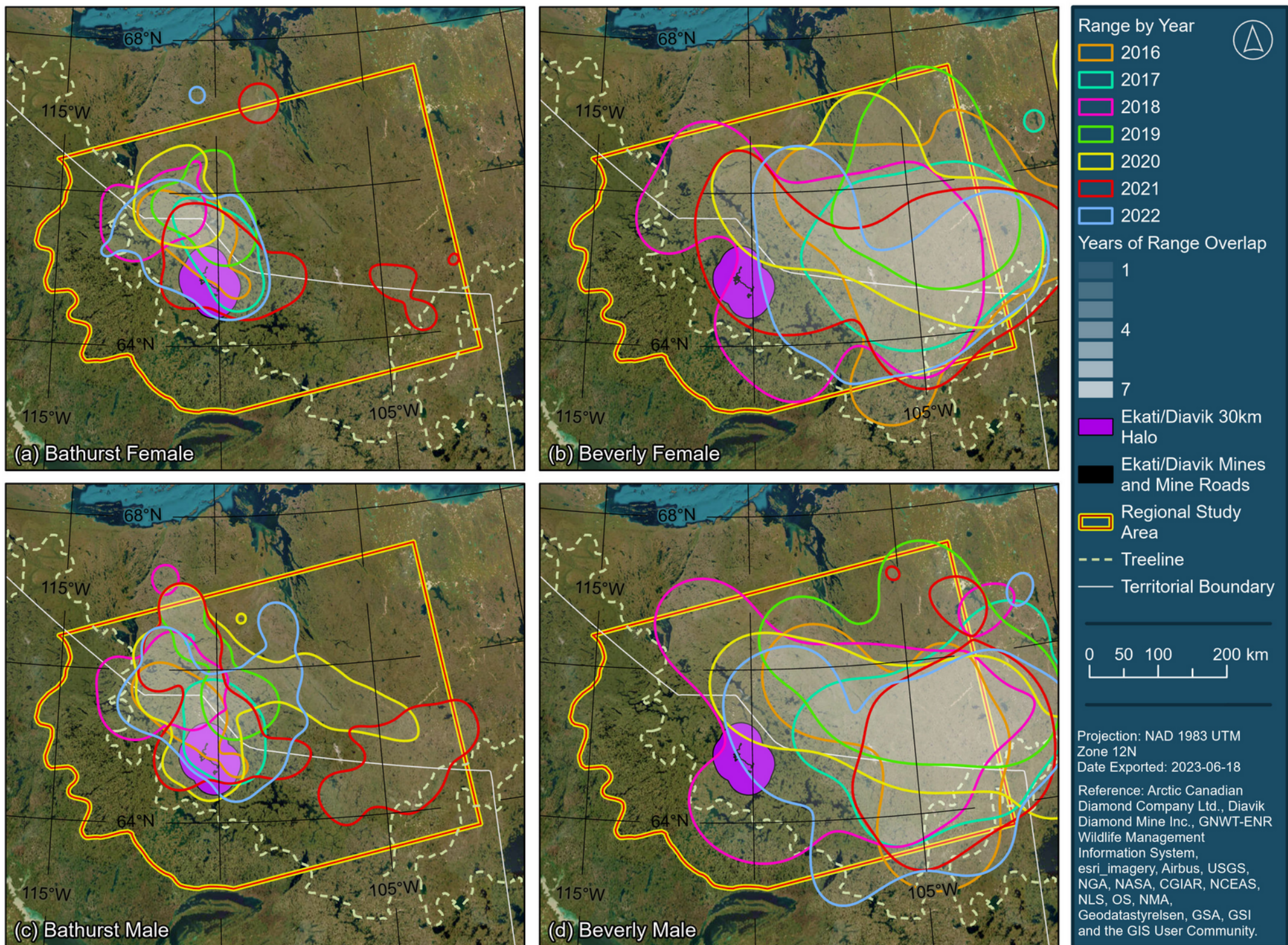


Figure A-7: Pre-Rut Range 90% Utilization Distributions for Bathurst and Beverly Caribou for 2016 to 2022

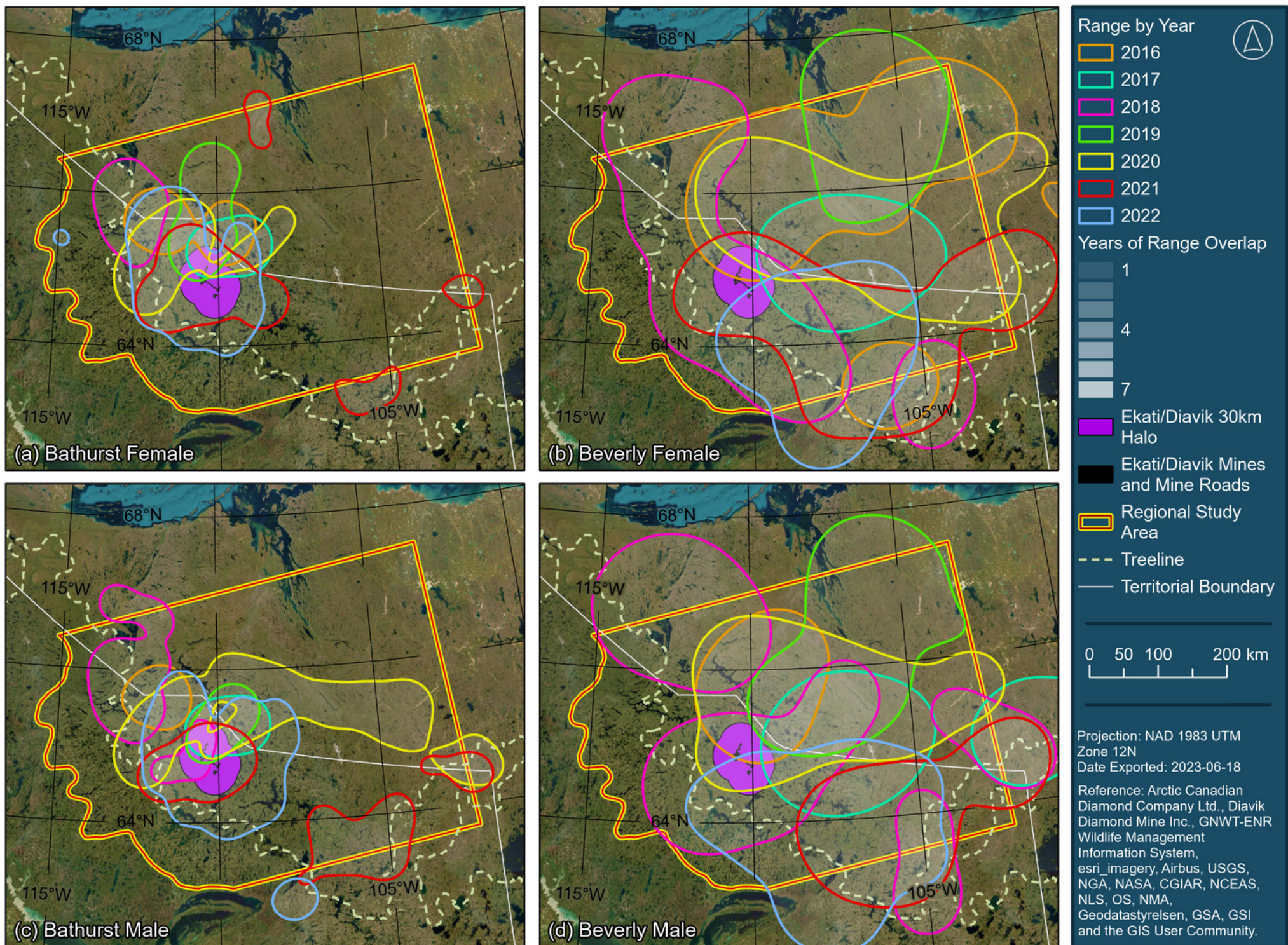


Figure A-8: Rut Range 90% Utilization Distributions for Bathurst and Beverly Caribou for 2016 to 2022

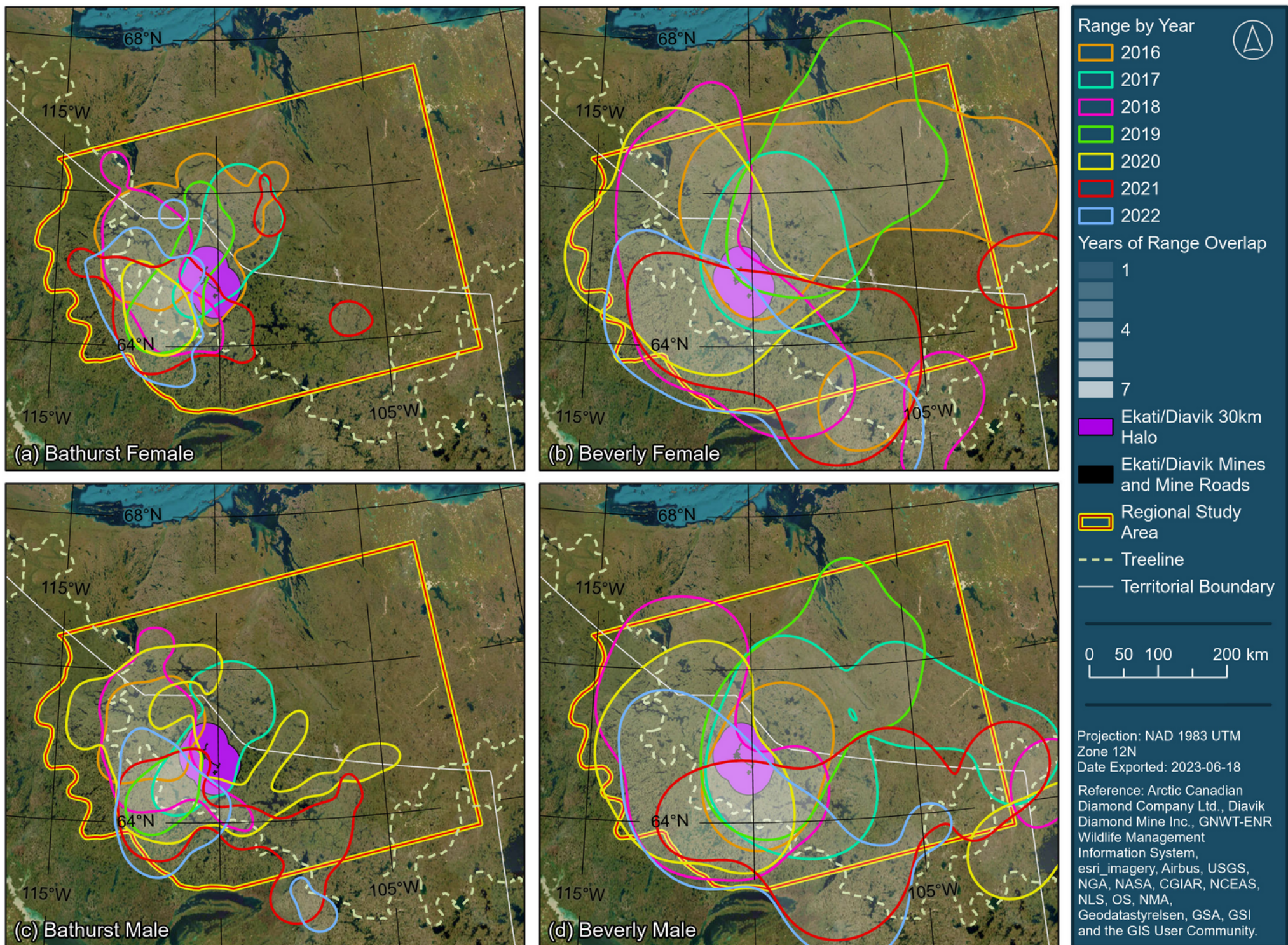


Figure A-9: Post-Rut Range 90% Utilization Distributions for Bathurst and Beverly Caribou for 2016 to 2022

APPENDIX B

HABITAT SELECTION ANALYSIS (HSA) INPUT COVARIATES

Regional scale analyses were conducted separately for each sex in each of the 9 seasons. Data from both the Beverly and Bathurst herds were combined in each sex by season combination. Details of analyses are provided in the body of the report (Section 2.8). Landcover covariates for each 3.1 ha hexagon were initially calculated for 4 nested scales: 3.1 ha, 58.9 ha, 524 ha, and 5,137 ha (Section 2.5.3). Following initial examination of data, the 58.9 ha scale data were not included in subsequent analyses (Section 2.8.3).

Table B-1 shows step attribute data attached to records in HSA both inside and outside the Ekati/Diavik 30 km halo (See Figure 2-5). Table B-2 shows spatial covariates of the hexagons at the end point of each 8-hour step used in SSF modelling 8-hour outside the Ekati/Diavik 30 km halo. Table B-3 shows spatial covariates of the hexagons at the end point of each 8-hour step used in 8-hour iSSA inside the Ekati/Diavik 30 km halo; note that inside the halo, the individual landcover and environmental covariates used in modelling movements outside the halo have been excluded and replaced by a single covariate (RSFrisk) that reflects the hexagon value based on the top model outside the halo.

Table B-4 is a list of covariates for all 1-hour SSA and iSSA inside GF112N.

Table B-1: Selection step attributes used in 8-Hour HSA outside and inside the Ekati/Diavik 30 km Halo and 1-Hour HSA inside geofence 112 north

Covariate	type	Grain (ha)	Description
Season	character	NA	One of 9 time periods in each year. These are unique dates for each of the two herds but are considered ecologically equivalent regardless of the slight differences in start and end dates. Data were divided by season prior to any analyses.
AnalysisYr	numeric	NA	A year that runs from December (of AnalysisYr-1) to December of the next year (of AnalysisYr - the year beginning in January). E.g., AnalysisYr = 2018 runs from December 2017 to December 2018.
Herd	character	NA	Beverly or Bathurst - assigned by GNWT
Sex	character	NA	Assigned by GNWT - Male or Female
ID	character	NA	Caribou number assigned by GNWT
case_	logical	NA	Indicates a real step (TRUE) or one of five random steps (FALSE) generated in package amt to simulate availability
step_id_	integer	NA	a package amt value - not relevant for processing
stepnum	numeric	NA	a unique value within each season - to keep a batch of TRUE (n=1) and FALSE (n=5) cases together. These numbers are unique to each step within a season. They do not repeat across animals, across years, across sexes, or across herds. The numbering process starts at 1 for each season and numbers repeat across seasons, which are analysed separately.
burst_	integer	NA	a package amt value - not relevant for processing
x1_	numeric	NA	x coordinate at point 1
x2_	numeric	NA	x coordinate at point 2
y1_	numeric	NA	y coordinate at point 1
y2_	numeric	NA	y coordinate at point 2
sl_	numeric	NA	step length from point 1 to point 2 (in metres) - calculated in amt package

ta_	numeric	NA	turn angle (in radians) - calculated in amt package
t1_	POSIXct	NA	UTC time and date of starting location
t2_	POSIXct	NA	UTC time and date of ending location
dt_	integer	NA	the elapsed time between the two successive locations. All records were screened before and during amt processing and are valid for either 8-hour intervals or 1-hour intervals, as appropriate for the specific analyses.
YearF	factor	NA	Factor with 7 levels

Table B-2: Step spatial covariates used in 8-Hour SSA outside the Ekati/Diavik 30 km Halo

Covariate	type	Grain (ha)	Description
VegZoneF	factor	3.1	1 if majority of 3.1 ha hexagon is Boreal Forest & Woodland vegetation zone. Otherwise 0.
HerdF	factor	NA	Bathurst or Beverly
EskerF	factor	3.1	1 if 3.1 ha hexagon is > 10% Esker. Otherwise 0
WAT_EDGE	numeric	3.1	length of water/land interface (m/ha); z-scaled
WATEDGE_S3	numeric	524	length of water/land interface (m/ha); z-scaled
BEDBOULD	numeric	3.1	proportional landcover: logit transformed; then z-scaled
TUNDRA	numeric	3.1	proportional landcover: logit transformed; then z-scaled
TUSSK	numeric	3.1	proportional landcover: logit transformed; then z-scaled
SEDGEWET	numeric	3.1	proportional landcover: logit transformed; then z-scaled
LHSHRUB	numeric	3.1	proportional landcover: logit transformed; then z-scaled
FOREST	numeric	3.1	proportional landcover: logit transformed; then z-scaled
BEDBLD_S3	numeric	524	proportional landcover: logit transformed; then z-scaled
TUNDR_S3	numeric	524	proportional landcover: logit transformed; then z-scaled
TUSSK_S3	numeric	524	proportional landcover: logit transformed; then z-scaled
SEDWET_S3	numeric	524	proportional landcover: logit transformed; then z-scaled
LHSHRUB_S3	numeric	524	proportional landcover: logit transformed; then z-scaled
FOREST_S3	numeric	524	proportional landcover: logit transformed; then z-scaled
BEDBLD_S4	numeric	5,137	proportional landcover: logit transformed; then z-scaled
TUNDR_S4	numeric	5,137	proportional landcover: logit transformed; then z-scaled
TUSSK_S4	numeric	5,137	proportional landcover: logit transformed; then z-scaled
SEDWET_S4	numeric	5,137	proportional landcover: logit transformed; then z-scaled
LHSHRUB_S4	numeric	5,137	proportional landcover: logit transformed; then z-scaled
FOREST_S4	numeric	5,137	proportional landcover: logit transformed; then z-scaled
P_ESKER	numeric	3.1	proportional landcover: logit transformed; then z-scaled
P_ESKER_S3	numeric	524	proportional landcover: logit transformed; then z-scaled
P_ESKER_S4	numeric	5,137	proportional landcover: logit transformed; then z-scaled
WBAREA	numeric	3.1	proportional landcover: logit transformed; then z-scaled
WBAREA_S3	numeric	524	proportional landcover: logit transformed; then z-scaled
WBAREA_S4	numeric	5,137	proportional landcover: logit transformed; then z-scaled

ELEVATION	numeric	3.1	mean elevation (in m ASL) within 3.1 ha hexagon: z-scaled
SLOPE	numeric	3.1	mean slope (in degrees) within 3.1 ha hexagon: z-scaled
TUNDRA_sq	numeric	3.1	squared value of transformed, rescaled landcover variable
TUSSK_sq	numeric	3.1	squared value of transformed, rescaled landcover variable
ELEVATION_sq	numeric	3.1	squared value of rescaled mean elevation within 3.1 ha hexagon
WBAREA_sq	numeric	3.1	squared value of transformed, rescaled landcover variable
SEDGEWET_sq	numeric	3.1	squared value of transformed, rescaled landcover variable
LHSHRUB_sq	numeric	3.1	squared value of transformed, rescaled landcover variable
SLOPE_sq	numeric	3.1	squared value of rescaled mean slope within 3.1 ha hexagon
P_ESKER_sq	numeric	3.1	squared value of transformed, rescaled landcover variable
WAT_EDGE_sq	numeric	3.1	squared value of rescaled length of water/land interface
BEDBOULD_sq	numeric	3.1	squared value of transformed, rescaled landcover variable
TUNDR_S3_sq	numeric	524	squared value of transformed, rescaled landcover variable
TUSSK_S3_sq	numeric	524	squared value of transformed, rescaled landcover variable
SEDWET_S3_sq	numeric	524	squared value of transformed, rescaled landcover variable
LHSHRUB_S3_sq	numeric	524	squared value of transformed, rescaled landcover variable
BEDBLD_S3_sq	numeric	524	squared value of transformed, rescaled landcover variable
WBAREA_S3_sq	numeric	524	squared value of transformed, rescaled landcover variable
P_ESKER_S3_sq	numeric	524	squared value of transformed, rescaled landcover variable
TUNDR_S4_sq	numeric	5,137	squared value of transformed, rescaled landcover variable
TUSSK_S4_sq	numeric	5,137	squared value of transformed, rescaled landcover variable
WBAREA_S4_sq	numeric	5,137	squared value of transformed, rescaled landcover variable
SEDWET_S4_sq	numeric	5,137	squared value of transformed, rescaled landcover variable
LHSHRUB_S4_sq	numeric	5,137	squared value of transformed, rescaled landcover variable
P_ESKER_S4_sq	numeric	5,137	squared value of transformed, rescaled landcover variable
WATEDGE_S3_sq	numeric	524	squared value of rescaled length of water/land interface
BEDBLD_S4_sq	numeric	5,137	squared value of transformed, rescaled landcover variable
TUNDRA * WBAREA	numeric	3.1	interaction term of two 3.1 ha transformed, rescaled landcover variables
TUNDRA * BEDBOULD	numeric	3.1	interaction term of two 3.1 ha transformed, rescaled landcover variables
OestIndx_1	numeric	3.1	Daily CARMA oestrid harassment index at step end location
MosqIndx_1	numeric	3.1	Daily CARMA mosquito harassment index at step end location

Table B-3: Step covariates used in 8-Hour iSSA inside the Ekati/Diavik 30 km Halo

Covariate	type	Grain (ha)	Description
RFSrisk	numeric	3.1	The relative probability of selection of a 3.1 ha hexagon based on exponentiated application of the top model for the specific sex and season. Determined as an output of 8-hour SSF modelling of data outside the Ekati/Diavik 30 km halo. $RSFrisk = w_x = \exp(x_1\beta_1 + \dots x_k\beta_k)$
sl_	numeric	NA	step length from point 1 to point 2 (in metres) - calculated in amt package
ta_	numeric	NA	turn angle (in radians) - calculated in amt package
t1_	POSIXct	NA	time and date of starting location
t2_	POSIXct	NA	time and date of ending location
dt_	integer	NA	the elapsed time between the two successive locations. All records were screened before and during amt processing and are valid for eight hour intervals.
YearF	factor	NA	Factor with 7 levels
DF_LROADS	numeric	3.1	Shortest distance from each real or random caribou location to 2021 era winter road ("L"ine feature). Measured in km.
DF_PROADS	numeric	3.1	Shortest distance from each real or random caribou location to nearest 2021 Ekati Mine road ("P"olygon feature). Values inside the road polygon perimeter are set to 0. Measured in km.
DF_MINES	numeric	3.1	Shortest distance from each real or random caribou location to Ekati or Diavik 2021 mine infrastructure. Values inside the mine polygon perimeter are set to 0. Measured in km.
DF_LROADS_SQ	numeric	3.1	squared value of distance to feature
DF_PROADS_SQ	numeric	3.1	squared value of distance to feature
DF_MINES_SQ	numeric	3.1	squared value of distance to feature
log.sl	numeric	3.1	log transformed step length (sl_)
cos.ta	numeric	3.1	cosine transformed turning angle (ta_)
log.dfproads	numeric	3.1	log transformed (DF_PROADS + 1)
log.dfmines	numeric	3.1	log transformed (DF_MINES + 1)
log.dflroads	numeric	3.1	log transformed (DF_LROADS + 1)
DF_PROADS.RSFprob	numeric	3.1	interaction term of two 3.1 ha covariates from list above
DF_PROADS_SQ.RSFprob	numeric	3.1	interaction term of two 3.1 ha covariates from list above
DF_MINES.RSFprob	numeric	3.1	interaction term of two 3.1 ha covariates from list above
DF_MINES_SQ.RSFprob	numeric	3.1	interaction term of two 3.1 ha covariates from list above
log.dfproads.RSFprob	numeric	3.1	interaction term of two 3.1 ha covariates from list above
log.dfmines.RSFprob	numeric	3.1	interaction term of two 3.1 ha covariates from list above
log.dflroads.RSFprob	numeric	3.1	interaction term of two 3.1 ha covariates from list above
DF_LROADS.RSFprob	numeric	3.1	interaction term of two 3.1 ha covariates from list above
DF_LROADS_SQ.RSFprob	numeric	3.1	interaction term of two 3.1 ha covariates from list above

Table B-4: Step covariates used in 1-Hour SSA and iSSA inside GF112N

Covariate	type	Grain (ha)	Description
sl_	numeric	NA	step length from point 1 to point 2 (in metres) - calculated in amt package
ta_	numeric	NA	turn angle (in radians) - calculated in amt package
t1_	POSIXct	NA	time and date of starting location
t2_	POSIXct	NA	time and date of ending location
dt_	integer	NA	the elapsed time between the two successive locations. All records were screened before and during amt processing and are valid for one hour intervals.
YearF	factor	NA	Factor with 7 levels
VegZoneF	factor	3.1	1 if majority of 3.1 ha hexagon is Boreal Forest & Woodland vegetation zone. Otherwise 0
HerdF	factor	NA	Bathurst or Beverly
EskerF	factor	3.1	1 if 3.1 ha hexagon is > 10% Esker. Otherwise 0
DF_LROADS	numeric	3.1	Shortest distance from each real or random caribou location to 2021 era winter road ("L"ine feature). Measured in km.
DF_PROADS	numeric	3.1	Shortest distance from each real or random caribou location to nearest 2021 Ekati Mine road ("P"olygon feature). Values inside the road polygon perimeter are set to 0. Measured in km.
DF_MINES	numeric	3.1	Shortest distance from each real or random caribou location to Ekati or Diavik 2021 mine infrastructure. Values inside the mine polygon perimeter are set to 0. Measured in km.
DF_LROADS_SQ	numeric	3.1	squared value of distance to feature
DF_PROADS_SQ	numeric	3.1	squared value of distance to feature
DF_MINES_SQ	numeric	3.1	squared value of distance to feature
log.sl	numeric	3.1	log transformed step length (sl_)
cos.ta	numeric	3.1	cosine transformed turning angle (ta_)
log.dfproads	numeric	3.1	log transformed (DF_PROADS + 1)
log.dfmines	numeric	3.1	log transformed (DF_MINES + 1)
log.dflroads	numeric	3.1	log transformed (DF_LROADS + 1)
WAT_EDGE	numeric	3.1	length of water/land interface (m/ha); z-scaled
WATEDGE_S3	numeric	524	length of water/land interface (m/ha); z-scaled
BEDBOULD	numeric	3.1	proportional landcover: logit transformed; then z-scaled
TUNDRA	numeric	3.1	proportional landcover: logit transformed; then z-scaled
TUSSK	numeric	3.1	proportional landcover: logit transformed; then z-scaled
SEDGEWET	numeric	3.1	proportional landcover: logit transformed; then z-scaled
LHSHRUB	numeric	3.1	proportional landcover: logit transformed; then z-scaled
FOREST	numeric	3.1	proportional landcover: logit transformed; then z-scaled
BEDBLD_S3	numeric	524	proportional landcover: logit transformed; then z-scaled
TUNDR_S3	numeric	524	proportional landcover: logit transformed; then z-scaled
TUSSK_S3	numeric	524	proportional landcover: logit transformed; then z-scaled
SEDWET_S3	numeric	524	proportional landcover: logit transformed; then z-scaled

LHSHRUB_S3	numeric	524	proportional landcover: logit transformed; then z-scaled
FOREST_S3	numeric	524	proportional landcover: logit transformed; then z-scaled
BEDBLD_S4	numeric	5,137	proportional landcover: logit transformed; then z-scaled
TUNDR_S4	numeric	5,137	proportional landcover: logit transformed; then z-scaled
TUSSK_S4	numeric	5,137	proportional landcover: logit transformed; then z-scaled
SEDWET_S4	numeric	5,137	proportional landcover: logit transformed; then z-scaled
LHSHRUB_S4	numeric	5,137	proportional landcover: logit transformed; then z-scaled
FOREST_S4	numeric	5,137	proportional landcover: logit transformed; then z-scaled
P_ESKER	numeric	3.1	proportional landcover: logit transformed; then z-scaled
P_ESKER_S3	numeric	524	proportional landcover: logit transformed; then z-scaled
P_ESKER_S4	numeric	5,137	proportional landcover: logit transformed; then z-scaled
WBAREA	numeric	3.1	proportional landcover: logit transformed; then z-scaled
WBAREA_S3	numeric	524	proportional landcover: logit transformed; then z-scaled
WBAREA_S4	numeric	5,137	proportional landcover: logit transformed; then z-scaled
ELEVATION	numeric	3.1	mean elevation (in m ASL) within 3.1 ha hexagon: z-scaled
SLOPE	numeric	3.1	mean slope (in degrees) within 3.1 ha hexagon: z-scaled
TUNDRA_sq	numeric	3.1	squared value of transformed, rescaled landcover variable
TUSSK_sq	numeric	3.1	squared value of transformed, rescaled landcover variable
ELEVATION_sq	numeric	3.1	squared value of rescaled mean elevation within 3.1 ha hexagon
WBAREA_sq	numeric	3.1	squared value of transformed, rescaled landcover variable
SEDGEWET_sq	numeric	3.1	squared value of transformed, rescaled landcover variable
LHSHRUB_sq	numeric	3.1	squared value of transformed, rescaled landcover variable
SLOPE_sq	numeric	3.1	squared value of rescaled mean slope within 3.1 ha hexagon
P_ESKER_sq	numeric	3.1	squared value of transformed, rescaled landcover variable
WAT_EDGE_sq	numeric	3.1	squared value of rescaled length of water/land interface
BEDBOULD_sq	numeric	3.1	squared value of transformed, rescaled landcover variable
TUNDR_S3_sq	numeric	524	squared value of transformed, rescaled landcover variable
TUSSK_S3_sq	numeric	524	squared value of transformed, rescaled landcover variable
SEDWET_S3_sq	numeric	524	squared value of transformed, rescaled landcover variable
LHSHRUB_S3_sq	numeric	524	squared value of transformed, rescaled landcover variable
BEDBLD_S3_sq	numeric	524	squared value of transformed, rescaled landcover variable
WBAREA_S3_sq	numeric	524	squared value of transformed, rescaled landcover variable
P_ESKER_S3_sq	numeric	524	squared value of transformed, rescaled landcover variable
TUNDR_S4_sq	numeric	5,137	squared value of transformed, rescaled landcover variable
TUSSK_S4_sq	numeric	5,137	squared value of transformed, rescaled landcover variable
WBAREA_S4_sq	numeric	5,137	squared value of transformed, rescaled landcover variable
SEDWET_S4_sq	numeric	5,137	squared value of transformed, rescaled landcover variable
LHSHRUB_S4_sq	numeric	5,137	squared value of transformed, rescaled landcover variable
P_ESKER_S4_sq	numeric	5,137	squared value of transformed, rescaled landcover variable
WATEDGE_S3_sq	numeric	524	squared value of rescaled length of water/land interface

BEDBLD_S4_sq	numeric	5,137	squared value of transformed, rescaled landcover variable
TUNDRA * WBAREA	numeric	3.1	interaction term of two 3.1 ha transformed, rescaled landcover variables
TUNDRA * BEDBOULD	numeric	3.1	interaction term of two 3.1 ha transformed, rescaled landcover variables
OestIndx_1	numeric	3.1	Daily CARMA oestrid harassment index at step end location
MosqIndx_1	numeric	3.1	Daily CARMA mosquito harassment index at step end location

APPENDIX C 8-HOUR INTERVAL STEP SELECTION ANALYSIS MODELS IN THE REGIONAL STUDY AREA

8-hour interval scale analyses were conducted separately for each sex in each of the nine seasons. Data from both the Beverly and Bathurst herds were combined in each sex x season combination. Details are provided in the body of the report (Section 2.8).

Candidate models for each sex in each season are presented, with their rankings and scores, in Tables C-1 to C-18 below. Comparisons of train vs test model performance are presented in Tables C-1b to C-18b that accompany the main tables in this Appendix.

PCC – Percent correct classification (presented here as a proportion).

Sensitivity – the true positive rate. The proportion of real (TRUE) locations that were correctly classified.

Specificity – the true negative rate. The proportion of random (FALSE) locations that were correctly classified.

Kappa is a measure of the agreement between predicted and true values that corrects for likelihood of random agreement.

Table C-1: Female - Winter Regional Scale 8-hour interval models

Model name	RHO2	Adj RHO2	AIC	BIC	K	N	deltaAIC	AICwt	deltaK	Formula
Mixed Grain.1	0.016	0.016	171834.8	171949.2	13	48786	0.000	0.986	0	case_ ~ WBAREA_sq + WBAREA + WBAREA_S3 + LHSHRUB + SLOPE_sq + TUSSK + FOREST + TUNDRA + SEDGEWET + TUSSK_S3 + FOREST_S3 + LHSHRUB_S3_sq + FOREST_S4 + strata(stepnum)
Mixed Grain.2	0.016	0.016	171843.3	171957.6	13	48786	8.472	0.014	0	case_ ~ WBAREA_sq + WBAREA + WBAREA_S3 + LHSHRUB + SLOPE_sq + TUSSK + FOREST + TUNDRA + SEDGEWET + TUSSK_S3 + FOREST_S3 + LHSHRUB_S3_sq + SLOPE + strata(stepnum)
Fine Grain	0.015	0.015	171988.0	172067.1	9	48786	153.145	0.000	-4	case_ ~ WBAREA_sq + WBAREA + LHSHRUB + SLOPE_sq + TUSSK + FOREST + TUNDRA + SEDGEWET + SLOPE + strata(stepnum)
Coarse Grain	0.007	0.007	173441.8	173512.2	8	48786	1606.989	0.000	-5	case_ ~ WBAREA_S3 + SLOPE_sq + TUNDRA + SEDGEWET + TUSSK_S3 + FOREST_S3 + LHSHRUB_S3_sq + SLOPE + strata(stepnum)

Table C-1b: ROC Function for top Female - Winter Regional Scale 8-hour interval model

Data	Threshold	PCC	Sensitivity	Specificity	Kappa
train	0.45592	0.42905	0.71771	0.37118	0.04151
test	0.45592	0.42606	0.72221	0.36667	0.04131

Table C-2: Female – Spring Migration Regional Scale 8-hour interval models

Model name	RHO2	Adj RHO2	AIC	BIC	K	N	deltaAIC	AICwt	deltaK	Formula
Mixed Grain.1	0.016	0.015	69349.0	69554.2	26	19769	0.000	1.000	0	case_ ~ SLOPE + WBAREA_sq + TUNDRA + WBAREA_S4 + FOREST_S3 + ELEVATION + TUSSK_S3_sq + ELEVATION_sq + SLOPE_sq + SEDWET_S3_sq + SEDGEWET + LHSHRUB_S3_sq + TUNDR_S3 + WBAREA_S4_sq + TUSSK_S4_sq + TUSSK_S3 + P_ESKER_S3_sq + WBAREA_S3_sq + SEDWET_S4_sq + TUSSK + WAT_EDGE + FOREST_S4 + BEDBOULD + BEDBLD_S3_sq + TUNDR_S4_sq + LHSHRUB_S3 + strata(stepnum)
Mixed Grain.2	0.015	0.014	69391.7	69581.1	24	19769	42.625	0.000	-2	case_ ~ SLOPE + WBAREA_sq + TUNDRA + WBAREA_S4 + FOREST_S3 + ELEVATION + TUSSK_S3_sq + ELEVATION_sq + SLOPE_sq + SEDWET_S3_sq + SEDGEWET + LHSHRUB_S3_sq + TUNDR_S3 + WBAREA_S4_sq + TUSSK_S3 + P_ESKER_S3_sq + TUSSK + WAT_EDGE + BEDBOULD + BEDBLD_S3_sq + LHSHRUB_S3 + WBAREA + SEDWET_S3 + P_ESKER_S3 + strata(stepnum)
Fine Grain	0.013	0.012	69533.1	69659.4	16	19769	184.047	0.000	-10	case_ ~ SLOPE + WBAREA_sq + TUNDRA + FOREST_S3 + ELEVATION + ELEVATION_sq + SLOPE_sq + SEDGEWET + LHSHRUB_S3_sq + P_ESKER_S3_sq + TUSSK + WAT_EDGE + BEDBOULD + LHSHRUB_S3 + WBAREA + P_ESKER_S3 + strata(stepnum)
Coarse Grain	0.012	0.011	69623.8	69765.9	18	19769	274.774	0.000	-8	case_ ~ SLOPE + WBAREA_S4 + FOREST_S3 + ELEVATION + TUSSK_S3_sq + ELEVATION_sq + SLOPE_sq + SEDWET_S3_sq + LHSHRUB_S3_sq + TUNDR_S3 + WBAREA_S4_sq + TUSSK_S3 + P_ESKER_S3_sq + WAT_EDGE + BEDBLD_S3_sq + LHSHRUB_S3 + SEDWET_S3 + P_ESKER_S3 + strata(stepnum)

Table C-2b: ROC Function for top Female – Spring Migration Regional Scale 8-hour interval model

Data	Threshold	PCC	Sensitivity	Specificity	Kappa
train	0.46124	0.48628	0.58475	0.46638	0.02709
test	0.46124	0.49517	0.57037	0.47996	0.02715

Table C-3: Female – Calving Regional Scale 8-hour interval models

Model name	RHO2	Adj RHO2	AIC	BIC	K	N	deltaAIC	AICwt	deltaK	Formula
Mixed Grain.1	0.036	0.033	12621.0	12757.7	22	3678	0.000	0.840	0	case_ ~ WBAREA + TUSSK + WBAREA_sq + SLOPE_sq + ELEVATION + BEDBOULD_sq + TUSSK_S3_sq + TUNDRA_sq + BEDBLD_S3 + SEDWET_S4 + ELEVATION_sq + LSHRUB_S4_sq + TUNDR_S4_sq + P_ESKER_S3_sq + SEDWET_S3 + LSHRUB_S3 + P_ESKER_S4_sq + BEDBLD_S3_sq + SEDWET_S4_sq + WBAREA_S4_sq + SEDGEWET + WBAREA_S3 + strata(stepnum)
Mixed Mosq	0.037	0.033	12625.2	12786.7	26	3678	4.182	0.104	4	case_ ~ WBAREA + TUSSK + WBAREA_sq + SLOPE_sq + ELEVATION + BEDBOULD_sq + TUSSK_S3_sq + TUNDRA_sq + BEDBLD_S3 + SEDWET_S4 + ELEVATION_sq + LSHRUB_S4_sq + TUNDR_S4_sq + P_ESKER_S3_sq + SEDWET_S3 + LSHRUB_S3 + P_ESKER_S4_sq + BEDBLD_S3_sq + SEDWET_S4_sq + WBAREA_S4_sq + SEDGEWET + WBAREA_S3 + strata(stepnum) + P_ESKER_S3 + WBAREA:MosqIndx_1 + P_ESKER_S3:MosqIndx_1 + ELEVATION:MosqIndx_1
Mixed Oestrid	0.036	0.032	12626.6	12788.1	26	3678	5.566	0.052	4	case_ ~ WBAREA + TUSSK + WBAREA_sq + SLOPE_sq + ELEVATION + BEDBOULD_sq + TUSSK_S3_sq + TUNDRA_sq + BEDBLD_S3 + SEDWET_S4 + ELEVATION_sq + LSHRUB_S4_sq + TUNDR_S4_sq + P_ESKER_S3_sq + SEDWET_S3 + LSHRUB_S3 + P_ESKER_S4_sq + BEDBLD_S3_sq + SEDWET_S4_sq + WBAREA_S4_sq + SEDGEWET + WBAREA_S3 + strata(stepnum) + P_ESKER_S3 + WBAREA:OestIndx_1 + P_ESKER_S3:OestIndx_1 + ELEVATION:OestIndx_1
Mixed Grain.2	0.036	0.032	12631.5	12780.5	24	3678	10.417	0.005	2	case_ ~ WBAREA + TUSSK + WBAREA_sq + SLOPE_sq + ELEVATION + BEDBOULD_sq + TUSSK_S3_sq + TUNDRA_sq + BEDBLD_S3 + SEDWET_S4 + ELEVATION_sq + TUNDR_S4_sq + P_ESKER_S3_sq + LSHRUB_S3 + BEDBLD_S3_sq + SEDWET_S4_sq + SEDGEWET + WBAREA_S3 + SLOPE + TUNDRA + TUSSK_S3 + TUNDR_S4 + BEDBOULD + P_ESKER_S3 + strata(stepnum)
Fine Grain	0.029	0.027	12700.9	12794.0	15	3678	79.816	0.000	-7	case_ ~ WBAREA + TUSSK + WBAREA_sq + SLOPE_sq + ELEVATION + BEDBOULD_sq + TUNDRA_sq + ELEVATION_sq + P_ESKER_S3_sq + LSHRUB_S3 + SEDGEWET + SLOPE + TUNDRA + BEDBOULD + P_ESKER_S3 + strata(stepnum)
Coarse Grain	0.016	0.014	12871.2	12970.6	16	3678	250.200	0.000	-6	case_ ~ SLOPE_sq + ELEVATION + TUSSK_S3_sq + BEDBLD_S3 + SEDWET_S4 + ELEVATION_sq + TUNDR_S4_sq + P_ESKER_S3_sq + LSHRUB_S3 + BEDBLD_S3_sq + SEDWET_S4_sq + WBAREA_S3 + SLOPE + TUSSK_S3 + TUNDR_S4 + P_ESKER_S3 + strata(stepnum)

Table C-3b: ROC Function for top Female - Calving Regional Scale 8-hour interval model

Data	Threshold	PCC	Sensitivity	Specificity	Kappa
train	0.40742	0.38115	0.76156	0.30370	0.02879
test	0.40742	0.37703	0.75559	0.29888	0.02420

Table C-4: Female – Post-Calving Regional Scale 8-hour interval models

Model name	RHO2	Adj RHO2	AIC	BIC	K	N	deltaAIC	AICwt	deltaK	Formula
Mixed Grain.1	0.069	0.066	14282.1	14402.9	19	4281	0.000	0.569	0	case_ ~ WBAREA + LSHRUB + TUSSK + WBAREA_S4 + BEDBOULD + ELEVATION + SLOPE + SEDGEWET + TUSSK_S4 + WBAREA_sq + BEDBLD_S4 + BEDBLD_S3 + TUNDRA_sq + BEDBLD_S3_sq + LSHRUB_sq + WBAREA_S3 + P_ESKER_S3 + LSHRUB_S4_sq + P_ESKER_S3_sq + strata(stepnum)
Mixed Grain.2	0.069	0.066	14283.9	14404.8	19	4281	1.824	0.229	0	case_ ~ WBAREA + LSHRUB + TUSSK + BEDBOULD + ELEVATION + SLOPE + SEDGEWET + TUSSK_S4 + WBAREA_sq + BEDBLD_S3 + TUNDRA_sq + BEDBLD_S3_sq + LSHRUB_sq + WBAREA_S3 + P_ESKER_S3 + LSHRUB_S4_sq + P_ESKER_S3_sq + TUNDRA + LSHRUB_S4 + strata(stepnum)
Mixed Mosq	0.069	0.066	14286.4	14432.7	23	4281	2.347	0.176	4	case_ ~ WBAREA + LSHRUB + TUSSK + BEDBOULD + ELEVATION + SLOPE + SEDGEWET + TUSSK_S4 + WBAREA_sq + BEDBLD_S3 + TUNDRA_sq + BEDBLD_S3_sq + LSHRUB_sq + WBAREA_S3 + P_ESKER_S3 + LSHRUB_S4_sq + P_ESKER_S3_sq + TUNDRA + LSHRUB_S4 + strata(stepnum) + MosqIndx_1 + WBAREA:MosqIndx_1 + P_ESKER_S3:MosqIndx_1 + ELEVATION:MosqIndx_1
Mixed Oestrid	0.069	0.066	14290.3	14436.6	23	4281	6.190	0.026	4	case_ ~ WBAREA + LSHRUB + TUSSK + BEDBOULD + ELEVATION + SLOPE + SEDGEWET + TUSSK_S4 + WBAREA_sq + BEDBLD_S3 + TUNDRA_sq + BEDBLD_S3_sq + LSHRUB_sq + WBAREA_S3 + P_ESKER_S3 + LSHRUB_S4_sq + P_ESKER_S3_sq + TUNDRA + LSHRUB_S4 + strata(stepnum) + OestIndx_1 + WBAREA:OestIndx_1 + P_ESKER_S3:OestIndx_1 + ELEVATION:OestIndx_1
Fine Grain	0.062	0.060	14377.1	14459.8	13	4281	95.005	0.000	-6	case_ ~ WBAREA + LSHRUB + TUSSK + BEDBOULD + ELEVATION + SLOPE + SEDGEWET + WBAREA_sq + TUNDRA_sq + LSHRUB_sq + P_ESKER_S3 + P_ESKER_S3_sq + TUNDRA + strata(stepnum)
Coarse Grain	0.028	0.027	14886.0	14968.7	13	4281	603.941	0.000	-6	case_ ~ ELEVATION + SLOPE + SEDGEWET + TUSSK_S4 + BEDBLD_S3 + TUNDRA_sq + BEDBLD_S3_sq + WBAREA_S3 + P_ESKER_S3 + LSHRUB_S4_sq + P_ESKER_S3_sq + TUNDRA + LSHRUB_S4 + strata(stepnum)

Table C-4b: ROC Function for top Female – Post-Calving Regional Scale 8-hour interval model

Data	Threshold	PCC	Sensitivity	Specificity	Kappa
train	0.39552	0.46725	0.73067	0.41428	0.07050
test	0.39552	0.47972	0.68059	0.43949	0.06031

Table C-5: Female – Summer Regional Scale 8-hour interval models

Model name	RHO2	Adj RHO2	AIC	BIC	K	N	deltaAIC	AICwt	deltaK	Formula
Mixed Oestrid	0.080	0.080	72794.0	72906.0	14	22087	0.000	0.876	0	case_ ~ WBAREA + WBAREA_sq + SEDGEWET + ELEVATION + LHSHRUB + BEDBOULD + TUNDRA + BEDBLD_S3 + SLOPE_sq + LHSHRUB_S3 + SLOPE + strata(stepnum) + OestIndx_1 + WBAREA:OestIndx_1 + ELEVATION:OestIndx_1
Mixed Mosq	0.080	0.080	72797.9	72909.9	14	22087	3.906	0.124	0	case_ ~ WBAREA + WBAREA_sq + SEDGEWET + ELEVATION + LHSHRUB + BEDBOULD + TUNDRA + BEDBLD_S3 + SLOPE_sq + LHSHRUB_S3 + SLOPE + strata(stepnum) + MosqIndx_1 + WBAREA:MosqIndx_1 + ELEVATION:MosqIndx_1
Mixed Grain.2	0.080	0.079	72819.9	72908.0	11	22087	27.943	0.000	-3	case_ ~ WBAREA + WBAREA_sq + SEDGEWET + ELEVATION + LHSHRUB + BEDBOULD + TUNDRA + BEDBLD_S3 + SLOPE_sq + LHSHRUB_S3 + SLOPE + strata(stepnum)
Mixed Grain.1	0.080	0.079	72828.6	72940.6	14	22087	36.587	0.000	0	case_ ~ WBAREA + WBAREA_sq + SEDGEWET + ELEVATION + LHSHRUB + BEDBOULD + TUSSK + WBAREA_S4 + TUNDRA + BEDBLD_S3 + SLOPE_sq + LHSHRUB_S3 + LHSHRUB_S4 + BEDBLD_S4 + strata(stepnum)
Coarse Grain	0.078	0.078	72967.5	73039.6	9	22087	175.545	0.000	-5	case_ ~ WBAREA + WBAREA_sq + SEDGEWET + ELEVATION + TUNDRA + BEDBLD_S3 + SLOPE_sq + LHSHRUB_S3 + SLOPE + strata(stepnum)
Fine Grain	0.077	0.077	72991.9	73063.9	9	22087	199.868	0.000	-5	case_ ~ WBAREA + WBAREA_sq + SEDGEWET + ELEVATION + LHSHRUB + BEDBOULD + TUNDRA + SLOPE_sq + SLOPE + strata(stepnum)

Table C-5b: ROC Function for top Female - Summer Regional Scale 8-hour interval model

Data	Threshold	PCC	Sensitivity	Specificity	Kappa
train	0.53222	0.52592	0.65604	0.49987	0.08376
test	0.53222	0.53714	0.62609	0.51932	0.08034

Table C-6: Female – Late Summer Regional Scale 8-hour interval models

Model name	RHO2	Adj RHO2	AIC	BIC	K	N	deltaAIC	AICwt	deltaK	Formula
Mixed Grain.2	0.055	0.055	41921.6	41988.5	9	12379	0.000	0.479	0	case_ ~ WBAREA_sq + LHSHRUB + TUSSK + SEDGEWET + BEDBOULD + ELEVATION + SLOPE + BEDBLD_S3 + WBAREA + strata(stepnum)
Mixed Mosq	0.055	0.055	41924.1	42013.2	12	12379	0.419	0.389	3	case_ ~ WBAREA_sq + LHSHRUB + TUSSK + SEDGEWET + BEDBOULD + ELEVATION + SLOPE + BEDBLD_S3 + WBAREA + strata(stepnum) + MosqIndx_1 + WBAREA:MosqIndx_1 + ELEVATION:MosqIndx_1
Mixed Oestrid	0.055	0.055	41926.6	42015.7	12	12379	2.955	0.109	3	case_ ~ WBAREA_sq + LHSHRUB + TUSSK + SEDGEWET + BEDBOULD + ELEVATION + SLOPE + BEDBLD_S3 + WBAREA + strata(stepnum) + OestIndx_1 + WBAREA:OestIndx_1 + ELEVATION:OestIndx_1
Mixed Grain.1	0.055	0.054	41928.1	42024.6	13	12379	6.464	0.019	4	case_ ~ WBAREA_sq + LHSHRUB + TUSSK + SEDGEWET + BEDBOULD + WBAREA_S4 + ELEVATION + LHSHRUB_S4 + SLOPE + TUSSK_S4 + SEDWET_S4 + BEDBLD_S3 + BEDBLD_S4 + strata(stepnum)
Fine Grain	0.055	0.054	41931.1	41990.5	8	12379	9.476	0.004	-1	case_ ~ WBAREA_sq + LHSHRUB + TUSSK + SEDGEWET + BEDBOULD + ELEVATION + SLOPE + WBAREA + strata(stepnum)
Coarse Grain	0.054	0.054	41963.9	42023.3	8	12379	42.240	0.000	-1	case_ ~ WBAREA_sq + LHSHRUB + TUSSK + SEDGEWET + ELEVATION + SLOPE + BEDBLD_S3 + WBAREA + strata(stepnum)

Table C-6b: ROC Function for top Female – Late Summer Regional Scale 8-hour interval model

Data	Threshold	PCC	Sensitivity	Specificity	Kappa
train	0.35833	0.40816	0.78407	0.33293	0.05208
test	0.35833	0.42857	0.73150	0.36795	0.04613

Table C-7: Female – Pre-Rut Regional Scale 8-hour interval models

Model name	RHO2	Adj RHO2	AIC	BIC	K	N	deltaAIC	AICwt	deltaK	Formula
Fine Grain	0.069	0.068	64690.1	64760.9	9	19398	0.000	0.948	0	case_ ~ WBAREA + LHSHRUB + TUSSK + WBAREA_sq + SEDGEWET + SLOPE_sq + SLOPE + BEDBOULD + BEDBOULD_sq + strata(stepnum)
Mixed Grain.1	0.069	0.068	64695.9	64790.4	12	19398	5.820	0.052	3	case_ ~ WBAREA + LHSHRUB + TUSSK + WBAREA_sq + SEDGEWET + SLOPE_sq + SLOPE + BEDBOULD + LHSHRUB_S4 + WBAREA_S4 + BEDBOULD_sq + BEDBLD_S4 + strata(stepnum)

Table C-7b: ROC Function for top Female – Pre-Rut Regional Scale 8-hour interval model

Data	Threshold	PCC	Sensitivity	Specificity	Kappa
train	0.49131	0.49250	0.73214	0.44448	0.08824
test	0.49131	0.49233	0.72805	0.44510	0.08663

Table C-8: Female – Rut Regional Scale 8-hour interval models

Model name	RHO2	Adj RHO2	AIC	BIC	K	N	deltaAIC	AICwt	deltaK	Formula
Mixed Grain.2	0.067	0.066	21671.0	21738.7	10	6480	0.000	0.804	0	case_ ~ WBAREA + WBAREA_sq + TUSSK + LHSHRUB + WBAREA_S4 + SLOPE_sq + SLOPE + WBAREA_S4_sq + TUSSK_S3_sq + TUSSK_S3 + strata(stepnum)
Mixed Grain.1	0.067	0.066	21674.5	21762.6	13	6480	3.504	0.139	3	case_ ~ WBAREA + WBAREA_sq + TUSSK + LHSHRUB + WBAREA_S4 + SLOPE_sq + SLOPE + WBAREA_S3 + LHSHRUB_sq + WBAREA_S4_sq + LHSHRUB_S4 + TUSSK_S4 + TUSSK_S3_sq + strata(stepnum)
Fine Grain	0.066	0.066	21676.3	21723.7	7	6480	5.320	0.056	-3	case_ ~ WBAREA + WBAREA_sq + TUSSK + LHSHRUB + SLOPE_sq + SLOPE + WBAREA_S4_sq + strata(stepnum)
Coarse Grain	0.035	0.034	22405.9	22453.4	7	6480	734.994	0.000	-3	case_ ~ LHSHRUB + WBAREA_S4 + SLOPE_sq + SLOPE + WBAREA_S4_sq + TUSSK_S3_sq + TUSSK_S3 + strata(stepnum)

Table C-8b: ROC Function for top Female - Rut Regional Scale 8-hour interval model

Data	Threshold	PCC	Sensitivity	Specificity	Kappa
train	0.51193	0.50409	0.71836	0.46118	0.09146
test	0.51193	0.51008	0.70695	0.47068	0.09152

Table C-9: Female – Post-Rut Regional Scale 8-hour interval models

Model name	RHO2	Adj RHO2	AIC	BIC	K	N	deltaAIC	AICwt	deltaK	Formula
Mixed Grain.1	0.057	0.057	57032.9	57125.7	12	16882	0.000	0.444	0	case_ ~ WBAREA + WBAREA_sq + TUSSK + LHSHRUB + SLOPE + SLOPE_sq + BEDBOULD + SEDGEWET + WBAREA_S3 + TUSSK_S4 + TUNDRA + LHSHRUB_S4 + strata(stepnum)
Mixed Grain.2	0.057	0.057	57033.1	57118.2	11	16882	0.230	0.396	-1	case_ ~ WBAREA + WBAREA_sq + TUSSK + LHSHRUB + SLOPE + SLOPE_sq + BEDBOULD + SEDGEWET + WBAREA_S3 + TUSSK_S4 + TUNDRA + strata(stepnum)
Fine Grain	0.057	0.057	57034.9	57104.5	9	16882	2.032	0.161	-3	case_ ~ WBAREA + WBAREA_sq + TUSSK + LHSHRUB + SLOPE + SLOPE_sq + BEDBOULD + SEDGEWET + TUNDRA + strata(stepnum)
Coarse Grain	0.028	0.027	58800.3	58862.2	8	16882	1767.416	0.000	-4	case_ ~ LHSHRUB + SLOPE + SLOPE_sq + BEDBOULD + SEDGEWET + WBAREA_S3 + TUSSK_S4 + TUNDRA + strata(stepnum)

Table C-9b: ROC Function for top Female – Post-Rut Regional Scale 8-hour interval model

Data	Threshold	PCC	Sensitivity	Specificity	Kappa
train	0.47853	0.45264	0.78379	0.38632	0.07953
test	0.47853	0.43567	0.80861	0.36103	0.07710

Table C-10: Male – Winter Regional Scale 8-hour interval models

Model name	RHO2	Adj RHO2	AIC	BIC	K	N	deltaAIC	AICwt	deltaK	Formula
Mixed Grain.1	0.019	0.019	88399.2	88521.2	15	25165	0.000	0.652	0	case_ ~ WBAREA + WBAREA_sq + WBAREA_S3 + SLOPE + LHSHRUB + TUNDRA + TUSSK + TUSSK_S3_sq + TUSSK_S3 + FOREST_S3 + SLOPE_sq + WBAREA_S4_sq + TUSSK_sq + TUNDR_S3 + TUNDRA_sq + strata(stepnum)
Mixed Grain.2	0.019	0.019	88400.5	88498.1	12	25165	1.255	0.348	-3	case_ ~ WBAREA + WBAREA_sq + WBAREA_S3 + SLOPE + LHSHRUB + TUNDRA + TUSSK + TUSSK_S3_sq + TUSSK_S3 + SLOPE_sq + TUSSK_sq + TUNDRA_sq + strata(stepnum)
Fine Grain	0.018	0.018	88463.7	88536.9	9	25165	64.502	0.000	-6	case_ ~ WBAREA + WBAREA_sq + SLOPE + LHSHRUB + TUNDRA + TUSSK + SLOPE_sq + TUSSK_sq + TUNDRA_sq + strata(stepnum)
Coarse Grain	0.013	0.013	88936.2	89001.2	8	25165	536.980	0.000	-7	case_ ~ WBAREA_S3 + SLOPE + LHSHRUB + TUNDRA + TUSSK_S3_sq + TUSSK_S3 + SLOPE_sq + TUNDRA_sq + strata(stepnum)

Table C-10b: ROC Function for top Male - Winter Regional Scale 8-hour interval model

Data	Threshold	PCC	Sensitivity	Specificity	Kappa
train	0.48500	0.46331	0.67296	0.42129	0.04657
test	0.48500	0.47766	0.65119	0.44291	0.04770

Table C-11: Male – Spring Migration Regional Scale 8-hour interval models

Model name	RHO2	Adj RHO2	AIC	BIC	K	N	deltaAIC	AICwt	deltaK	Formula
Mixed Grain.1	0.029	0.029	54134.6	54310.7	23	15602	0.000	0.968	0	case_ ~ WBAREA + SLOPE + WBAREA_sq + ELEVATION + WBAREA_S4 + SEDGEWET + SEDWET_S3 + TUNDRA + ELEVATION_sq + TUSSK + LHSHRUB + BEDBLD_S4 + WATEDGE_S3 + WBAREA_S3 + SLOPE_sq + BEDBLD_S3_sq + P_ESKER_sq + SEDGEWET_sq + TUSSK_S4 + TUSSK_S3 + TUNDRA_sq + TUNDR_S4 + TUSSK_S3_sq + strata(stepnum)
Mixed Grain.2	0.029	0.028	54141.5	54302.2	21	15602	6.820	0.032	-2	case_ ~ WBAREA + SLOPE + WBAREA_sq + ELEVATION + WBAREA_S4 + SEDGEWET + SEDWET_S3 + TUNDRA + ELEVATION_sq + TUSSK + LHSHRUB + SLOPE_sq + BEDBLD_S3_sq + P_ESKER_sq + SEDGEWET_sq + TUSSK_S3 + TUNDRA_sq + TUNDR_S4 + TUSSK_S3_sq + P_ESKER + BEDBLD_S3 + strata(stepnum)
Fine Grain	0.028	0.027	54218.8	54341.3	16	15602	84.178	0.000	-7	case_ ~ WBAREA + SLOPE + WBAREA_sq + ELEVATION + SEDGEWET + TUNDRA + ELEVATION_sq + TUSSK + LHSHRUB + SLOPE_sq + BEDBLD_S3_sq + P_ESKER_sq + SEDGEWET_sq + TUNDRA_sq + P_ESKER + BEDBLD_S3 + strata(stepnum)
Coarse Grain	0.023	0.023	54465.2	54572.4	14	15602	330.574	0.000	-9	case_ ~ SLOPE + ELEVATION + WBAREA_S4 + SEDWET_S3 + ELEVATION_sq + LHSHRUB + SLOPE_sq + BEDBLD_S3_sq + P_ESKER_sq + TUSSK_S3 + TUNDR_S4 + TUSSK_S3_sq + P_ESKER + BEDBLD_S3 + strata(stepnum)

Table C-11b: ROC Function for top Male – Spring Migration Regional Scale 8-hour interval model

Data	Threshold	PCC	Sensitivity	Specificity	Kappa
train	0.58216	0.59985	0.47802	0.62436	0.06659
test	0.58216	0.60888	0.44350	0.64207	0.05743

Table C-12: Male – Calving Regional Scale 8-hour interval models

Model name	RHO2	Adj RHO2	AIC	BIC	K	N	deltaAIC	AICwt	deltaK	Formula
Mixed Grain.1	0.066	0.063	12488.2	12587.8	16	3733	0.000	0.423	0	case_ ~ WBAREA + WBAREA_sq + TUSSK + LHSHRUB + SLOPE + BEDBOULD + TUSSK_sq + LHSHRUB_S3 + TUNDR_S4 + TUNDRA + LHSHRUB_S4 + TUNDR_S3 + TUSSK_S3 + WBAREA_S4_sq + TUNDR_S3_sq + TUNDRA_sq + strata(stepnum)
Mixed Grain.2	0.065	0.063	12489.5	12570.4	13	3733	1.274	0.224	-3	case_ ~ WBAREA + WBAREA_sq + TUSSK + LHSHRUB + SLOPE + BEDBOULD + LHSHRUB_S3 + TUNDR_S4 + TUNDRA + LHSHRUB_S4 + WBAREA_S4_sq + TUNDRA_sq + WBAREA_S4 + strata(stepnum)
Mixed Mosq	0.066	0.063	12491.8	12603.8	18	3733	1.522	0.197	2	case_ ~ WBAREA + WBAREA_sq + TUSSK + LHSHRUB + SLOPE + BEDBOULD + TUSSK_sq + LHSHRUB_S3 + TUNDR_S4 + TUNDRA + LHSHRUB_S4 + TUNDR_S3 + TUSSK_S3 + WBAREA_S4_sq + TUNDR_S3_sq + TUNDRA_sq + strata(stepnum) + MosqIndx_1 + WBAREA:MosqIndx_1
Mixed Oestrid	0.066	0.063	12492.2	12604.3	18	3733	1.991	0.156	2	case_ ~ WBAREA + WBAREA_sq + TUSSK + LHSHRUB + SLOPE + BEDBOULD + TUSSK_sq + LHSHRUB_S3 + TUNDR_S4 + TUNDRA + LHSHRUB_S4 + TUNDR_S3 + TUSSK_S3 + WBAREA_S4_sq + TUNDR_S3_sq + TUNDRA_sq + strata(stepnum) + OestIndx_1 + WBAREA:OestIndx_1
Fine Grain	0.063	0.062	12505.0	12561.0	9	3733	16.720	0.000	-7	case_ ~ WBAREA + WBAREA_sq + TUSSK + LHSHRUB + SLOPE + BEDBOULD + TUNDRA + LHSHRUB_S4 + TUNDRA_sq + strata(stepnum)
Coarse Grain	0.033	0.032	12909.9	12959.7	8	3733	421.671	0.000	-8	case_ ~ TUSSK + SLOPE + BEDBOULD + LHSHRUB_S3 + TUNDR_S4 + LHSHRUB_S4 + WBAREA_S4_sq + WBAREA_S4 + strata(stepnum)

Table C-12b: ROC Function for top Male - Calving Regional Scale 8-hour interval model

Data	Threshold	PCC	Sensitivity	Specificity	Kappa
train	0.53195	0.43955	0.79721	0.36760	0.07579
test	0.53195	0.44303	0.76956	0.37761	0.06845

Table C-13: Male – Post-Calving Regional Scale 8-hour interval models

Model name	RHO2	Adj RHO2	AIC	BIC	K	N	deltaAIC	AICwt	deltaK	Formula
Mixed Grain.1	0.062	0.057	7728.5	7831.8	18	2290	0.000	0.603	0	case_ ~ LSHRUB + WBAREA + TUSSK + WBAREA_sq + SLOPE + TUSSK_sq + TUSSK_S4 + TUSSK_S3 + SEDGEWET + WATEDGE_S3_sq + BEDBLD_S4_sq + LSHRUB_S4 + BEDBOULD + LSHRUB_S3_sq + TUNDR_S3_sq + SEDGEWET_sq + TUNDR_S4_sq + WATEDGE_S3 + strata(stepnum)
Mixed Oestrid	0.062	0.057	7732.6	7853.1	21	2290	2.089	0.212	3	case_ ~ LSHRUB + WBAREA + TUSSK + WBAREA_sq + SLOPE + TUSSK_sq + TUSSK_S4 + TUSSK_S3 + SEDGEWET + WATEDGE_S3_sq + BEDBLD_S4_sq + LSHRUB_S4 + BEDBOULD + LSHRUB_S3_sq + TUNDR_S3_sq + SEDGEWET_sq + TUNDR_S4_sq + WATEDGE_S3 + strata(stepnum) + OestIndx_1 + WBAREA:OestIndx_1 + WATEDGE_S3:OestIndx_1
Mixed Mosq	0.062	0.057	7733.0	7853.4	21	2290	2.441	0.178	3	case_ ~ LSHRUB + WBAREA + TUSSK + WBAREA_sq + SLOPE + TUSSK_sq + TUSSK_S4 + TUSSK_S3 + SEDGEWET + WATEDGE_S3_sq + BEDBLD_S4_sq + LSHRUB_S4 + BEDBOULD + LSHRUB_S3_sq + TUNDR_S3_sq + SEDGEWET_sq + TUNDR_S4_sq + WATEDGE_S3 + strata(stepnum) + MosqIndx_1 + WBAREA:MosqIndx_1 + WATEDGE_S3:MosqIndx_1
Mixed Grain.2	0.060	0.056	7737.5	7817.8	14	2290	9.005	0.007	-4	case_ ~ LSHRUB + WBAREA + TUSSK + WBAREA_sq + SLOPE + TUSSK_S4 + WATEDGE_S3_sq + BEDBOULD + LSHRUB_S3_sq + TUNDR_S3_sq + SEDGEWET_sq + WATEDGE_S3 + TUNDR_S3 + LSHRUB_S3 + strata(stepnum)
Fine Grain	0.058	0.055	7745.9	7809.0	11	2290	17.338	0.000	-7	case_ ~ LSHRUB + WBAREA + TUSSK + WBAREA_sq + SLOPE + WATEDGE_S3_sq + BEDBOULD_sq + TUNDR_S3_sq + SEDGEWET_sq + WATEDGE_S3 + TUNDR_S3 + strata(stepnum)
Coarse Grain	0.056	0.053	7762.4	7831.2	12	2290	33.856	0.000	-6	case_ ~ WBAREA + WBAREA_sq + SLOPE + TUSSK_S4 + WATEDGE_S3_sq + BEDBOULD + LSHRUB_S3_sq + TUNDR_S3_sq + SEDGEWET_sq + WATEDGE_S3 + TUNDR_S3 + LSHRUB_S3 + strata(stepnum)

Table C-13b: ROC Function for top Male – Post-Calving Regional Scale 8-hour interval model

Data	Threshold	PCC	Sensitivity	Specificity	Kappa
train	0.50930	0.51880	0.66550	0.48941	0.08217
test	0.50930	0.50035	0.69450	0.46119	0.08008

Table C-14: Male – Summer Regional Scale 8-hour interval models

Model name	RHO2	Adj RHO2	AIC	BIC	K	N	deltaAIC	AICwt	deltaK	Formula
Mixed Grain.2	0.048	0.047	38856.4	38951.8	13	11388	0.000	0.349	0	case_ ~ WBAREA + WBAREA_sq + LSHRUB + TUSSK + ELEVATION + SLOPE_sq + WATEDGE_S3 + SLOPE + SEDWET_S3 + TUNDRA_sq + SEDGEWET_sq + TUNDRA + SEDGEWET + strata(stepnum)
Coarse Grain	0.048	0.047	38856.7	38937.5	11	11388	0.319	0.298	-2	case_ ~ WBAREA + WBAREA_sq + LSHRUB + TUSSK + ELEVATION + SLOPE_sq + WATEDGE_S3 + SLOPE + SEDWET_S3 + TUNDRA_sq + TUNDRA + strata(stepnum)
Mixed Grain.1	0.048	0.047	38857.0	38959.7	14	11388	0.556	0.264	1	case_ ~ WBAREA + WBAREA_sq + LSHRUB + TUSSK + ELEVATION + SLOPE_sq + WATEDGE_S3 + SLOPE + SEDWET_S3 + TUNDRA_sq + SEDGEWET_sq + WBAREA_S4_sq + LSHRUB_sq + TUNDRA + strata(stepnum)
Mixed Mosq	0.048	0.047	38860.4	38977.8	16	11388	3.949	0.048	3	case_ ~ WBAREA + WBAREA_sq + LSHRUB + TUSSK + ELEVATION + SLOPE_sq + WATEDGE_S3 + SLOPE + SEDWET_S3 + TUNDRA_sq + SEDGEWET_sq + TUNDRA + SEDGEWET + strata(stepnum) + WBAREA:MosqIndx_1 + WATEDGE_S3:MosqIndx_1 + ELEVATION:MosqIndx_1
Mixed Oestrid	0.048	0.047	38860.8	38978.2	16	11388	4.348	0.040	3	case_ ~ WBAREA + WBAREA_sq + LSHRUB + TUSSK + ELEVATION + SLOPE_sq + WATEDGE_S3 + SLOPE + SEDWET_S3 + TUNDRA_sq + SEDGEWET_sq + TUNDRA + SEDGEWET + strata(stepnum) + WBAREA:OestIndx_1 + WATEDGE_S3:OestIndx_1 + ELEVATION:OestIndx_1
Fine Grain	0.047	0.047	38871.3	38959.3	12	11388	14.832	0.000	-1	case_ ~ WBAREA + WBAREA_sq + LSHRUB + TUSSK + ELEVATION + SLOPE_sq + WATEDGE_S3 + SLOPE + TUNDRA_sq + SEDGEWET_sq + TUNDRA + SEDGEWET + strata(stepnum)

Table C-14b: ROC Function for top Male - Summer Regional Scale 8-hour interval model

Data	Threshold	PCC	Sensitivity	Specificity	Kappa
train	0.40975	0.39883	0.79285	0.31992	0.04957
test	0.40975	0.41331	0.76904	0.34205	0.05002

Table C-15: Male – Late Summer Regional Scale 8-hour interval models

Model name	RHO2	Adj RHO2	AIC	BIC	K	N	deltaAIC	AICwt	deltaK	Formula
Mixed Mosq	0.044	0.042	23240.7	23343.0	15	6774	0.000	0.999	0	case_ ~ WBAREA_sq + TUSSK + WAT_EDGE + WBAREA_S3 + LHSHRUB + WAT_EDGE_sq + SEDGEWET + BEDBLD_S3 + BEDBLD_S3_sq + TUSSK_S3 + TUSSK_S3_sq + WBAREA + strata(stepnum) + MosqIndx_1 + WBAREA: MosqIndx_1 + WAT_EDGE: MosqIndx_1
Mixed Grain.2	0.043	0.042	23253.5	23335.3	12	6774	14.807	0.001	-3	case_ ~ WBAREA_sq + TUSSK + WAT_EDGE + WBAREA_S3 + LHSHRUB + WAT_EDGE_sq + SEDGEWET + BEDBLD_S3 + BEDBLD_S3_sq + TUSSK_S3 + TUSSK_S3_sq + WBAREA + strata(stepnum)
Mixed Grain.1	0.043	0.042	23254.6	23363.7	16	6774	15.942	0.000	1	case_ ~ WBAREA_sq + TUSSK + WAT_EDGE + WBAREA_S3 + LHSHRUB + WAT_EDGE_sq + SEDGEWET + BEDBLD_S3 + BEDBLD_S3_sq + LHSHRUB_S4 + WBAREA_S4 + WATEDGE_S3 + TUNDRA_sq + TUSSK_S3 + SEDGEWET_sq + TUSSK_S3_sq + strata(stepnum)
Mixed Oestrid	0.043	0.042	23256.0	23358.3	15	6774	15.309	0.000	0	case_ ~ WBAREA_sq + TUSSK + WAT_EDGE + WBAREA_S3 + LHSHRUB + WAT_EDGE_sq + SEDGEWET + BEDBLD_S3 + BEDBLD_S3_sq + TUSSK_S3 + TUSSK_S3_sq + WBAREA + strata(stepnum) + OestIndx_1 + WBAREA: OestIndx_1 + WAT_EDGE: OestIndx_1
Fine Grain	0.041	0.040	23300.1	23361.5	9	6774	61.419	0.000	-6	case_ ~ WBAREA_sq + TUSSK + WAT_EDGE + LHSHRUB + WAT_EDGE_sq + SEDGEWET + BEDBLD_S3 + BEDBLD_S3_sq + WBAREA + strata(stepnum)
Coarse Grain	0.020	0.020	23793.2	23854.6	9	6774	554.546	0.000	-6	case_ ~ WAT_EDGE + WBAREA_S3 + LHSHRUB + WAT_EDGE_sq + SEDGEWET + BEDBLD_S3 + BEDBLD_S3_sq + TUSSK_S3 + TUSSK_S3_sq + strata(stepnum)

Table C-15b: ROC Function for top Male – Late Summer Regional Scale 8-hour interval model

Data	Threshold	PCC	Sensitivity	Specificity	Kappa
train	0.43317	0.49670	0.66224	0.46359	0.06495
test	0.43317	0.50541	0.67483	0.47149	0.07599

Table C-16: Male – Pre-Rut Regional Scale 8-hour interval models

Model name	RHO2	Adj RHO2	AIC	BIC	K	N	deltaAIC	AICwt	deltaK	Formula
Mixed Grain.1	0.052	0.051	33375.1	33511.8	19	9834	0.000	0.635	0	case_ ~ WBAREA_sq + WBAREA + LHSHRUB + TUSSK + WBAREA_S3 + SLOPE_sq + BEDBOULD + LHSHRUB_S4 + SLOPE + SEDGEWET + ELEVATION + TUNDRA + TUNDRA_sq + TUNDR_S4 + SEDWET_S4 + TUSSK_S3 + TUNDR_S3 + WBAREA_S4_sq + TUSSK_sq + strata(stepnum)
Mixed Grain.2	0.052	0.051	33376.2	33469.8	13	9834	1.111	0.364	-6	case_ ~ WBAREA_sq + WBAREA + LHSHRUB + TUSSK + WBAREA_S3 + SLOPE_sq + BEDBOULD + SLOPE + SEDGEWET + TUNDRA + TUNDRA_sq + TUNDR_S3 + TUSSK_sq + strata(stepnum)
Fine Grain	0.051	0.051	33387.8	33467.0	11	9834	12.713	0.001	-8	case_ ~ WBAREA_sq + WBAREA + LHSHRUB + TUSSK + SLOPE_sq + BEDBOULD + SLOPE + SEDGEWET + TUNDRA + TUNDRA_sq + TUSSK_sq + strata(stepnum)
Coarse Grain	0.036	0.035	33933.4	33998.2	9	9834	558.295	0.000	-10	case_ ~ LHSHRUB + TUSSK + WBAREA_S3 + SLOPE_sq + BEDBOULD + SLOPE + SEDGEWET + TUNDR_S3 + TUSSK_sq + strata(stepnum)

Table C-16b: ROC Function for top Male – Pre-Rut Regional Scale 8-hour interval model

Data	Threshold	PCC	Sensitivity	Specificity	Kappa
train	0.44358	0.46598	0.73836	0.41131	0.07239
test	0.44358	0.46932	0.71972	0.41905	0.06788

Table C-17: Male – Rut Regional Scale 8-hour interval models

Model name	RHO2	Adj RHO2	AIC	BIC	K	N	deltaAIC	AICwt	deltaK	Formula
Mixed Grain.2	0.072	0.069	10359.9	10450.6	15	3110	0.000	0.614	0	case_ ~ WBAREA + WBAREA_sq + TUSSK + LHSHRUB + SLOPE_sq + WBAREA_S4 + LHSHRUB_sq + TUNDRA_sq + TUNDRA + TUNDR_S4 + LHSHRUB_S3 + TUSSK_S3_sq + SEDGEWET_sq + SEDGEWET + TUSSK_S3 + strata(stepnum)
Mixed Grain.1	0.072	0.069	10360.9	10463.6	17	3110	0.929	0.386	2	case_ ~ WBAREA + WBAREA_sq + TUSSK + LHSHRUB + SLOPE_sq + WBAREA_S4 + LHSHRUB_sq + TUNDRA_sq + BEDBLD_S4 + TUNDRA + TUSSK_S4_sq + ELEVATION + TUNDR_S4 + LHSHRUB_S3 + TUSSK_S3_sq + SEDWET_S4_sq + SEDGEWET_sq + strata(stepnum)
Fine Grain	0.070	0.068	10378.4	10438.8	10	3110	18.472	0.000	-5	case_ ~ WBAREA + WBAREA_sq + TUSSK + LHSHRUB + SLOPE_sq + LHSHRUB_sq + TUNDRA_sq + TUNDRA + SEDGEWET_sq + SEDGEWET + strata(stepnum)
Coarse Grain	0.023	0.022	10889.4	10937.8	8	3110	529.498	0.000	-7	case_ ~ SLOPE_sq + WBAREA_S4 + TUNDR_S4 + LHSHRUB_S3 + TUSSK_S3_sq + SEDGEWET_sq + SEDGEWET + TUSSK_S3 + strata(stepnum)

Table C-17b: ROC Function for top Male - Rut Regional Scale 8-hour interval model

Data	Threshold	PCC	Sensitivity	Specificity	Kappa
train	0.49812	0.48047	0.77749	0.42097	0.09602
test	0.49812	0.45619	0.77212	0.39281	0.07785

Table C-18: Male – Post-Rut Regional Scale 8-hour interval models

Model name	RHO2	Adj RHO2	AIC	BIC	K	N	deltaAIC	AICwt	deltaK	Formula
Mixed Grain.1	0.056	0.055	28420.3	28525.8	15	8391	0.000	0.685	0	case_ ~ WBAREA + WBAREA_sq + TUSSK + LHSHRUB + SLOPE_sq + WBAREA_S4 + TUNDRA_sq + TUNDRA + SLOPE + SEDGEWET + SEDWET_S3_sq + BEDBOULD_sq + BEDBLD_S3 + BEDBLD_S4 + TUSSK_sq + strata(stepnum)
Mixed Grain.2	0.055	0.054	28422.0	28492.3	10	8391	1.746	0.286	-5	case_ ~ WBAREA + WBAREA_sq + TUSSK + LHSHRUB + TUNDRA + SLOPE + SEDGEWET + BEDBOULD_sq + BEDBLD_S3 + BEDBOULD + strata(stepnum)
Fine Grain	0.055	0.054	28426.8	28490.1	9	8391	6.525	0.026	-6	case_ ~ WBAREA + WBAREA_sq + TUSSK + LHSHRUB + TUNDRA + SLOPE + SEDGEWET + BEDBOULD_sq + BEDBOULD + strata(stepnum)
Coarse Grain	0.055	0.054	28431.8	28488.1	8	8391	11.534	0.002	-7	case_ ~ WBAREA + WBAREA_sq + TUSSK + LHSHRUB + TUNDRA + SLOPE + SEDGEWET + BEDBLD_S3 + strata(stepnum)

Table C-18b: ROC Function for top Male – Post-Rut Regional Scale 8-hour interval model

Data	Threshold	PCC	Sensitivity	Specificity	Kappa
train	0.50260	0.48734	0.73591	0.43760	0.08597
test	0.50260	0.49287	0.71748	0.44789	0.08312

APPENDIX D 8-HOUR INTERVAL STEP SELECTION FUNCTIONS (SSF) IN THE REGIONAL STUDY AREA: COVARIATES AND COEFFICIENTS

Tables D-1 to D-18 provide the details on the SSF (top model from SSA) for each season for each sex. The SSF details include the covariates, their coefficients, standard errors of the coefficients, z-scores (the number of standard errors that the coefficient differs from zero), and p-values associated with the z-value (Pr...z..), a measure of the significance of the covariate in the model.

The rows of the Tables have been colour-coded:

- grey indicates a covariate whose coefficient's 95% confidence interval overlaps zero, indicating that it does not consistently affect the model value in the same direction;
- covariates with positive, significant coefficients are coloured green; and
- covariates with negative, significant coefficients are coloured red.

Table D-1: Female Winter Regional Study Area 8-hour SSF Covariates and Coefficients

covariate	coef	exp.coef.	se.coef.	z	Pr...z..
WBAREA_sq	-0.11483	0.89152	0.00853	-13.46410	2.544E-41
WBAREA	-0.06499	0.93708	0.01331	-4.88192	1.051E-06
WBAREA_S3	0.06891	1.07134	0.01369	5.03210	4.851E-07
LHSHRUB	0.08232	1.08580	0.00919	8.95988	3.25E-19
SLOPE_sq	-0.02805	0.97234	0.00266	-10.54603	5.299E-26
TUSSK	0.06041	1.06227	0.00838	7.21276	5.483E-13
FOREST	-0.01783	0.98233	0.00714	-2.49789	0.0124934
TUNDRA	0.05560	1.05717	0.00794	6.99999	2.56E-12
SEDGEWET	-0.03230	0.96822	0.00647	-4.99154	5.99E-07
TUSSK_S3	-0.06471	0.93734	0.01874	-3.45345	0.0005535
FOREST_S3	0.15832	1.17155	0.03571	4.43325	9.283E-06
LHSHRUB_S3_sq	-0.04172	0.95914	0.00800	-5.21759	1.813E-07
FOREST_S4	-0.20258	0.81662	0.06891	-2.93975	0.0032848

Table D-2: Female Spring Migration Regional Study Area 8-hour SSF Covariates and Coefficients

covariate	coef	exp.coef.	se.coef.	z	Pr...z..
SLOPE	0.14236	1.15299	0.01401	10.16239	2.918E-24
WBAREA_sq	-0.07195	0.93058	0.00945	-7.61390	2.66E-14
TUNDRA	0.09435	1.09895	0.01245	7.57776	3.516E-14
WBAREA_S4	-0.07259	0.92999	0.02926	-2.48042	0.0131228
FOREST_S3	0.35132	1.42094	0.05708	6.15529	7.494E-10
ELEVATION	0.26059	1.29770	0.03429	7.59929	2.978E-14
TUSSK_S3_sq	-0.08190	0.92137	0.01269	-6.45452	1.086E-10
ELEVATION_sq	0.03547	1.03611	0.01051	3.37597	0.0007356
SLOPE_sq	-0.04177	0.95909	0.00403	-10.35424	4.004E-25
SEDWET_S3_sq	-0.02003	0.98017	0.01269	-1.57817	0.1145254
SEDGEWET	-0.03378	0.96678	0.00949	-3.55843	0.0003731
LHSHRUB_S3_sq	-0.04496	0.95603	0.01080	-4.16433	3.123E-05
TUNDR_S3	-0.06405	0.93796	0.03085	-2.07637	0.0378602
WBAREA_S4_sq	0.09755	1.10247	0.01491	6.54180	6.078E-11
TUSSK_S4_sq	0.05018	1.05146	0.01580	3.17564	0.0014951
TUSSK_S3	-0.15292	0.85820	0.02318	-6.59654	4.209E-11
P_ESKER_S3_sq	0.01385	1.01395	0.00372	3.72557	0.0001949
WBAREA_S3_sq	-0.02923	0.97120	0.01042	-2.80374	0.0050514
SEDWET_S4_sq	0.00458	1.00459	0.01951	0.23477	0.8143904
TUSSK	0.02628	1.02662	0.01231	2.13526	0.0327394
WAT_EDGE	-0.04067	0.96015	0.00934	-4.35590	1.325E-05
FOREST_S4	-0.67670	0.50829	0.09363	-7.22701	4.937E-13
BEDBOULD	-0.03672	0.96395	0.00957	-3.83841	0.0001238
BEDBLD_S3_sq	-0.01135	0.98872	0.00484	-2.34594	0.0189793
TUNDR_S4_sq	-0.00256	0.99745	0.02033	-0.12568	0.8999881
LHSHRUB_S3	0.00604	1.00606	0.02752	0.21947	0.8262852

Table D-3: Female Calving Regional Study Area 8-hour SSF Covariates and Coefficients

covariate	coef	exp.coef.	se.coef.	z	Pr...z..
WBAREA	-0.18141	0.83409	0.09570	-1.89565	0.0580063
TUSSK	0.07772	1.08082	0.02899	2.68106	0.007339
WBAREA_sq	-0.20765	0.81249	0.05598	-3.70922	0.0002079
SLOPE_sq	-0.01034	0.98972	0.00494	-2.09122	0.0365087
ELEVATION	0.66764	1.94962	0.08986	7.42985	1.087E-13
BEDBOULD_sq	-0.03273	0.96780	0.00856	-3.82221	0.0001323
TUSSK_S3_sq	0.17653	1.19306	0.02848	6.19864	5.695E-10
TUNDRA_sq	0.04377	1.04474	0.02010	2.17737	0.0294533
BEDBLD_S3	0.17295	1.18880	0.07533	2.29582	0.021686
SEDWET_S4	-0.42522	0.65363	0.12841	-3.31135	0.0009285
ELEVATION_sq	0.11031	1.11662	0.03257	3.38676	0.0007072
LHSHRUB_S4_sq	0.11849	1.12580	0.07692	1.54044	0.123453
TUNDR_S4_sq	-0.18223	0.83341	0.10743	-1.69630	0.089829
P_ESKER_S3_sq	0.03420	1.03479	0.01044	3.27551	0.0010547
SEDWET_S3	-0.04932	0.95188	0.06574	-0.75021	0.4531281
LHSHRUB_S3	0.35003	1.41911	0.09250	3.78419	0.0001542
P_ESKER_S4_sq	-0.13086	0.87734	0.03744	-3.49560	0.000473
BEDBLD_S3_sq	-0.18415	0.83181	0.03242	-5.68076	1.341E-08
SEDWET_S4_sq	0.30652	1.35869	0.05755	5.32654	1.001E-07
WBAREA_S4_sq	0.00013	1.00013	0.05747	0.00228	0.9981821
SEDGEWET	-0.06670	0.93548	0.02673	-2.49559	0.0125746
WBAREA_S3	0.10591	1.11172	0.04979	2.12700	0.0334199

Table D-4: Female Post-Calving Regional Study Area 8-hour SSF Covariates and Coefficients

covariate	coef	exp.coef.	se.coef.	z	Pr...z..
WBAREA	-0.30185	0.73945	0.11454	-2.63535	0.008405
LHSHRUB	0.18466	1.20280	0.02798	6.59896	4.141E-11
TUSSK	0.12619	1.13450	0.02815	4.48325	7.352E-06
WBAREA_S4	0.27536	1.31700	0.06398	4.30354	1.681E-05
BEDBOULD	-0.23306	0.79211	0.03037	-7.67329	1.676E-14
ELEVATION	0.24631	1.27929	0.05727	4.30048	1.704E-05
SLOPE	-0.14070	0.86875	0.02237	-6.28990	3.177E-10
SEDGEWET	-0.11172	0.89429	0.02410	-4.63529	3.564E-06
TUSSK_S4	-0.17930	0.83586	0.07705	-2.32712	0.0199588
WBAREA_sq	-0.19043	0.82660	0.06097	-3.12316	0.0017892
BEDBLD_S4	-0.13048	0.87767	0.07595	-1.71801	0.0857951
BEDBLD_S3	-0.26205	0.76947	0.04930	-5.31535	1.065E-07
TUNDRA_sq	0.03913	1.03991	0.02028	1.92998	0.0536095
BEDBLD_S3_sq	0.05823	1.05996	0.02053	2.83604	0.0045677
LHSHRUB_sq	0.04256	1.04348	0.01648	2.58331	0.0097857
WBAREA_S3	-0.15078	0.86004	0.03511	-4.29407	1.754E-05
P_ESKER_S3	0.22436	1.25152	0.04789	4.68465	2.804E-06
LHSHRUB_S4_sq	-0.24483	0.78284	0.04514	-5.42363	5.84E-08
P_ESKER_S3_sq	-0.06693	0.93526	0.01672	-4.00340	6.244E-05

Table D-5: Female Summer Regional Study Area 8-hour SSF Covariates and Coefficients

covariate	coef	exp.coef.	se.coef.	z	Pr...z..
WBAREA	-0.50980	0.60062	0.03262	-15.63028	4.528E-55
WBAREA_sq	-0.30579	0.73654	0.02337	-13.08456	4.035E-39
SEDGEWET	-0.12298	0.88428	0.00894	-13.75713	4.615E-43
ELEVATION	0.61448	1.84869	0.03412	18.01084	1.602E-72
LHSHRUB	0.05161	1.05297	0.01284	4.01893	5.846E-05
BEDBOULD	-0.11840	0.88834	0.01123	-10.54604	5.298E-26
TUNDRA	-0.04324	0.95768	0.01218	-3.55126	0.0003834
BEDBLD_S3	-0.12289	0.88436	0.01554	-7.91059	2.562E-15
SLOPE_sq	-0.00090	0.99910	0.00391	-0.23109	0.8172469
LHSHRUB_S3	0.12831	1.13690	0.01723	7.44687	9.558E-14
SLOPE	-0.07541	0.92736	0.01207	-6.24670	4.192E-10
WBAREA:OestIndx_1	0.45073	1.56945	0.07807	5.77336	7.771E-09
ELEVATION:OestIndx_1	0.05043	1.05172	0.11230	0.44904	0.6534027

Table D-6: Female Late Summer Regional Study Area 8-hour SSF Covariates and Coefficients

covariate	coef	exp.coef.	se.coef.	z	Pr...z..
WBAREA_sq	-0.33597	0.71464	0.02304	-14.58396	3.553E-48
LHSHRUB	0.19723	1.21802	0.01532	12.87007	6.634E-38
TUSSK	0.11072	1.11708	0.01540	7.18974	6.492E-13
SEDGEWET	-0.08814	0.91563	0.01196	-7.36917	1.717E-13
BEDBOULD	-0.09688	0.90766	0.01502	-6.44962	1.121E-10
ELEVATION	0.54722	1.72843	0.05175	10.57479	3.901E-26
SLOPE	-0.09023	0.91372	0.01294	-6.97547	3.048E-12
BEDBLD_S3	-0.06485	0.93720	0.01927	-3.36636	0.0007617
WBAREA	0.02910	1.02953	0.03127	0.93061	0.3520564

Table D-7: Female Pre-Rut Regional Study Area 8-hour SSF Covariates and Coefficients

covariate	coef	exp.coef.	se.coef.	z	Pr...z..
WBAREA	-0.20053	0.81830	0.02840	-7.06023	1.662E-12
LHSHRUB	0.18999	1.20923	0.01213	15.66803	2.502E-55
TUSSK	0.11582	1.12280	0.01249	9.27122	1.84E-20
WBAREA_sq	-0.32040	0.72586	0.02128	-15.05605	3.151E-51
SEDGEWET	-0.10072	0.90419	0.00951	-10.58739	3.41E-26
SLOPE_sq	-0.00774	0.99229	0.00492	-1.57268	0.115792
SLOPE	-0.11599	0.89048	0.01307	-8.87416	7.047E-19
BEDBOULD	-0.16288	0.84969	0.02074	-7.85422	4.023E-15
BEDBOULD_sq	0.00832	1.00836	0.00318	2.61515	0.008919

Table D-8: Female Rut Regional Study Area 8-hour SSF Covariates and Coefficients

covariate	coef	exp.coef.	se.coef.	z	Pr...z..
WBAREA	-0.28785	0.74987	0.04326	-6.65381	2.856E-11
WBAREA_sq	-0.17523	0.83926	0.03110	-5.63490	1.752E-08
TUSSK	0.21637	1.24156	0.02128	10.16650	2.798E-24
LHSHRUB	0.22899	1.25733	0.02060	11.11370	1.076E-28
WBAREA_S4	0.11105	1.11746	0.04083	2.71992	0.0065298
SLOPE_sq	-0.01694	0.98321	0.00827	-2.04689	0.0406693
SLOPE	-0.07778	0.92517	0.02353	-3.30563	0.0009476
WBAREA_S4_sq	0.04636	1.04745	0.01875	2.47296	0.0134
TUSSK_S3_sq	-0.02810	0.97229	0.01476	-1.90345	0.0569825
TUSSK_S3	0.02793	1.02833	0.03301	0.84636	0.3973542

Table D-9: Female Post-Rut Regional Study Area 8-hour SSF Covariates and Coefficients

covariate	coef	exp.coef.	se.coef.	z	Pr...z..
WBAREA	-0.25562	0.77443	0.02573	-9.93360	2.973E-23
WBAREA_sq	-0.17750	0.83736	0.01721	-10.31122	6.27E-25
TUSSK	0.16832	1.18331	0.01515	11.11144	1.104E-28
LHSHRUB	0.14742	1.15884	0.01681	8.77064	1.777E-18
SLOPE	-0.11924	0.88760	0.01472	-8.09964	5.512E-16
SLOPE_sq	-0.01391	0.98619	0.00540	-2.57568	0.0100043
BEDBOULD	-0.06628	0.93587	0.01040	-6.37431	1.838E-10
SEDGEWET	-0.03446	0.96612	0.01113	-3.09542	0.0019654
WBAREA_S3	0.02427	1.02457	0.01562	1.55440	0.1200901
TUSSK_S4	-0.04322	0.95770	0.02847	-1.51807	0.128996
TUNDRA	0.05032	1.05161	0.01358	3.70646	0.0002102
LHSHRUB_S4	0.04731	1.04845	0.03170	1.49235	0.135607

Table D-10: Male Winter Regional Study Area 8-hour SSF Covariates and Coefficients

covariates	coef	exp.coef.	se.coef.	z	Pr...z..
WBAREA	-0.13166	0.87664	0.01923	-6.84726	7.528E-12
WBAREA_sq	-0.08455	0.91892	0.01176	-7.18863	6.545E-13
WBAREA_S3	0.06117	1.06308	0.02181	2.80514	0.0050295
SLOPE	0.04735	1.04849	0.01268	3.73381	0.0001886
LHSHRUB	0.07594	1.07889	0.01180	6.43368	1.245E-10
TUNDRA	0.09200	1.09637	0.01312	7.01192	2.351E-12
TUSSK	0.06056	1.06244	0.01074	5.63979	1.703E-08
TUSSK_S3_sq	-0.06190	0.93998	0.01031	-6.00260	1.942E-09
TUSSK_S3	-0.10076	0.90415	0.02870	-3.51113	0.0004462
FOREST_S3	0.06149	1.06342	0.04380	1.40392	0.1603418
SLOPE_sq	-0.02490	0.97541	0.00435	-5.72936	1.008E-08
WBAREA_S4_sq	0.03056	1.03103	0.01276	2.39386	0.0166721
TUSSK_sq	0.02557	1.02590	0.00740	3.45708	0.0005461
TUNDR_S3	0.01378	1.01387	0.02613	0.52742	0.5979032
TUNDRA_sq	-0.01348	0.98661	0.00789	-1.70955	0.0873483

Table D-11: Male Spring Migration Regional Study Area 8-hour SSF Covariates and Coefficients

covariates	coef	exp.coef.	se.coef.	z	Pr...z..
WBAREA	-0.09805	0.90660	0.02736	-3.58349	0.000339
SLOPE	0.14377	1.15462	0.01646	8.73403	2.458E-18
WBAREA_sq	-0.01936	0.98083	0.01524	-1.27047	0.2039188
ELEVATION	0.56278	1.75555	0.05144	10.94000	7.42E-28
WBAREA_S4	0.20650	1.22937	0.04794	4.30765	1.65E-05
SEDGEWET	-0.09693	0.90762	0.01508	-6.42727	1.299E-10
SEDWET_S3	0.09809	1.10306	0.02383	4.11639	3.849E-05
TUNDRA	0.09520	1.09987	0.01595	5.96695	2.417E-09
ELEVATION_sq	0.16200	1.17586	0.01965	8.24444	1.659E-16
TUSSK	0.08085	1.08421	0.01537	5.26059	1.436E-07
LHSHRUB	0.07420	1.07702	0.01717	4.32196	1.547E-05
BEDBLD_S4	-0.02115	0.97907	0.04836	-0.43738	0.661833
WATEDGE_S3	0.00483	1.00485	0.01859	0.26007	0.7948069
WBAREA_S3	-0.09669	0.90784	0.03245	-2.97985	0.0028839
SLOPE_sq	-0.03256	0.96797	0.00579	-5.62336	1.873E-08
BEDBLD_S3_sq	-0.03553	0.96509	0.01195	-2.97286	0.0029504
P_ESKER_sq	0.00372	1.00373	0.00069	5.42519	5.789E-08
SEDGEWET_sq	0.02265	1.02291	0.00865	2.62023	0.008787
TUSSK_S4	0.08093	1.08430	0.05537	1.46167	0.1438313
TUSSK_S3	-0.17257	0.84150	0.03789	-4.55484	5.243E-06
TUNDRA_sq	-0.03309	0.96745	0.01103	-3.00034	0.0026968
TUNDR_S4	-0.04678	0.95430	0.04625	-1.01131	0.3118699
TUSSK_S3_sq	-0.04648	0.95459	0.01134	-4.09711	4.183E-05

Table D-12: Male Calving Regional Study Area 8-hour SSF Covariates and Coefficients

covariates	coef	exp.coef.	se.coef.	z	Pr...z..
WBAREA	-0.13136	0.87690	0.06390	-2.05565	0.0398166
WBAREA_sq	-0.13711	0.87187	0.02888	-4.74840	2.05E-06
TUSSK	0.22328	1.25017	0.03564	6.26498	3.729E-10
LHSHRUB	0.23761	1.26821	0.04047	5.87168	4.314E-09
SLOPE	-0.20882	0.81154	0.02951	-7.07725	1.47E-12
BEDBOULD	-0.16410	0.84865	0.05108	-3.21291	0.001314
TUSSK_sq	-0.02522	0.97510	0.02012	-1.25321	0.210129
LHSHRUB_S3	0.18519	1.20345	0.10031	1.84625	0.0648565
TUNDR_S4	0.67375	1.96159	0.21050	3.20073	0.0013708
TUNDRA	0.08484	1.08854	0.04327	1.96088	0.0498928
LHSHRUB_S4	0.37809	1.45949	0.20256	1.86655	0.0619645
TUNDR_S3	-0.24944	0.77924	0.11043	-2.25881	0.0238954
TUSSK_S3	-0.04933	0.95187	0.05722	-0.86201	0.3886838
WBAREA_S4_sq	0.12415	1.13218	0.04118	3.01482	0.0025713
TUNDR_S3_sq	-0.05131	0.94999	0.05149	-0.99646	0.3190283
TUNDRA_sq	0.05635	1.05796	0.02703	2.08454	0.0371113

Table D-13: Male Post-Calving Regional Study Area 8-hour SSF Covariates and Coefficients

covariates	coef	exp.coef.	se.coef.	z	Pr...z..
LHSHRUB	0.19904	1.22023	0.03687	5.39812	6.734E-08
WBAREA	0.17203	1.18771	0.09527	1.80562	0.0709785
TUSSK	0.12815	1.13673	0.03685	3.47725	0.0005066
WBAREA_sq	-0.26628	0.76623	0.04780	-5.57093	2.534E-08
SLOPE	-0.11733	0.88929	0.03361	-3.49142	0.0004805
TUSSK_sq	-0.03590	0.96474	0.02201	-1.63082	0.1029293
TUSSK_S4	-0.44954	0.63792	0.10401	-4.32193	1.547E-05
TUSSK_S3	0.31187	1.36598	0.07311	4.26574	1.992E-05
SEDGEWET	-0.04786	0.95327	0.03700	-1.29336	0.1958878
WATEDGE_S3_sq	-0.03103	0.96945	0.02312	-1.34221	0.1795267
BEDBLD_S4_sq	0.07974	1.08300	0.04958	1.60832	0.1077641
LHSHRUB_S4	0.11537	1.12229	0.09464	1.21912	0.2227993
BEDBOULD	-0.13124	0.87701	0.04826	-2.71952	0.0065377
LHSHRUB_S3_sq	-0.06287	0.93906	0.04286	-1.46691	0.1424003
TUNDR_S3_sq	0.15396	1.16645	0.04028	3.82204	0.0001324
SEDGEWET_sq	0.04050	1.04133	0.01547	2.61732	0.0088623
TUNDR_S4_sq	-0.08296	0.92039	0.06536	-1.26924	0.204355
WATEDGE_S3	0.05308	1.05451	0.05026	1.05608	0.2909326

Table D-14: Male Summer Regional Study Area 8-hour SSF Covariates and Coefficients

covariates	coef	exp.coef.	se.coef.	z	Pr...z..
WBAREA	0.19978	1.22113	0.03544	5.63714	1.729E-08
WBAREA_sq	-0.35845	0.69876	0.02276	-15.75051	6.813E-56
LHSHRUB	0.19633	1.21693	0.02114	9.28579	1.605E-20
TUSSK	0.13342	1.14273	0.01940	6.87787	6.075E-12
ELEVATION	0.30674	1.35899	0.03831	8.00603	1.185E-15
SLOPE_sq	0.01663	1.01677	0.00424	3.92042	8.84E-05
WATEDGE_S3	0.04311	1.04405	0.01631	2.64284	0.0082213
SLOPE	-0.03753	0.96317	0.01585	-2.36763	0.0179026
SEDWET_S3	-0.07881	0.92422	0.01923	-4.09738	4.178E-05
TUNDRA_sq	0.02161	1.02185	0.01088	1.98634	0.046996
SEDGEWET_sq	0.01767	1.01783	0.00849	2.08133	0.0374036
TUNDRA	0.03099	1.03148	0.02136	1.45079	0.1468386
SEDGEWET	-0.01602	0.98411	0.01702	-0.94136	0.346521

Table D-15: Male Late Summer Regional Study Area 8-hour SSF Covariates and Coefficients

covariates	coef	exp.coef.	se.coef.	z	Pr...z..
WBAREA_sq	-0.18255	0.83314	0.09687	-1.88452	0.0594944
TUSSK	0.16370	1.17786	0.02025	8.08544	6.194E-16
WAT_EDGE	0.45454	1.57546	0.12541	3.62455	0.0002895
WBAREA_S3	0.14932	1.16105	0.03072	4.86085	1.169E-06
LHSHRUB	0.14473	1.15572	0.01993	7.26130	3.834E-13
WAT_EDGE_sq	-0.08091	0.92228	0.02161	-3.74369	0.0001813
SEDGEWET	-0.03319	0.96736	0.01636	-2.02823	0.0425371
BEDBLD_S3	0.08106	1.08444	0.04031	2.01083	0.0443439
BEDBLD_S3_sq	-0.02981	0.97063	0.01093	-2.72854	0.0063616
TUSSK_S3	-0.06580	0.93632	0.03602	-1.82649	0.0677761
TUSSK_S3_sq	-0.02902	0.97140	0.01388	-2.09026	0.0365946
WBAREA	-0.05677	0.94481	0.21889	-0.25934	0.7953724
WBAREA:MosqIndx_1	-0.31529	0.72957	0.24371	-1.29374	0.1957569
WAT_EDGE:MosqIndx_1	-0.23535	0.79030	0.16491	-1.42712	0.153545

Table D-16: Male Pre-Rut Regional Study Area 8-hour SSF Covariates and Coefficients

covariates	coef	exp.coef.	se.coef.	z	Pr...z..
WBAREA_sq	-0.38774	0.67859	0.02285	-16.97100	1.346E-64
WBAREA	0.21472	1.23952	0.03703	5.79833	6.698E-09
LHSHRUB	0.18377	1.20174	0.02729	6.73313	1.661E-11
TUSSK	0.13992	1.15018	0.02481	5.63934	1.707E-08
WBAREA_S3	0.06148	1.06341	0.02598	2.36598	0.0179825
SLOPE_sq	-0.01741	0.98274	0.00765	-2.27458	0.0229313
BEDBOULD	-0.09257	0.91159	0.01542	-6.00432	1.921E-09
LHSHRUB_S4	-0.00080	0.99920	0.04738	-0.01687	0.9865372
SLOPE	-0.09385	0.91042	0.01867	-5.02694	4.984E-07
SEDGEWET	-0.08828	0.91550	0.01652	-5.34365	9.11E-08
ELEVATION	0.08585	1.08964	0.06084	1.41104	0.1582328
TUNDRA	-0.04869	0.95247	0.02364	-2.05994	0.0394044
TUNDRA_sq	0.06703	1.06933	0.01118	5.99806	1.997E-09
TUNDR_S4	0.15748	1.17056	0.06628	2.37618	0.017493
SEDWET_S4	0.04052	1.04135	0.03224	1.25700	0.2087543
TUSSK_S3	-0.01227	0.98781	0.02679	-0.45802	0.6469354
TUNDR_S3	-0.10847	0.89720	0.04121	-2.63208	0.0084863
WBAREA_S4_sq	0.01662	1.01676	0.01551	1.07178	0.2838171
TUSSK_sq	0.01974	1.01994	0.01068	1.84790	0.0646165

Table D-17: Male Rut Regional Study Area 8-hour SSF Covariates and Coefficients

covariates	coef	exp.coef.	se.coef.	z	Pr...z..
WBAREA	-0.19050	0.82654	0.07163	-2.65941	0.0078278
WBAREA_sq	-0.12701	0.88073	0.04474	-2.83906	0.0045246
TUSSK	0.31048	1.36408	0.04581	6.77736	1.224E-11
LHSHRUB	0.26315	1.30102	0.04641	5.66983	1.429E-08
SLOPE_sq	-0.06330	0.93866	0.01204	-5.25739	1.461E-07
WBAREA_S4	0.25354	1.28859	0.06319	4.01246	6.009E-05
LHSHRUB_sq	0.04940	1.05064	0.01869	2.64260	0.0082273
TUNDRA_sq	0.05475	1.05627	0.01980	2.76441	0.0057026
TUNDRA	0.05639	1.05801	0.03869	1.45751	0.1449759
TUNDR_S4	0.15119	1.16322	0.08731	1.73164	0.0833371
LHSHRUB_S3	0.14941	1.16115	0.05264	2.83855	0.0045319
TUSSK_S3_sq	-0.03579	0.96484	0.02035	-1.75868	0.0786326
SEDGEWET_sq	0.03169	1.03220	0.01890	1.67657	0.0936273
SEDGEWET	0.01025	1.01031	0.03389	0.30254	0.7622392
TUSSK_S3	-0.04224	0.95864	0.04429	-0.95365	0.340259

Table D-18: Male Post-Rut Regional Study Area 8-hour SSF Covariates and Coefficients

covariates	coef	exp.coef.	se.coef.	z	Pr...z..
WBAREA	-0.21125	0.80957	0.03716	-5.68534	1.306E-08
WBAREA_sq	-0.19305	0.82444	0.02430	-7.94511	1.94E-15
TUSSK	0.16649	1.18115	0.02307	7.21669	5.327E-13
LHSHRUB	0.17387	1.18990	0.02648	6.56678	5.141E-11
SLOPE_sq	-0.01087	0.98919	0.00714	-1.52140	0.1281589
WBAREA_S4	0.08853	1.09257	0.03430	2.58116	0.009847
TUNDRA_sq	0.01672	1.01686	0.01258	1.32915	0.1837984
TUNDRA	0.05465	1.05617	0.02181	2.50554	0.0122263
SLOPE	-0.07997	0.92314	0.02090	-3.82625	0.0001301
SEDGEWET	-0.03465	0.96594	0.01703	-2.03459	0.0418923
SEDWET_S3_sq	0.01382	1.01391	0.01823	0.75764	0.4486672
BEDBOULD_sq	-0.01045	0.98961	0.00324	-3.22379	0.001265
BEDBLD_S3	-0.07212	0.93042	0.03297	-2.18750	0.028706
BEDBLD_S4	0.01313	1.01322	0.05757	0.22804	0.8196146
TUSSK_sq	0.01259	1.01267	0.01145	1.09986	0.2713926

APPENDIX E

8-HOUR INTERVAL INTEGRATED STEP SELECTION ANALYSIS MODELS IN THE EKATI/DIAVIK 30 KM HALO

Halo scale analyses were conducted separately for each sex in each of seven seasons. Data from both the Beverly and Bathurst herds were combined in each sex x season combination. Details are provided in the body of the report (Section 2.8).

Candidate models for each sex in each season are presented, with their rankings and scores, in Tables E-1 to E-14 below. Comparisons of train vs test model performance are presented in Tables E-1b to E-14b that accompany the main tables in this Appendix.

PCC – Percent correct classification (presented here as a proportion).

Sensitivity – the true positive rate. The proportion of real (TRUE) locations that were correctly classified.

Specificity – the true negative rate. The proportion of random (FALSE) locations that were correctly classified.

Kappa is a measure of the agreement between predicted and true values that corrects for likelihood of random agreement.

Table E-1: Female - Winter 30 km Halo Scale 8-hour interval models

Model name	RHO2	Adj RHO2	AIC	BIC	K	N	deltaK	deltaBIC	Formula
DFMines	0.017	0.016	15636.5	15681.3	7	4433	0	0.0	Surv(rep(1, 26598), case_) ~ RSFrisk + cos.ta + log.sl + DF_MINES + DF_MINES_SQ + DF_MINES.RSFrisk + DF_MINES_SQ.RSFrisk + strata(stepnum)
LinearDFMines	0.014	0.014	15667.0	15699.0	5	4433	-2	17.7	Surv(rep(1, 26598), case_) ~ RSFrisk + cos.ta + log.sl + DF_MINES + DF_MINES.RSFrisk + strata(stepnum)
DFMineRoads	0.015	0.014	15656.3	15701.1	7	4433	0	19.9	Surv(rep(1, 26598), case_) ~ RSFrisk + cos.ta + log.sl + DF_PROADS + DF_PROADS_SQ + DF_PROADS.RSFrisk + DF_PROADS_SQ.RSFrisk + strata(stepnum)
LinearDFWintRd	0.014	0.014	15669.3	15701.3	5	4433	-2	20.0	Surv(rep(1, 26598), case_) ~ RSFrisk + cos.ta + log.sl + DF_LROADS + DF_LROADS.RSFrisk + strata(stepnum)
LogDFWinterRoad	0.014	0.013	15677.1	15709.0	5	4433	-2	27.8	Surv(rep(1, 26598), case_) ~ RSFrisk + cos.ta + log.sl + log.dflroads + log.dflroads.RSFrisk + strata(stepnum)
LinearDFMineRds	0.014	0.013	15677.3	15709.3	5	4433	-2	28.0	Surv(rep(1, 26598), case_) ~ RSFrisk + cos.ta + log.sl + DF_PROADS + DF_PROADS.RSFrisk + strata(stepnum)
DFWinterRoad	0.014	0.013	15672.3	15717.1	7	4433	0	35.8	Surv(rep(1, 26598), case_) ~ RSFrisk + cos.ta + log.sl + DF_LROADS + DF_LROADS_SQ + DF_LROADS.RSFrisk + DF_LROADS_SQ.RSFrisk + strata(stepnum)
iSSA Base Model	0.012	0.011	15703.4	15722.6	3	4433	-4	41.3	Surv(rep(1, 26598), case_) ~ RSFrisk + cos.ta + log.sl + strata(stepnum)
LogDFMines	0.013	0.012	15691.1	15723.1	5	4433	-2	41.8	Surv(rep(1, 26598), case_) ~ RSFrisk + cos.ta + log.sl + log.dfmynes + log.dfmynes.RSFrisk + strata(stepnum)
SSF Predicted Habitat Value	0.010	0.010	15723.1	15729.5	1	4433	-6	48.3	Surv(rep(1, 26598), case_) ~ RSFrisk + strata(stepnum)
LogDFMineRoads	0.012	0.012	15702.2	15734.2	5	4433	-2	52.9	Surv(rep(1, 26598), case_) ~ RSFrisk + cos.ta + log.sl + log.dfproads + log.dfproads.RSFrisk + strata(stepnum)

Table E-1b: ROC Function for top Female - Winter 30 km Halo Scale 8-hour interval model

Data	Threshold	PCC	Sensitivity	Specificity	Kappa
train	0.85117	0.61151	0.42522	0.64877	0.05025
test	0.85117	0.58945	0.47666	0.61148	0.05543

Table E-2: Female – Spring Migration 30 km Halo Scale 8-hour interval models

Model name	RHO2	Adj RHO2	AIC	BIC	K	N	deltaK	deltaBIC	Formula
iSSA Base Model	0.028	0.027	7267.5	7284.4	3	2085	0	0.0	Surv(rep(1, 12510), case_) ~ RSFrisk + cos.ta + log.sl + strata(stepnum)
DFMines	0.032	0.030	7247.0	7286.5	7	2085	4	2.1	Surv(rep(1, 12510), case_) ~ RSFrisk + cos.ta + log.sl + DF_MINES + DF_MINES_SQ + DF_MINES.RSFrisk + DF_MINES_SQ.RSFrisk + strata(stepnum)
LinearDFMines	0.029	0.027	7268.5	7296.7	5	2085	2	12.3	Surv(rep(1, 12510), case_) ~ RSFrisk + cos.ta + log.sl + DF_MINES + DF_MINES.RSFrisk + strata(stepnum)
LinearDFMineRds	0.028	0.027	7269.9	7298.1	5	2085	2	13.7	Surv(rep(1, 12510), case_) ~ RSFrisk + cos.ta + log.sl + DF_PROADS + DF_PROADS.RSFrisk + strata(stepnum)
LogDFMines	0.028	0.027	7270.9	7299.2	5	2085	2	14.8	Surv(rep(1, 12510), case_) ~ RSFrisk + cos.ta + log.sl + log.dfmines + log.dfmines.RSFrisk + strata(stepnum)
LogDFMineRoads	0.028	0.027	7271.2	7299.5	5	2085	2	15.1	Surv(rep(1, 12510), case_) ~ RSFrisk + cos.ta + log.sl + log.dfproads + log.dfproads.RSFrisk + strata(stepnum)
DFMineRoads	0.030	0.028	7262.9	7302.4	7	2085	4	18.0	Surv(rep(1, 12510), case_) ~ RSFrisk + cos.ta + log.sl + DF_PROADS + DF_PROADS_SQ + DF_PROADS.RSFrisk + DF_PROADS_SQ.RSFrisk + strata(stepnum)
SSF Predicted Habitat Value	0.011	0.011	7390.4	7396.0	1	2085	-2	111.6	Surv(rep(1, 12510), case_) ~ RSFrisk + strata(stepnum)

Table E-2b: ROC Function for top Female – Spring Migration 30 km Halo Scale 8-hour interval model

Data	Threshold	PCC	Sensitivity	Specificity	Kappa
train	0.43615	0.58074	0.54820	0.58724	0.08235
test	0.43615	0.57920	0.51557	0.59158	0.06494

Table E-3: Female – Summer 30 km Halo Scale 8-hour interval models

Model name	RHO2	Adj RHO2	AIC	BIC	K	N	deltaK	deltaBIC	Formula
DFMines	0.156	0.154	5119.6	5157.6	7	1689	0	0.0	Surv(rep(1, 10134), case_) ~ RSFrisk + cos.ta + log.sl + DF_MINES + DF_MINES_SQ + DF_MINES.RSFrisk + DF_MINES_SQ.RSFrisk + strata(stepnum)
DFMineRoads	0.148	0.145	5173.7	5211.7	7	1689	0	54.0	Surv(rep(1, 10134), case_) ~ RSFrisk + cos.ta + log.sl + DF_PROADS + DF_PROADS_SQ + DF_PROADS.RSFrisk + DF_PROADS_SQ.RSFrisk + strata(stepnum)
LinearDFMines	0.143	0.141	5196.6	5223.7	5	1689	-2	66.1	Surv(rep(1, 10134), case_) ~ RSFrisk + cos.ta + log.sl + DF_MINES + DF_MINES.RSFrisk + strata(stepnum)
LinearDFMineRds	0.140	0.138	5215.1	5242.3	5	1689	-2	84.7	Surv(rep(1, 10134), case_) ~ RSFrisk + cos.ta + log.sl + DF_PROADS + DF_PROADS.RSFrisk + strata(stepnum)
iSSA Base Model	0.137	0.136	5231.6	5247.8	3	1689	-4	90.2	Surv(rep(1, 10134), case_) ~ RSFrisk + cos.ta + log.sl + strata(stepnum)
LogDFMines	0.137	0.136	5231.4	5258.5	5	1689	-2	100.9	Surv(rep(1, 10134), case_) ~ RSFrisk + cos.ta + log.sl + log.dfmines + log.dfmines.RSFrisk + strata(stepnum)
LogDFMineRoads	0.137	0.135	5233.7	5260.9	5	1689	-2	103.2	Surv(rep(1, 10134), case_) ~ RSFrisk + cos.ta + log.sl + log.dfproads + log.dfproads.RSFrisk + strata(stepnum)
SSF Predicted Habitat Value	0.130	0.129	5269.8	5275.2	1	1689	-6	117.6	Surv(rep(1, 10134), case_) ~ RSFrisk + strata(stepnum)

Table E-3b: ROC Function for top Female - Summer 30 km Halo Scale 8-hour interval model

Data	Threshold	PCC	Sensitivity	Specificity	Kappa
train	0.55123	0.56118	0.78271	0.51687	0.15941
test	0.55123	0.57086	0.73558	0.53811	0.14998

Table E-4: Female – Late Summer 30 km Halo Scale 8-hour interval models

Model name	RHO2	Adj RHO2	AIC	BIC	K	N	deltaK	deltaBIC	Formula
DFMines	0.085	0.084	8607.3	8648.4	7	2621	0	0.0	Surv(rep(1, 15726), case_) ~ RSFrisk + cos.ta + log.sl + DF_MINES + DF_MINES_SQ + DF_MINES.RSFrisk + DF_MINES_SQ.RSFrisk + strata(stepnum)
iSSA Base Model	0.081	0.080	8637.4	8655.0	3	2621	-4	6.6	Surv(rep(1, 15726), case_) ~ RSFrisk + cos.ta + log.sl + strata(stepnum)
DFMineRoads	0.084	0.083	8617.1	8658.2	7	2621	0	9.8	Surv(rep(1, 15726), case_) ~ RSFrisk + cos.ta + log.sl + DF_PROADS + DF_PROADS_SQ + DF_PROADS.RSFrisk + DF_PROADS_SQ.RSFrisk + strata(stepnum)
LogDFMines	0.082	0.081	8632.0	8661.4	5	2621	-2	12.9	Surv(rep(1, 15726), case_) ~ RSFrisk + cos.ta + log.sl + log.dfmines + log.dfmines.RSFrisk + strata(stepnum)
SSF Predicted Habitat Value	0.078	0.078	8657.5	8663.3	1	2621	-6	14.9	Surv(rep(1, 15726), case_) ~ RSFrisk + strata(stepnum)
LogDFMineRoads	0.081	0.080	8637.2	8666.6	5	2621	-2	18.1	Surv(rep(1, 15726), case_) ~ RSFrisk + cos.ta + log.sl + log.dfproads + log.dfproads.RSFrisk + strata(stepnum)
LinearDFMines	0.081	0.080	8640.7	8670.1	5	2621	-2	21.7	Surv(rep(1, 15726), case_) ~ RSFrisk + cos.ta + log.sl + DF_MINES + DF_MINES.RSFrisk + strata(stepnum)
LinearDFMineRds	0.081	0.080	8641.2	8670.6	5	2621	-2	22.2	Surv(rep(1, 15726), case_) ~ RSFrisk + cos.ta + log.sl + DF_PROADS + DF_PROADS.RSFrisk + strata(stepnum)

Table E-4b: ROC Function for top Female – Late Summer 30 km Halo Scale 8-hour interval model

Data	Threshold	PCC	Sensitivity	Specificity	Kappa
train	0.92831	0.50553	0.74857	0.45692	0.10349
test	0.92831	0.50833	0.77537	0.45590	0.11430

Table E-5: Female – Pre-Rut 30 km Halo Scale 8-hour interval models

Model name	RHO2	Adj RHO2	AIC	BIC	K	N	deltaK	deltaBIC	Formula
DFMines	0.088	0.086	9058.4	9099.9	7	2767	0	0.0	Surv(rep(1, 16602), case_) ~ RSFrisk + cos.ta + log.sl + DF_MINES + DF_MINES_SQ + DF_MINES.RSFrisk + DF_MINES_SQ.RSFrisk + strata(stepnum)
iSSA Base Model	0.084	0.083	9088.8	9106.5	3	2767	-4	6.6	Surv(rep(1, 16602), case_) ~ RSFrisk + cos.ta + log.sl + strata(stepnum)
DFMineRoads	0.087	0.085	9070.0	9111.5	7	2767	0	11.6	Surv(rep(1, 16602), case_) ~ RSFrisk + cos.ta + log.sl + DF_PROADS + DF_PROADS_SQ + DF_PROADS.RSFrisk + DF_PROADS_SQ.RSFrisk + strata(stepnum)
SSF Predicted Habitat Value	0.082	0.081	9109.2	9115.2	1	2767	-6	15.3	Surv(rep(1, 16602), case_) ~ RSFrisk + strata(stepnum)
LinearDFMineRds	0.085	0.084	9086.9	9116.5	5	2767	-2	16.6	Surv(rep(1, 16602), case_) ~ RSFrisk + cos.ta + log.sl + DF_PROADS + DF_PROADS.RSFrisk + strata(stepnum)
LogDFMineRoads	0.085	0.084	9087.3	9117.0	5	2767	-2	17.1	Surv(rep(1, 16602), case_) ~ RSFrisk + cos.ta + log.sl + log.dfproads + log.dfproads.RSFrisk + strata(stepnum)
LinearDFMines	0.084	0.083	9090.7	9120.3	5	2767	-2	20.4	Surv(rep(1, 16602), case_) ~ RSFrisk + cos.ta + log.sl + DF_MINES + DF_MINES.RSFrisk + strata(stepnum)
LogDFMines	0.084	0.083	9091.0	9120.6	5	2767	-2	20.7	Surv(rep(1, 16602), case_) ~ RSFrisk + cos.ta + log.sl + log.dfmines + log.dfmines.RSFrisk + strata(stepnum)

Table E-5b: ROC Function for top Female – Pre-Rut 30 km Halo Scale 8-hour interval model

Data	Threshold	PCC	Sensitivity	Specificity	Kappa
train	0.96849	0.45470	0.83773	0.37810	0.09905
test	0.96849	0.44419	0.80823	0.37259	0.08203

Table E-6: Female – Rut 30 km Halo Scale 8-hour interval models

Model name	RHO2	Adj RHO2	AIC	BIC	K	N	deltaK	deltaBIC	Formula
iSSA Base Model	0.094	0.093	3621.0	3636.1	3	1114	0	0.0	Surv(rep(1, 6684), case_) ~ RSFrisk + cos.ta + log.sl + strata(stepnum)
LogDFMines	0.097	0.095	3613.7	3638.8	5	1114	2	2.7	Surv(rep(1, 6684), case_) ~ RSFrisk + cos.ta + log.sl + log.dfmines + log.dfmines.RSFrisk + strata(stepnum)
LinearDFMines	0.096	0.094	3617.9	3643.0	5	1114	2	6.9	Surv(rep(1, 6684), case_) ~ RSFrisk + cos.ta + log.sl + DF_MINES + DF_MINES.RSFrisk + strata(stepnum)
LogDFMineRoads	0.096	0.093	3620.7	3645.8	5	1114	2	9.7	Surv(rep(1, 6684), case_) ~ RSFrisk + cos.ta + log.sl + log.dfproads + log.dfproads.RSFrisk + strata(stepnum)
SSF Predicted Habitat Value	0.088	0.088	3641.4	3646.4	1	1114	-2	10.3	Surv(rep(1, 6684), case_) ~ RSFrisk + strata(stepnum)
LinearDFMineRds	0.095	0.092	3623.7	3648.8	5	1114	2	12.7	Surv(rep(1, 6684), case_) ~ RSFrisk + cos.ta + log.sl + DF_PROADS + DF_PROADS.RSFrisk + strata(stepnum)
DFMines	0.097	0.094	3616.8	3651.9	7	1114	4	15.9	Surv(rep(1, 6684), case_) ~ RSFrisk + cos.ta + log.sl + DF_MINES + DF_MINES_SQ + DF_MINES.RSFrisk + DF_MINES_SQ.RSFrisk + strata(stepnum)
DFMineRoads	0.097	0.094	3618.1	3653.2	7	1114	4	17.1	Surv(rep(1, 6684), case_) ~ RSFrisk + cos.ta + log.sl + DF_PROADS + DF_PROADS_SQ + DF_PROADS.RSFrisk + DF_PROADS_SQ.RSFrisk + strata(stepnum)

Table E-6b: ROC Function for top Female - Rut 30 km Halo Scale 8-hour interval model

Data	Threshold	PCC	Sensitivity	Specificity	Kappa
train	0.88052	0.43986	0.89946	0.34794	0.10928
test	0.88052	0.41490	0.91597	0.31755	0.09807

Table E-7: Female – Post-Rut 30 km Halo Scale 8-hour interval models

Model name	RHO2	Adj RHO2	AIC	BIC	K	N	deltaK	deltaBIC	Formula
SSF Predicted Habitat Value	0.055	0.055	3535.9	3540.9	1	1044	0	0.0	Surv(rep(1, 6264), case_) ~ RSFrisk + strata(stepnum)
iSSA Base Model	0.058	0.057	3528.8	3543.7	3	1044	2	2.8	Surv(rep(1, 6264), case_) ~ RSFrisk + cos.ta + log.sl + strata(stepnum)
LogDFMines	0.059	0.057	3529.0	3553.8	5	1044	4	12.9	Surv(rep(1, 6264), case_) ~ RSFrisk + cos.ta + log.sl + log.dfmimes + log.dfmimes.RSFrisk + strata(stepnum)
LogDFMineRoads	0.059	0.057	3529.3	3554.0	5	1044	4	13.2	Surv(rep(1, 6264), case_) ~ RSFrisk + cos.ta + log.sl + log.dfproads + log.dfproads.RSFrisk + strata(stepnum)
LinearDFMineRds	0.059	0.056	3530.6	3555.4	5	1044	4	14.5	Surv(rep(1, 6264), case_) ~ RSFrisk + cos.ta + log.sl + DF_PROADS + DF_PROADS.RSFrisk + strata(stepnum)
LinearDFMines	0.058	0.056	3532.3	3557.1	5	1044	4	16.2	Surv(rep(1, 6264), case_) ~ RSFrisk + cos.ta + log.sl + DF_MINES + DF_MINES.RSFrisk + strata(stepnum)
DFMines	0.060	0.056	3531.3	3566.0	7	1044	6	25.1	Surv(rep(1, 6264), case_) ~ RSFrisk + cos.ta + log.sl + DF_MINES + DF_MINES_SQ + DF_MINES.RSFrisk + DF_MINES_SQ.RSFrisk + strata(stepnum)
DFMineRoads	0.059	0.056	3533.5	3568.1	7	1044	6	27.2	Surv(rep(1, 6264), case_) ~ RSFrisk + cos.ta + log.sl + DF_PROADS + DF_PROADS_SQ + DF_PROADS.RSFrisk + DF_PROADS_SQ.RSFrisk + strata(stepnum)

Table E-7b: ROC Function for top Female – Post-Rut 30 km Halo Scale 8-hour interval model

Data	Threshold	PCC	Sensitivity	Specificity	Kappa
train	0.80532	0.51309	0.71456	0.47280	0.09656
test	0.80532	0.54450	0.62283	0.52944	0.08292

Table E-8: Male - Winter 30 km Halo Scale 8-hour interval models

Model name	RHO2	Adj RHO2	AIC	BIC	K	N	deltaK	deltaBIC	Formula
iSSA Base Model	0.022	0.021	7812.2	7829.3	3	2227	0	0.0	Surv(rep(1, 13362), case_) ~ RSFrisk + cos.ta + log.sl + strata(stepnum)
SSF Predicted Habitat Value	0.020	0.020	7824.5	7830.2	1	2227	-2	0.9	Surv(rep(1, 13362), case_) ~ RSFrisk + strata(stepnum)
LinearDFMines	0.023	0.021	7809.2	7837.7	5	2227	2	8.4	Surv(rep(1, 13362), case_) ~ RSFrisk + cos.ta + log.sl + DF_MINES + DF_MINES.RSFrisk + strata(stepnum)
DFMines	0.024	0.022	7802.5	7842.5	7	2227	4	13.2	Surv(rep(1, 13362), case_) ~ RSFrisk + cos.ta + log.sl + DF_MINES + DF_MINES_SQ + DF_MINES.SRFrisk + DF_MINES_SQ.RSFrisk + strata(stepnum)
LogDFMines	0.022	0.021	7814.3	7842.8	5	2227	2	13.5	Surv(rep(1, 13362), case_) ~ RSFrisk + cos.ta + log.sl + log.dfmines + log.dfmines.RSFrisk + strata(stepnum)
LinearDFWintRd	0.022	0.021	7814.8	7843.3	5	2227	2	14.1	Surv(rep(1, 13362), case_) ~ RSFrisk + cos.ta + log.sl + DF_LROADS + DF_LROADS.RSFrisk + strata(stepnum)
LogDFWinterRoad	0.022	0.021	7815.6	7844.1	5	2227	2	14.9	Surv(rep(1, 13362), case_) ~ RSFrisk + cos.ta + log.sl + log.dflroads + log.dflroads.RSFrisk + strata(stepnum)
LogDFMineRoads	0.022	0.021	7815.7	7844.3	5	2227	2	15.0	Surv(rep(1, 13362), case_) ~ RSFrisk + cos.ta + log.sl + log.dfproads + log.dfproads.RSFrisk + strata(stepnum)
LinearDFMineRds	0.022	0.021	7816.0	7844.5	5	2227	2	15.3	Surv(rep(1, 13362), case_) ~ RSFrisk + cos.ta + log.sl + DF_PROADS + DF_PROADS.RSFrisk + strata(stepnum)
DFMineRoads	0.023	0.021	7810.3	7850.2	7	2227	4	21.0	Surv(rep(1, 13362), case_) ~ RSFrisk + cos.ta + log.sl + DF_PROADS + DF_PROADS_SQ + DF_PROADS.RSFrisk + DF_PROADS_SQ.RSFrisk + strata(stepnum)
DFWinterRoad	0.022	0.020	7818.1	7858.1	7	2227	4	28.8	Surv(rep(1, 13362), case_) ~ RSFrisk + cos.ta + log.sl + DF_LROADS + DF_LROADS_SQ + DF_LROADS.RSFrisk + DF_LROADS_SQ.RSFrisk + strata(stepnum)

Table E-8b: ROC Function for top Male - Winter 30 km Halo Scale 8-hour interval model

Data	Threshold	PCC	Sensitivity	Specificity	Kappa
train	0.69647	0.39725	0.78267	0.32016	0.04524
test	0.69647	0.38940	0.78088	0.31192	0.04023

Table E-9: Male – Spring Migration 30 km Halo Scale 8-hour interval models

Model name	RHO2	Adj RHO2	AIC	BIC	K	N	deltaK	deltaBIC	Formula
iSSA Base Model	0.044	0.043	6660.8	6677.5	3	1942	0	0.0	Surv(rep(1, 11652), case_) ~ RSFrisk + cos.ta + log.sl + strata(stepnum)
DFMineRoads	0.048	0.046	6638.5	6677.5	7	1942	4	0.1	Surv(rep(1, 11652), case_) ~ RSFrisk + cos.ta + log.sl + DF_PROADS + DF_PROADS_SQ + DF_PROADS.RSFrisk + DF_PROADS_SQ.RSFrisk + strata(stepnum)
DFMines	0.048	0.046	6638.6	6677.6	7	1942	4	0.1	Surv(rep(1, 11652), case_) ~ RSFrisk + cos.ta + log.sl + DF_MINES + DF_MINES_SQ + DF_MINES.RSFrisk + DF_MINES_SQ.RSFrisk + strata(stepnum)
SSF Predicted Habitat Value	0.041	0.041	6676.1	6681.7	1	1942	-2	4.2	Surv(rep(1, 11652), case_) ~ RSFrisk + strata(stepnum)
LinearDFMines	0.045	0.043	6658.3	6686.2	5	1942	2	8.7	Surv(rep(1, 11652), case_) ~ RSFrisk + cos.ta + log.sl + DF_MINES + DF_MINES.RSFrisk + strata(stepnum)
LinearDFMineRds	0.044	0.043	6662.3	6690.1	5	1942	2	12.6	Surv(rep(1, 11652), case_) ~ RSFrisk + cos.ta + log.sl + DF_PROADS + DF_PROADS.RSFrisk + strata(stepnum)
LogDFMineRoads	0.044	0.043	6662.7	6690.6	5	1942	2	13.1	Surv(rep(1, 11652), case_) ~ RSFrisk + cos.ta + log.sl + log.dfproads + log.dfproads.RSFrisk + strata(stepnum)
LogDFMines	0.044	0.042	6663.8	6691.7	5	1942	2	14.2	Surv(rep(1, 11652), case_) ~ RSFrisk + cos.ta + log.sl + log.dfmines + log.dfmines.RSFrisk + strata(stepnum)

Table E-9b: ROC Function for top Male – Spring Migration 30 km Halo Scale 8-hour interval model

Data	Threshold	PCC	Sensitivity	Specificity	Kappa
train	0.80295	0.61380	0.54171	0.62822	0.10891
test	0.80295	0.59513	0.52508	0.60901	0.08376

Table E-10: Male – Summer 30 km Halo Scale 8-hour interval models

Model name	RHO2	Adj RHO2	AIC	BIC	K	N	deltaK	deltaBIC	Formula
DFMines	0.064	0.061	4058.0	4093.6	7	1206	0	0.0	Surv(rep(1, 7236), case_) ~ RSFrisk + cos.ta + log.sl + DF_MINES + DF_MINES_SQ + DF_MINES.RSFrisk + DF_MINES_SQ.RSFrisk + strata(stepnum)
LinearDFMines	0.061	0.058	4070.0	4095.4	5	1206	-2	1.8	Surv(rep(1, 7236), case_) ~ RSFrisk + cos.ta + log.sl + DF_MINES + DF_MINES.RSFrisk + strata(stepnum)
iSSA Base Model	0.057	0.056	4081.7	4096.9	3	1206	-4	3.3	Surv(rep(1, 7236), case_) ~ RSFrisk + cos.ta + log.sl + strata(stepnum)
LogDFMineRoads	0.059	0.057	4074.9	4100.4	5	1206	-2	6.7	Surv(rep(1, 7236), case_) ~ RSFrisk + cos.ta + log.sl + log.dfproads + log.dfproads.RSFrisk + strata(stepnum)
LinearDFMineRds	0.059	0.057	4076.9	4102.3	5	1206	-2	8.7	Surv(rep(1, 7236), case_) ~ RSFrisk + cos.ta + log.sl + DF_PROADS + DF_PROADS.RSFrisk + strata(stepnum)
LogDFMines	0.058	0.055	4081.9	4107.4	5	1206	-2	13.8	Surv(rep(1, 7236), case_) ~ RSFrisk + cos.ta + log.sl + log.dfmines + log.dfmines.RSFrisk + strata(stepnum)
DFMineRoads	0.060	0.056	4077.7	4113.4	7	1206	0	19.7	Surv(rep(1, 7236), case_) ~ RSFrisk + cos.ta + log.sl + DF_PROADS + DF_PROADS_SQ + DF_PROADS.RSFrisk + DF_PROADS_SQ.RSFrisk + strata(stepnum)
SSF Predicted Habitat Value	0.044	0.043	4135.7	4140.8	1	1206	-6	47.2	Surv(rep(1, 7236), case_) ~ RSFrisk + strata(stepnum)

Table E-10b: ROC Function for top Male - Summer 30 km Halo Scale 8-hour interval model

Data	Threshold	PCC	Sensitivity	Specificity	Kappa
train	0.71924	0.46269	0.78358	0.39851	0.08604
test	0.71924	0.47829	0.78714	0.41747	0.09733

Table E-11: Male – Late Summer 30 km Halo Scale 8-hour interval models

Model name	RHO2	Adj RHO2	AIC	BIC	K	N	deltaK	deltaBIC	Formula
iSSA Base Model	0.066	0.065	3790.2	3805.3	3	1131	0	0.0	Surv(rep(1, 6786), case_) ~ RSFrisk + cos.ta + log.sl + strata(stepnum)
LogDFMineRoads	0.067	0.064	3792.1	3817.2	5	1131	2	11.9	Surv(rep(1, 6786), case_) ~ RSFrisk + cos.ta + log.sl + log.dfproads + log.dfproads.RSFrisk + strata(stepnum)
LogDFMines	0.067	0.064	3792.9	3818.1	5	1131	2	12.7	Surv(rep(1, 6786), case_) ~ RSFrisk + cos.ta + log.sl + log.dfmnes + log.dfmnes.RSFrisk + strata(stepnum)
LinearDFMineRds	0.066	0.064	3793.6	3818.7	5	1131	2	13.4	Surv(rep(1, 6786), case_) ~ RSFrisk + cos.ta + log.sl + DF_PROADS + DF_PROADS.RSFrisk + strata(stepnum)
LinearDFMines	0.066	0.064	3793.8	3818.9	5	1131	2	13.6	Surv(rep(1, 6786), case_) ~ RSFrisk + cos.ta + log.sl + DF_MINES + DF_MINES.RSFrisk + strata(stepnum)
DFMines	0.067	0.064	3794.4	3829.6	7	1131	4	24.3	Surv(rep(1, 6786), case_) ~ RSFrisk + cos.ta + log.sl + DF_MINES + DF_MINES_SQ + DF_MINES.RSFrisk + DF_MINES_SQ.RSFrisk + strata(stepnum)
DFMineRoads	0.067	0.063	3795.9	3831.1	7	1131	4	25.8	Surv(rep(1, 6786), case_) ~ RSFrisk + cos.ta + log.sl + DF_PROADS + DF_PROADS_SQ + DF_PROADS.RSFrisk + DF_PROADS_SQ.RSFrisk + strata(stepnum)
SSF Predicted Habitat Value	0.055	0.055	3830.0	3835.1	1	1131	-2	29.7	Surv(rep(1, 6786), case_) ~ RSFrisk + strata(stepnum)

Table E-11b: ROC Function for top Male – Late Summer 30 km Halo Scale 8-hour interval model

Data	Threshold	PCC	Sensitivity	Specificity	Kappa
train	0.80588	0.65001	0.52874	0.67427	0.13876
test	0.80588	0.61876	0.48322	0.64525	0.08438

Table E-12: Male – Pre-Rut 30 km Halo Scale 8-hour interval models

Model name	RHO2	Adj RHO2	AIC	BIC	K	N	deltaK	deltaBIC	Formula
iSSA Base Model	0.070	0.069	3591.1	3606.0	3	1076	0	0.0	Surv(rep(1, 6456), case_) ~ RSFrisk + cos.ta + log.sl + strata(stepnum)
LinearDFMines	0.071	0.068	3592.7	3617.6	5	1076	2	11.6	Surv(rep(1, 6456), case_) ~ RSFrisk + cos.ta + log.sl + DF_MINES + DF_MINES.RSFrisk + strata(stepnum)
LogDFMines	0.071	0.068	3592.9	3617.8	5	1076	2	11.8	Surv(rep(1, 6456), case_) ~ RSFrisk + cos.ta + log.sl + log.dfmines + log.dfmines.RSFrisk + strata(stepnum)
LinearDFMineRds	0.071	0.068	3593.2	3618.1	5	1076	2	12.1	Surv(rep(1, 6456), case_) ~ RSFrisk + cos.ta + log.sl + DF_PROADS + DF_PROADS.RSFrisk + strata(stepnum)
LogDFMineRoads	0.071	0.068	3594.0	3618.9	5	1076	2	12.9	Surv(rep(1, 6456), case_) ~ RSFrisk + cos.ta + log.sl + log.dfproads + log.dfproads.RSFrisk + strata(stepnum)
SSF Predicted Habitat Value	0.063	0.062	3615.9	3620.9	1	1076	-2	14.9	Surv(rep(1, 6456), case_) ~ RSFrisk + strata(stepnum)
DFMines	0.073	0.069	3588.5	3623.4	7	1076	4	17.4	Surv(rep(1, 6456), case_) ~ RSFrisk + cos.ta + log.sl + DF_MINES + DF_MINES_SQ + DF_MINES.RSFrisk + DF_MINES_SQ.RSFrisk + strata(stepnum)
DFMineRoads	0.072	0.068	3591.8	3626.7	7	1076	4	20.7	Surv(rep(1, 6456), case_) ~ RSFrisk + cos.ta + log.sl + DF_PROADS + DF_PROADS_SQ + DF_PROADS.RSFrisk + DF_PROADS_SQ.RSFrisk + strata(stepnum)

Table E-12b: ROC Function for top Male – Pre-Rut 30 km Halo Scale 8-hour interval model

Data	Threshold	PCC	Sensitivity	Specificity	Kappa
train	0.58701	0.52370	0.71933	0.48457	0.10628
test	0.58701	0.53496	0.69167	0.50526	0.10187

Table E-13: Male – Rut 30 km Halo Scale 8-hour interval models

Model name	RHO2	Adj RHO2	AIC	BIC	K	N	deltaK	deltaBIC	Formula
LinearDFMines	0.077	0.070	1309.7	1329.6	5	393	0	0.0	Surv(rep(1, 2358), case_) ~ RSFrisk + cos.ta + log.sl + DF_MINES + DF_MINES.RSFrisk + strata(stepnum)
SSF Predicted Habitat Value	0.058	0.057	1328.5	1332.4	1	393	-4	2.8	Surv(rep(1, 2358), case_) ~ RSFrisk + strata(stepnum)
LogDFMines	0.070	0.063	1319.1	1339.0	5	393	0	9.4	Surv(rep(1, 2358), case_) ~ RSFrisk + cos.ta + log.sl + log.dfmimes + log.dfmimes.RSFrisk + strata(stepnum)
iSSA Base Model	0.061	0.057	1327.8	1339.7	3	393	-2	10.1	Surv(rep(1, 2358), case_) ~ RSFrisk + cos.ta + log.sl + strata(stepnum)
DFMines	0.078	0.068	1312.8	1340.7	7	393	2	11.1	Surv(rep(1, 2358), case_) ~ RSFrisk + cos.ta + log.sl + DF_MINES + DF_MINES_SQ + DF_MINES.RSFrisk + DF_MINES_SQ.RSFrisk + strata(stepnum)
LinearDFMineRds	0.066	0.059	1324.7	1344.6	5	393	0	15.0	Surv(rep(1, 2358), case_) ~ RSFrisk + cos.ta + log.sl + DF_PROADS + DF_PROADS.RSFrisk + strata(stepnum)
LogDFMineRoads	0.065	0.058	1327.1	1346.9	5	393	0	17.3	Surv(rep(1, 2358), case_) ~ RSFrisk + cos.ta + log.sl + log.dfproads + log.dfproads.RSFrisk + strata(stepnum)
DFMineRoads	0.067	0.057	1328.1	1355.9	7	393	2	26.3	Surv(rep(1, 2358), case_) ~ RSFrisk + cos.ta + log.sl + DF_PROADS + DF_PROADS_SQ + DF_PROADS.RSFrisk + DF_PROADS_SQ.RSFrisk + strata(stepnum)

Table E-13b: ROC Function for top Male - Rut 30 km Halo Scale 8-hour interval model

Data	Threshold	PCC	Sensitivity	Specificity	Kappa
train	0.62449	0.51230	0.65394	0.48397	0.07283
test	0.62449	0.47365	0.66795	0.43596	0.05099

Table E-14: Male – Post-Rut 30 km Halo Scale 8-hour interval models

Model name	RHO2	Adj RHO2	AIC	BIC	K	N	deltaK	deltaBIC	Formula
SSF Predicted Habitat Value	0.047	0.047	3196.9	3201.8	1	936	0	0.0	Surv(rep(1, 5616), case_) ~ RSFrisk + strata(stepnum)
iSSA Base Model	0.050	0.048	3193.5	3208.0	3	936	2	6.2	Surv(rep(1, 5616), case_) ~ RSFrisk + cos.ta + log.sl + strata(stepnum)
LinearDFMineRds	0.050	0.048	3194.8	3219.0	5	936	4	17.3	Surv(rep(1, 5616), case_) ~ RSFrisk + cos.ta + log.sl + DF_PROADS + DF_PROADS.RSFrisk + strata(stepnum)
LinearDFMines	0.050	0.047	3195.4	3219.6	5	936	4	17.9	Surv(rep(1, 5616), case_) ~ RSFrisk + cos.ta + log.sl + DF_MINES + DF_MINES.RSFrisk + strata(stepnum)
LogDFMineRoads	0.050	0.047	3195.9	3220.1	5	936	4	18.3	Surv(rep(1, 5616), case_) ~ RSFrisk + cos.ta + log.sl + log.dfproads + log.dfproads.RSFrisk + strata(stepnum)
LogDFMines	0.050	0.047	3195.9	3220.1	5	936	4	18.4	Surv(rep(1, 5616), case_) ~ RSFrisk + cos.ta + log.sl + log.dfmines + log.dfmines.RSFrisk + strata(stepnum)
DFMines	0.051	0.047	3197.3	3231.2	7	936	6	29.4	Surv(rep(1, 5616), case_) ~ RSFrisk + cos.ta + log.sl + DF_MINES + DF_MINES_SQ + DF_MINES.RSFrisk + DF_MINES_SQ.RSFrisk + strata(stepnum)
DFMineRoads	0.051	0.046	3198.5	3232.4	7	936	6	30.7	Surv(rep(1, 5616), case_) ~ RSFrisk + cos.ta + log.sl + DF_PROADS + DF_PROADS_SQ + DF_PROADS.RSFrisk + DF_PROADS_SQ.RSFrisk + strata(stepnum)

Table E-14b: ROC Function for top Male – Post-Rut 30 km Halo Scale 8-hour interval model

Data	Threshold	PCC	Sensitivity	Specificity	Kappa
train	0.77421	0.43875	0.80449	0.36560	0.07764
test	0.77421	0.42149	0.82097	0.34378	0.07205

APPENDIX F 8-HOUR INTERVAL INTEGRATED STEP SELECTION FUNCTION (ISSF) IN THE EKATI/DIAVIK 30 KM HALO: COVARIATES AND COEFFICIENTS

Tables F-1 to F-14 provide the details on the iSSF (top model from iSSA) for each season for each sex. The iSSF details include the covariates, their coefficients, standard errors of the coefficients, z-scores (the number of standard errors that the coefficient differs from zero), and p-values associated with the z-value (Pr...z..), a measure of the significance of the covariate in the model.

The rows of the Tables have been colour-coded:

- grey indicates a covariate whose coefficient's 95% confidence interval overlaps zero, indicating that it does not consistently affect the model value in the same direction;
- covariates with positive, significant coefficients are coloured green; and
- covariates with negative, significant coefficients are coloured red.

Table F-1: Female Winter 30 km Halo Scale 8-hour Interval ISSF Covariates and Coefficients

covariate	coef	exp.coef.	se.coef.	z	Pr...z..
RSFrisk	1.46481	4.32671	0.23305	6.28539	3.27E-10
cos.ta	-0.11595	0.89052	0.02471	-4.69313	2.691E-06
log.sl	0.03022	1.03068	0.01270	2.37878	0.0173703
DF_MINES	0.13606	1.14575	0.03910	3.47984	0.0005017
DF_MINES_SQ	-0.00500	0.99501	0.00122	-4.08772	4.356E-05
DF_MINES.RSFrisk	-0.07156	0.93094	0.03499	-2.04502	0.0408525
DF_MINES_SQ.RSFrisk	0.00138	1.00138	0.00112	1.22614	0.2201457

Table F-2: Female Spring Migration 30 km Halo Scale 8-hour Interval ISSF Covariates and Coefficients

covariate	coef	exp.coef.	se.coef.	z	Pr...z..
RSFrisk	0.56554	1.76039	0.06766	8.35893	6.32872E-17
cos.ta	-0.30482	0.73726	0.03674	-8.29654	1.07187E-16
log.sl	-0.11315	0.89302	0.01544	-7.32981	2.30487E-13

Table F-3: Female Summer 30 km Halo Scale 8-hour Interval ISSF Covariates and Coefficients

covariate	coef	exp.coef.	se.coef.	z	Pr...z..
RSFrisk	0.97774	2.65844	0.21215	4.60881	4.05E-06
cos.ta	-0.13964	0.86967	0.04463	-3.12868	0.0017559
log.sl	-0.17395	0.84034	0.02854	-6.09458	1.097E-09
DF_MINES	0.11505	1.12193	0.05350	2.15067	0.0315026
DF_MINES_SQ	-0.00486	0.99515	0.00151	-3.21813	0.0012903
DF_MINES.RSFrisk	0.03617	1.03684	0.02641	1.36956	0.1708238
DF_MINES_SQ.RSFrisk	-0.00120	0.99880	0.00077	-1.56401	0.1178157

Table F-4: Female Late Summer 30 km Halo Scale 8-hour Interval ISSF Covariates and Coefficients

covariate	coef	exp.coef.	se.coef.	z	Pr...z..
RSFrisk	1.00612	2.73497	0.16644	6.04476	1.496E-09
cos.ta	-0.14583	0.86431	0.03167	-4.60466	4.131E-06
log.sl	0.06337	1.06543	0.02426	2.61268	0.0089834
DF_MINES	0.12169	1.12940	0.04780	2.54581	0.0109026
DF_MINES_SQ	-0.00385	0.99616	0.00140	-2.75164	0.0059297
DF_MINES.RSFrisk	0.02368	1.02396	0.02320	1.02065	0.3074222
DF_MINES_SQ.RSFrisk	-0.00070	0.99930	0.00071	-0.99162	0.3213821

Table F-5: Female Pre-Rut 30 km Halo Scale 8-hour Interval ISSF Covariates and Coefficients

covariate	coef	exp.coef.	se.coef.	z	Pr...z..
RSFrisk	2.00611	7.43433	0.26032	7.70624	1.296E-14
cos.ta	-0.14803	0.86241	0.03111	-4.75795	1.956E-06
log.sl	0.04875	1.04996	0.01886	2.58477	0.0097444
DF_MINES	0.26008	1.29704	0.05092	5.10718	3.27E-07
DF_MINES_SQ	-0.00726	0.99277	0.00136	-5.33334	9.642E-08
DF_MINES.RSFrisk	-0.07033	0.93208	0.03137	-2.24207	0.0249569
DF_MINES_SQ.RSFrisk	0.00194	1.00194	0.00090	2.15959	0.0308042

Table F-6: Female Rut 30 km Halo Scale 8-hour Interval ISSF Covariates and Coefficients

covariate	coef	exp.coef.	se.coef.	z	Pr...z..
RSFrisk	1.39547	4.03686	0.08407	16.59829	7.171E-62
cos.ta	-0.19421	0.82348	0.05365	-3.62027	0.0002943
log.sl	0.11384	1.12057	0.03313	3.43582	0.0005908

Table F-7: Female Post-Rut 30 km Halo Scale 8-hour Interval ISSF Covariates and Coefficients

covariate	coef	exp.coef.	se.coef.	z	Pr...z..
RSFrisk	1.35292	3.86872	0.10356	13.06396	5.29059E-39

Table F-8: Male Winter 30 km Halo Scale 8-hour Interval ISSF Covariates and Coefficients

covariate	coef	exp.coef.	se.coef.	z	Pr...z..
RSFrisk	1.21589	3.37330	0.10039	12.11166	9.162E-34
cos.ta	-0.13624	0.87263	0.03363	-4.05159	5.087E-05
log.sl	0.00053	1.00053	0.01664	0.03154	0.9748356

Table F-9: Male Spring Migration 30 km Halo Scale 8-hour Interval ISSF Covariates and Coefficients

covariate	coef	exp.coef.	se.coef.	z	Pr...z..
RSFrisk	0.74555	2.10759	0.04525	16.47738	5.335E-61
cos.ta	-0.16072	0.85153	0.03683	-4.36396	1.277E-05
log.sl	0.01417	1.01427	0.01660	0.85354	0.3933597

Table F-10: Male Summer 30 km Halo Scale 8-hour Interval ISSF Covariates and Coefficients

covariate	coef	exp.coef.	se.coef.	z	Pr...z..
RSFrisk	1.51292	4.53999	0.65010	2.32721	0.0199539
cos.ta	-0.33480	0.71548	0.04590	-7.29364	3.017E-13
log.sl	-0.06972	0.93265	0.02464	-2.82961	0.0046605
DF_MINES	0.14251	1.15316	0.09471	1.50463	0.1324199
DF_MINES_SQ	-0.00516	0.99485	0.00243	-2.12307	0.0337484
DF_MINES.RSFrisk	-0.01701	0.98313	0.07188	-0.23667	0.8129089
DF_MINES_SQ.RSFrisk	0.00044	1.00045	0.00190	0.23385	0.8151035

Table F-11: Male Late Summer 30 km Halo Scale 8-hour Interval ISSF Covariates and Coefficients

covariate	coef	exp.coef.	se.coef.	z	Pr...z..
RSFrisk	1.13146	3.10019	0.07747	14.60509	2.606E-48
cos.ta	-0.31522	0.72963	0.04816	-6.54549	5.93E-11
log.sl	0.04053	1.04136	0.03341	1.21322	0.2250459

Table F-12: Male Pre-Rut 30 km Halo Scale 8-hour Interval ISSF Covariates and Coefficients

covariate	coef	exp.coef.	se.coef.	z	Pr...z..
RSFrisk	1.33461	3.79852	0.09535	13.99654	1.636E-44
cos.ta	-0.17769	0.83720	0.04924	-3.60870	0.0003077
log.sl	-0.10771	0.89789	0.02814	-3.82756	0.0001294

Table F-13: Male Rut 30 km Halo Scale 8-hour Interval ISSF Covariates and Coefficients

covariate	coef	exp.coef.	se.coef.	z	Pr...z..
RSFrisk	1.11739	3.05688	0.23800	4.69491	2.667E-06
cos.ta	0.07267	1.07537	0.09978	0.72830	0.46643
log.sl	0.10981	1.11606	0.06180	1.77679	0.07560
DF_MINES	-0.09136	0.91269	0.02980	-3.06545	0.00217
DF_MINES.RSFrisk	-0.01149	0.98858	0.01375	-0.83572	0.40331

Table F-14: Male Post-Rut 30 km Halo Scale 8-hour Interval ISSF Covariates and Coefficients

covariate	coef	exp.coef.	se.coef.	z	Pr...z..
RSFrisk	1.25224	3.49818	0.10935	11.45220	2.29243E-30

APPENDIX G 1-HOUR INTERVAL INTEGRATED STEP SELECTION ANALYSIS MODELS INSIDE GEOFENCE 112 NORTH

Geofence 112 north, 1-hour scale analyses were conducted separately for each sex in each of 7 seasons. Data from both the Beverly and Bathurst herds were combined in each sex x season combination. Details are provided in the body of the report (Section 2.8).

Final candidate model sets for each sex in each season are presented, with their rankings and scores, in Tables G-1 to G-14 below. Comparisons of train vs test model performance are presented in Tables G-1b to G-14b that accompany the main tables in this Appendix.

PCC – Percent correct classification (presented here as a proportion).

Sensitivity – the true positive rate. The proportion of real (TRUE) locations that were correctly classified.

Specificity – the true negative rate. The proportion of random (FALSE) locations that were correctly classified.

Kappa is a measure of the agreement between predicted and true values that corrects for likelihood of random agreement.

Table G-1: Female - Winter Geofence 112 North 1-hour interval models

Model name	RHO2	Adj RHO2	AIC	BIC	K	N	deltaK	deltaBIC	Formula
DFMineRoads	0.006	0.005	49901.2	49984.2	11	13999	0	0.0	case_ ~ cos.ta + log.sl + LSHRUB + WBAREA_sq + LSHRUB_S3 + SEDGEWET + SEDGEWET_sq + TUSSK + LSHRUB_S3_sq + DF_PROADS + DF_PROADS_SQ + strata(stepnum)
DFMines	0.006	0.005	49910.6	49993.6	11	13999	0	9.4	case_ ~ cos.ta + log.sl + LSHRUB + WBAREA_sq + LSHRUB_S3 + SEDGEWET + SEDGEWET_sq + TUSSK + LSHRUB_S3_sq + DF_MINES + DF_MINES_SQ + strata(stepnum)
LinearDFMineRds	0.005	0.005	49923.6	49999.1	10	13999	-1	14.9	case_ ~ cos.ta + log.sl + LSHRUB + WBAREA_sq + LSHRUB_S3 + SEDGEWET + SEDGEWET_sq + TUSSK + LSHRUB_S3_sq + DF_PROADS + strata(stepnum)
LinearDFMines	0.005	0.005	49935.5	50010.9	10	13999	-1	26.7	case_ ~ cos.ta + log.sl + LSHRUB + WBAREA_sq + LSHRUB_S3 + SEDGEWET + SEDGEWET_sq + TUSSK + LSHRUB_S3_sq + DF_MINES + strata(stepnum)
Landcover	0.005	0.004	49957.3	50025.2	9	13999	-2	41.0	case_ ~ cos.ta + log.sl + LSHRUB + WBAREA_sq + LSHRUB_S3 + SEDGEWET + SEDGEWET_sq + TUSSK + LSHRUB_S3_sq + strata(stepnum)
LogDFMineRoads	0.005	0.004	49954.1	50029.6	10	13999	-1	45.4	case_ ~ cos.ta + log.sl + LSHRUB + WBAREA_sq + LSHRUB_S3 + SEDGEWET + SEDGEWET_sq + TUSSK + LSHRUB_S3_sq + log.dfproads + strata(stepnum)
LogDFMines	0.005	0.004	49956.5	50032.0	10	13999	-1	47.8	case_ ~ cos.ta + log.sl + LSHRUB + WBAREA_sq + LSHRUB_S3 + SEDGEWET + SEDGEWET_sq + TUSSK + LSHRUB_S3_sq + log.dfmines + strata(stepnum)
LogDFWinterRoad	0.005	0.004	49958.1	50033.6	10	13999	-1	49.4	case_ ~ cos.ta + log.sl + LSHRUB + WBAREA_sq + LSHRUB_S3 + SEDGEWET + SEDGEWET_sq + TUSSK + LSHRUB_S3_sq + log.dflroads + strata(stepnum)
LinearDFWintRd	0.005	0.004	49959.1	50034.6	10	13999	-1	50.4	case_ ~ cos.ta + log.sl + LSHRUB + WBAREA_sq + LSHRUB_S3 + SEDGEWET + SEDGEWET_sq + TUSSK + LSHRUB_S3_sq + DF_LROADS + strata(stepnum)
DFWinterRoad	0.005	0.004	49955.7	50038.7	11	13999	0	54.5	case_ ~ cos.ta + log.sl + LSHRUB + WBAREA_sq + LSHRUB_S3 + SEDGEWET + SEDGEWET_sq + TUSSK + LSHRUB_S3_sq + DF_LROADS + DF_LROADS_SQ + strata(stepnum)

Table G-1b: ROC Function for top Female - Winter Geofence 112 North 1-hour interval model

Data	Threshold	PCC	Sensitivity	Specificity	Kappa
train	0.44544	0.43411	0.65010	0.39091	0.01974
test	0.44544	0.44547	0.63012	0.40854	0.01900

Table G-2: Female – Spring Migration Geofence 112 North 1-hour interval models

Model name	RHO2	Adj RHO2	AIC	BIC	K	N	deltaK	deltaBIC	Formula
DFMineRoads	0.011	0.009	22065.6	22173.4	16	6215	0	0.0	case_ ~ cos.ta + log.sl + LHSHRUB + SLOPE + SEDGEWET + TUNDRA + TUNDRA_sq + ELEVATION + LHSHRUB_sq + LHSHRUB_S3_sq + WAT_EDGE + TUSSK_S3 + WAT_EDGE_sq + LHSHRUB_S3 + DF_PROADS + DF_PROADS_SQ + strata(stepnum)
LinearDFMineRds	0.010	0.009	22075.2	22176.2	15	6215	-1	2.8	case_ ~ cos.ta + log.sl + LHSHRUB + SLOPE + SEDGEWET + TUNDRA + TUNDRA_sq + ELEVATION + LHSHRUB_sq + LHSHRUB_S3_sq + WAT_EDGE + TUSSK_S3 + WAT_EDGE_sq + LHSHRUB_S3 + DF_PROADS + strata(stepnum)
Landcover	0.010	0.009	22081.1	22175.4	14	6215	-2	2.0	case_ ~ cos.ta + log.sl + LHSHRUB + SLOPE + SEDGEWET + TUNDRA + TUNDRA_sq + ELEVATION + LHSHRUB_sq + LHSHRUB_S3_sq + WAT_EDGE + TUSSK_S3 + WAT_EDGE_sq + LHSHRUB_S3 + strata(stepnum)
LinearDFMines	0.010	0.009	22080.5	22181.5	15	6215	-1	8.1	case_ ~ cos.ta + log.sl + LHSHRUB + SLOPE + SEDGEWET + TUNDRA + TUNDRA_sq + ELEVATION + LHSHRUB_sq + LHSHRUB_S3_sq + WAT_EDGE + TUSSK_S3 + WAT_EDGE_sq + LHSHRUB_S3 + DF_MINES + strata(stepnum)
LogDFMineRoads	0.010	0.009	22081.0	22182.0	15	6215	-1	8.6	case_ ~ cos.ta + log.sl + LHSHRUB + SLOPE + SEDGEWET + TUNDRA + TUNDRA_sq + ELEVATION + LHSHRUB_sq + LHSHRUB_S3_sq + WAT_EDGE + TUSSK_S3 + WAT_EDGE_sq + LHSHRUB_S3 + log.dfproads + strata(stepnum)
LogDFMines	0.010	0.009	22082.2	22183.3	15	6215	-1	9.9	case_ ~ cos.ta + log.sl + LHSHRUB + SLOPE + SEDGEWET + TUNDRA + TUNDRA_sq + ELEVATION + LHSHRUB_sq + LHSHRUB_S3_sq + WAT_EDGE + TUSSK_S3 + WAT_EDGE_sq + LHSHRUB_S3 + log.dfmines + strata(stepnum)
DFMines	0.010	0.009	22077.5	22185.2	16	6215	0	11.9	case_ ~ cos.ta + log.sl + LHSHRUB + SLOPE + SEDGEWET + TUNDRA + TUNDRA_sq + ELEVATION + LHSHRUB_sq + LHSHRUB_S3_sq + WAT_EDGE + TUSSK_S3 + WAT_EDGE_sq + LHSHRUB_S3 + DF_MINES + DF_MINES_SQ + strata(stepnum)

Table G-2b: ROC Function for top Female – Spring Migration Geofence 112 North 1-hour interval model

Data	Threshold	PCC	Sensitivity	Specificity	Kappa
train	0.49036	0.55013	0.48216	0.56373	0.02755
test	0.49036	0.47058	0.56982	0.45074	0.01067

Table G-3: Female – Summer Geofence 112 North 1-hour interval models

Model name	RHO2	Adj RHO2	AIC	BIC	K	N	deltaK	deltaBIC	Formula
LinearDFMineRds	0.057	0.054	12694.9	12838.2	23	3743	0	0.0	case_ ~ cos.ta + log.sl + WBAREA_sq + LHSHRUB + TUSSK + ELEVATION + ELEVATION_sq + TUNDRA + TUSSK_sq + TUNDRA_sq + SEDGEWET + WATEDGE_S3_sq + TUSSK_S4 + SEDGEWET_sq + TUNDR_S3_sq + TUNDR_S4_sq + WBAREA_S3 + LHSHRUB_S3 + WBAREA_S4 + TUSSK_S3 + LHSHRUB_S4 + SEDWET_S3 + DF_PROADS + strata(stepnum)
Landcover	0.056	0.053	12707.6	12844.6	22	3743	-1	6.4	case_ ~ cos.ta + log.sl + WBAREA_sq + LHSHRUB + TUSSK + ELEVATION + ELEVATION_sq + TUNDRA + TUSSK_sq + TUNDRA_sq + SEDGEWET + WATEDGE_S3_sq + TUSSK_S4 + SEDGEWET_sq + TUNDR_S3_sq + TUNDR_S4_sq + WBAREA_S3 + LHSHRUB_S3 + WBAREA_S4 + TUSSK_S3 + LHSHRUB_S4 + SEDWET_S3 + strata(stepnum)
LinearDFMines	0.056	0.053	12702.6	12845.8	23	3743	0	7.6	case_ ~ cos.ta + log.sl + WBAREA_sq + LHSHRUB + TUSSK + ELEVATION + ELEVATION_sq + TUNDRA + TUSSK_sq + TUNDRA_sq + SEDGEWET + WATEDGE_S3_sq + TUSSK_S4 + SEDGEWET_sq + TUNDR_S3_sq + TUNDR_S4_sq + WBAREA_S3 + LHSHRUB_S3 + WBAREA_S4 + TUSSK_S3 + LHSHRUB_S4 + SEDWET_S3 + DF_MINES + strata(stepnum)
DFMineRoads	0.057	0.053	12696.9	12846.4	24	3743	1	8.2	case_ ~ cos.ta + log.sl + WBAREA_sq + LHSHRUB + TUSSK + ELEVATION + ELEVATION_sq + TUNDRA + TUSSK_sq + TUNDRA_sq + SEDGEWET + WATEDGE_S3_sq + TUSSK_S4 + SEDGEWET_sq + TUNDR_S3_sq + TUNDR_S4_sq + WBAREA_S3 + LHSHRUB_S3 + WBAREA_S4 + TUSSK_S3 + LHSHRUB_S4 + SEDWET_S3 + DF_PROADS + DF_PROADS_SQ + strata(stepnum)
LogDFMineRoads	0.056	0.053	12703.4	12846.6	23	3743	0	8.4	case_ ~ cos.ta + log.sl + WBAREA_sq + LHSHRUB + TUSSK + ELEVATION + ELEVATION_sq + TUNDRA + TUSSK_sq + TUNDRA_sq + SEDGEWET + WATEDGE_S3_sq + TUSSK_S4 + SEDGEWET_sq + TUNDR_S3_sq + TUNDR_S4_sq + WBAREA_S3 + LHSHRUB_S3 + WBAREA_S4 + TUSSK_S3 + LHSHRUB_S4 + SEDWET_S3 + log.dfproads + strata(stepnum)
LogDFMines	0.056	0.053	12706.2	12849.4	23	3743	0	11.2	case_ ~ cos.ta + log.sl + WBAREA_sq + LHSHRUB + TUSSK + ELEVATION + ELEVATION_sq + TUNDRA + TUSSK_sq + TUNDRA_sq + SEDGEWET + WATEDGE_S3_sq + TUSSK_S4 + SEDGEWET_sq + TUNDR_S3_sq + TUNDR_S4_sq + WBAREA_S3 + LHSHRUB_S3 + WBAREA_S4 + TUSSK_S3 + LHSHRUB_S4 + SEDWET_S3 + log.dfmines + strata(stepnum)
DFMines	0.056	0.053	12704.3	12853.8	24	3743	1	15.6	case_ ~ cos.ta + log.sl + WBAREA_sq + LHSHRUB + TUSSK + ELEVATION + ELEVATION_sq + TUNDRA + TUSSK_sq + TUNDRA_sq + SEDGEWET + WATEDGE_S3_sq + TUSSK_S4 + SEDGEWET_sq + TUNDR_S3_sq + TUNDR_S4_sq + WBAREA_S3 + LHSHRUB_S3 + WBAREA_S4 + TUSSK_S3 + LHSHRUB_S4 + SEDWET_S3 + DF_MINES + DF_MINES_SQ + strata(stepnum)

Table G-3b: ROC Function for top Female - Summer Geofence 112 North 1-hour interval model

Data	Threshold	PCC	Sensitivity	Specificity	Kappa
train	0.11076	0.37500	0.81058	0.29020	0.04214
test	0.11076	0.33139	0.85646	0.22875	0.03369

Table G-4: Female – Late Summer Geofence 112 North 1-hour interval models

Model name	RHO2	Adj RHO2	AIC	BIC	K	N	deltaK	deltaBIC	Formula
Landcover	0.031	0.031	36197.0	36255.0	8	10422	0	0.0	case_ ~ cos.ta + log.sl + WBAREA + LSHRUB + WBAREA_sq + TUSSK + TUNDRA + ELEVATION + strata(stepnum)
LogDFMines	0.031	0.031	36191.8	36257.1	9	10422	1	2.0	case_ ~ cos.ta + log.sl + WBAREA + LSHRUB + WBAREA_sq + TUSSK + TUNDRA + ELEVATION + log.dfmnes + strata(stepnum)
LinearDFMines	0.031	0.031	36193.2	36258.4	9	10422	1	3.4	case_ ~ cos.ta + log.sl + WBAREA + LSHRUB + WBAREA_sq + TUSSK + TUNDRA + ELEVATION + DF_MINES + strata(stepnum)
LinearDFMineRds	0.031	0.031	36196.7	36261.9	9	10422	1	6.9	case_ ~ cos.ta + log.sl + WBAREA + LSHRUB + WBAREA_sq + TUSSK + TUNDRA + ELEVATION + DF_PROADS + strata(stepnum)
LogDFMineRoads	0.031	0.031	36197.1	36262.4	9	10422	1	7.3	case_ ~ cos.ta + log.sl + WBAREA + LSHRUB + WBAREA_sq + TUSSK + TUNDRA + ELEVATION + log.dfproads + strata(stepnum)
DFMines	0.031	0.031	36194.8	36267.3	10	10422	2	12.3	case_ ~ cos.ta + log.sl + WBAREA + LSHRUB + WBAREA_sq + TUSSK + TUNDRA + ELEVATION + DF_MINES + DF_MINES_SQ + strata(stepnum)
DFMineRoads	0.031	0.031	36198.2	36270.7	10	10422	2	15.6	case_ ~ cos.ta + log.sl + WBAREA + LSHRUB + WBAREA_sq + TUSSK + TUNDRA + ELEVATION + DF_PROADS + DF_PROADS_SQ + strata(stepnum)

Table G-4b: ROC Function for top Female – Late Summer Geofence 112 North 1-hour interval model

Data	Threshold	PCC	Sensitivity	Specificity	Kappa
train	0.41652	0.33237	0.85334	0.22816	0.03280
test	0.41652	0.36203	0.82301	0.26980	0.03885

Table G-5: Female – Pre-Rut Geofence 112 North 1-hour interval models

Model name	RHO2	Adj RHO2	AIC	BIC	K	N	deltaK	deltaBIC	Formula
Landcover	0.035	0.034	27629.0	27712.8	12	7983	0	0.0	case_ ~ cos.ta + log.sl + WBAREA + WBAREA_sq + LHSHRUB + TUSSK + LHSHRUB_sq + SLOPE + SEDGEWET + SEDGEWET_sq + BEDBLD_S3_sq + BEDBLD_S3 + strata(stepnum)
LogDFMines	0.035	0.034	27628.8	27719.6	13	7983	1	6.8	case_ ~ cos.ta + log.sl + WBAREA + WBAREA_sq + LHSHRUB + TUSSK + LHSHRUB_sq + SLOPE + SEDGEWET + SEDGEWET_sq + BEDBLD_S3_sq + BEDBLD_S3 + log.dfmynes + strata(stepnum)
LinearDFMines	0.035	0.034	27629.5	27720.4	13	7983	1	7.6	case_ ~ cos.ta + log.sl + WBAREA + WBAREA_sq + LHSHRUB + TUSSK + LHSHRUB_sq + SLOPE + SEDGEWET + SEDGEWET_sq + BEDBLD_S3_sq + BEDBLD_S3 + DF_MINES + strata(stepnum)
LogDFMineRoads	0.035	0.034	27630.9	27721.7	13	7983	1	8.9	case_ ~ cos.ta + log.sl + WBAREA + WBAREA_sq + LHSHRUB + TUSSK + LHSHRUB_sq + SLOPE + SEDGEWET + SEDGEWET_sq + BEDBLD_S3_sq + BEDBLD_S3 + log.dfproads + strata(stepnum)
LinearDFMineRds	0.035	0.034	27630.9	27721.8	13	7983	1	9.0	case_ ~ cos.ta + log.sl + WBAREA + WBAREA_sq + LHSHRUB + TUSSK + LHSHRUB_sq + SLOPE + SEDGEWET + SEDGEWET_sq + BEDBLD_S3_sq + BEDBLD_S3 + DF_PROADS + strata(stepnum)
DFMines	0.035	0.034	27630.2	27728.0	14	7983	2	15.2	case_ ~ cos.ta + log.sl + WBAREA + WBAREA_sq + LHSHRUB + TUSSK + LHSHRUB_sq + SLOPE + SEDGEWET + SEDGEWET_sq + BEDBLD_S3_sq + BEDBLD_S3 + DF_MINES + DF_MINES_SQ + strata(stepnum)
DFMineRoads	0.035	0.034	27632.8	27730.6	14	7983	2	17.8	case_ ~ cos.ta + log.sl + WBAREA + WBAREA_sq + LHSHRUB + TUSSK + LHSHRUB_sq + SLOPE + SEDGEWET + SEDGEWET_sq + BEDBLD_S3_sq + BEDBLD_S3 + DF_PROADS + DF_PROADS_SQ + strata(stepnum)

Table G-5b: ROC Function for top Female – Pre-Rut Geofence 112 North 1-hour interval model

Data	Threshold	PCC	Sensitivity	Specificity	Kappa
train	0.45373	0.38819	0.78840	0.30815	0.04200
test	0.45373	0.40273	0.77163	0.32895	0.04469

Table G-6: Female – Rut Geofence 112 North 1-hour interval models

Model name	RHO2	Adj RHO2	AIC	BIC	K	N	deltaK	deltaBIC	Formula
DFMineRoads	0.041	0.039	12602.2	12707.7	17	3658	0	0.0	case_ ~ cos.ta + log.sl + WBAREA_sq + LHSHRUB + TUSSK + SLOPE + TUNDRA_sq + TUNDRA + BEDBLD_S3_sq + SEDGEWET_sq + TUNDR_S4 + TUSSK_sq + WBAREA + BEDBLD_S3 + SEDGEWET + DF_PROADS + DF_PROADS_SQ + strata(stepnum)
Landcover	0.040	0.037	12618.4	12711.4	15	3658	-2	3.7	case_ ~ cos.ta + log.sl + WBAREA_sq + LHSHRUB + TUSSK + SLOPE + TUNDRA_sq + TUNDRA + BEDBLD_S3_sq + SEDGEWET_sq + TUNDR_S4 + TUSSK_sq + WBAREA + BEDBLD_S3 + SEDGEWET + strata(stepnum)
LinearDFMineRds	0.040	0.038	12613.7	12712.9	16	3658	-1	5.2	case_ ~ cos.ta + log.sl + WBAREA_sq + LHSHRUB + TUSSK + SLOPE + TUNDRA_sq + TUNDRA + BEDBLD_S3_sq + SEDGEWET_sq + TUNDR_S4 + TUSSK_sq + WBAREA + BEDBLD_S3 + SEDGEWET + DF_PROADS + strata(stepnum)
LogDFMines	0.040	0.037	12618.2	12717.5	16	3658	-1	9.8	case_ ~ cos.ta + log.sl + WBAREA_sq + LHSHRUB + TUSSK + SLOPE + TUNDRA_sq + TUNDRA + BEDBLD_S3_sq + SEDGEWET_sq + TUNDR_S4 + TUSSK_sq + WBAREA + BEDBLD_S3 + SEDGEWET + log.dfmines + strata(stepnum)
LinearDFMines	0.040	0.037	12618.8	12718.1	16	3658	-1	10.4	case_ ~ cos.ta + log.sl + WBAREA_sq + LHSHRUB + TUSSK + SLOPE + TUNDRA_sq + TUNDRA + BEDBLD_S3_sq + SEDGEWET_sq + TUNDR_S4 + TUSSK_sq + WBAREA + BEDBLD_S3 + SEDGEWET + DF_MINES + strata(stepnum)
DFMines	0.040	0.038	12613.6	12719.1	17	3658	0	11.4	case_ ~ cos.ta + log.sl + WBAREA_sq + LHSHRUB + TUSSK + SLOPE + TUNDRA_sq + TUNDRA + BEDBLD_S3_sq + SEDGEWET_sq + TUNDR_S4 + TUSSK_sq + WBAREA + BEDBLD_S3 + SEDGEWET + DF_MINES + DF_MINES_SQ + strata(stepnum)
LogDFMineRoads	0.040	0.037	12620.3	12719.6	16	3658	-1	11.9	case_ ~ cos.ta + log.sl + WBAREA_sq + LHSHRUB + TUSSK + SLOPE + TUNDRA_sq + TUNDRA + BEDBLD_S3_sq + SEDGEWET_sq + TUNDR_S4 + TUSSK_sq + WBAREA + BEDBLD_S3 + SEDGEWET + log.dfproads + strata(stepnum)

Table G-6b: ROC Function for top Female - Rut Geofence 112 North 1-hour interval model

Data	Threshold	PCC	Sensitivity	Specificity	Kappa
train	0.36460	0.30478	0.90528	0.18469	0.03470
test	0.36460	0.26517	0.95210	0.12778	0.02931

Table G-7: Female – Post-Rut Geofence 112 North 1-hour interval models

Model name	RHO2	Adj RHO2	AIC	BIC	K	N	deltaK	deltaBIC	Formula
LinearDFMines	0.036	0.033	5653.0	5707.0	10	1631	0	0.0	case_ ~ cos.ta + log.sl + LHSHRUB + TUSSK + SEDGEWET_sq + WBAREA + SLOPE + SEDGEWET + P_ESKER + DF_MINES + strata(stepnum)
DFMines	0.036	0.033	5654.4	5713.7	11	1631	1	6.7	case_ ~ cos.ta + log.sl + LHSHRUB + TUSSK + SEDGEWET_sq + WBAREA + SLOPE + SEDGEWET + P_ESKER + DF_MINES + DF_MINES_SQ + strata(stepnum)
LinearDFMineRds	0.035	0.031	5661.6	5715.5	10	1631	0	8.5	case_ ~ cos.ta + log.sl + LHSHRUB + TUSSK + SEDGEWET_sq + WBAREA + SLOPE + SEDGEWET + P_ESKER + DF_PROADS + strata(stepnum)
DFMineRoads	0.035	0.031	5662.7	5722.1	11	1631	1	15.1	case_ ~ cos.ta + log.sl + LHSHRUB + TUSSK + SEDGEWET_sq + WBAREA + SLOPE + SEDGEWET + P_ESKER + DF_PROADS + DF_PROADS_SQ + strata(stepnum)
LogDFMines	0.034	0.030	5668.7	5722.6	10	1631	0	15.6	case_ ~ cos.ta + log.sl + LHSHRUB + TUSSK + SEDGEWET_sq + WBAREA + SLOPE + SEDGEWET + P_ESKER + log.dfmines + strata(stepnum)
LogDFMineRoads	0.030	0.027	5686.9	5740.9	10	1631	0	33.9	case_ ~ cos.ta + log.sl + LHSHRUB + TUSSK + SEDGEWET_sq + WBAREA + SLOPE + SEDGEWET + P_ESKER + log.dfproads + strata(stepnum)
Landcover	0.029	0.025	5696.1	5744.6	9	1631	-1	37.6	case_ ~ cos.ta + log.sl + LHSHRUB + TUSSK + SEDGEWET_sq + WBAREA + SLOPE + SEDGEWET + P_ESKER + strata(stepnum)

Table G-7b: ROC Function for top Female – Post-Rut Geofence 112 North 1-hour interval model

Data	Threshold	PCC	Sensitivity	Specificity	Kappa
train	0.99286	0.52355	0.51993	0.52426	0.02461
test	0.99286	0.43734	0.59926	0.40614	0.00260

Table G-8: Male - Winter Geofence 112 North 1-hour interval models

Model name	RHO2	Adj RHO2	AIC	BIC	K	N	deltaK	deltaBIC	Formula
Landcover	0.005	0.004	28462.2	28546.1	12	7978	0	0.0	case_ ~ cos.ta + log.sl + LHSHRUB + SLOPE + TUNDRA + SEDGEWET_sq + TUSSK_sq + SLOPE_sq + WBAREA_sq + SEDGEWET + TUSSK + WBAREA + strata(stepnum)
LinearDFMineRds	0.005	0.004	28463.7	28554.5	13	7978	1	8.5	case_ ~ cos.ta + log.sl + LHSHRUB + SLOPE + TUNDRA + SEDGEWET_sq + TUSSK_sq + SLOPE_sq + WBAREA_sq + SEDGEWET + TUSSK + WBAREA + DF_PROADS + strata(stepnum)
LogDFMineRoads	0.005	0.004	28464.0	28554.8	13	7978	1	8.8	case_ ~ cos.ta + log.sl + LHSHRUB + SLOPE + TUNDRA + SEDGEWET_sq + TUSSK_sq + SLOPE_sq + WBAREA_sq + SEDGEWET + TUSSK + WBAREA + log.dfproads + strata(stepnum)
LinearDFWintRd	0.005	0.004	28464.1	28554.9	13	7978	1	8.9	case_ ~ cos.ta + log.sl + LHSHRUB + SLOPE + TUNDRA + SEDGEWET_sq + TUSSK_sq + SLOPE_sq + WBAREA_sq + SEDGEWET + TUSSK + WBAREA + DF_LROADS + strata(stepnum)
LogDFMines	0.005	0.004	28464.2	28555.0	13	7978	1	8.9	case_ ~ cos.ta + log.sl + LHSHRUB + SLOPE + TUNDRA + SEDGEWET_sq + TUSSK_sq + SLOPE_sq + WBAREA_sq + SEDGEWET + TUSSK + WBAREA + log.dfmines + strata(stepnum)
LogDFWinterRoad	0.005	0.004	28464.2	28555.0	13	7978	1	8.9	case_ ~ cos.ta + log.sl + LHSHRUB + SLOPE + TUNDRA + SEDGEWET_sq + TUSSK_sq + SLOPE_sq + WBAREA_sq + SEDGEWET + TUSSK + WBAREA + log.dflroads + strata(stepnum)
LinearDFMines	0.005	0.004	28464.2	28555.0	13	7978	1	9.0	case_ ~ cos.ta + log.sl + LHSHRUB + SLOPE + TUNDRA + SEDGEWET_sq + TUSSK_sq + SLOPE_sq + WBAREA_sq + SEDGEWET + TUSSK + WBAREA + DF_MINES + strata(stepnum)
DFMineRoads	0.005	0.004	28463.7	28561.5	14	7978	2	15.4	case_ ~ cos.ta + log.sl + LHSHRUB + SLOPE + TUNDRA + SEDGEWET_sq + TUSSK_sq + SLOPE_sq + WBAREA_sq + SEDGEWET + TUSSK + WBAREA + DF_PROADS + DF_PROADS_SQ + strata(stepnum)
DFWinterRoad	0.005	0.004	28464.2	28562.0	14	7978	2	15.9	case_ ~ cos.ta + log.sl + LHSHRUB + SLOPE + TUNDRA + SEDGEWET_sq + TUSSK_sq + SLOPE_sq + WBAREA_sq + SEDGEWET + TUSSK + WBAREA + DF_LROADS + DF_LROADS_SQ + strata(stepnum)
DFMines	0.005	0.004	28466.1	28563.9	14	7978	2	17.8	case_ ~ cos.ta + log.sl + LHSHRUB + SLOPE + TUNDRA + SEDGEWET_sq + TUSSK_sq + SLOPE_sq + WBAREA_sq + SEDGEWET + TUSSK + WBAREA + DF_MINES + DF_MINES_SQ + strata(stepnum)

Table G-8b: ROC Function for top Male - Winter Geofence 112 North 1-hour interval model

Data	Threshold	PCC	Sensitivity	Specificity	Kappa
train	0.48011	0.40088	0.70557	0.34136	0.02097
test	0.48011	0.40510	0.69883	0.34766	0.02094

Table G-9: Male – Spring Migration Geofence 112 North 1-hour interval models

Model name	RHO2	Adj RHO2	AIC	BIC	K	N	deltaK	deltaBIC	Formula
Landcover	0.015	0.013	10079.4	10144.9	11	2849	0	0.0	case_ ~ cos.ta + log.sl + WBAREA_sq + LHSHRUB + TUSSK + ELEVATION_sq + SLOPE_sq + TUNDRA + SEDGEWET + ELEVATION + SLOPE + strata(stepnum)
LinearDFMineRds	0.015	0.013	10081.1	10152.6	12	2849	1	7.7	case_ ~ cos.ta + log.sl + WBAREA_sq + LHSHRUB + TUSSK + ELEVATION_sq + SLOPE_sq + TUNDRA + SEDGEWET + ELEVATION + SLOPE + DF_PROADS + strata(stepnum)
LogDFMines	0.015	0.013	10081.3	10152.8	12	2849	1	7.9	case_ ~ cos.ta + log.sl + WBAREA_sq + LHSHRUB + TUSSK + ELEVATION_sq + SLOPE_sq + TUNDRA + SEDGEWET + ELEVATION + SLOPE + log.dfmines + strata(stepnum)
LogDFMineRoads	0.015	0.013	10081.4	10152.8	12	2849	1	7.9	case_ ~ cos.ta + log.sl + WBAREA_sq + LHSHRUB + TUSSK + ELEVATION_sq + SLOPE_sq + TUNDRA + SEDGEWET + ELEVATION + SLOPE + log.dfproads + strata(stepnum)
LinearDFMines	0.015	0.013	10081.4	10152.8	12	2849	1	7.9	case_ ~ cos.ta + log.sl + WBAREA_sq + LHSHRUB + TUSSK + ELEVATION_sq + SLOPE_sq + TUNDRA + SEDGEWET + ELEVATION + SLOPE + DF_MINES + strata(stepnum)
DFMineRoads	0.015	0.013	10079.4	10156.8	13	2849	2	11.9	case_ ~ cos.ta + log.sl + WBAREA_sq + LHSHRUB + TUSSK + ELEVATION_sq + SLOPE_sq + TUNDRA + SEDGEWET + ELEVATION + SLOPE + DF_PROADS + DF_PROADS_SQ + strata(stepnum)
DFMines	0.015	0.012	10083.4	10160.8	13	2849	2	15.9	case_ ~ cos.ta + log.sl + WBAREA_sq + LHSHRUB + TUSSK + ELEVATION_sq + SLOPE_sq + TUNDRA + SEDGEWET + ELEVATION + SLOPE + DF_MINES + DF_MINES_SQ + strata(stepnum)

Table G-9b: ROC Function for top Male – Spring Migration Geofence 112 North 1-hour interval model

Data	Threshold	PCC	Sensitivity	Specificity	Kappa
train	0.51459	0.50558	0.57213	0.49261	0.03451
test	0.51459	0.44441	0.65402	0.40344	0.02751

Table G-10: Male – Summer Geofence 112 North 1-hour interval models

Model name	RHO2	Adj RHO2	AIC	BIC	K	N	deltaK	deltaBIC	Formula
LinearDFMineRds	0.046	0.043	6371.5	6437.8	12	1857	0	0.0	case_ ~ cos.ta + log.sl + WBAREA_sq + SLOPE + WATEDGE_S3_sq + TUNDRA + TUSSK_S3_sq + SEDGEWET + TUSSK_S4_sq + WAT_EDGE + WBAREA_S3_sq + DF_PROADS + strata(stepnum)
LinearDFMines	0.046	0.042	6374.4	6440.7	12	1857	0	2.9	case_ ~ cos.ta + log.sl + WBAREA_sq + SLOPE + WATEDGE_S3_sq + TUNDRA + TUSSK_S3_sq + SEDGEWET + TUSSK_S4_sq + WAT_EDGE + WBAREA_S3_sq + DF_MINES + strata(stepnum)
DFMineRoads	0.046	0.042	6373.4	6445.2	13	1857	1	7.4	case_ ~ cos.ta + log.sl + WBAREA_sq + SLOPE + WATEDGE_S3_sq + TUNDRA + TUSSK_S3_sq + SEDGEWET + TUSSK_S4_sq + WAT_EDGE + WBAREA_S3_sq + DF_PROADS + DF_PROADS_SQ + strata(stepnum)
DFMines	0.046	0.042	6376.3	6448.2	13	1857	1	10.4	case_ ~ cos.ta + log.sl + WBAREA_sq + SLOPE + WATEDGE_S3_sq + TUNDRA + TUSSK_S3_sq + SEDGEWET + TUSSK_S4_sq + WAT_EDGE + WBAREA_S3_sq + DF_MINES + DF_MINES_SQ + strata(stepnum)
LogDFMineRoads	0.042	0.039	6397.6	6463.9	12	1857	0	26.1	case_ ~ cos.ta + log.sl + WBAREA_sq + SLOPE + WATEDGE_S3_sq + TUNDRA + TUSSK_S3_sq + SEDGEWET + TUSSK_S4_sq + WAT_EDGE + WBAREA_S3_sq + log.dfproads + strata(stepnum)
LogDFMines	0.042	0.039	6398.3	6464.6	12	1857	0	26.8	case_ ~ cos.ta + log.sl + WBAREA_sq + SLOPE + WATEDGE_S3_sq + TUNDRA + TUSSK_S3_sq + SEDGEWET + TUSSK_S4_sq + WAT_EDGE + WBAREA_S3_sq + log.dfmines + strata(stepnum)
Landcover	0.041	0.038	6404.8	6465.6	11	1857	-1	27.8	case_ ~ cos.ta + log.sl + WBAREA_sq + SLOPE + WATEDGE_S3_sq + TUNDRA + TUSSK_S3_sq + SEDGEWET + TUSSK_S4_sq + WAT_EDGE + WBAREA_S3_sq + strata(stepnum)

Table G-10b: ROC Function for top Male - Summer Geofence 112 North 1-hour interval model

Data	Threshold	PCC	Sensitivity	Specificity	Kappa
train	0.00061	0.30650	0.80452	0.21086	0.00596
test	0.00061	0.33748	0.74565	0.25807	0.00153

Table G-11: Male – Late Summer Geofence 112 North 1-hour interval models

Model name	RHO2	Adj RHO2	AIC	BIC	K	N	deltaK	deltaBIC	Formula
Landcover	0.032	0.030	19619.8	19699.5	12	5647	0	0.0	case_ ~ cos.ta + log.sl + WBAREA + TUSSK + LHSHRUB + WAT_EDGE + WAT_EDGE_sq + SEDGEWET_sq + WBAREA_S3 + TUNDRA + TUNDRA_sq + SEDGEWET + strata(stepnum)
LogDFMineRoads	0.032	0.031	19614.4	19700.7	13	5647	1	1.2	case_ ~ cos.ta + log.sl + WBAREA + TUSSK + LHSHRUB + WAT_EDGE + WAT_EDGE_sq + SEDGEWET_sq + WBAREA_S3 + TUNDRA + TUNDRA_sq + SEDGEWET + log.dfproads + strata(stepnum)
LinearDFMines	0.032	0.031	19614.7	19701.0	13	5647	1	1.5	case_ ~ cos.ta + log.sl + WBAREA + TUSSK + LHSHRUB + WAT_EDGE + WAT_EDGE_sq + SEDGEWET_sq + WBAREA_S3 + TUNDRA + TUNDRA_sq + SEDGEWET + DF_MINES + strata(stepnum)
LinearDFMineRds	0.032	0.031	19617.0	19703.3	13	5647	1	3.8	case_ ~ cos.ta + log.sl + WBAREA + TUSSK + LHSHRUB + WAT_EDGE + WAT_EDGE_sq + SEDGEWET_sq + WBAREA_S3 + TUNDRA + TUNDRA_sq + SEDGEWET + DF_PROADS + strata(stepnum)
LogDFMines	0.032	0.031	19617.2	19703.5	13	5647	1	4.0	case_ ~ cos.ta + log.sl + WBAREA + TUSSK + LHSHRUB + WAT_EDGE + WAT_EDGE_sq + SEDGEWET_sq + WBAREA_S3 + TUNDRA + TUNDRA_sq + SEDGEWET + log.dfmines + strata(stepnum)
DFMines	0.032	0.031	19615.9	19708.8	14	5647	2	9.3	case_ ~ cos.ta + log.sl + WBAREA + TUSSK + LHSHRUB + WAT_EDGE + WAT_EDGE_sq + SEDGEWET_sq + WBAREA_S3 + TUNDRA + TUNDRA_sq + SEDGEWET + DF_MINES + DF_MINES_SQ + strata(stepnum)
DFMineRoads	0.032	0.031	19617.1	19710.1	14	5647	2	10.5	case_ ~ cos.ta + log.sl + WBAREA + TUSSK + LHSHRUB + WAT_EDGE + WAT_EDGE_sq + SEDGEWET_sq + WBAREA_S3 + TUNDRA + TUNDRA_sq + SEDGEWET + DF_PROADS + DF_PROADS_SQ + strata(stepnum)

Table G-11b: ROC Function for top Male – Late Summer Geofence 112 North 1-hour interval model

Data	Threshold	PCC	Sensitivity	Specificity	Kappa
train	0.54973	0.50774	0.61732	0.48639	0.05437
test	0.54973	0.47527	0.63002	0.44527	0.03756

Table G-12: Male – Pre-Rut Geofence 112 North 1-hour interval models

Model name	RHO2	Adj RHO2	AIC	BIC	K	N	deltaK	deltaBIC	Formula
Landcover	0.041	0.039	16832.7	16910.7	12	4890	0	0.0	case_ ~ cos.ta + log.sl + WBAREA_sq + WAT_EDGE + LHSHRUB + SLOPE_sq + WAT_EDGE_sq + WATEDGE_S3_sq + TUSSK_S3 + TUNDRA + LHSHRUB_S3 + SEDWET_S3 + strata(stepnum)
LogDFMineRoads	0.041	0.039	16833.9	16918.4	13	4890	1	7.7	case_ ~ cos.ta + log.sl + WBAREA_sq + WAT_EDGE + LHSHRUB + SLOPE_sq + WAT_EDGE_sq + WATEDGE_S3_sq + TUSSK_S3 + TUNDRA + LHSHRUB_S3 + SEDWET_S3 + log.dfproads + strata(stepnum)
LogDFMines	0.041	0.039	16834.3	16918.7	13	4890	1	8.1	case_ ~ cos.ta + log.sl + WBAREA_sq + WAT_EDGE + LHSHRUB + SLOPE_sq + WAT_EDGE_sq + WATEDGE_S3_sq + TUSSK_S3 + TUNDRA + LHSHRUB_S3 + SEDWET_S3 + log.dfmines + strata(stepnum)
LinearDFMineRds	0.041	0.039	16834.4	16918.9	13	4890	1	8.2	case_ ~ cos.ta + log.sl + WBAREA_sq + WAT_EDGE + LHSHRUB + SLOPE_sq + WAT_EDGE_sq + WATEDGE_S3_sq + TUSSK_S3 + TUNDRA + LHSHRUB_S3 + SEDWET_S3 + DF_PROADS + strata(stepnum)
LinearDFMines	0.041	0.039	16834.7	16919.1	13	4890	1	8.4	case_ ~ cos.ta + log.sl + WBAREA_sq + WAT_EDGE + LHSHRUB + SLOPE_sq + WAT_EDGE_sq + WATEDGE_S3_sq + TUSSK_S3 + TUNDRA + LHSHRUB_S3 + SEDWET_S3 + DF_MINES + strata(stepnum)
DFMineRoads	0.041	0.039	16836.1	16927.0	14	4890	2	16.3	case_ ~ cos.ta + log.sl + WBAREA_sq + WAT_EDGE + LHSHRUB + SLOPE_sq + WAT_EDGE_sq + WATEDGE_S3_sq + TUSSK_S3 + TUNDRA + LHSHRUB_S3 + SEDWET_S3 + DF_PROADS + DF_PROADS_SQ + strata(stepnum)
DFMines	0.041	0.039	16836.3	16927.3	14	4890	2	16.6	case_ ~ cos.ta + log.sl + WBAREA_sq + WAT_EDGE + LHSHRUB + SLOPE_sq + WAT_EDGE_sq + WATEDGE_S3_sq + TUSSK_S3 + TUNDRA + LHSHRUB_S3 + SEDWET_S3 + DF_MINES + DF_MINES_SQ + strata(stepnum)

Table G-12b: ROC Function for top Male – Pre-Rut Geofence 112 North 1-hour interval model

Data	Threshold	PCC	Sensitivity	Specificity	Kappa
train	0.44645	0.46148	0.70634	0.41421	0.05725
test	0.44645	0.44895	0.66667	0.40671	0.03497

Table G-13: Male – Rut Geofence 112 North 1-hour interval models

Model name	RHO2	Adj RHO2	AIC	BIC	K	N	deltaK	deltaBIC	Formula
Landcover	0.034	0.030	5921.0	5975.4	10	1704	0	0.0	case_ ~ cos.ta + log.sl + LHSHRUB + TUSSK + WBAREA_sq + TUNDRA_sq + SEDGEWET_sq + WBAREA + TUNDRA + SEDGEWET + strata(stepnum)
LogDFMines	0.034	0.030	5921.3	5981.2	11	1704	1	5.8	case_ ~ cos.ta + log.sl + LHSHRUB + TUSSK + WBAREA_sq + TUNDRA_sq + SEDGEWET_sq + WBAREA + TUNDRA + SEDGEWET + log.dfmines + strata(stepnum)
DFMines	0.035	0.031	5916.7	5982.0	12	1704	2	6.6	case_ ~ cos.ta + log.sl + LHSHRUB + TUSSK + WBAREA_sq + TUNDRA_sq + SEDGEWET_sq + WBAREA + TUNDRA + SEDGEWET + DF_MINES + DF_MINES_SQ + strata(stepnum)
LinearDFMines	0.034	0.030	5922.2	5982.1	11	1704	1	6.7	case_ ~ cos.ta + log.sl + LHSHRUB + TUSSK + WBAREA_sq + TUNDRA_sq + SEDGEWET_sq + WBAREA + TUNDRA + SEDGEWET + DF_MINES + strata(stepnum)
LinearDFMineRds	0.034	0.030	5922.3	5982.1	11	1704	1	6.7	case_ ~ cos.ta + log.sl + LHSHRUB + TUSSK + WBAREA_sq + TUNDRA_sq + SEDGEWET_sq + WBAREA + TUNDRA + SEDGEWET + DF_PROADS + strata(stepnum)
LogDFMineRoads	0.034	0.030	5922.8	5982.6	11	1704	1	7.3	case_ ~ cos.ta + log.sl + LHSHRUB + TUSSK + WBAREA_sq + TUNDRA_sq + SEDGEWET_sq + WBAREA + TUNDRA + SEDGEWET + log.dfproads + strata(stepnum)
DFMineRoads	0.034	0.030	5922.6	5987.9	12	1704	2	12.5	case_ ~ cos.ta + log.sl + LHSHRUB + TUSSK + WBAREA_sq + TUNDRA_sq + SEDGEWET_sq + WBAREA + TUNDRA + SEDGEWET + DF_PROADS + DF_PROADS_SQ + strata(stepnum)

Table G-13b: ROC Function for top Male - Rut Geofence 112 North 1-hour interval model

Data	Threshold	PCC	Sensitivity	Specificity	Kappa
train	0.57210	0.47957	0.66608	0.44343	0.05412
test	0.57210	0.49081	0.62758	0.46397	0.04699

Table G-14: Male – Post-Rut Geofence 112 North 1-hour interval models

Model name	RHO2	Adj RHO2	AIC	BIC	K	N	deltaK	deltaBIC	Formula
Landcover	0.019	0.017	5881.2	5913.7	6	1669	0	0.0	case_ ~ cos.ta + log.sl + LHSHRUB + WBAREA_sq + TUSSK + WBAREA_S3 + strata(stepnum)
LinearDFMineRds	0.019	0.017	5879.3	5917.2	7	1669	1	3.5	case_ ~ cos.ta + log.sl + LHSHRUB + WBAREA_sq + TUSSK + WBAREA_S3 + DF_PROADS + strata(stepnum)
LogDFMineRoads	0.019	0.017	5880.2	5918.1	7	1669	1	4.4	case_ ~ cos.ta + log.sl + LHSHRUB + WBAREA_sq + TUSSK + WBAREA_S3 + log.dfproads + strata(stepnum)
LinearDFMines	0.019	0.017	5880.3	5918.2	7	1669	1	4.5	case_ ~ cos.ta + log.sl + LHSHRUB + WBAREA_sq + TUSSK + WBAREA_S3 + DF_MINES + strata(stepnum)
LogDFMines	0.019	0.017	5880.9	5918.8	7	1669	1	5.1	case_ ~ cos.ta + log.sl + LHSHRUB + WBAREA_sq + TUSSK + WBAREA_S3 + log.dfmines + strata(stepnum)
DFMineRoads	0.019	0.017	5880.8	5924.2	8	1669	2	10.4	case_ ~ cos.ta + log.sl + LHSHRUB + WBAREA_sq + TUSSK + WBAREA_S3 + DF_PROADS + DF_PROADS_SQ + strata(stepnum)
DFMines	0.019	0.017	5882.2	5925.6	8	1669	2	11.8	case_ ~ cos.ta + log.sl + LHSHRUB + WBAREA_sq + TUSSK + WBAREA_S3 + DF_MINES + DF_MINES_SQ + strata(stepnum)

Table G-14b: ROC Function for top Male – Post-Rut Geofence 112 North 1-hour interval model

Data	Threshold	PCC	Sensitivity	Specificity	Kappa
train	0.48909	0.42237	0.72139	0.36424	0.03883
test	0.48909	0.44039	0.65721	0.39807	0.02629

APPENDIX H 1-HOUR INTERVAL INTEGRATED STEP SELECTION FUNCTION (ISSF) MODELS INSIDE GEOFENCE 112 NORTH: COVARIATES AND COEFFICIENTS

Tables H-1 to H-14 provide the details on the iSSF (top model from iSSA) for each season for each sex. The iSSF detail include the covariates, their coefficients, standard errors of the coefficients, z-scores (the number of standard errors that the coefficient differs from zero), and p-values associated with the z-value (Pr...z..), a measure of the significance of the covariate in the model.

The rows of the Tables have been colour-coded:

- grey indicates a covariate whose coefficient's 95% confidence interval overlaps zero, indicating that it does not consistently affect the model value in the same direction;
- covariates with positive, significant coefficients are coloured green; and
- covariates with negative, significant coefficients are coloured red.

Table H-1: Female Winter Geofence 112 North 1-hour Interval ISSF Covariates and Coefficients

covariate	coef	exp.coef.	se.coef.	z	Pr...z..
cos.ta	0.00053	1.00053	0.01357	0.03898	0.9689102
log.sl	0.00404	1.00404	0.00398	1.01489	0.3101583
LHSHRUB	0.03791	1.03863	0.01473	2.57419	0.0100475
WBAREA_sq	-0.12166	0.88545	0.01438	-8.46058	2.661E-17
LHSHRUB_S3	-0.09911	0.90564	0.03107	-3.19007	0.0014224
SEDGEWET	-0.04246	0.95842	0.01502	-2.82692	0.0046998
SEDGEWET_sq	-0.04176	0.95910	0.01179	-3.54114	0.0003984
TUSSK	-0.04547	0.95555	0.01559	-2.91604	0.003545
LHSHRUB_S3_sq	-0.06188	0.94000	0.00994	-6.22329	4.868E-10
DF_PROADS	0.10826	1.11434	0.05491	1.97172	0.0486413
DF_PROADS_SQ	-0.00809	0.99194	0.00164	-4.94267	7.706E-07

Table H-2: Female Spring Migration Geofence 112 North 1-hour Interval ISSF Covariates and Coefficients

covariate	coef	exp.coef.	se.coef.	z	Pr...z...
cos.ta	-0.03685	0.96382	0.02085	-1.76762	0.0771248
log.sl	0.00626	1.00628	0.00618	1.01193	0.3115714
LHSHRUB	0.04321	1.04415	0.02043	2.11503	0.0344272
SLOPE	0.06043	1.06230	0.02169	2.78605	0.0053355
SEDGEWET	-0.09239	0.91175	0.01869	-4.94278	7.702E-07
TUNDRA	0.06720	1.06951	0.02228	3.01618	0.0025598
TUNDRA_sq	0.03469	1.03530	0.01551	2.23641	0.0253246
ELEVATION	0.31240	1.36670	0.05102	6.12253	9.21E-10
LHSHRUB_sq	-0.02519	0.97512	0.01382	-1.82352	0.0682245
LHSHRUB_S3_sq	-0.07735	0.92556	0.01644	-4.70440	2.546E-06
WAT_EDGE	0.18127	1.19873	0.03289	5.51197	3.548E-08
TUSSK_S3	-0.16307	0.84953	0.06330	-2.57623	0.0099885
WAT_EDGE_sq	-0.05365	0.94776	0.01702	-3.15292	0.0016165
LHSHRUB_S3	-0.02227	0.97798	0.05163	-0.43130	0.6662509
DF_PROADS	0.09430	1.09889	0.05533	1.70441	0.0883045
DF_PROADS_SQ	-0.00587	0.99414	0.00173	-3.40341	0.0006655

Table H-3: Female Summer Geofence 112 North 1-hour Interval ISSF Covariates and Coefficients

covariate	coef	exp.coef.	se.coef.	z	Pr...z...
cos.ta	-0.05137	0.94993	0.02733	-1.87990	0.06012
log.sl	0.05355	1.05501	0.01080	4.95979	7.057E-07
WBAREA_sq	-0.17412	0.84019	0.03636	-4.78845	1.681E-06
LHSHRUB	0.32471	1.38363	0.05259	6.17377	6.668E-10
TUSSK	0.31728	1.37338	0.04763	6.66173	2.706E-11
ELEVATION	0.44311	1.55754	0.07570	5.85362	4.810E-09
ELEVATION_sq	-0.02411	0.97618	0.03344	-0.72086	0.47100
TUNDRA	0.04907	1.05029	0.03542	1.38512	0.16602
TUSSK_sq	0.04117	1.04203	0.01930	2.13292	0.03293
TUNDRA_sq	0.05963	1.06144	0.02082	2.86408	0.00418
SEDGEWET	0.07375	1.07654	0.03702	1.99209	0.04636
WATEDGE_S3_sq	0.02681	1.02718	0.02898	0.92506	0.35494
TUSSK_S4	-0.85918	0.42351	0.33133	-2.59312	0.00951
SEDGEWET_sq	0.04286	1.04379	0.02541	1.68629	0.09174
TUNDR_S3_sq	0.14852	1.16012	0.05460	2.72006	0.00653
TUNDR_S4_sq	-0.24679	0.78131	0.11829	-2.08624	0.03696
WBAREA_S3	0.24703	1.28021	0.12201	2.02470	0.04290
LHSHRUB_S3	0.47052	1.60083	0.09596	4.90349	9.415E-07
WBAREA_S4	-0.72303	0.48528	0.27358	-2.64286	0.00822
TUSSK_S3	0.24928	1.28310	0.12047	2.06916	0.03853
LHSHRUB_S4	-0.46648	0.62721	0.14835	-3.14445	0.00166
SEDWET_S3	0.23504	1.26496	0.12814	1.83424	0.06662
DF_PROADS	-0.13140	0.87687	0.03446	-3.81302	0.00014

Table H-4: Female Late Summer Geofence 112 North 1-hour Interval ISSF Covariates and Coefficients

covariate	coef	exp.coef.	se.coef.	z	Pr...z..
cos.ta	-0.03857	0.96216	0.01589	-2.42789	0.0151868
log.sl	0.02961	1.03005	0.00623	4.75487	1.986E-06
WBAREA	0.06415	1.06625	0.03698	1.73452	0.0828253
LHSHRUB	0.19462	1.21485	0.02144	9.07720	1.114E-19
WBAREA_sq	-0.22261	0.80042	0.02179	-10.21594	1.682E-24
TUSSK	0.14498	1.15602	0.01929	7.51517	5.684E-14
TUNDRA	-0.08011	0.92302	0.01679	-4.77193	1.825E-06
ELEVATION	0.24148	1.27314	0.03604	6.70099	2.07E-11

Table H-5: Female Pre-Rut Geofence 112 North 1-hour Interval ISSF Covariates and Coefficients

covariate	coef	exp.coef.	se.coef.	z	Pr...z..
cos.ta	-0.03701	0.96367	0.01816	-2.03810	0.0415399
log.sl	0.03422	1.03482	0.00640	5.35102	8.746E-08
WBAREA	0.16361	1.17776	0.04097	3.99375	6.504E-05
WBAREA_sq	-0.30084	0.74019	0.02583	-11.64524	2.426E-31
LHSHRUB	0.25782	1.29410	0.02480	10.39605	2.584E-25
TUSSK	0.16329	1.17738	0.02662	6.13495	8.519E-10
LHSHRUB_sq	0.03210	1.03262	0.01236	2.59636	0.0094218
SLOPE	-0.05810	0.94355	0.01648	-3.52500	0.0004235
SEDGEWET	-0.04021	0.96059	0.02056	-1.95592	0.0504746
SEDGEWET_sq	0.03625	1.03692	0.01106	3.27865	0.001043
BEDBLD_S3_sq	-0.04323	0.95769	0.01956	-2.21030	0.0270842
BEDBLD_S3	0.02773	1.02812	0.05523	0.50206	0.6156272

Table H-6: Female Rut Geofence 112 North 1-hour Interval ISSF Covariates and Coefficients

covariate	coef	exp.coef.	se.coef.	z	Pr...z..
cos.ta	-0.12059	0.88640	0.02857	-4.22133	2.429E-05
log.sl	0.02999	1.03045	0.00937	3.20173	0.0013661
WBAREA_sq	-0.09458	0.90976	0.03072	-3.07860	0.0020798
LHSHRUB	0.25400	1.28917	0.04848	5.23902	1.614E-07
TUSSK	0.18758	1.20633	0.04472	4.19448	2.735E-05
SLOPE	-0.07642	0.92642	0.02706	-2.82378	0.004746
TUNDRA_sq	0.03115	1.03164	0.02093	1.48833	0.1366641
TUNDRA	0.04672	1.04782	0.03533	1.32234	0.1860563
BEDBLD_S3_sq	-0.01281	0.98727	0.02015	-0.63577	0.5249243
SEDGEWET_sq	0.04194	1.04283	0.01786	2.34783	0.0188831
TUNDR_S4	0.52880	1.69690	0.16324	3.23936	0.001198
TUSSK_sq	0.02986	1.03031	0.02018	1.47921	0.1390832
WBAREA	-0.17269	0.84140	0.07012	-2.46287	0.0137831
BEDBLD_S3	-0.12272	0.88451	0.10607	-1.15696	0.2472901
SEDGEWET	0.00449	1.00450	0.03385	0.13253	0.894566
DF_PROADS	-0.11911	0.88771	0.06619	-1.79949	0.0719405
DF_PROADS_SQ	0.00705	1.00708	0.00193	3.64812	0.0002642

Table H-7: Female Post-Rut Geofence 112 North 1-hour Interval ISSF Covariates and Coefficients

covariate	coef	exp.coef.	se.coef.	z	Pr...z..
cos.ta	-0.14334	0.86646	0.04324	-3.31517	0.00092
log.sl	0.01713	1.01727	0.01294	1.32319	0.18577
LHSHRUB	0.20715	1.23017	0.04794	4.32058	0.00002
TUSSK	0.13032	1.13920	0.04790	2.72097	0.00651
SEDGEWET_sq	0.06097	1.06287	0.02886	2.11242	0.03465
WBAREA	-0.28177	0.75445	0.05298	-5.31889	1.044E-07
SLOPE	-0.13181	0.87651	0.04265	-3.09033	0.00200
SEDGEWET	-0.05502	0.94647	0.04213	-1.30600	0.19155
P_ESKER	0.05095	1.05227	0.02990	1.70405	0.08837
DF_MINES	0.27982	1.32289	0.04184	6.68758	2.269E-11

Table H-8: Male Winter Geofence 112 North 1-hour Interval ISSF Covariates and Coefficients

covariate	coef	exp.coef.	se.coef.	z	Pr...z..
cos.ta	-0.00343	0.99657	0.01760	-0.19501	0.84538
log.sl	0.00146	1.00146	0.00514	0.28307	0.77712
LHSHRUB	0.09306	1.09752	0.02829	3.28929	0.00100
SLOPE	0.07865	1.08182	0.02999	2.62223	0.00874
TUNDRA	0.07522	1.07812	0.02282	3.29601	0.00098
SEDGEWET_sq	-0.02135	0.97888	0.01302	-1.63943	0.10112
TUSSK_sq	0.04070	1.04154	0.01996	2.03910	0.04144
SLOPE_sq	-0.02653	0.97381	0.01133	-2.34226	0.01917
WBAREA_sq	-0.06238	0.93952	0.02843	-2.19418	0.02822
SEDGEWET	-0.02941	0.97101	0.02218	-1.32623	0.18476
TUSSK	0.03583	1.03648	0.02554	1.40262	0.16073
WBAREA	0.01834	1.01851	0.04057	0.45221	0.65112

Table H-9: Male Spring Migration Geofence 112 North 1-hour Interval ISSF Covariates and Coefficients

covariate	coef	exp.coef.	se.coef.	z	Pr...z..
cos.ta	-0.04573	0.95530	0.03087	-1.48138	0.13851
log.sl	0.00924	1.00929	0.00885	1.04417	0.29640
WBAREA_sq	-0.08595	0.91764	0.03514	-2.44586	0.01445
LHSHRUB	0.07909	1.08230	0.03583	2.20759	0.02727
TUSSK	0.05038	1.05167	0.03600	1.39948	0.16167
ELEVATION_sq	0.08251	1.08601	0.03287	2.51019	0.01207
SLOPE_sq	0.02615	1.02649	0.01818	1.43830	0.15035
TUNDRA	0.02884	1.02926	0.03292	0.87606	0.38100
SEDGEWET	-0.08471	0.91878	0.02750	-3.07971	0.00207
ELEVATION	0.21742	1.24286	0.06852	3.17304	0.00151
SLOPE	0.06225	1.06423	0.04132	1.50652	0.13193

Table H-10: Male Summer Geofence 112 North 1-hour Interval ISSF Covariates and Coefficients

covariate	coef	exp.coef.	se.coef.	z	Pr...z..
cos.ta	-0.10830	0.89736	0.03709	-2.92007	0.00350
log.sl	0.01467	1.01478	0.01500	0.97818	0.32799
WBAREA_sq	-0.23894	0.78746	0.02341	-10.20586	1.867E-24
SLOPE	0.08416	1.08781	0.03090	2.72335	0.00646
WATEDGE_S3_sq	-0.11177	0.89425	0.04741	-2.35776	0.01839
TUNDRA	-0.09335	0.91087	0.03460	-2.69785	0.00698
TUSSK_S3_sq	-0.22549	0.79812	0.05448	-4.13901	3.488E-05
SEDGEWET	-0.08018	0.92295	0.03445	-2.32758	0.01993
TUSSK_S4_sq	0.19587	1.21637	0.10530	1.86015	0.06286
WAT_EDGE	0.13683	1.14663	0.03062	4.46896	7.860E-06
WBAREA_S3_sq	0.17219	1.18790	0.05951	2.89326	0.00381
DF_PROADS	-0.34818	0.70597	0.05942	-5.85937	4.646E-09

Table H-11: Male Late Summer Geofence 112 North 1-hour Interval ISSF Covariates and Coefficients

covariate	coef	exp.coef.	se.coef.	z	Pr...z..
cos.ta	-0.04968	0.95154	0.02146	-2.31462	0.02063
log.sl	0.03991	1.04072	0.00884	4.51279	0.00001
WBAREA	-0.44309	0.64205	0.04295	-10.31685	0.00000
TUSSK	0.10514	1.11087	0.02795	3.76208	0.00017
LHSHRUB	0.06377	1.06585	0.02968	2.14848	0.03168
WAT_EDGE	0.44832	1.56568	0.03719	12.05494	0.00000
WAT_EDGE_sq	-0.05509	0.94640	0.01525	-3.61228	0.00030
SEDGEWET_sq	-0.02661	0.97374	0.01594	-1.66920	0.09508
WBAREA_S3	0.16228	1.17619	0.04286	3.78669	0.00015
TUNDRA	-0.08099	0.92220	0.02530	-3.20108	0.00137
TUNDRA_sq	0.03208	1.03260	0.01622	1.97764	0.04797
SEDGEWET	-0.01269	0.98739	0.02361	-0.53759	0.59086

Table H-12: Male Pre-Rut Geofence 112 North 1-hour Interval ISSF Covariates and Coefficients

covariate	coef	exp.coef.	se.coef.	z	Pr...z..
cos.ta	-0.02565	0.97467	0.02306	-1.11263	0.26587
log.sl	0.03784	1.03857	0.00812	4.66000	0.00000
WBAREA_sq	-0.20018	0.81858	0.01368	-14.63151	0.00000
WAT_EDGE	0.31504	1.37031	0.03413	9.23177	0.00000
LHSHRUB	0.07611	1.07908	0.02828	2.69179	0.00711
SLOPE_sq	-0.03273	0.96780	0.01089	-3.00444	0.00266
WAT_EDGE_sq	-0.06498	0.93708	0.01699	-3.82444	0.00013
WATEDGE_S3_sq	-0.03914	0.96162	0.02500	-1.56562	0.11744
TUSSK_S3	-0.18337	0.83246	0.06479	-2.83007	0.00465
TUNDRA	-0.06723	0.93498	0.02193	-3.06549	0.00217
LHSHRUB_S3	-0.05742	0.94419	0.06652	-0.86327	0.38799
SEDWET_S3	-0.09631	0.90818	0.06960	-1.38375	0.16643

Table H-13: Male Rut Geofence 112 North 1-hour Interval ISSF Covariates and Coefficients

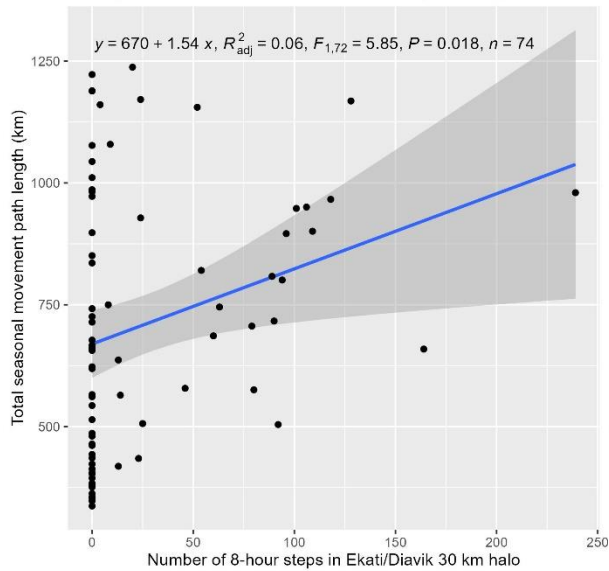
covariate	coef	exp.coef.	se.coef.	z	Pr...z..
cos.ta	-0.00738	0.99265	0.04085	-0.18065	0.85665
log.sl	0.03322	1.03378	0.01263	2.62955	0.00855
LHSHRUB	0.22528	1.25267	0.06195	3.63679	0.00028
TUSSK	0.15544	1.16817	0.05915	2.62804	0.00859
WBAREA_sq	-0.09572	0.90872	0.03996	-2.39511	0.01662
TUNDRA_sq	0.04412	1.04510	0.03040	1.45140	0.14667
SEDGEWET_sq	0.07460	1.07745	0.02642	2.82385	0.00475
WBAREA	-0.08483	0.91867	0.09572	-0.88624	0.37549
TUNDRA	0.03912	1.03989	0.04671	0.83744	0.40235
SEDGEWET	-0.05563	0.94588	0.04459	-1.24770	0.21214

Table H-14: Male Post-Rut Geofence 112 North 1-hour Interval ISSF Covariates and Coefficients

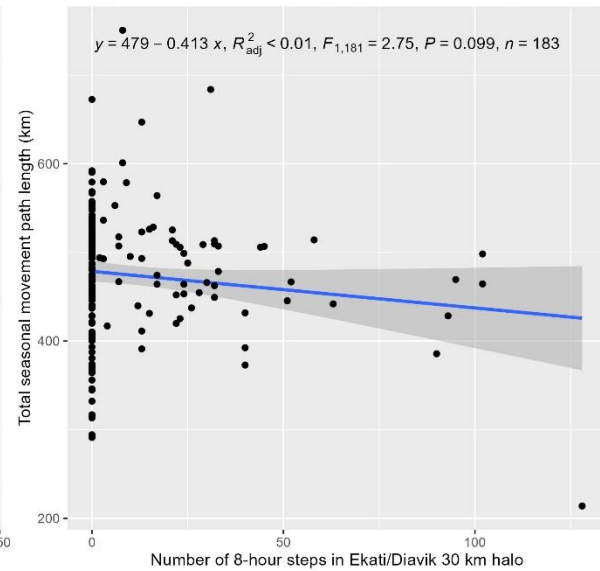
covariate	coef	exp.coef.	se.coef.	z	Pr...z..
cos.ta	-0.05659	0.94498	0.04139	-1.36730	0.17153
log.sl	0.00982	1.00987	0.01205	0.81462	0.41529
LHSHRUB	0.16811	1.18307	0.04360	3.85560	0.00012
WBAREA_sq	-0.08499	0.91852	0.02103	-4.04189	0.00005
TUSSK	0.14660	1.15789	0.03970	3.69235	0.00022
WBAREA_S3	0.07648	1.07948	0.08002	0.95583	0.33916

APPENDIX J 8-HOUR SEASONAL MOVEMENT PATH LENGTH VS. EXPOSURE IN EKATI/DIAVIK HALO

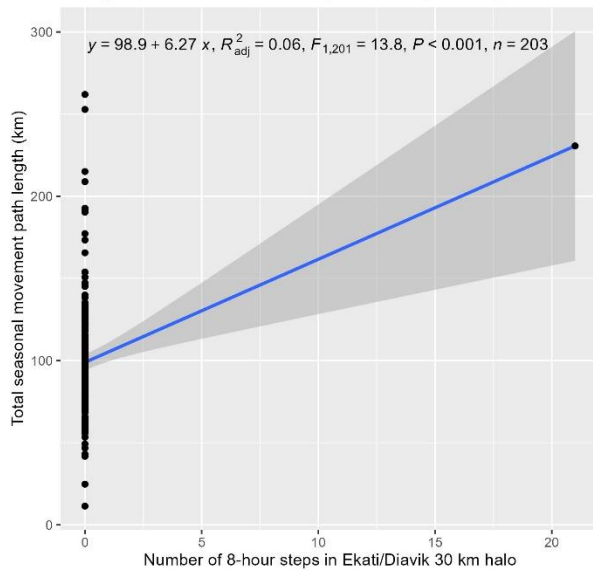
J-1.a) Bathurst female winter seasonal path length



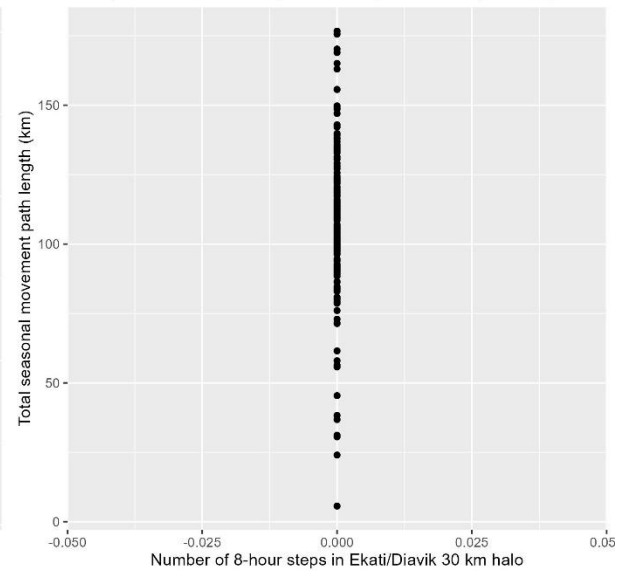
J-1.b) Bathurst female spring migration seasonal path length



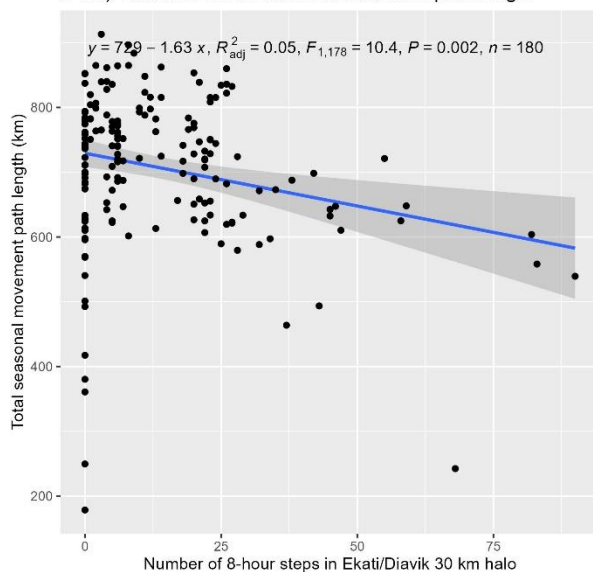
J-1.c) Bathurst female calving seasonal path length



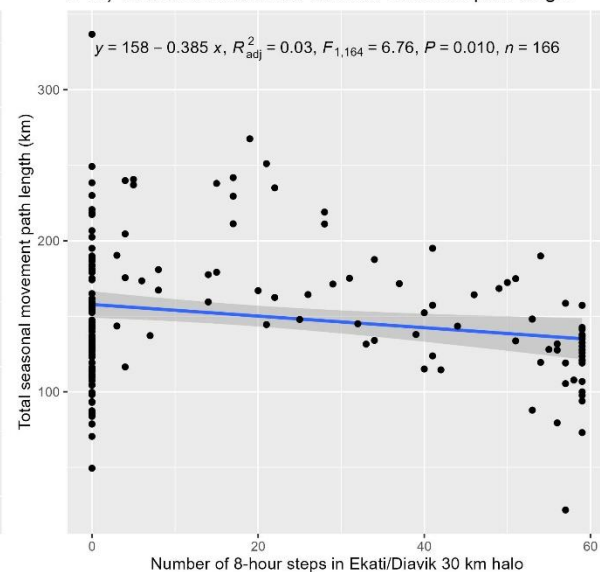
J-1.d) Bathurst female post-calving seasonal path length



J-1.e) Bathurst female summer seasonal path length



J-1.f) Bathurst female late summer seasonal path length



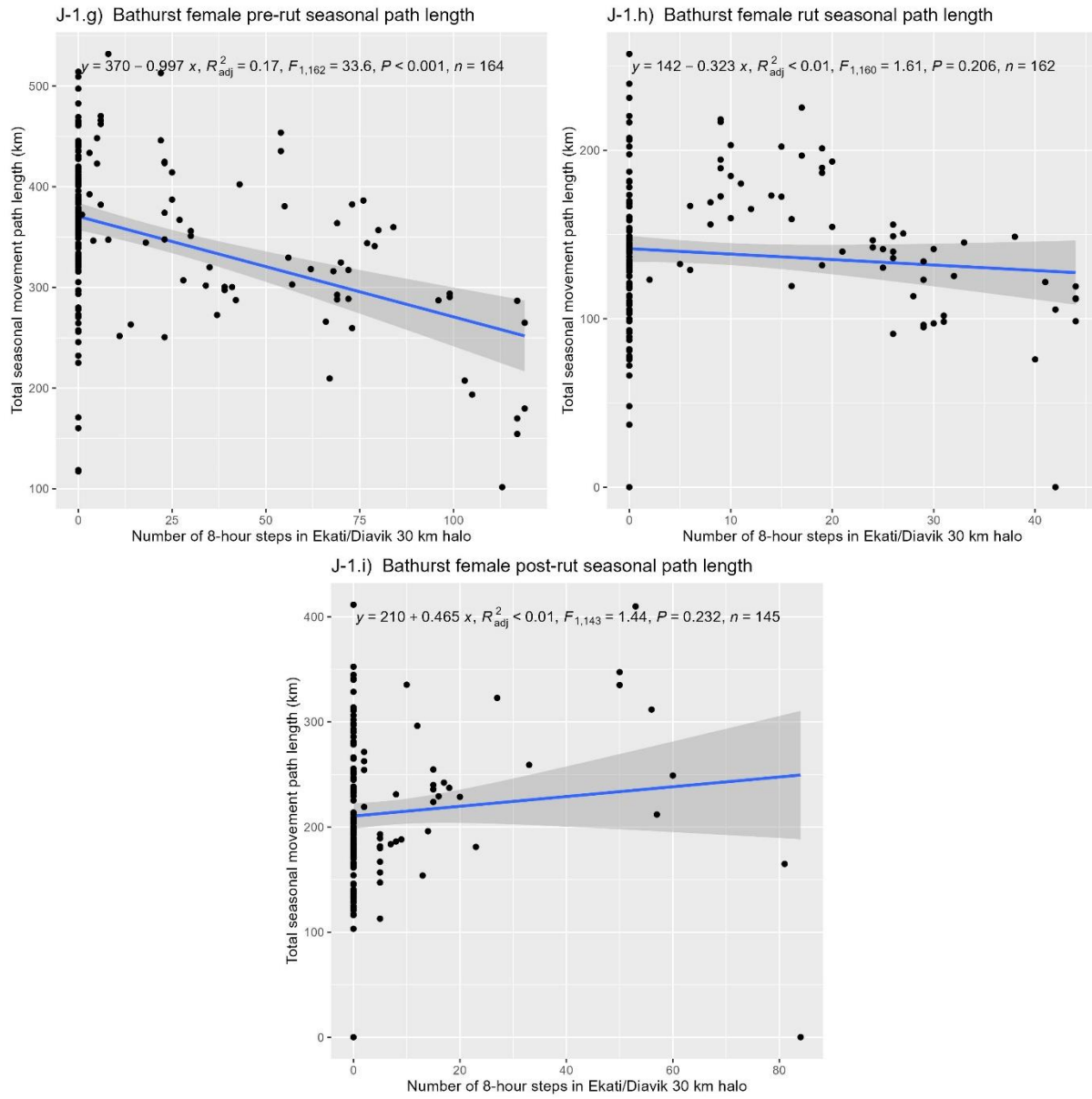
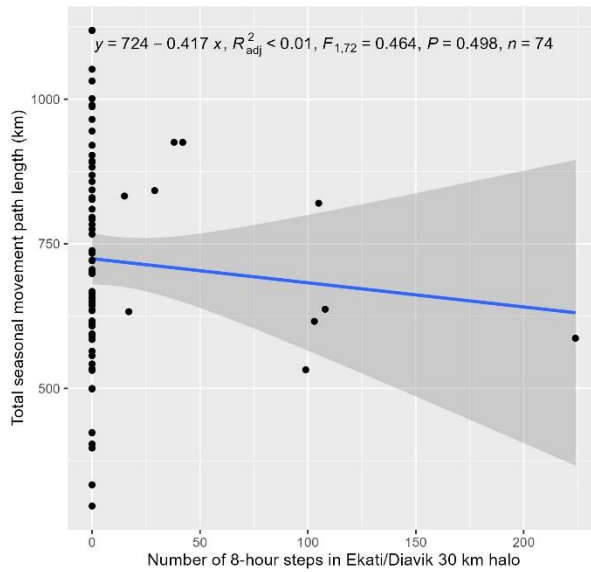
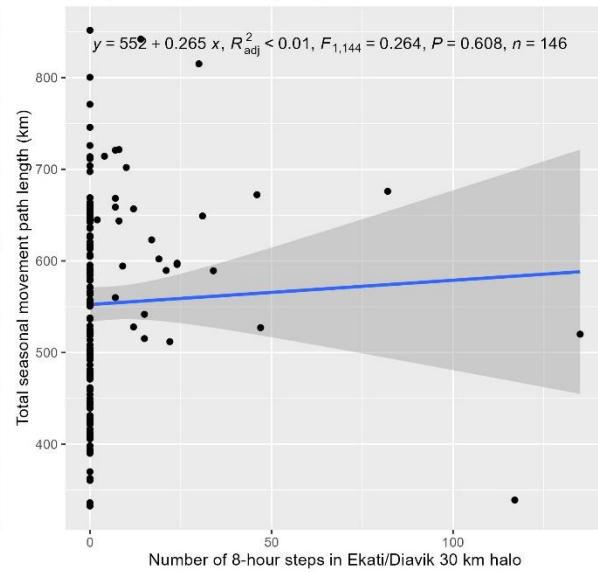


Figure J-1: Relationship of total seasonal 8-hour movement path length of female Bathurst herd caribou to their exposure (number of 8-hour movement steps) to the Ekati/Diavik 30 km halo.

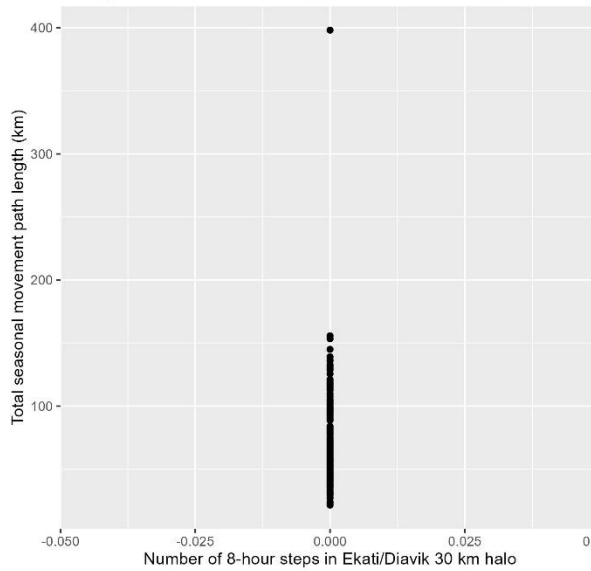
J-2.a) Beverly female winter seasonal path length



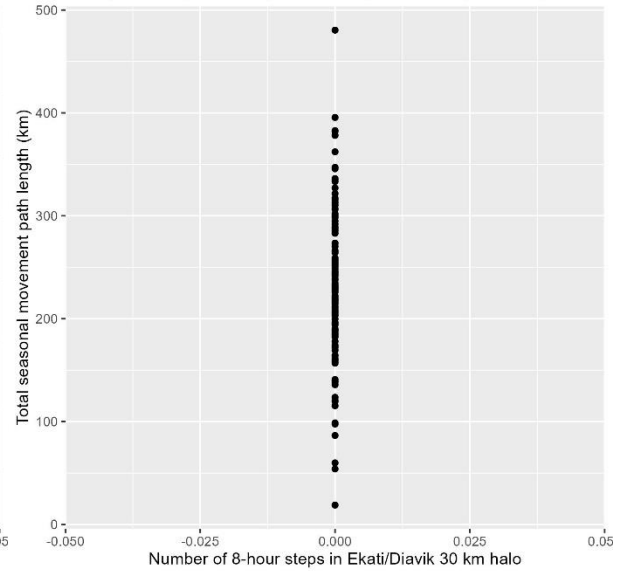
J-2.b) Beverly female spring migration seasonal path length



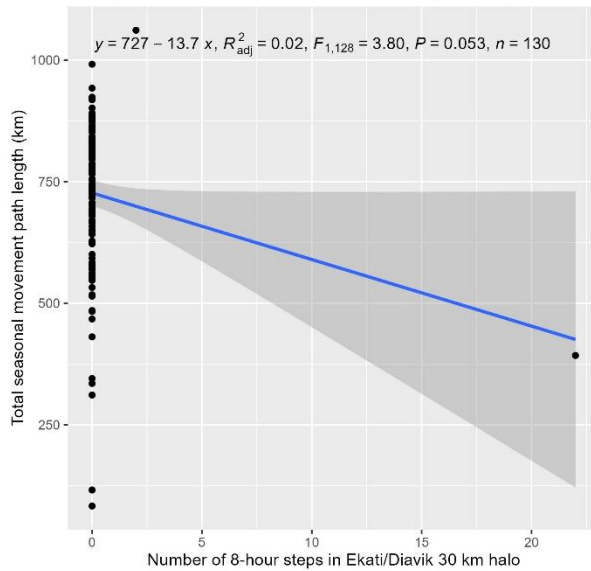
J-2.c) Beverly female calving seasonal path length



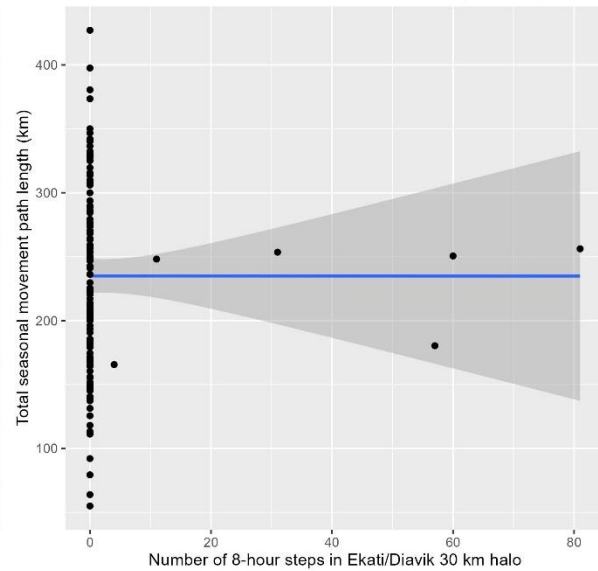
J-2.d) Beverly female post-calving seasonal path length



J-2.e) Beverly female summer seasonal path length



J-2.f) Beverly female late summer seasonal path length



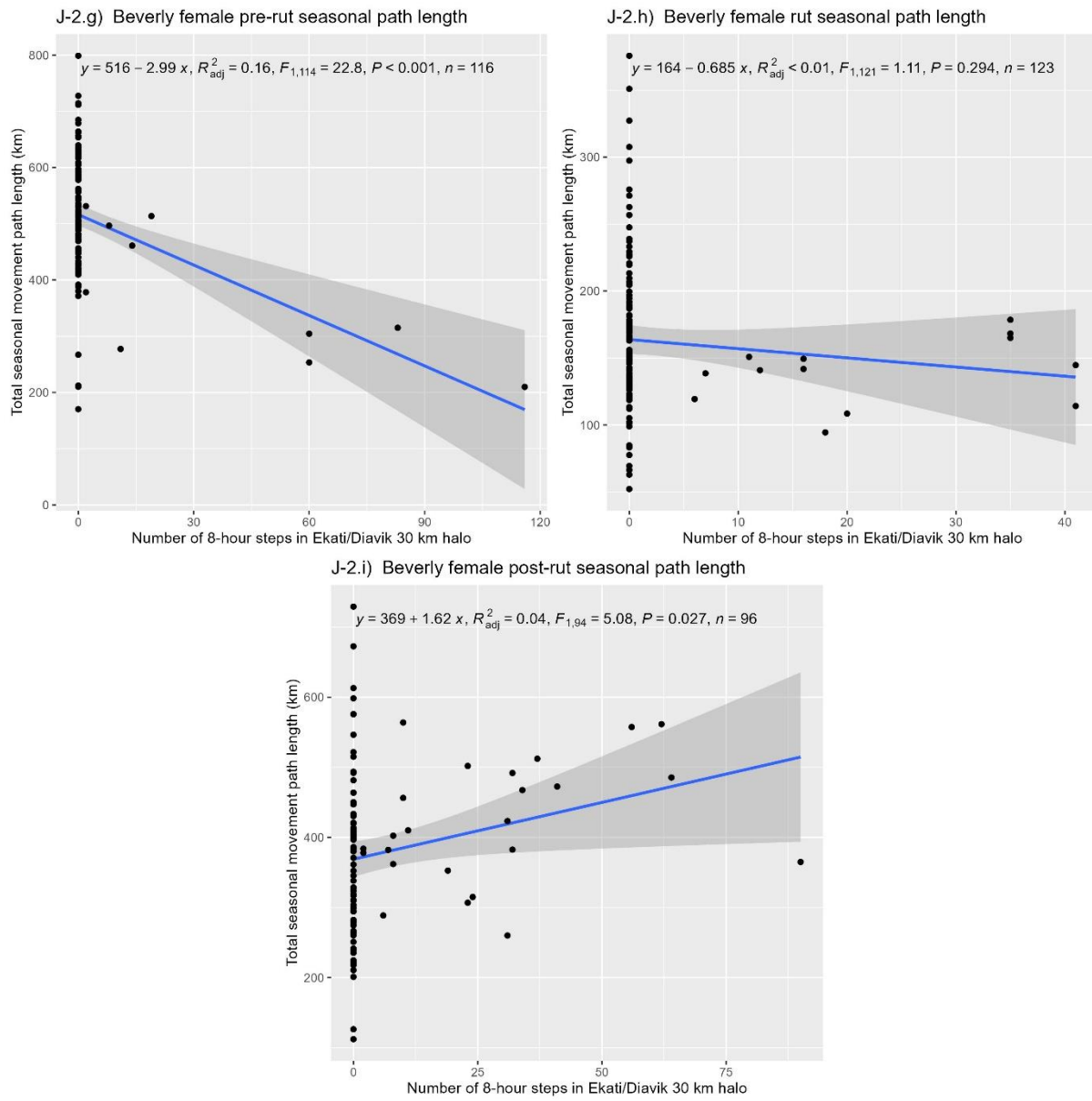
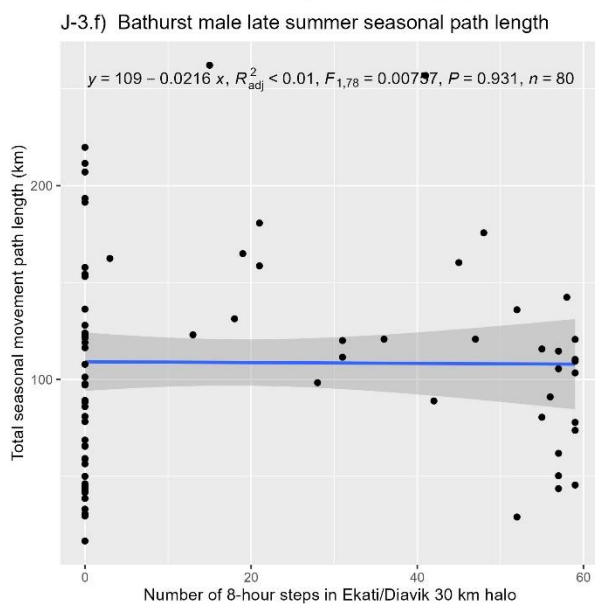
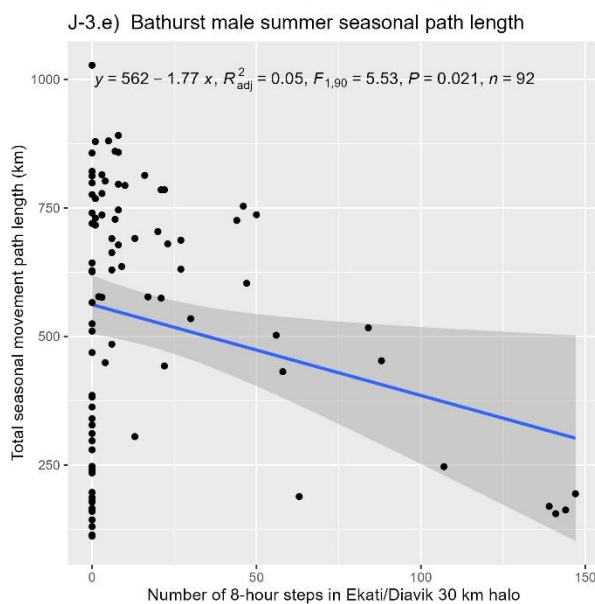
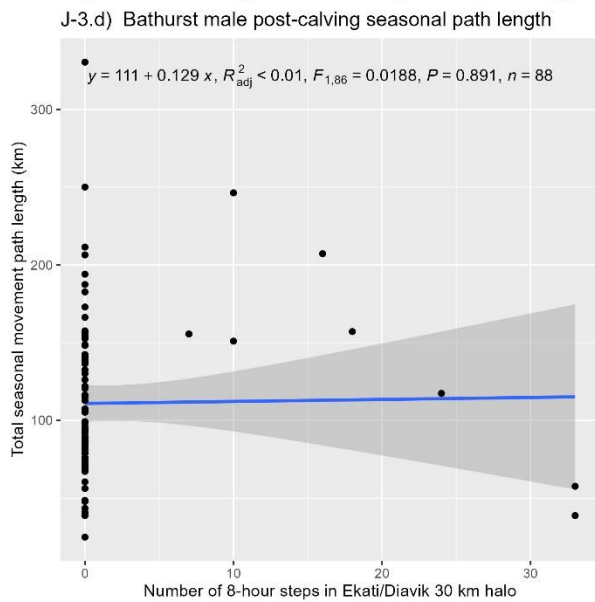
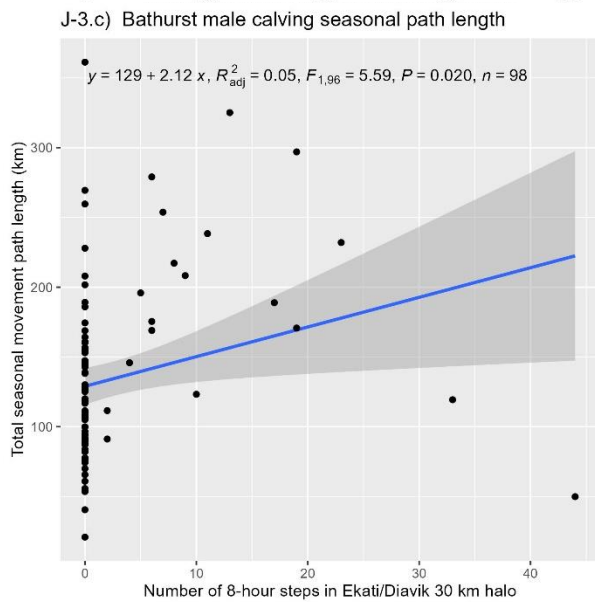
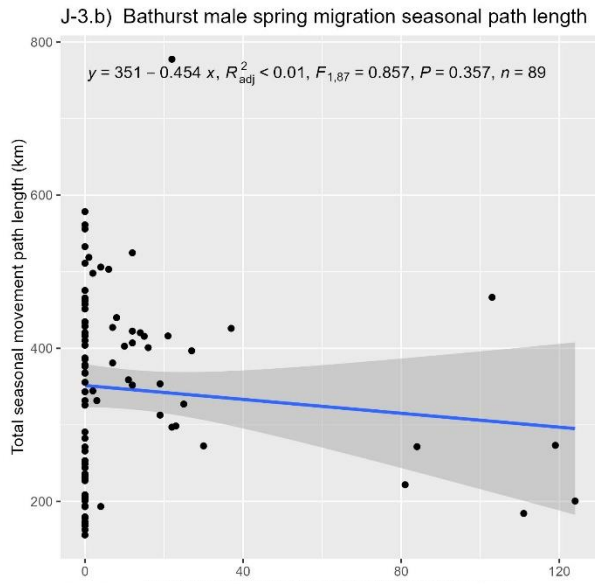
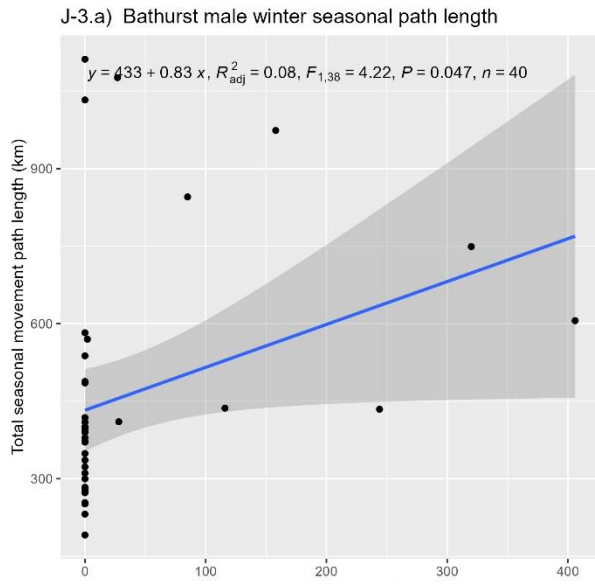


Figure J-2: Relationship of total seasonal 8-hour movement path length of female Beverly herd caribou to their exposure (number of 8-hour movement steps) to the Ekati/Diavik 30 km halo.



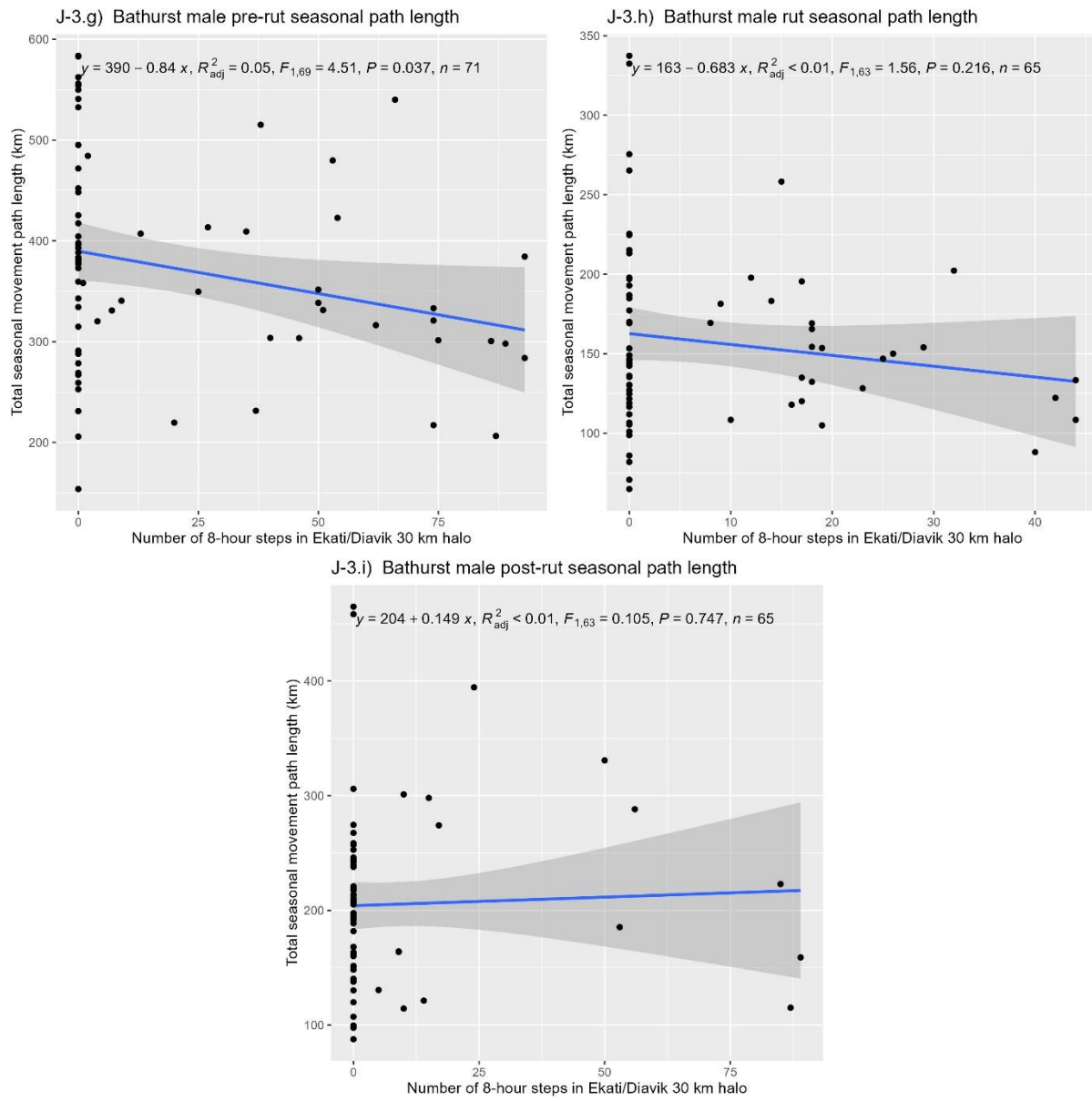
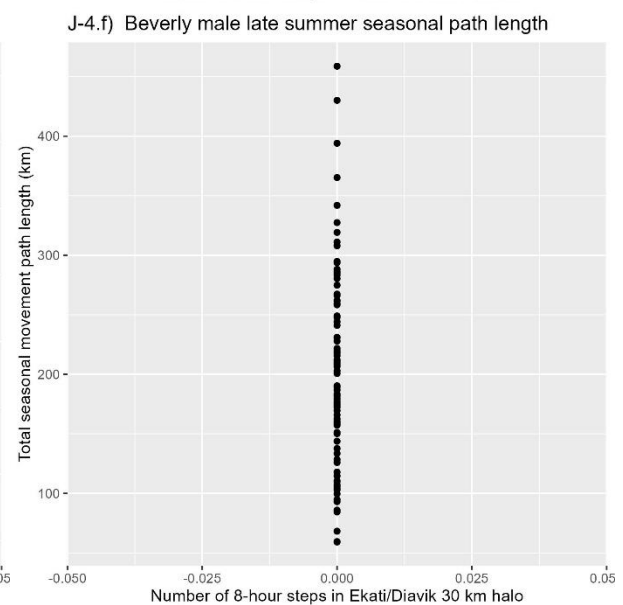
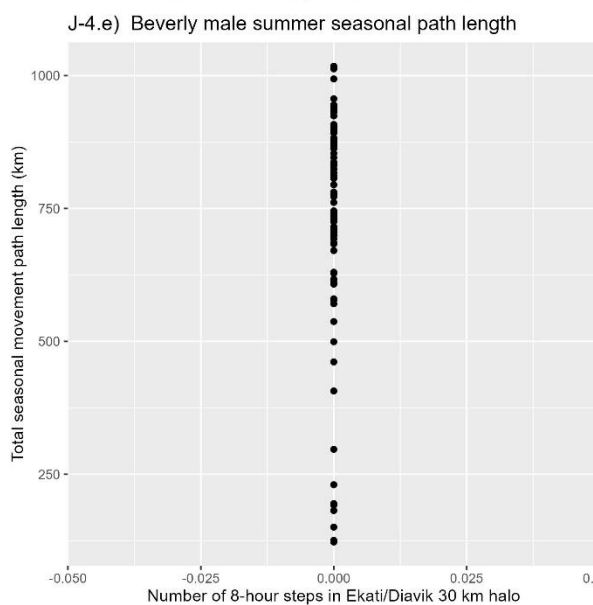
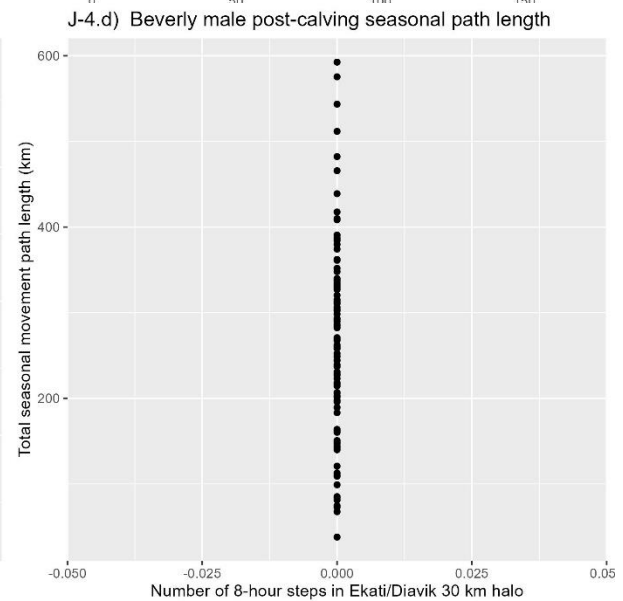
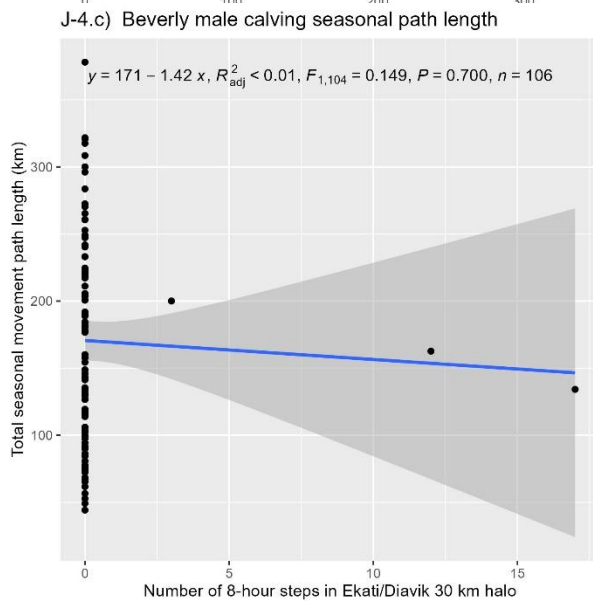
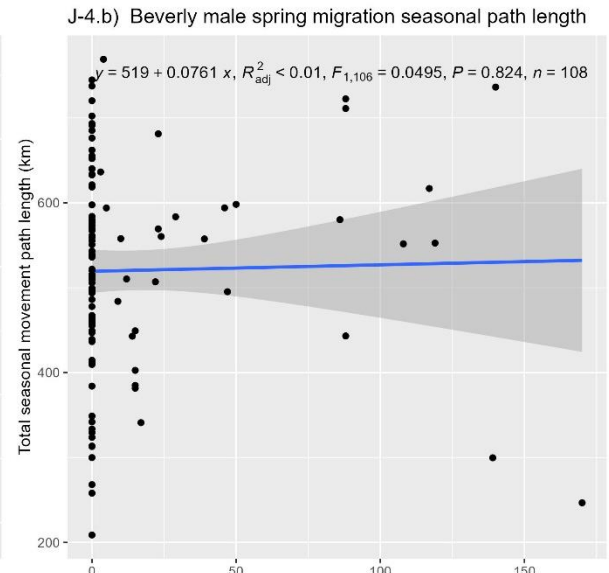
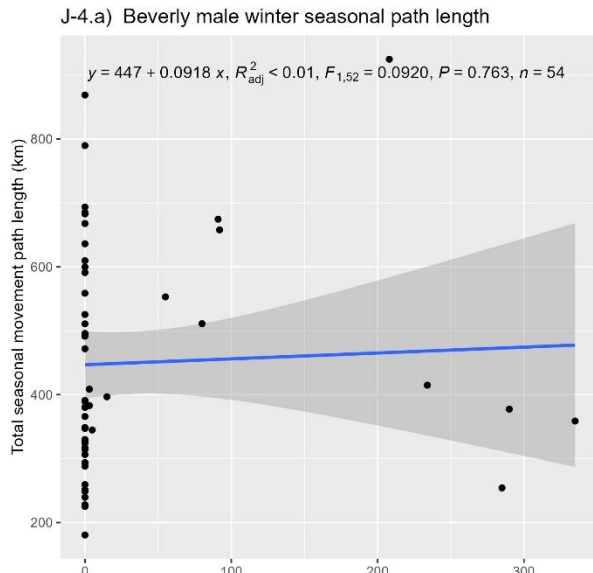


Figure J-3: Relationship of total seasonal 8-hour movement path length of male Bathurst herd caribou to their exposure (number of 8-hour movement steps) to the Ekati/Diavik 30 km halo.



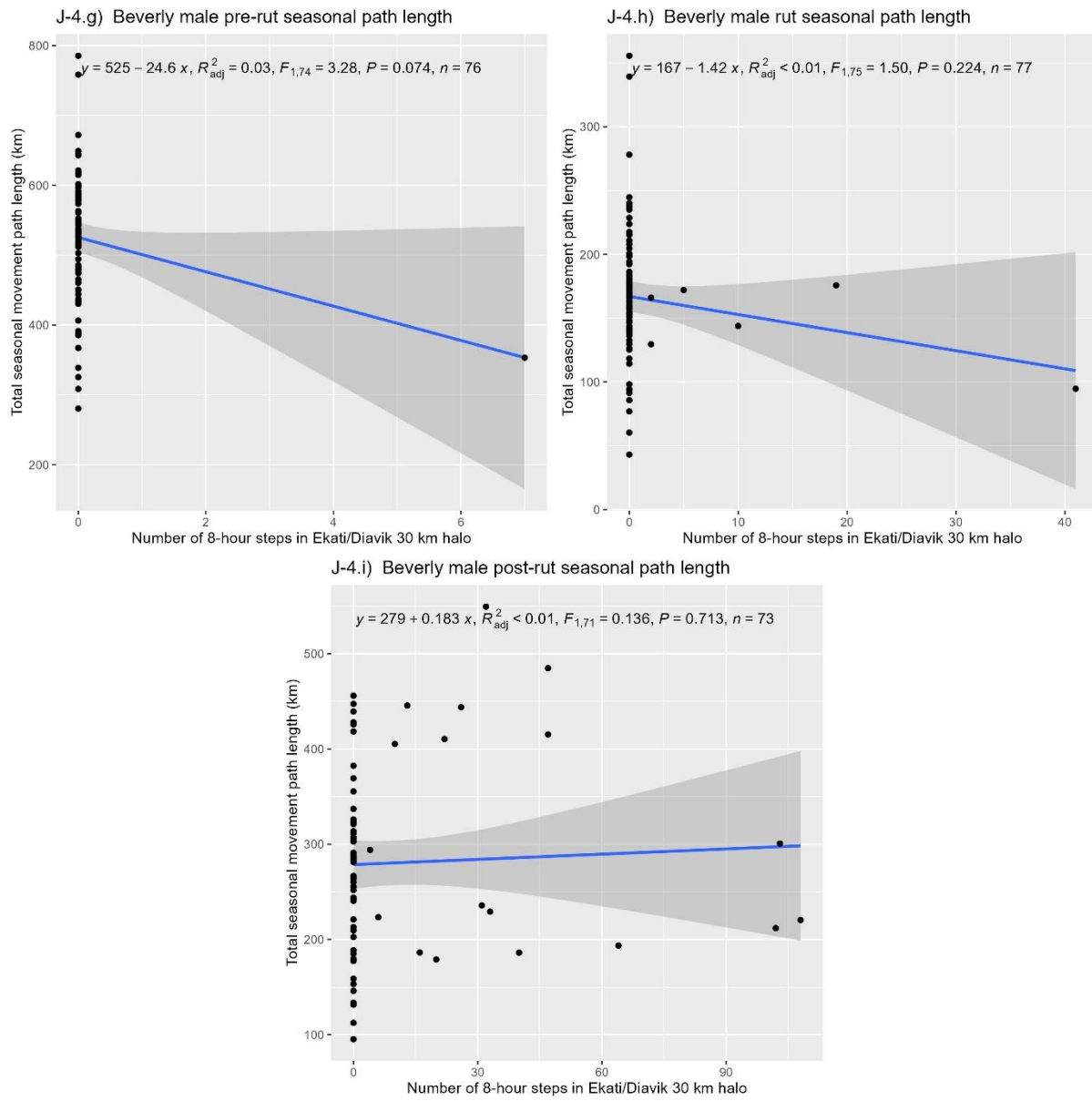
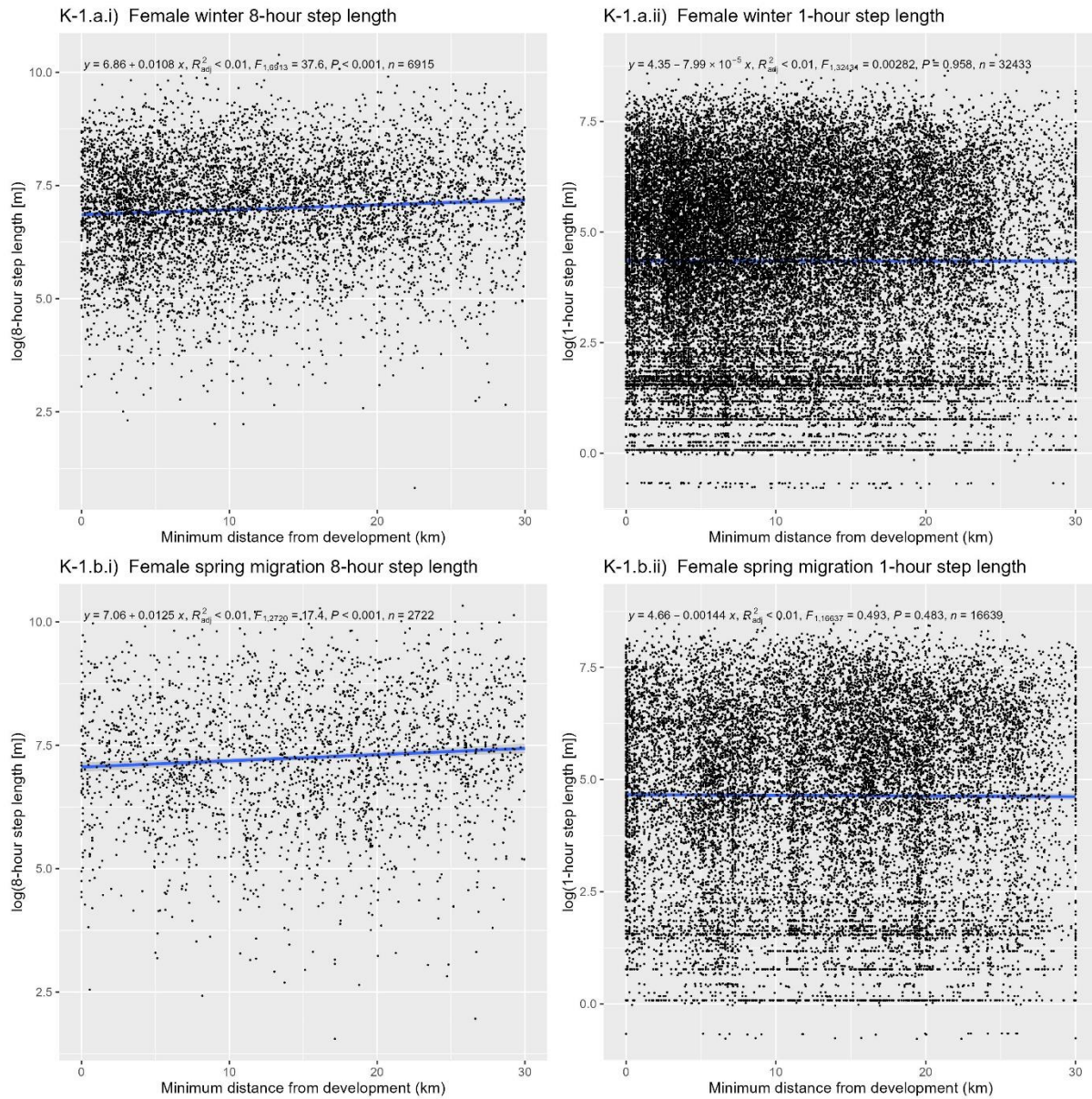
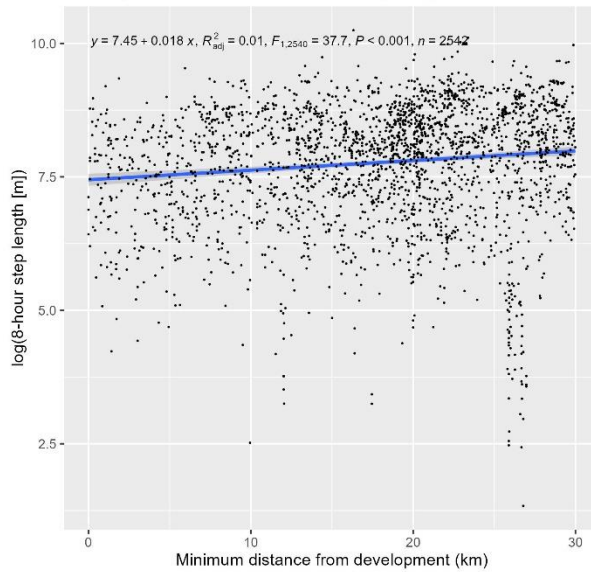


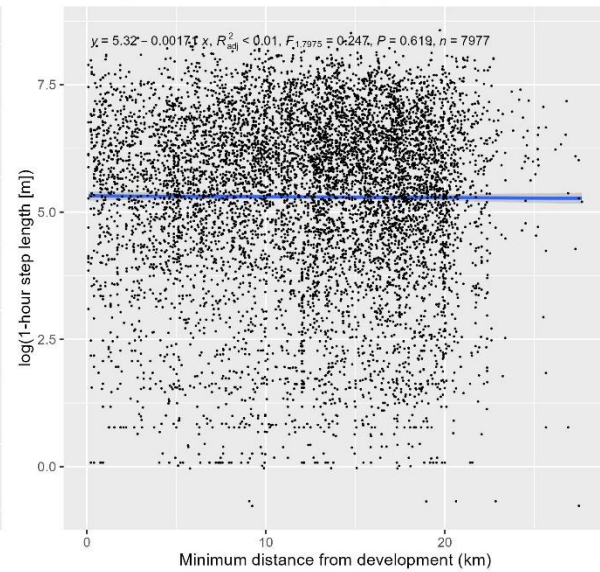
Figure J-4: Relationship of total seasonal 8-hour movement path length of male Beverly herd caribou to their exposure (number of 8-hour movement steps) to the Ekati/Diavik 30 km halo.



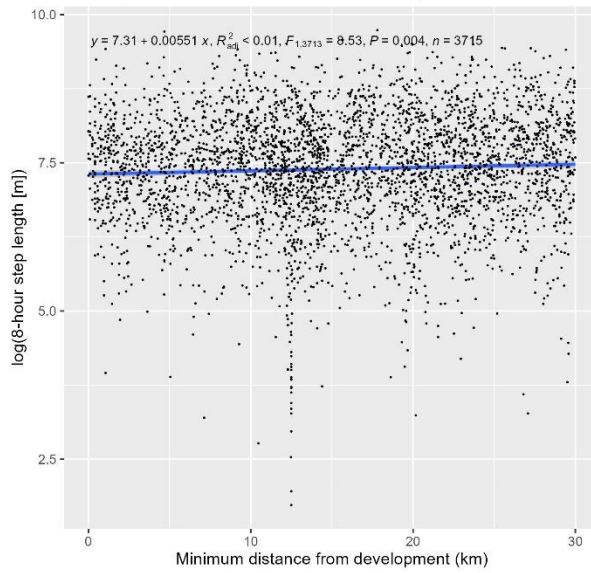
K-1.c.i) Female summer 8-hour step length



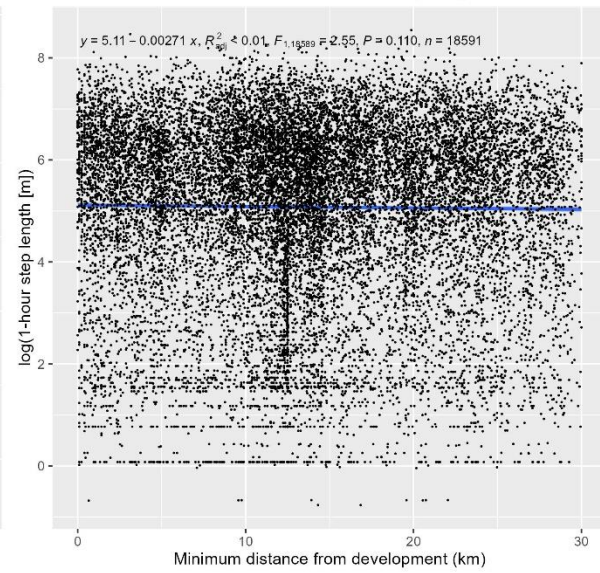
K-1.c.ii) Female summer 1-hour step length



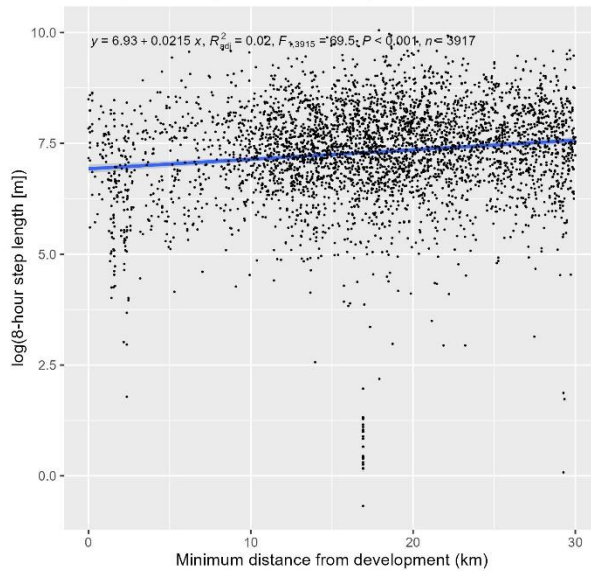
K-1.d.i) Female late summer 8-hour step length



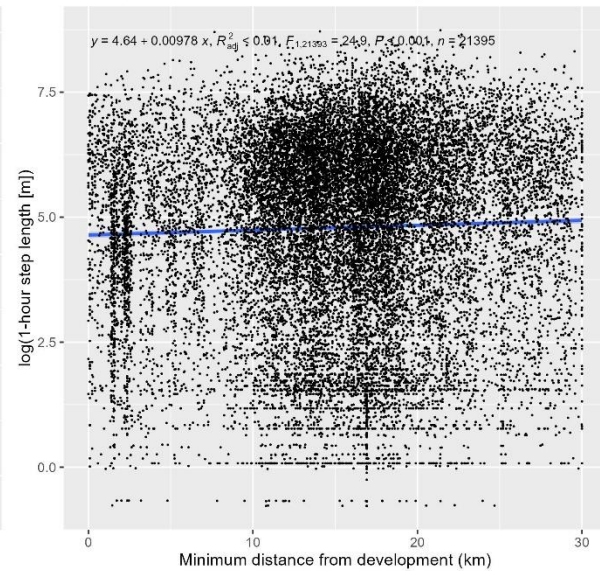
K-1.d.ii) Female late summer 1-hour step length



K-1.e.i) Female pre-rut 8-hour step length



K-1.e.ii) Female pre-rut 1-hour step length



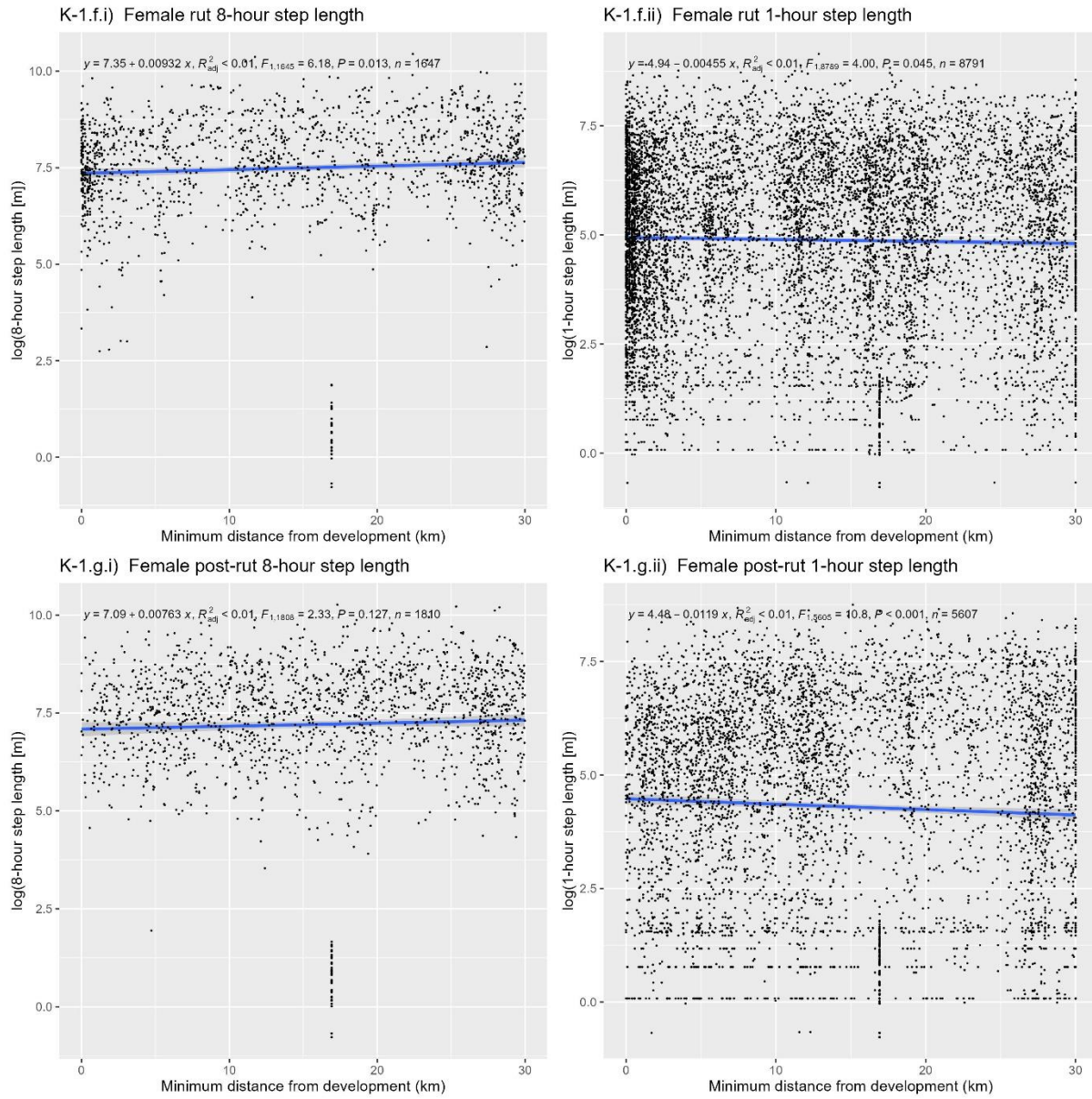
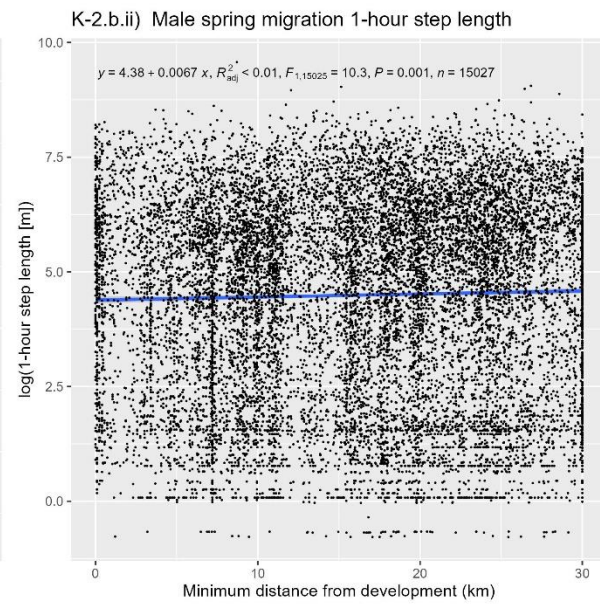
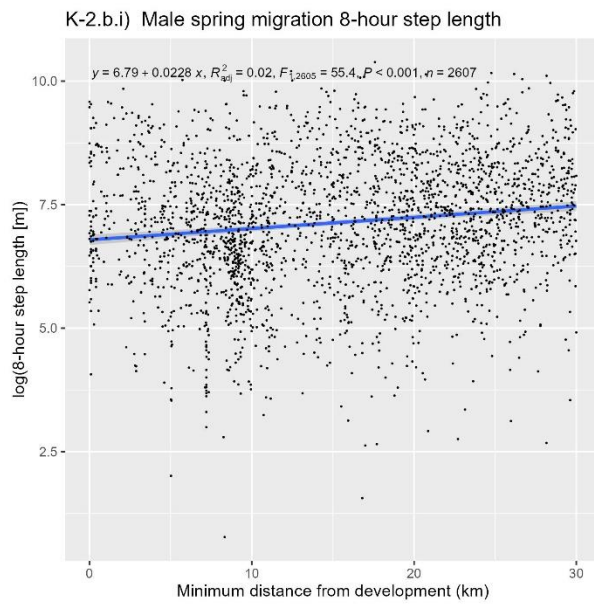
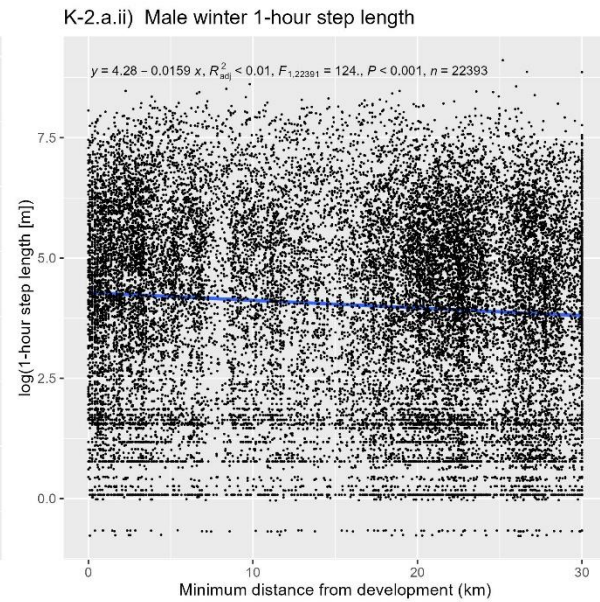
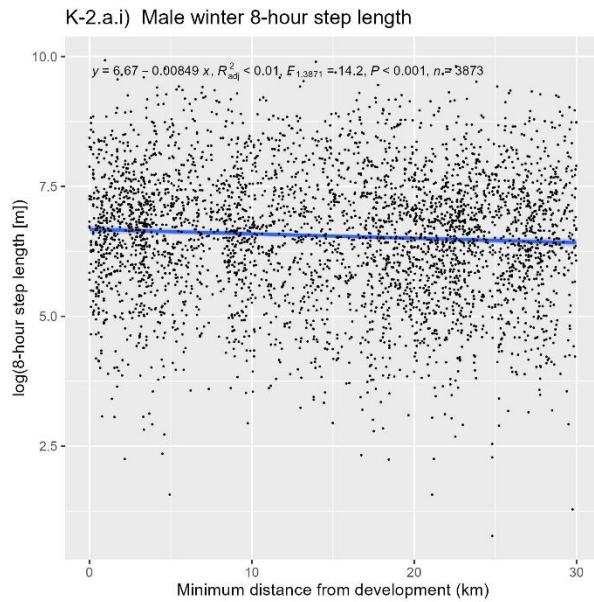
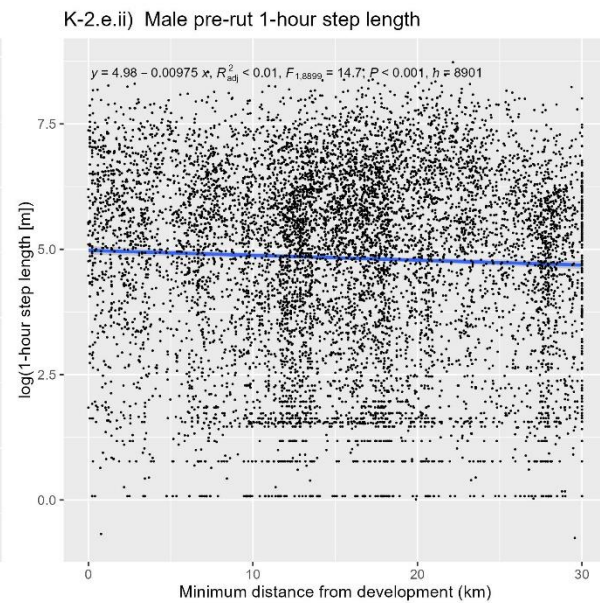
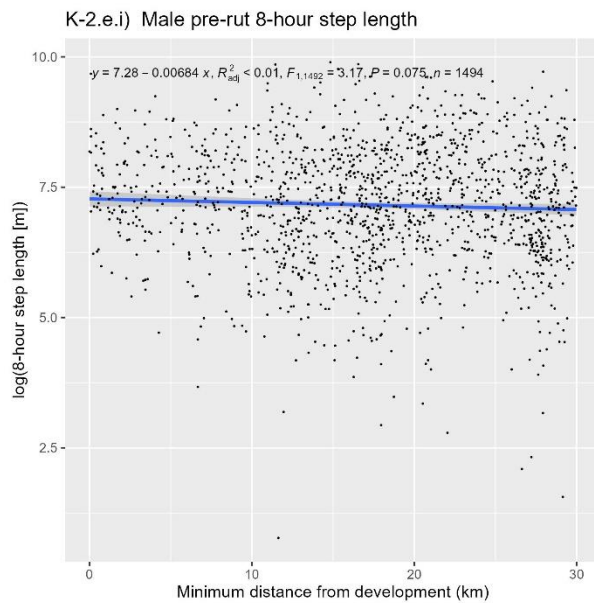
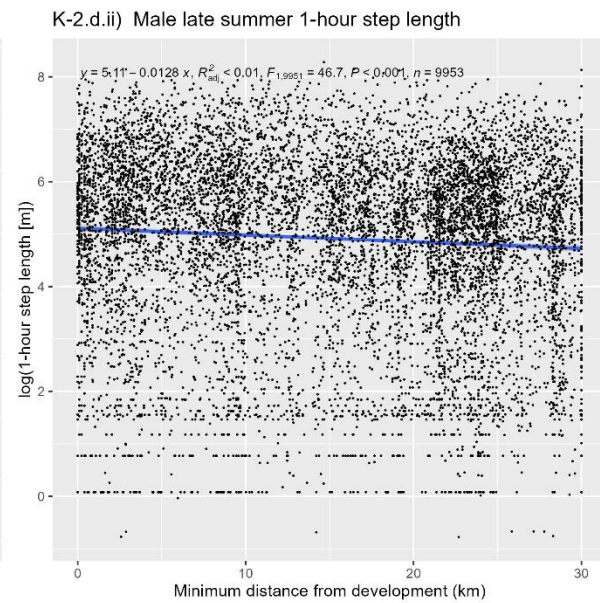
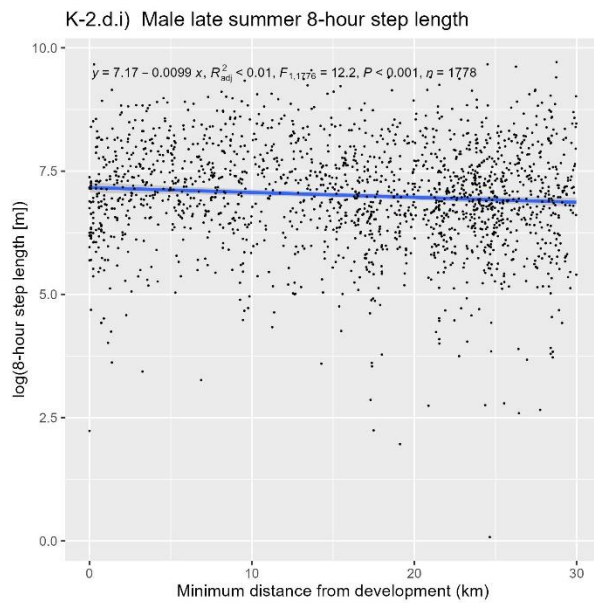
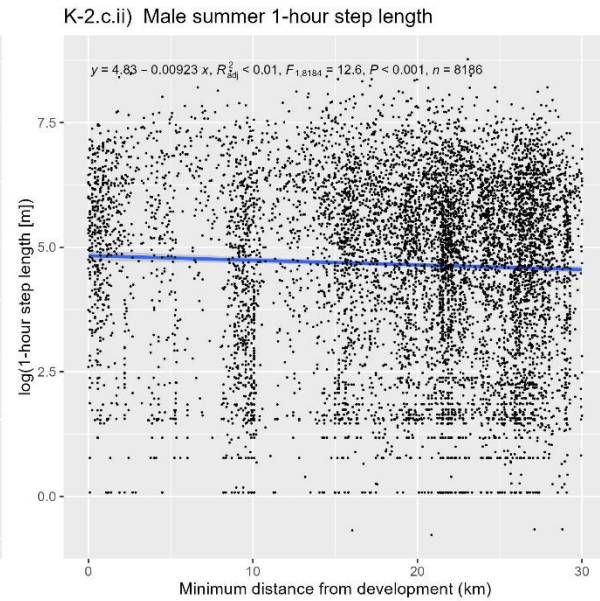
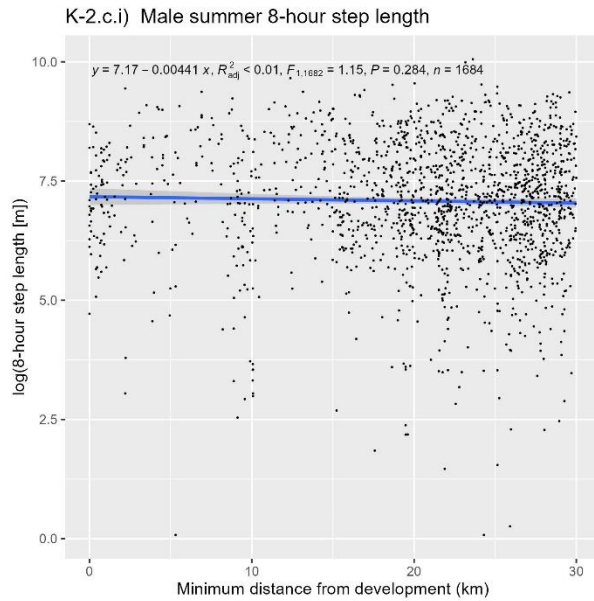


Figure K-1: Relationship of distance from nearest mining feature to prior step length by female caribou in the Ekati/Diavik 30 km halo. By season and by time interval of step.





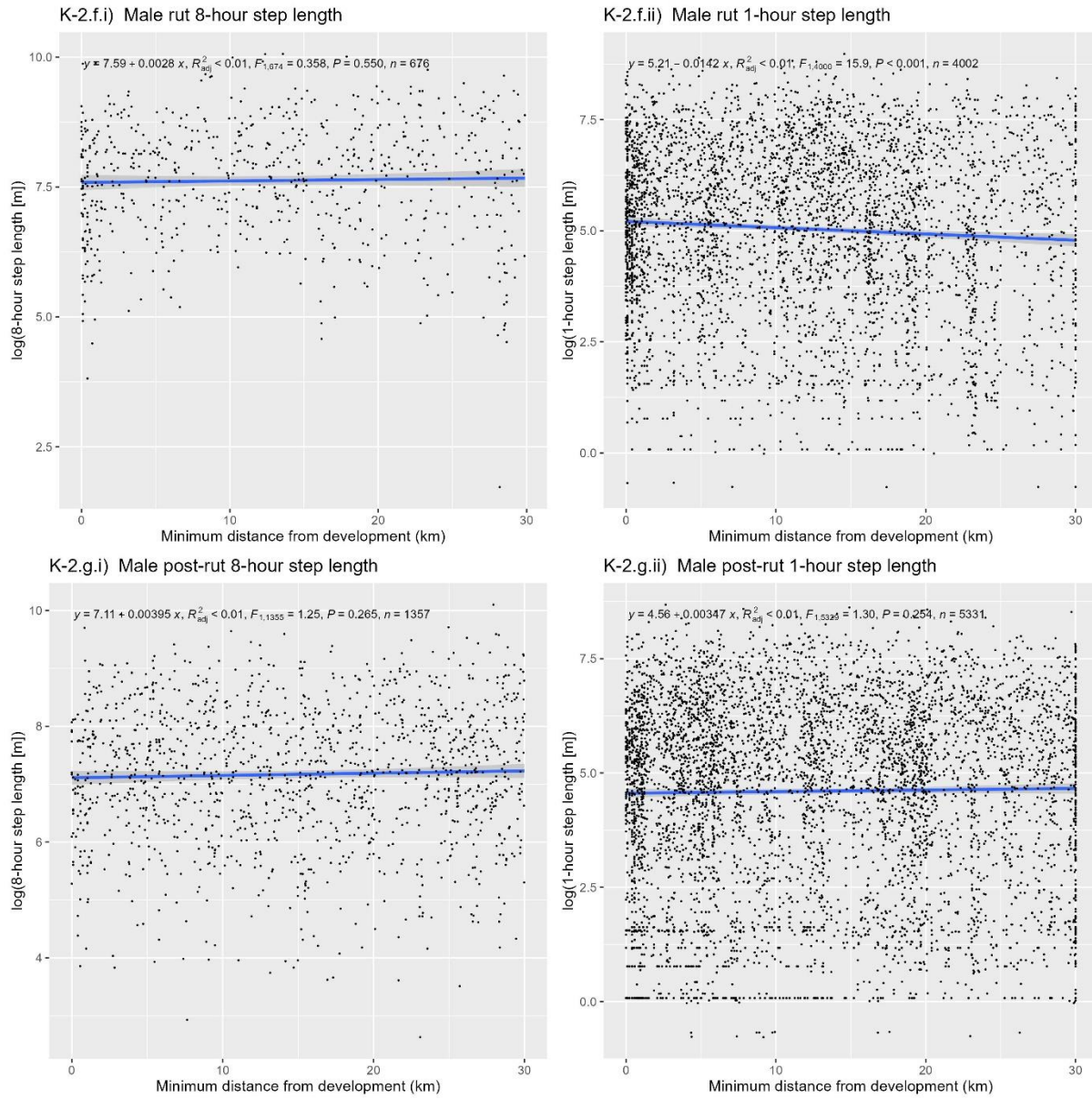
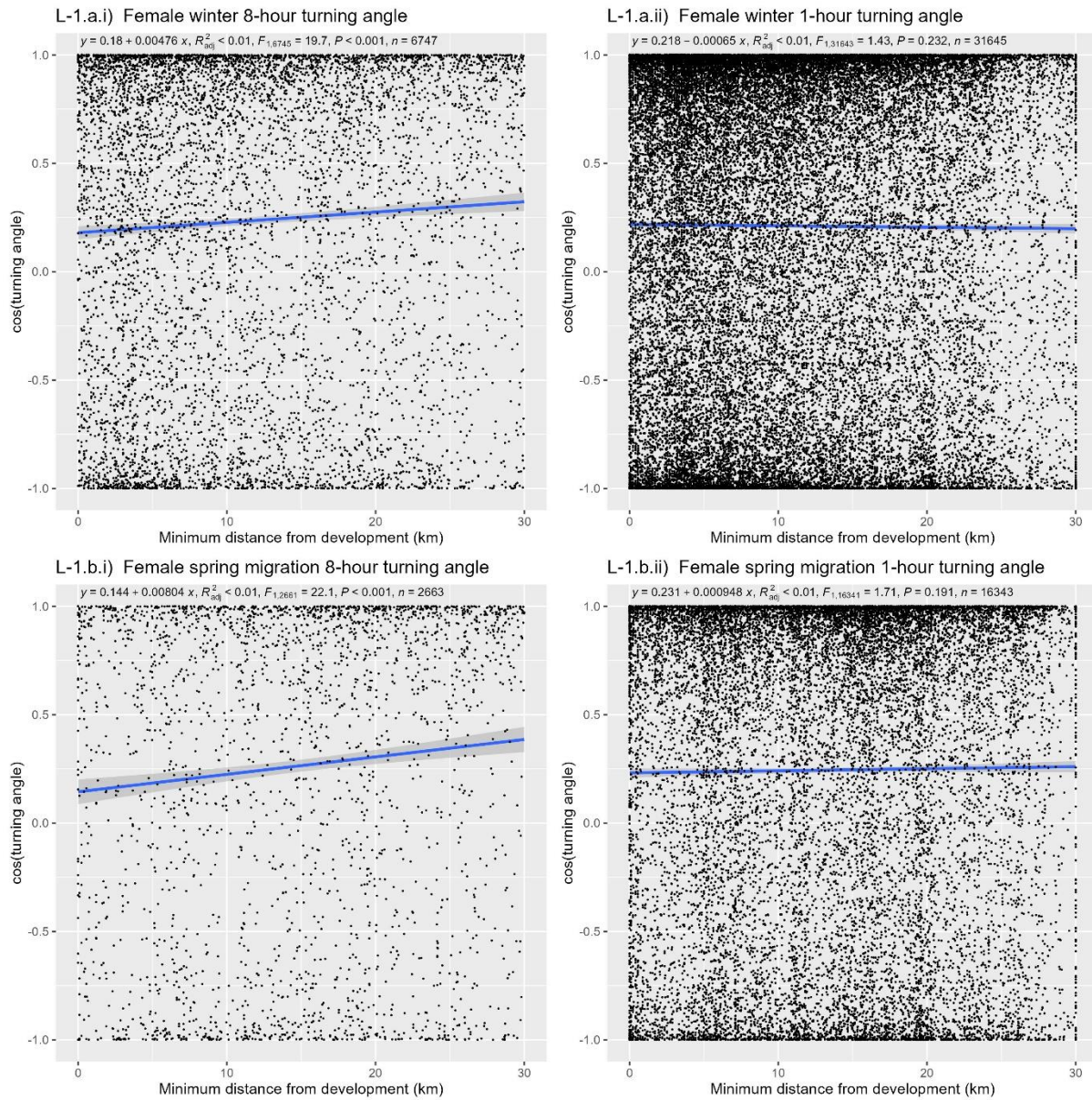
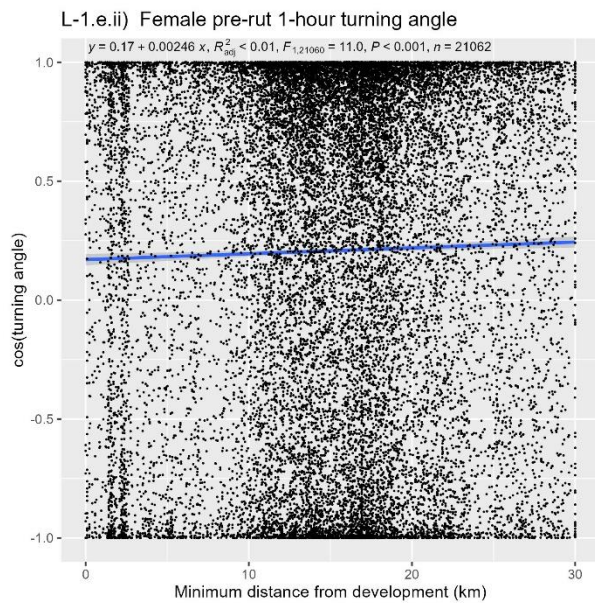
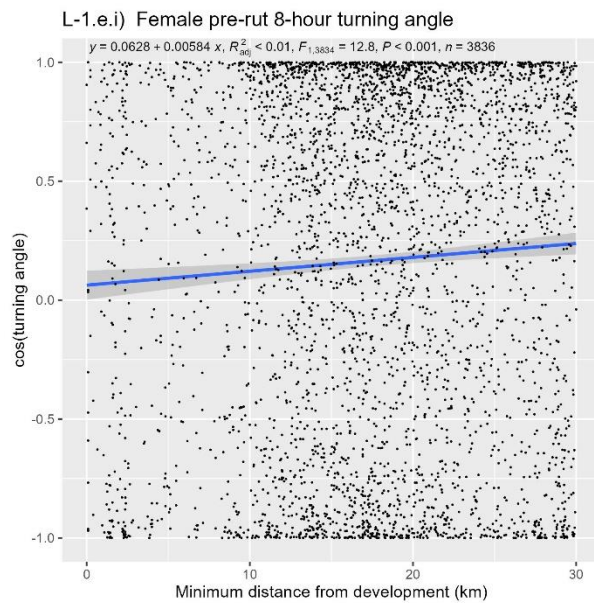
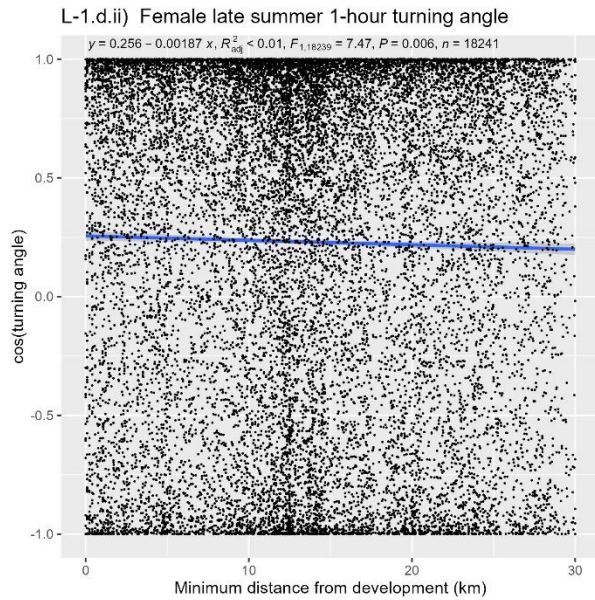
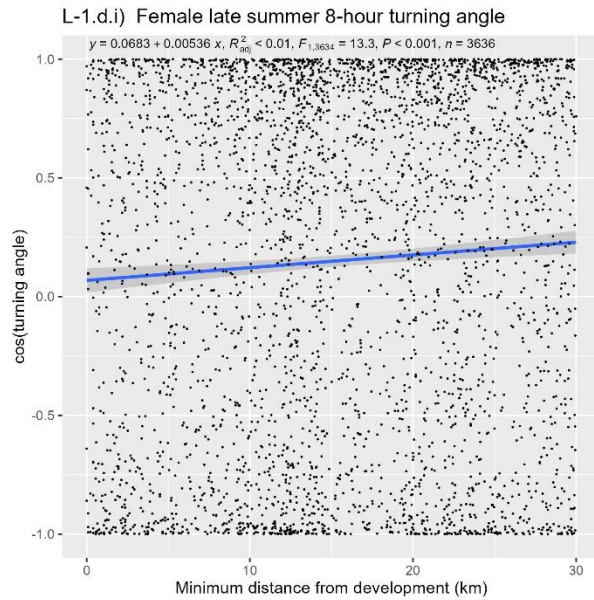
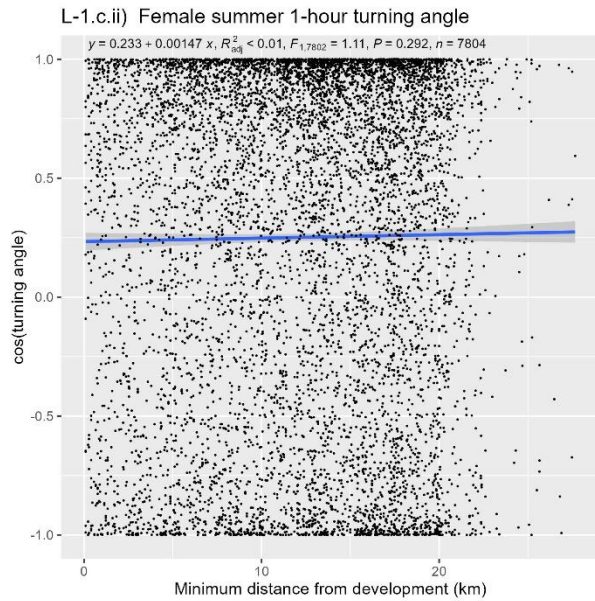
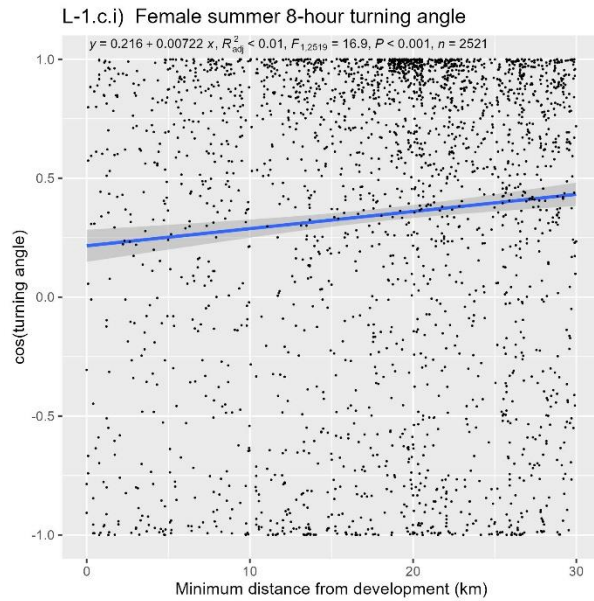


Figure K-2: Relationship of distance from nearest mining feature to prior step length by male caribou in the Ekati/Diavik 30 km halo. By season and by time interval of step.





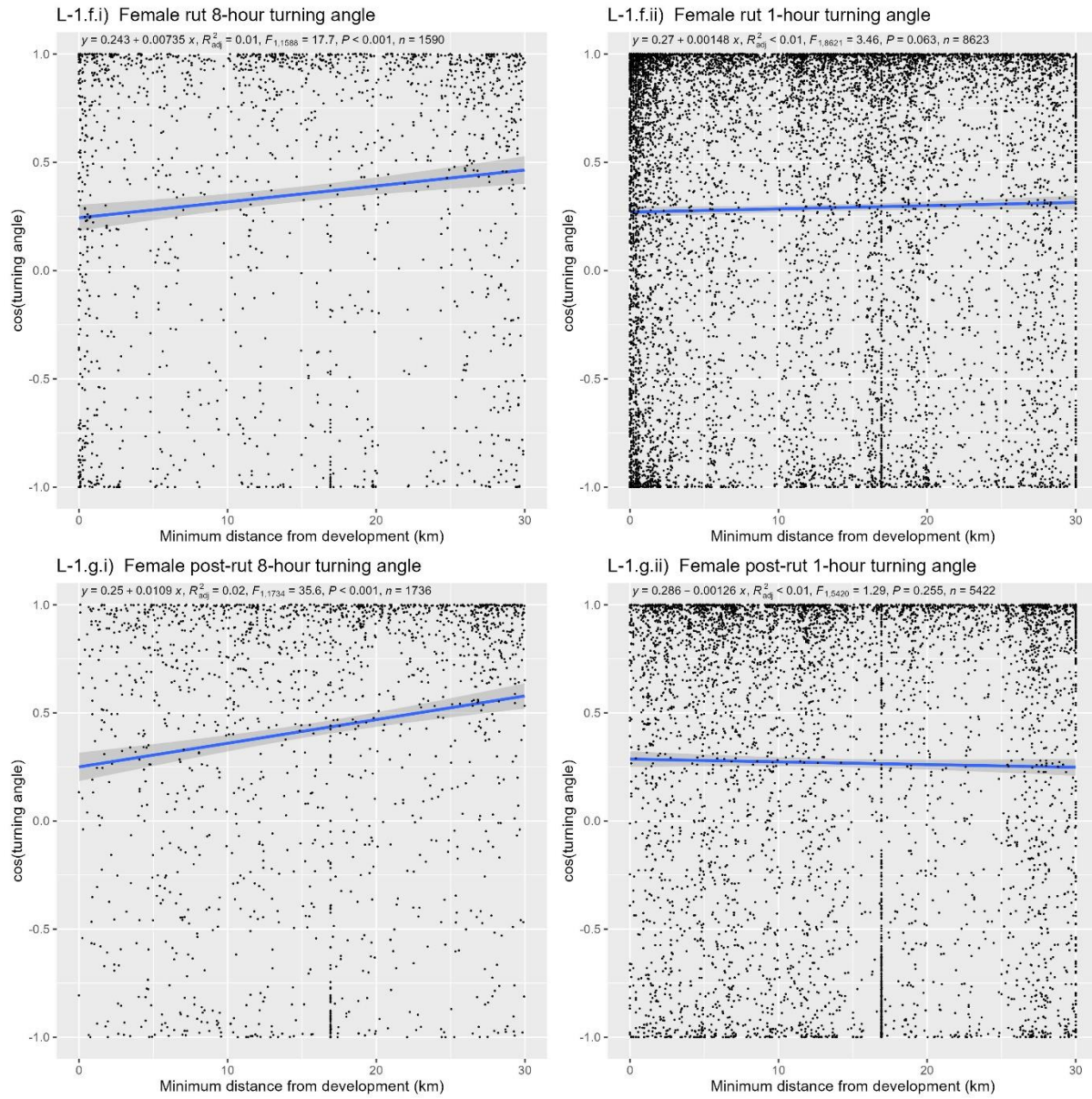
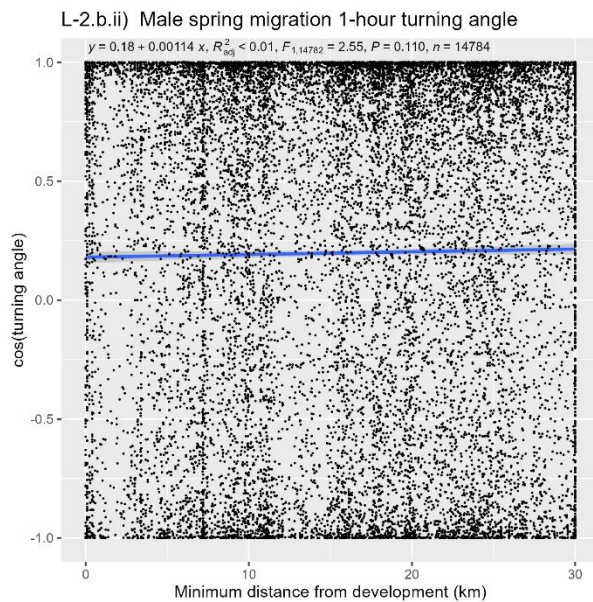
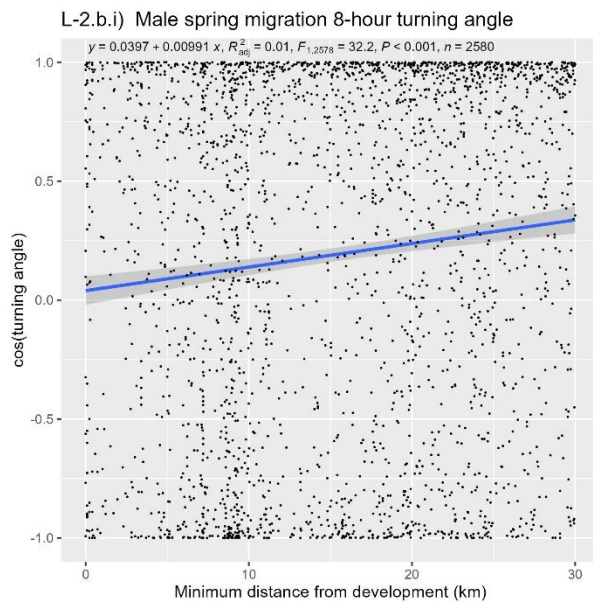
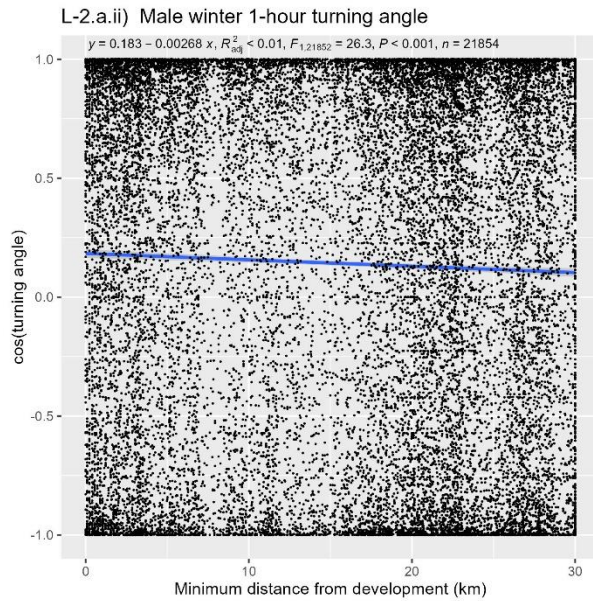
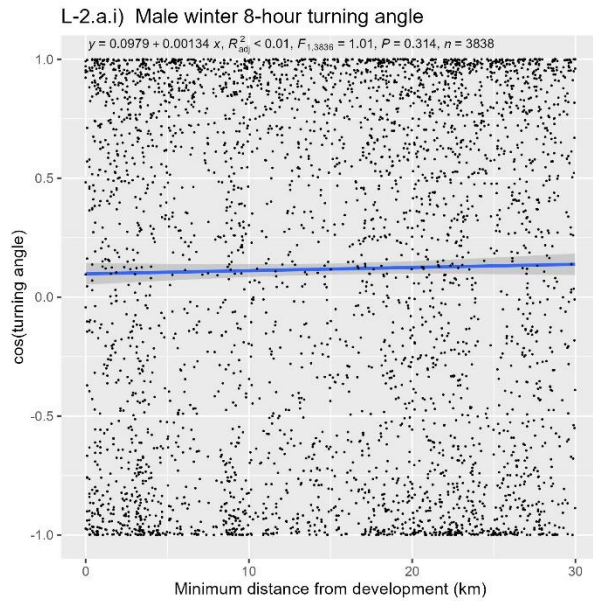
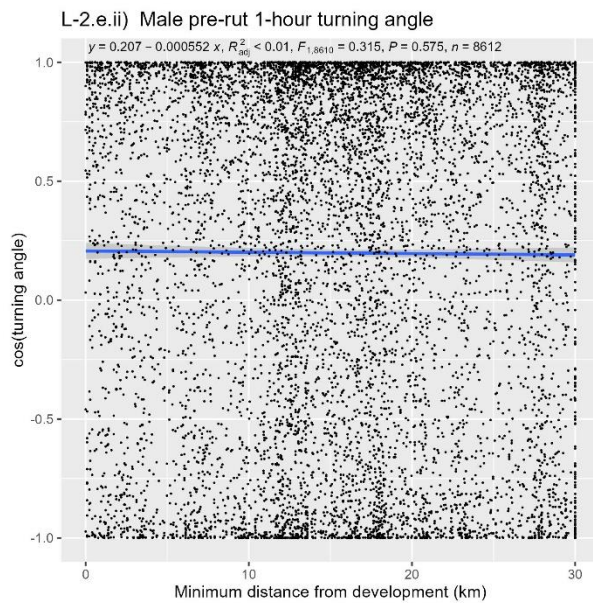
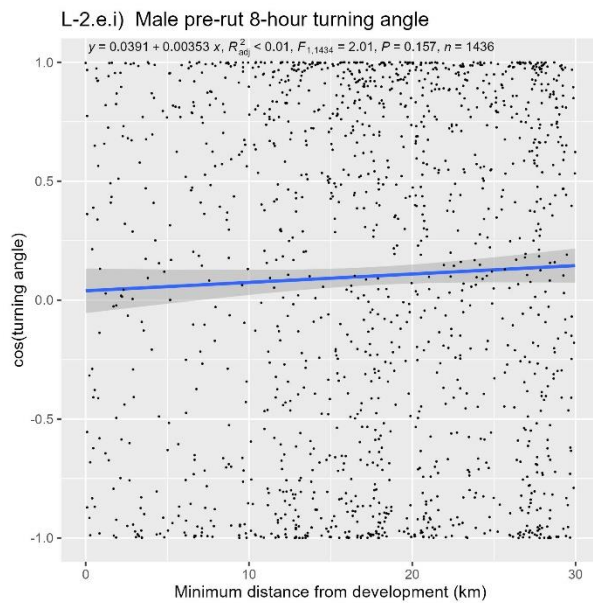
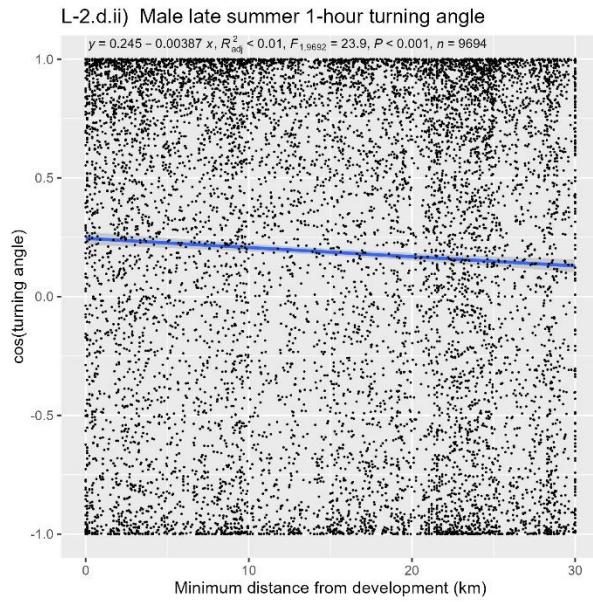
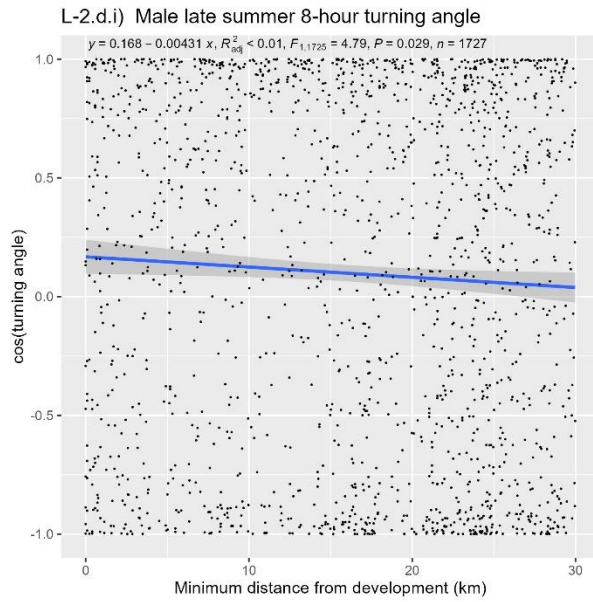
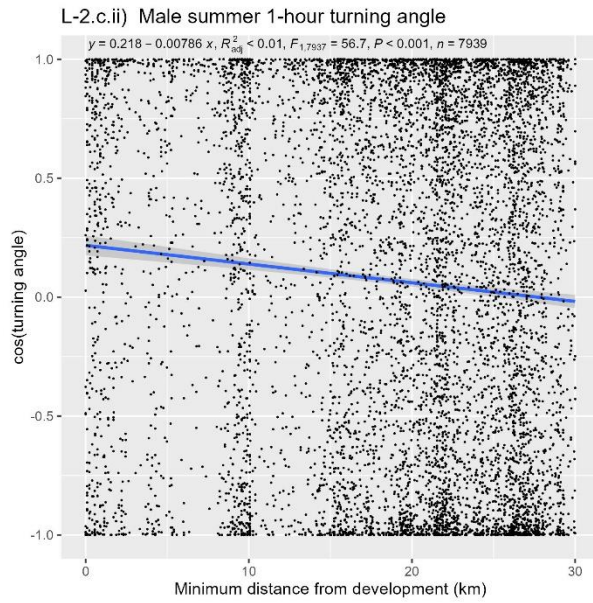
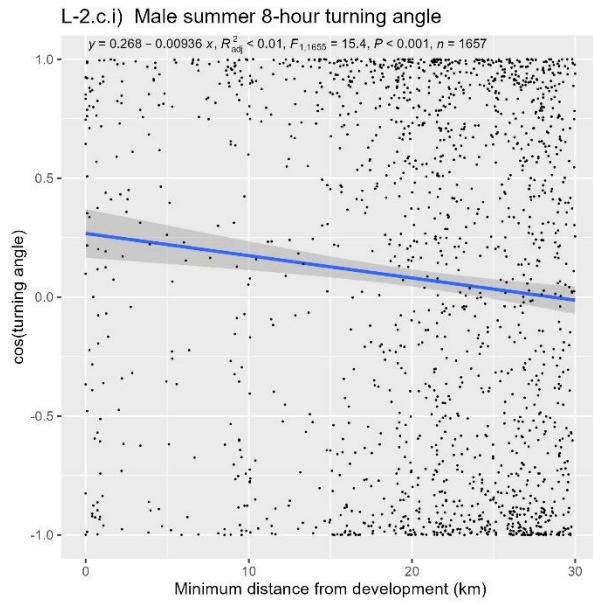


Figure L-1: Relationship of distance from nearest mining feature to prior step turning angle by female caribou in the Ekati/Diavik 30 km halo. By season and by time interval of step.





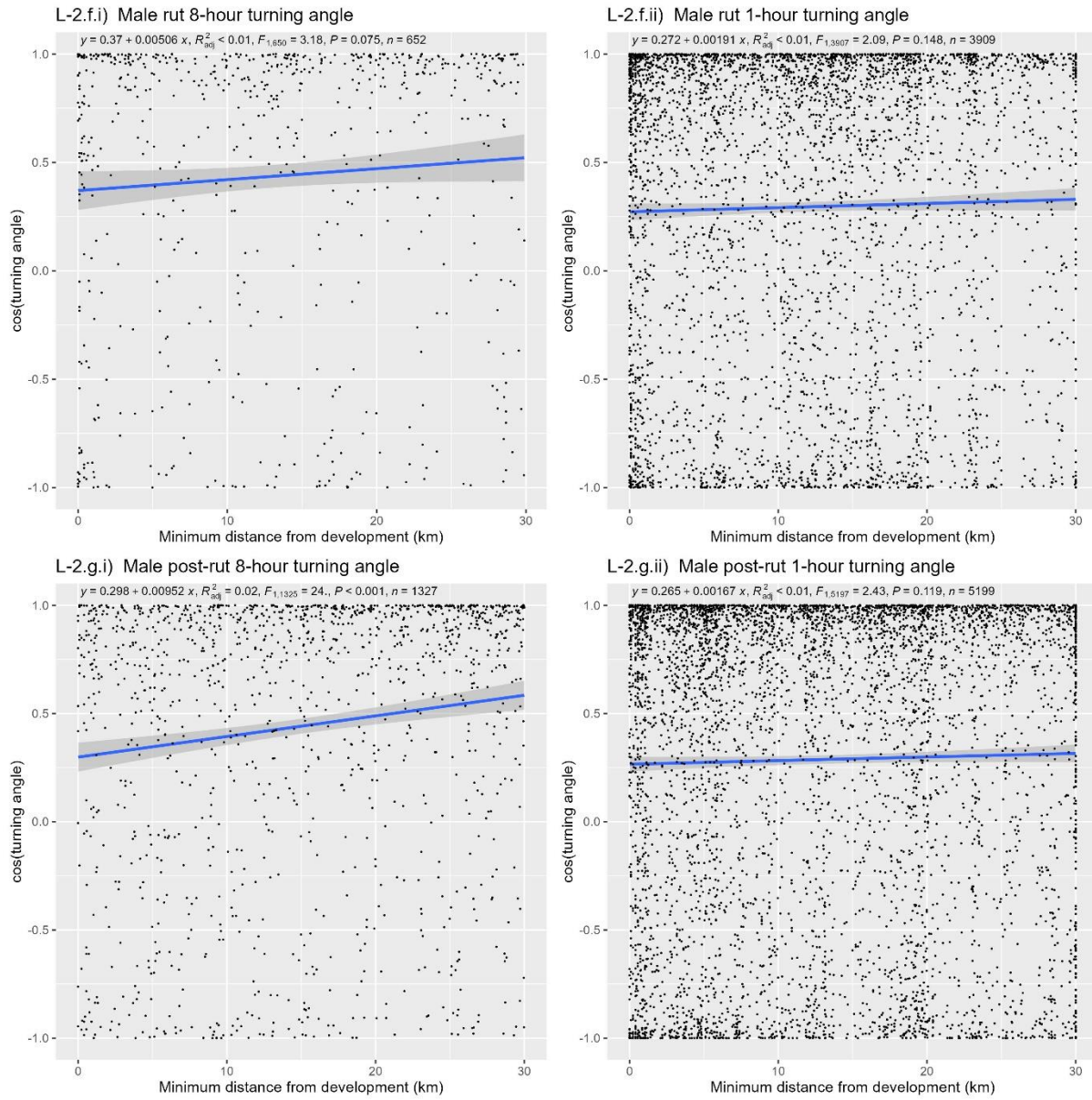


Figure L-2: Relationship of distance from nearest mining feature to prior step turning angle by male caribou in the Ekati/Diavik 30 km halo. By season and by time interval of step.