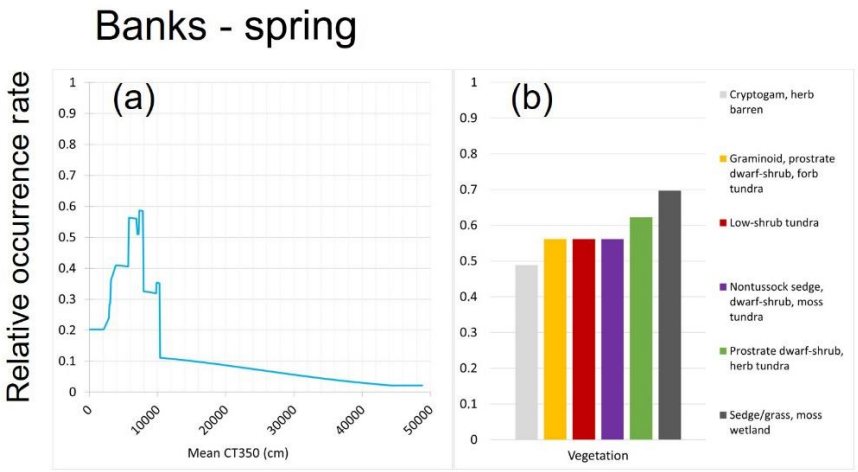
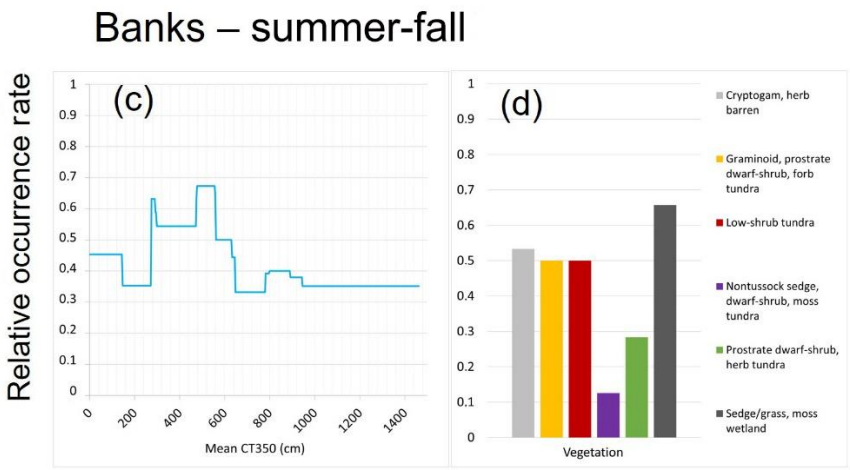
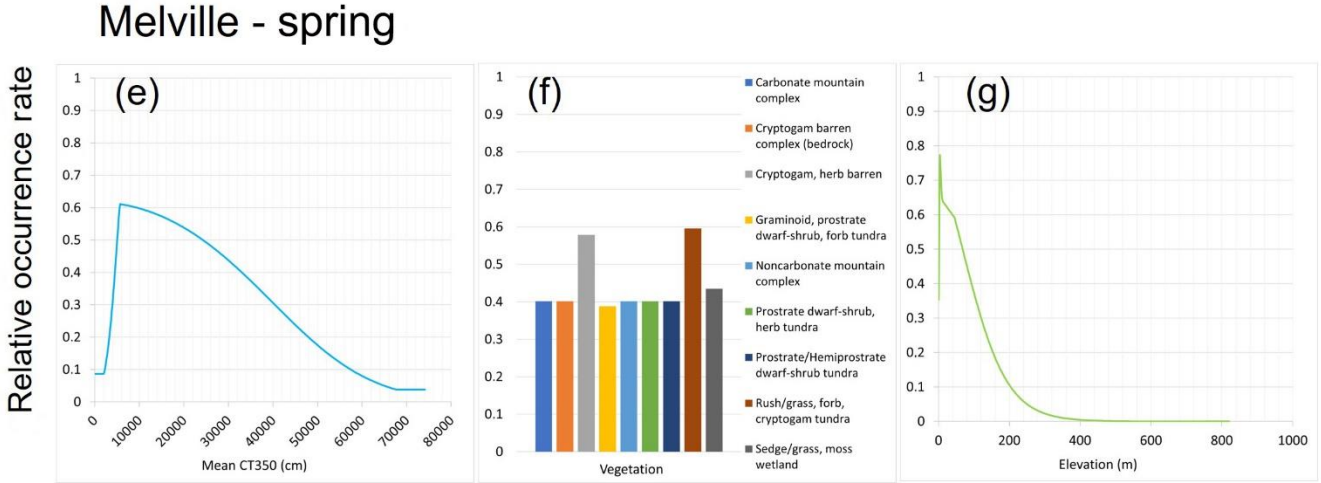
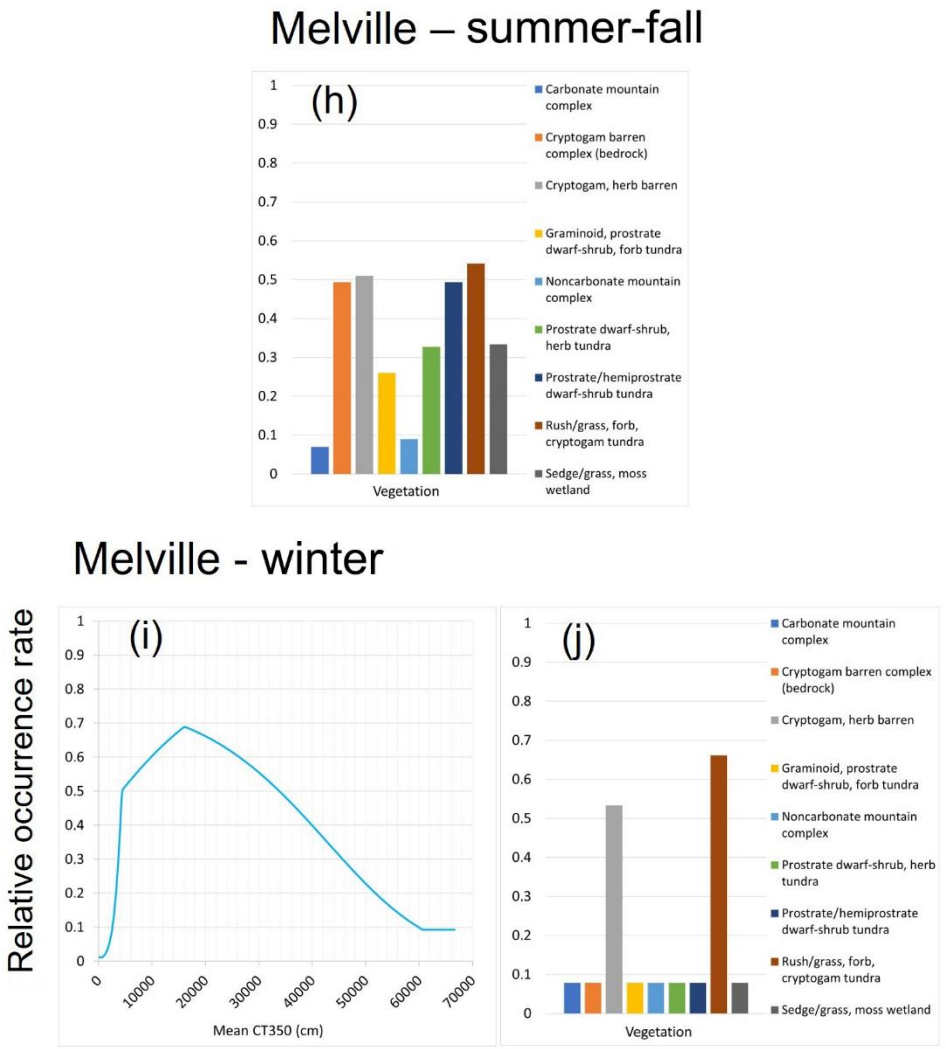
Supplementary material for: Gautier C., Langlois A., Sasseville V., Neave E. & Johnson C.A. 2022. Remote sensing, snow modelling, survey data and Indigenous Knowledge show how snow and sea-ice conditions affect Peary caribou (*Rangifer tarandus pearyi*) distribution and inter-island and island–mainland movements. *Polar Research 41*. Correspondence: Coralie Gautier, Center for Northern Studies, Sherbrooke University, 1434 rue de Longueuil, Québec, QC G1S2G3, Canada. E-mail: coralie.gautier@usherbrooke.ca









Supplementary Fig. S1. Changes in probability of caribou presence (0-1) for environmental variables in the top MaxEnt model, when all other environmental variables are set to their mean value, for each season on Banks Island and Melville Island Complex: Banks Island (a, b) in spring and (c, d) summer–fall; Melville Island Complex (e, f, g) in spring, (h) summer–fall, and (i, j) winter.

Supplementary Table S1. MaxEnt results for all the models tested for the three seasons on both Banks Island and Melville Island Complex. The best model results are in boldface. (SD stands for standard deviation.)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	**Model 7**
Banks: spring							
AICc	2610.0	2726.9	2731.3	2760.0	2636.7	2639.8	**2597.6**
AUC	0.72	0.69	0.71	0.59	0.63	0.53	**0.70**
AUC SD	0.04	0.04	0.04	0.05	0.05	0.05	**0.04**

CT350	57.7%	100%	81.1%	–	–	–	**82.7%**
Elevation	29.6%	–	18.9%	100%	81.9%	–	–
Vegetation	12.7%	–	–	–	18.1%	100%	**17.3%**
Banks: summer–fall							
AICc	4723.9	4860.2	4852.3	4897.9	4746.0	4744.5	**4716.0**
AUC	0.66	0.60	0.63	0.58	0.64	0.60	**0.63**
AUC SD	0.04	0.04	0.04	0.04	0.04	0.03	**0.04**
CT350	43.4%	100%	72.5%	-	-	-	**55.6%**
Elevation	15.7%	–	27.5%	100%	26.3%	–	–
Vegetation	40.9%	–	–	–	73.7%	100%	**44.4%**
Melville: spring							
AICc	**1186.3**	1427.4	1380.3	1376.8	1198.4	1225.1	1213.9
AUC	**0.76**	0.48	0.76	0.76	0.79	0.61	0.65
AUC SD	**0.06**	0.05	0.05	0.04	0.05	0.04	0.06
CT350	**15.5%**	100%	29.4%	–	–	–	27.2%
Elevation	**79.6%**	–	70.6%	100%	88.1%	–	–
Vegetation	**4.9%**	–	–	–	11.9%	100%	72.8%
Melville: summer–fall							
AICc	11559.2	12077.4	11973.1	11971.3	11559.2	**11558.2**	11563.9
AUC	0.58	0.54	0.058	0.58	0.57	**0.57**	0.59
AUC SD	0.02	0.03	0.02	0.02	0.02	**0.02**	0.02
CT350	22.7%	100%	33.7%	–	–	–	18.8%
Elevation	23.5%	–	66.3%	100%	30.3%	–	–
Vegetation	53.8%	–	–	–	69.7%	**100%**	81.2%
Melville: winter							
AICc	480.5	570.5	544.3	543.7	481.5	497.0	**480.0**
AUC	0.92	0.75	0.90	0.86	0.90	0.70	**0.79**
AUC SD	0.02	0.07	0.03	0.04	0.03	0.06	**0.03**
CT350	28.2%	100%	24.8%	–	–	–	**47.6%**
Elevation	50.6%	–	75.2%	100%	78.3%	–	–
Vegetation	21.3%	–	–	–	21.7%	100%	**52.4%**