Table S1. Locations of sampling sites over the eastern (EC) and western (WC) parts of Chukotka.

Lake (basin)	Coordinates
Kokanlegytgyn (Koluchinskaya, EC)	66.27271 N 175.31137 W
Vykvyrkapgytgyn (Koluchinskaya, EC)	66.528775 N 175.90644 W
Ravkergytgyn (Amguema, EC)	66.69894 N 179.04753 E
Gytgypylgyn (Pektymel', WC)	68.66182 N 176.92318 E
Gytgyl (Palavaam, WC)	68.23858 N 176.27533 W

Table S2. The amplification mixture and PCR conditions for each gene.

gene	mixture	conditions
COI	The 50μL PCRs contained 25μL buffer (BioMaster HS-Taq PCR-Color reaction mix, Biolabmix), 1μL of primer, 5μL of magnesium chloride, 16μL of sterile water and 2μL of total DNA was used as a template.	1) 5 min at 95 °C 2) 35 cycles: 45 s at 90 °C, 30 s at 62 °C, and 1 min at 72 °C 3) 5 min at 72 °C
cytb		
ATP6		1) 5 min at 95 °C 2) 34 cycles: 30 s at 90 °C, 30 s at 48 °C, and 1 min at 72 °C 3) 5 min at 72 °C

Table S3. List of haplotypes which were taken from GeneBank. South Alaska (SA); central part of North America (NA). The bold highlighted haplotypes were used for network; all haplotypes were used to estimate the degrees of genetic divergence between groups

Region	Locality	Coordinates	Haplotype Id
Cytochrome oxidase subunit 1			
SA	Kenai peninsula unnamed lake	60.68208 N 152.39392 W	**KT630728**
SA	Lake Clark	60.10990 N 154.57273 W	**KT630729**
SA	Kenai peninsula unnamed Lake	60.37173 N 152.94019 W	**KT630730**
SA	Becharof Lake	57.94588 N 156.33206 W	**MT577182**, MT577183, MT577184, MT577185, MT577186
NA	Yukon River	Undefined	EU525103, EU525104

NA	Winnage Lake	49.73650 N 93.71224 W	KX145436, KX145354, KX145121, **KX145332**, KF536951, KF536943, KF536942, **KF536941**, KF536940, KF536949, KF536948, KF536947, KF536946, KF536945, KF536944
NA	Williston Lake	56.02798 N 123.95535W	**MT577180**, MT577179
NA	Chapman Lake	54.93124 N 126.67560 W	**JX960931**
NA	Lake Superior	47.92979 N 87.34351 W	**JX960930**
NA	Owen Lake	55.17713 N 124.41027 W	**MT577181**
Cytochrome B			
SA	Kenai peninsula unnamed lake	60.37173 N 152.94019 W	**KT630746**
SA	Lake Clark	60.10990 N 154.57273 W	**KT630747**
SA	Chakachatna River	61.20948 N, 152.54129 W	**KT630748**
NA	Lake Superior	47.92979 N 87.34351 W	**JX960823**
NA	Chapman Lake	54.93124 N 126.67560 W	**JX960824**
ATP synthase F0 subunit 6			
SA	Aishihik Lake	61.39204 N 137.09060 W	HQ616456
SA	Black Lake	56.45807 N 158.98839 W	HQ616458, **HQ616459**, **HQ616460**
SA	Chignik Lake	56.27780 N 158.87029 W	**HQ616459**, **HQ616460**
SA	Ugashik Lake	57.54546 N 156.96034 W	HQ616457, **HQ616460**, **HQ616461**
NA	Arrow Lake	45.10959 N 117.39406 W	HQ616441, **HQ616445**, **HQ616451**
NA	Flathead Lake	47.83031 N 114.11658 W	HQ616440, HQ616441
NA	Kootenay Lake	49.53404 N 116.81264 W	**HQ616451**, HQ616454
NA	Cluculz Lake	53.88244 N 123.53171 W	**HQ616451**, HQ616452
NA	Jack of Clubs	53.08959 N 121.59338 W	**HQ616451**
NA	McCleese Lake	52.41367 N 122.30035 W	**HQ616451**
NA	Arctic Lake	54.42061 N 121.67234 W	**HQ616451**
NA	Aiken Lake	56.42887 N 125.75818 W	HQ616441, **HQ616451**

NA	Dina Lake	55.52970 N 123.30663 W	**HQ616451**
NA	Lower Manson Lake	55.63502 N 124.36323 W	HQ616441, **HQ616451**
NA	Peace Reach	56.10778 N 122.68261 W	HQ616449, **HQ616451**, HQ616452
NA	Upper Manson Lake	55.65447 N 124.38704 W	HQ616441, **HQ616451**
NA	Chuchi Lake	55.17713 N 124.41027 W	HQ616439, HQ616441, HQ616444
NA	Quentin Lake	57.84032 N 125.29102 W	HQ616450, **HQ616451**
NA	Kwadacha River	57.54228 N 125.56322 W	HQ616450, **HQ616451**
NA	Lower Tacheeda Lake	54.71764 N 122.51711 W	HQ616436, HQ616437, HQ616438, HQ616442
NA	Upper Tacheeda Lake	54.69594 N 122.55325 W	HQ616441
NA	Monkman Lake	54.60777 N 121.19400 W	HQ616448, HQ616441
NA	Six Mile Bay	55.23457 N 123.15084 W	HQ616449, **HQ616451**, HQ616453
NA	Tutizzi Lake	56.30968 N 125.67450 W	HQ616441, HQ616446, HQ616447, **HQ616451**
NA	Weissener Lake	57.74129 N 125.74449 W	HQ616441, HQ616443
NA	Chapman Lake	54.71718 N 127.03966 W	**HQ616445**, HQ616441, **HQ616451**
NA	Owen Lake	55.17713 N 124.41027 W	**HQ616451**
NA	Tyhee Lake	57.84032 N 125.29102 W	**HQ616445**, **HQ616451**
NA	Lake Superior	47.92979 N 87.34351 W	**HQ616455**
NA	Chester Morse Lake	47.39431 N 121.71165 W	HQ616441

Table S4. List of accession numbers of the three mtDNA fragments across Chukotkan populations of *Prosopium coulterii* deposited to GenBank.

Haplotype	GenBank Accession Number
1COI	OQ379951
2COI	OQ379952
3COI	OQ379953
4COI	OQ379954
1C	OQ405329
2C	OQ405330

3C	OQ405331
4C	OQ405332
5C	OQ405333
6C	OQ405334
7C	OQ405335
8C	OQ405336
9C	OQ405337
10C	OQ405338
11C	OQ405339
12C	OQ405340
13C	OQ405341
1A	OQ405342
2A	OQ405343
3A	OQ405344
4A	OQ405345
5A	OQ405346
6A	OQ405347
7A	OQ405348

Table S5. Nucleotide and haplotype diversity indices of COI – CytB – ATP6 sequences of the *Prosopium coulterii* populations from Western and Eastern Chukotka.

	Nucleotide diversity π ±SD			Haplotype diversity. Hd±SD		
	COI	CytB	Atp6	COI	CytB	Atp6
Western Chukotka	0.00472± 0.00124	0.00190± 0.00032	0.00275± 0.00057	0.639± 0.126	0.909± 0.066	0.889± 0.075
Eastern Chukotka	0.00149± 0.00112	0.00154± 0.00025	0.00192± 0.00028	0.222± 0.166	0.901± 0.058	0.756± 0.070

Table S6. List of ATP synthase F0 subunit 6 haplotypes which were taken from GeneBank. Southern Alaska (SA) – clade 1; central part of North America (NA)- clade 2 according to Witt et. al. (2011) [17].

Region	Locality	Coordinates	Haplotype GeneBank Id	Haplotype number
SA	Aishihik Lake	61.39204 N 137.09060 W	HQ616456	H21
SA	Black Lake	56.45807 N 158.98839 W	HQ616458, HQ616459, HQ616460	H23, H24, H25

SA	Chignik Lake	56.27780 N 158.87029 W	HQ616459, HQ616460, JX033600, JX033601, JX033602, JX033600, JX033604.	H24, H25, H27, H28, H29, H30, H31
SA	Ugashik Lake	57.54546 N 156.96034 W	HQ616457, HQ616460, HQ616461	H22, H25, H26
NA	Arrow Lake	45.10959 N 117.39406 W	HQ616441, HQ616445, HQ616451	H6, H10, H16
NA	Flathead Lake	47.83031 N 114.11658 W	HQ616440, HQ616441	H5, H6
NA	Kootenay Lake	49.53404 N 116.81264 W	HQ616451, HQ616454	H16, H19
NA	Cluculz Lake	53.88244 N 123.53171 W	HQ616451, HQ616452	H16, H17
NA	Jack of Clubs	53.08959 N 121.59338 W	HQ616451	H16
NA	McCleese Lake	52.41367 N 122.30035 W	HQ616451	H16
NA	Arctic Lake	54.42061 N 121.67234 W	HQ616451	H16
NA	Aiken Lake	56.42887 N 125.75818 W	HQ616441, HQ616451	H6, H16
NA	Dina Lake	55.52970 N 123.30663 W	HQ616451	H16,
NA	Lower Manson Lake	55.63502 N 124.36323 W	HQ616441, HQ616451	H6, H16
NA	Peace Reach	56.10778 N 122.68261 W	HQ616449, HQ616451, HQ616452	H14, H16, H17
NA	Upper Manson Lake	55.65447 N 124.38704 W	HQ616441, HQ616451	H6, H16
NA	Chuchi Lake	55.17713 N 124.41027 W	HQ616439, HQ616441, HQ616444	H4, H6, H9
NA	Quentin Lake	57.84032 N 125.29102 W	HQ616450, HQ616451	H15, H16
NA	Kwadacha River	57.54228 N 125.56322 W	HQ616450, HQ616451	H15, H16
NA	Lower Tacheeda Lake	54.71764 N 122.51711 W	HQ616436, HQ616437, HQ616438, HQ616442	H1, H2, H3, H7
NA	Upper Tacheeda Lake	54.69594 N 122.55325 W	HQ616441	H6
NA	Monkman Lake	54.60777 N 121.19400 W	HQ616448, HQ616441	H6, H13
NA	Six Mile Bay	55.23457 N 123.15084 W	HQ61649, HQ61651, HQ61653	H14, H16, H18
NA	Tutizzi Lake	56.30968 N 125.67450 W	HQ616441, HQ616446, HQ616447, HQ616451	H6, H11, H12, H16

NA	Weissener Lake	57.74129 N 125.74449 W	HQ616441, HQ616443	H6, H8
NA	Chapman Lake	54.71718 N 127.03966 W	HQ616445, HQ616441, HQ616451	H6, H10, H16
NA	Owen Lake	55.17713 N 124.41027 W	HQ616451	H16
NA	Tyhee Lake	57.84032 N 125.29102 W	HQ616445, HQ616451	H10, H16
NA	Lake Superior	47.92979 N 87.34351 W	HQ616455	H20
NA	Chester Morse Lake	47.39431 N 121.71165 W	HQ616441	H6

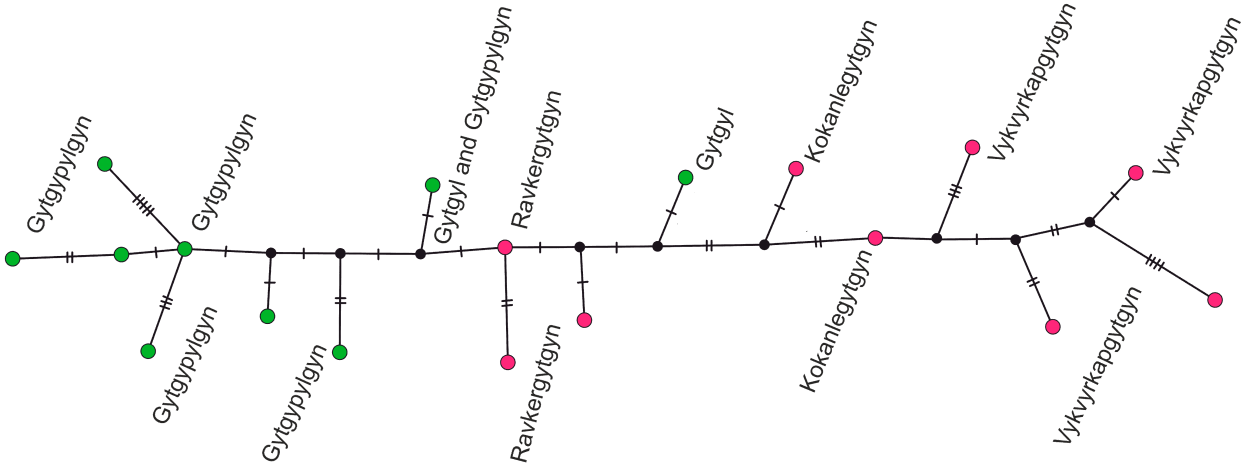

Figure S1. Statistical parsimony network for the combined COI-CytB-ATP6 sequences of the *Prosopium coulterii* populations from Chukotka. Colours indicate different geographical clusters: green is western Chukotka, red is eastern Chukotka.

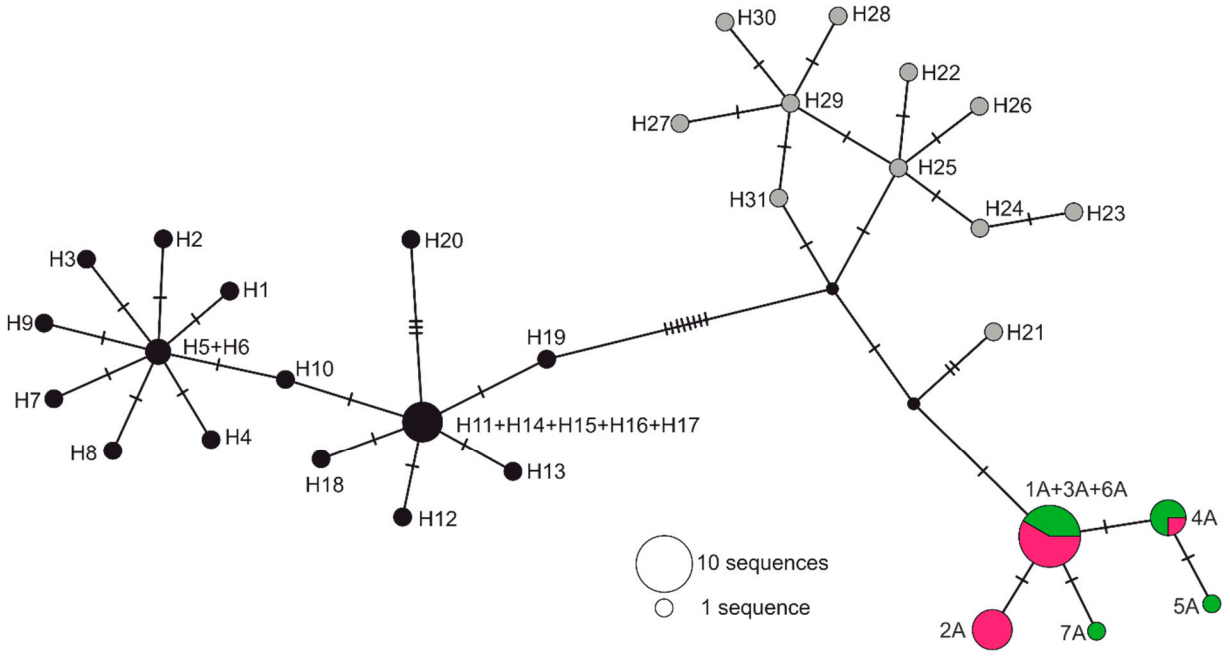

Figure S2. Statistical parsimony network for 500bp mtDNA ATP6gene fragment of the *Prosopium coulterii* populations from four regions. Colors indicate different geographical clusters western Chukotka (WC), red is eastern Chukotka (EC), grey is southern Alaska (SA) and black is continental North America (NA). The circle sizes correspond to the number of sequences. Haplotype names from SA and NA regions were taken from the original papers (H1-H26 from Whitt et al. (2011) [17]; H27-H31 from Gowell et al. (2012) [31]). All sequences were trimmed and aligned based on shortest sequences (H27-H31). Because of trimming to 500 bp sequence length some of known 650bp-haplotypes from our data and Genebank stacked together, their names given trough «+»symbol.

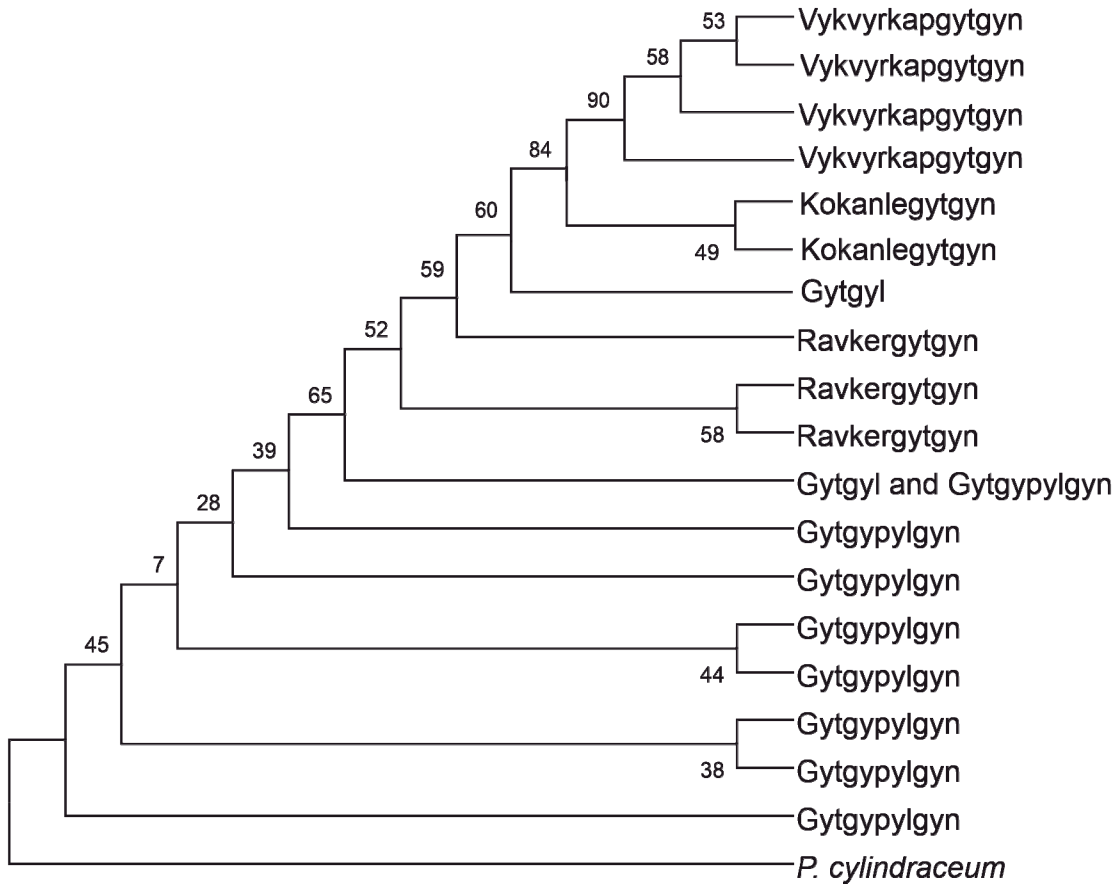

Figure S3. The ML-tree with the highest log likelihood (-4249,49) and Gamma distribution = 0.2366 employed for the combined COI-CytB-ATP6 sequences of the *Prosopium coulterii* populations from two Chukotkan regions. The tree is drawn using Bootstrap consensus; the percentage of trees in which the associated haplotypes clustered together is shown next to the branches.

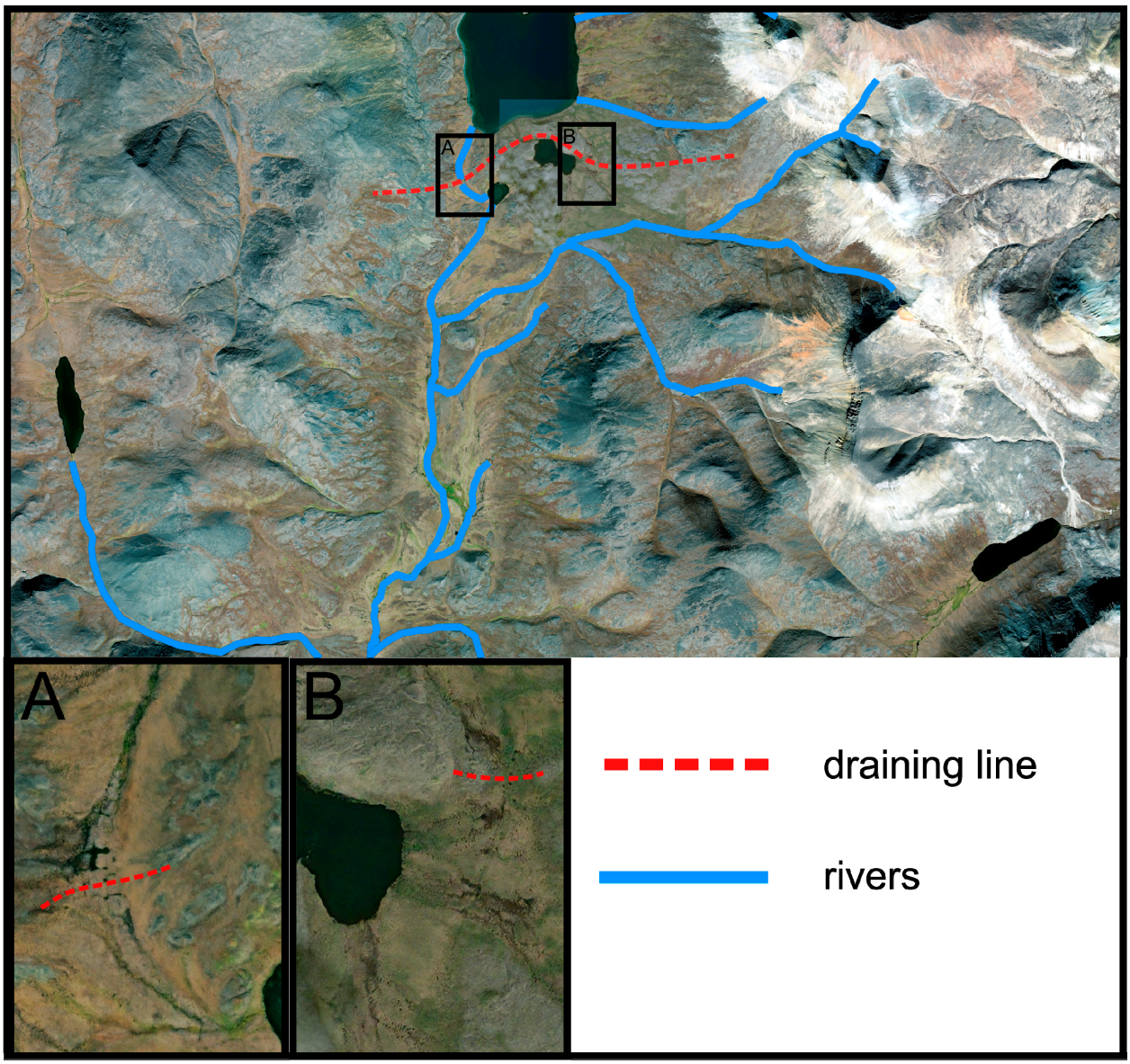

Figure S4. Potential temporary waterway connections at N68°23′11.3688″; E178°24′15.7397″ near Lake Eler'gytgyn.