

Supplementary material

Appendix 1. Isotopic ratios ($\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ values in ‰) of tail feathers of captive snowy owls and of their food (white mice muscles), and diet-tissue discrimination factors of feathers and blood (mean values are presented with SD). Mouse muscle tissues were lipid extracted and feathers were washed in solvent before isotopic analyses.

	Isotopic ratios		Diet-tissue discrimination	
	$\delta^{13}\text{C}$	$\delta^{15}\text{N}$	$\Delta^{13}\text{C}$	$\Delta^{15}\text{N}$
White mice muscles (n=5)	-20.41 ± 0.04	7.96 ± 0.26		
Snowy owl feathers				
7700	-18.68	12.00		
7729	-18.56	12.40		
7751	-18.30	11.91		
7751	-18.59	12.00		
Mean	-18.53 ± 0.16	12.08 ± 0.22	1.88 ± 0.04	4.12 ± 0.26
Snowy owl blood ¹	-	-	0.3 ± 0.2	1.9 ± 0.1

¹ From Therrien et al. (2011a)

Appendix 2. Isotopic ratios ($\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ values in ‰) of wild snowy owl feathers and blood, and of potential marine and terrestrial prey of snowy owls. Isotopic ratios have not been corrected with their associated diet-tissue discrimination factors.

	<i>n</i>	Isotopic value		Sampling location	Sampling year	Source
		$\delta^{13}\text{C}$	$\delta^{15}\text{N}$			
Snowy owl						
Wing feather (new secondary)	10	-23 ± 0.3	7.1 ± 1.7	Deception Bay, QC	2013	1
Wing feather (old secondary)	10	-22.8 ± 0.5	7.8 ± 2.0	"	2013	1
Neck feather	8	-23.0 ± 0.2	7.2 ± 1.4	"	2013	1
Rump feather	10	-23.1 ± 0.5	8.1 ± 1.8	"	2013	1
Flank feather	10	-22.6 ± 1.1	8.4 ± 2.9	"	2013	1
Breast feather	10	-23.0 ± 0.5	7.9 ± 1.6	"	2013	1
Head feather	10	-23.0 ± 0.5	8.5 ± 1.9	"	2013	1
Blood	8	-24.8 ± 0.2	4.9 ± 0.7	"	2013	1
Wing feather (new secondary)	8	-23.0 ± 0.6	8.4 ± 2.4	Bylot Island, NU	2014	1
Wing feather (old secondary)	8	-23.3 ± 0.3	6.4 ± 1.4	"	2014	1
Neck feather	8	-23.4 ± 0.4	6.7 ± 1.5	"	2014	1
Rump feather	8	-23.6 ± 0.3	6.7 ± 1.2	"	2014	1
Flank feather	8	-23.2 ± 1.0	6.9 ± 1.9	"	2014	1
Breast feather	8	-23.5 ± 0.5	6.5 ± 1.1	"	2014	1
Head feather	8	-23.4 ± 0.5	6.8 ± 1.5	"	2014	1
Blood	8	-24.9 ± 0.3	5.0 ± 0.9	"	2014	1
Mean (Feathers)		-23.1 ± 0.6	7.5 ± 1.9			
Mean (Blood)		-24.8 ± 0.3	4.9 ± 0.8			
Marine sources						
Common eider	5	-19.3 ± 0.3	12.3 ± 0.7	Belcher Islands, NU, Canada	2012	2
Common murre	5	-19.9 ± 0.5	13.6 ± 0.1	Twillingate, NFLD, Canada	2011	2
Long-tailed duck	5	-19.1 ± 1.0	15.5 ± 0.8	Belcher Islands, NU, Canada	2000	2
Razorbill	5	-20.0 ± 0.2	13.1 ± 0.3	NFLD, Canada	2011-12	2
Thick-billed murre	5	-19.4 ± 0.7	13.8 ± 0.3	Twillingate, NFLD, Canada	2011	2
Mean (Marine sources)	25	-19.5 ± 0.4	13.7 ± 1.2			
Terrestrial sources						
<i>Mammalian</i>						
Brown lemming	30	-26.5 ± 0.6	3.8 ± 1.4	Bylot Island, NU, Canada	2007-09	3
Collared lemming	10	-26.7 ± 1.5	2.3 ± 2.5	Bylot Island, NU, Canada	2007-09	3
Meadow vole	1	-26.7	4.7	Deception Bay, QC, Canada	2013	1
Ungava lemming	2	-25.8 ± 0.2	2.1 ± 1.3	Deception Bay, QC, Canada	2013	1
<i>Avian</i>						
Rock ptarmigan	5	-23.9 ± 0.4	2.3 ± 0.5	Kuujuaq, QC, Canada	2014	1
Mean (Terrestrial sources)	48	-25.9 ± 1.2	3.1 ± 1.2			

¹ Samples collected and analysed in this study

² Samples from Environment and Climate Change Canada (ECCC) but analysed in this study

³ Values obtained from Tarroux et al. (2012) and Gauthier et al. (2015)

Appendix 3. Pairwise comparisons of the $\delta^{15}\text{N}$ isotopic values among various tissues (Feathers: Wn: Wing new, Wu: Wing used, N: Neck, R: Rump, F: Flank, Br: Breast, H: Head; Bl: blood) for each sampling year (post-hoc tests [Differences in LSmeans] shown due to a significant interaction year*tissue; see Table 1). Actual values are shown on Fig.3. (*) = $0.05 < p < 0.1$, * = $0.01 < p < 0.05$, ** $p < 0.01$.

$\delta^{15}\text{N}$	Feather types							
	Wn	Wu	N	R	F	Br	H	Blood
2013								
Wn	--	-0.68	-0.15	-1.01	-1.31*	-0.77	-1.32*	-0.06
Wu		--	0.53	-0.33	-0.63	-0.09	-0.65	0.61
N			--	-0.86	-1.16(*)	-0.62	1.17(*)	0.09
R				--	-0.30	0.24	-0.32	0.95
F					--	0.54	-0.02	1.25(*)
Br						--	-0.56	0.70
H							--	1.26(*)

$\delta^{15}\text{N}$	Feather types							
	Wn	Wu	N	R	F	Br	H	Blood
2014								
Wn	--	2.01**	1.78*	1.74*	1.56*	1.95**	1.59*	1.26(*)
Wu		--	-0.23	-0.27	-0.45	-0.06	-0.42	-0.75
N			--	-0.04	-0.22	0.17	-0.19	-0.52
R				--	-0.18	0.21	-0.15	-0.48
F					--	0.39	0.03	-0.30
Br						--	-0.36	-0.69
H							--	-0.33