Supplementary Material no. 2

Evaluating the use of thermal imagery to count harbor seals in aerial surveys

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Highlights:

- Thermal counts of harbor seals were higher than visual counts at the beginning of the day (≥4 hours before solar noon) but steadily declined later in the day (up to 3 hours after solar noon).
- As cloud cover increased, thermal counts of seals were predicted to be higher, but altitude appeared to have little to no impact on thermal counts.
- Using thermal detections in optimal conditions may provide one approach for estimating visual detection probabilities.
- The use of thermal imaging could be applied to improve the detection of other mammals, marine or terrestrial, that are well camouflaged in their habitat or that disperse in lower densities.



This article is part of a thematic collection of articles (Special Issue) of *Mammalian Biology* and covers the following topics and taxa (marked with \square) addressed in the Special Issue:

Article Type				
Original Research	☑ Techniques	□ Review	□ Short Communication	□ Concept Note
Taxon			Торіс	
Terrestrial				
□ Bats (Order Chiroptera)	Primates : G (Family Homin	reat Apes nidae)	□ Acoustic ID	□ Identification techniques
Carnivores : Bears (Family Ursidae)	Primates : O (Family Cerco)	ld World monkeys <i>pithecidae</i>)	☑ Aerial surveys	□ Life-history
□ Carnivores : Canids (Family Canidae)	Ungulates : I (Family Bovida	Bovids ae)	□ Analytical innovations	□ Machine learning
Carnivores : Felids (Family Felidae)	Ungulates : I (Family Cervia	Deers lae)	Automated pattern recognition	□ Mark-recapture analysis
Carnivores : Hyenas (Family Hyaenidae)	Ungulates : C (Family Giraff	Giraffes idae)	□ Behavioural ecology	□ Morphometrics
Carnivores : Mustelids (Family Mustelidae)	Ungulates : I (Family Equide	Horses ae)	□ Camera-trapping	□ Network analysis
Elephants (Family Elephantidae)	☐ Multiple taxa (3 or more Fam	a nilies/Orders)	Conservation management	□ Photogrammetry
Marine		Data management	Population ecology	
□ Baleen whales : Right what (Family Balaenidae)	lles Large toothe (Families Delp Hyperoodontia	d whales hinidae & dae)	□ Demographic parameters	□ Site fidelity & Movement
□ Baleen whales : Rorquals (Family Balaenopteridae)	Pinnipeds : 7 (Family Phocia	[rue seals dae)	☑ Field methodology	□ Social ecology
Carnivores : Bears (Family Ursidae)	Porpoises (Family Phoco	venidae)	□ Genetic ID	□ Software/Package development
Carnivores : Mustelids (Family Mustelidae)	□ Sirenians : N (Family Triche	fanatees echidae)	\Box Health conditions	☑ Thermal imagery
Dolphins (Family Delphinidae)	□ Multiple taxa (3 or more Fam	a nilies/Orders)	□ Other: (please specify)	

References

Karczmarski L, Chan SCY, Rubenstein DI, Chui SYS, Cameron EZ (2022a). Individual identification and photographic techniques in mammalian ecological and behavioural research – Part 1: Methods and concepts. *Mammalian Biology* (Special Issue), 102 (1) <u>https://link.springer.com/journal/42991/volumes-and-issues/102-1</u>

Karczmarski L, Chan SCY, Chui SYS, Cameron EZ (2022b). Individual identification and photographic techniques in mammalian ecological and behavioural research – Part 2: Field studies and applications. *Mammalian Biology* (Special Issue), 102 (2) <u>https://link.springer.com/journal/42991/volumes-and-issues/102-2</u>