

Michaël Beaulieu – DVM, PhD



Ecophysiology - Behavioural Ecology - Wild Animal Welfare

Positions

Wild animal welfare researcher

2025-present: research lead
2024-2025: senior researcher
2022-2024: physiology researcher
[Wild Animal Initiative](#), USA
remotely from Germany

Scientific coordinator

of the project "[Hearing in Penguins](#)"
2018-2021
German Ocean Museum, Stralsund,
Germany

Post-doctoral research associate

2013-2019
University of Greifswald,
Germany

Von Humboldt post-doctoral fellow

2012-2013
University of Freiburg, Germany

Post-doctoral research associate

2010-2011
University of North Carolina at Chapel Hill,
USA

PhD researcher

2006-2009
University of Strasbourg, France

Civil volunteer / fieldworker

2004-2006
French Polar Institute, France
Dumont d'Urville Station, Antarctica

Degrees

Habilitation 2018

Zoology
University of Greifswald, Germany

PhD. 2009

Ecophysiology/Behavioural ecology
University of Strasbourg, France

DVM. 2004

Veterinary medicine
National Veterinary School of Nantes,
France

MSc. (French: DEA) 2004

Cardio-physiology
University of Nantes, Institut du Thorax,
France

BSc. (French: Licence) 2000

Biology - Zoology
University of Rennes, France

Main biological models

Penguins:

Adélie, emperor, gentoo & Humboldt penguins

Songbirds:

Gouldian finches & Lincoln's sparrows

Butterflies:

Squinting bush brown & green-veined white butterflies

Acquired research funding

- **2019:** Research grant from the **Antarctic Science Bursary** (€ 6,600).
- **2015-21:** Deutsche Forschungsgemeinschaft (**DFG**) funding to set up the research-training group 'RESPONSE: Biological Responses to Novel and Changing Environments' at the University of Greifswald, Germany (€ 4,416,000 shared between 19 researchers).
- **2015-18:** **DFG research grant** for the project 'Oxidative stress and climate change: effects of elevated temperatures on oxidative status, fertility and ageing in a tropical species of conservation concern' conducted at the University of Greifswald, Germany (€ 206,500).
- **2012-13:** Post-doctoral fellowship from the **Von Humboldt Foundation** (ca. € 70,000).
- **2011:** Research grant from the **Antarctic Science Bursary** (€ 4,100).
- **2006-09:** PhD research fellowship from the **French Ministry of Research** (ca. € 60,000).

Travelling grants & awards

- **2019:** Travel cost allowances (€ 815) from the University of Greifswald and the Society for Experimental Biology to attend the 10th International Congress of Comparative Physiology and Biochemistry in Ottawa, Canada (Aug. 2019).
- **2018:** Guest scientist onboard the sailing boat "Ocean Tramp" (Quixote Expeditions) along the Antarctic Peninsula (trip value: € 12,500).
- **2018:** Travel grant (€ 2,268) from the German Academic Exchange Service (DAAD: Deutscher Akademischer Austauschdienst) to attend the 27th International Ornithological Congress in Vancouver, Canada (Aug. 2018).
- **2010:** PhD award (€ 1,500) from the Scientific Committee of the University of Strasbourg, France.
- **2009:** "Student/Early Career Award" at the Xth SCAR (Scientific Committee on Antarctic Research) International Biology Symposium, Sapporo, Japan.

Publications & presentations

- **Published articles** (n = 73 articles, cited: 2241 times, h index: 27; March 2025), publications can be consulted on [ResearchGate](#) and [Google Scholar](#)

Journal	Number of articles
<i>Anim. Behav.</i>	9
<i>J. Exp Biol.</i>	7
<i>Polar Biol.</i>	5
<i>Biol. Lett., Conserv. Physiol., Horm. Behav., Oecologia</i>	3
<i>Aquat. Biol., Behav. Ecol., Ecol. Evol., Funct. Ecol., J. Ornithol., Proc. R. Soc. B</i>	2
<i>Am. J. Physiol., Appl. Anim. Behav. Sci., Behav. Ecol. Sociobiol., Behav. Neurosc., BioEssays, Biol. J. Linn. Soc., Biol. Rev., Comp. Biochem. Phys. A, C. R. Biol., Endanger. Sp. Res., Evolution, Front. Ecol. Evol., Global Change Biol., Global Ecol. Conserv., Heredity, Ibis, Int. J. Parasitol.: Parasites Wildl., J. Anim. Ecol. J. Endocrinol., J. Evol. Biol., Methods Ecol. Evol., Mol. Ecol., New J. Phys., Ornithology, Physio. Behav., PLoS One, Res. Vet. Sci., Sci. Rep.</i>	1

- **Report** (n = 1): final report of the project "Hearing in Penguins", July 2024
- **Presentations** (n = 8 talks and lectures; n = 14 participations in conferences)

Presentation type and topic	Number of presentations
<i>Invited talks and lectures</i>	8
<i>Ornithological conferences</i>	5
<i>Zoological conferences</i>	2
<i>Ecological conferences</i>	2
<i>Animal behaviour & welfare conferences</i>	2
<i>Physiological conference</i>	1
<i>Antarctic conference</i>	1
<i>Methodological conference</i>	1

A full list of publications and presentations is provided in the appendix below.

Referee

- **Reviewer for scientific articles** (n = 144 for 50 journals):

Journal	Number of reviews
<i>J. Exp Biol.</i>	18
<i>Funct. Ecol.</i>	13
<i>PLoS One</i>	12
<i>Physiol. Biochem. Zool.</i>	10
<i>Ibis</i>	6
<i>Comp. Biochem. Physiol., Mar. Ecol. Prog. Ser., Mol. Ecol.</i>	5

<i>Behav. Ecol. Soc.</i>	4
<i>Anim. Behav., Biol. Lett., Mar. Biol., PeerJ, Polar Biol., Sc. Rep.</i>	3
<i>Antioxidants, Auk, Biol. Conserv., Can. J. Zool., Conserv. Physiol., Environ. Pollut., Front. Ecol. Evol., J. Ornithol., Naturwissenschaften, Proc. R. Soc. B, Zoo Biol.</i>	2
<i>Acta Chiropt., Animals, Anim. Welf. J., Behav. Ecol., BioEssays, Coevolution, Curr. Zool., Ethology, Gen. Comp. Endocrinol., Horm. Behav., Int. J. Biometeorol., J. Anim. Ecol., J. Appl. Anim. Welf. Sci., J. Avian Biol., J. Endocrinol., J. Comp. Physiol. B, J. Field Ornithol., Phys. Res., Molec. Ecol. Res., Palaeogeogr. Palaeoclimatol. Palaeoecol., PNAS, Vet. Med. Sci., Wildl. Res.</i>	1

- Reviewer for research proposals** (n = 37)
 - Wild Animal Initiative (USA; N = 28)
 - National Science Center (NCN; Poland; N = 2)
 - Quebec Research Fund (Canada, Quebec; N = 2)
 - The Leverhulme Trust (UK; N = 1)
 - United States-Israel Binational Science Foundation (BSF; USA-Israel; N = 1)
 - Research Foundation Flanders (FWO; Belgium; N = 1)
 - Netherlands Organisation for Scientific Research (NWO; the Netherlands; N = 1)
 - Austrian Science Fund (FWF; Austria; N = 1)
- Reviewer for book chapters** (n = 3)
 - 'A Physiological Toolbox to Explore the Relationships Between Seabirds and their Changing Environments' (2021) by A.C. Norte, P. M. Araújo and D. Costantini
 - 'Nutritional Ecology, Foraging Strategies and Food Selection' in 'Oxidative Stress and Hormesis in Evolutionary Ecology and Physiology' (2014) by D. Costantini
 - Penguin-Pedia book (2011) by D. Salomon
- Member of PhD advisory committees** (n = 4)
 - Nicolas Frasson, University of North Carolina (USA)
 - Janina Stauffer, University of Turku (Finland)
 - Carolin Mundiger, University of Greifswald (Germany)
 - Tracey Hammer, University of Strasbourg (France)
- Member of the International Life Science Panel** of the National Science Center (NCN, Poland, 2023)

Supervision

- **PhD students** (n = 4)
- **Master students** (n = 8)
- **Bachelor students** (n = 13)
- **Field workers** (n = 7)

A full list of the student projects I have supervised is provided in the appendix below.

Teaching

- **Lectures:** Evolutionary Ecology
Animal Ecology
- **Seminars:** Animal Conservation
Zoology & Animal Ecology
- **Excursions:** Ornithological excursions

A full list of my teaching is provided in the appendix below.

Computer literacy

- **Microsoft Office:** advanced
- **SPSS:** advanced
- **R:** intermediate
- **Mendeley, Zotero:** intermediate

Languages

- **French:** mother tongue
- **English:** fluent; TOEIC score: 935/990 (March 2009)
- **German:**
 - B2 level: Goethe Institut, Freiburg, Germany (Oct. 2011-Jan. 2012),
 - C1 level: Kreisvolkshochschule Vorpommern-Greifswald, Germany (Apr.-July 2015).
- **Spanish:**
 - B1 level: Kreisvolkshochschule Vorpommern-Greifswald, Germany (Oct. 2016–July 2017).

Further training

- **Animal welfare:**
 - [Online course on the Animal Welfare of Farm Animals](#), VetAgroSup (2022)
- **Physiological approaches:**
 - Summer School “Non-invasive Monitoring of Hormones”, IZW Berlin, Germany (2018)
 - French certification for animal experimentation, ENVN Nantes, France (2004)

- **Polar environmental protection:**

- Seminar "Environmental protection in Antarctica", AWI Bremerhaven, Germany (2020)
- Online Assessments for the *International Association of Antarctic Tour Operators* and for the *Association of Arctic Expedition Cruise Operators* (2022)

- **Management professional development:**

- *Thanks for the feedback*
- *Entering mentorship*

Outreach

- Blog post for [MethodsBlog](#) (2024)
- Deep dives for [Wild Animal Initiative](#) (2022-present)
- Naturalist guide and lecturer for "[Quixote Expeditions](#)" and "[Compagnie du Ponant](#)" in Antarctica (austral summers 2018-19 and 2021-22) and in the Arctic (summer 2022)
- Media communication (e.g., Bild, NDR) for the project '[Hearing in Penguins](#)' (2018-2021)
- [Blog](#) about my Quixote Expedition in Antarctica (austral summer 2018-19)
- Oral presentation to students from the University of Greifswald in the framework of the information event 'Career paths in biology, ecology and nature conservation' (Germany, 2018)
- Oral presentation for the '[Gesellschaft für Arterhaltende Vogelzucht](#)' (aviculture association for the conservation of birds) (Germany, 2016 & 2018)
- Consultant for the book '[Penguin-Pedia book](#)' (USA, 2011) by D. Salomon
- Oral presentation within the framework of conferences '[Antarctique: ère nouvelle d'exploration](#)' organized by the National Museum of Natural History (France, 2008)
- Oral presentation within the framework of conferences 'L'Odyssée Blanche' organized by '[Relais d'Sciences](#), Basse-Normandie' (France, 2008)
- 'Fête de la Science' (France, 2007 & 2008)
- 'La Nuit des Chercheurs' (France, 2007)
- 'Lire en Fête' (France, 2006)
- Conferences about research in Antarctica in the four French veterinary schools (2006).

My work has also been communicated in major medias, such as BBC Earth, NBC News, Daily Mail, The Times, The Independent, Le Monde, Die Zeit, The Wall Street Journal, The New York Times.

APPENDIX

Peer-reviewed articles

Cited: 2241 times, h index: 27 (March 2025)

*Publications can be consulted on [ResearchGate](#) and [Google Scholar](#)

^F Fieldworker, ^B BSc student, ^M MSc student, ^V Veterinary students, ^P PhD student

2025

- (73) **Beaulieu M.** (2025) Rehabilitating wild animal welfare: a focus on veterinary rescue and rehabilitation interventions. *Research in Veterinary Science* 186: 105582
Contribution: article conception, article writing.

2024

- (72) **Beaulieu M.** (2024) Capturing wild animal welfare: a physiological perspective. *Biological Reviews* 99: 1-22
Contribution: conception, reviewing process, article writing.
- (71) **Beaulieu M.** (2024) Oxidative stress: a universal but overlooked indicator of wild animal welfare. *BioEssays* 46: 2300205
Contribution: conception, reviewing process, article writing.
- (70) **Beaulieu M.,** Masilkova M. (2024) Plugging biologging into animal welfare: an opportunity for advancing wild animal welfare science. *Methods in Ecology & Evolution* 15: 2172-2188
Contribution: article conception, article writing.
- (69) Dederichs A^P, Fischer K, Michalik P, **Beaulieu M.** (2024) Enhanced dispersal capacity in edge population individuals of a rapidly expanding butterfly. *Ecology & Evolution* 14, e10885
Contribution: conception, funding acquisition, data collection, article writing, supervision.

2023

- (68) Sockman KW, **Beaulieu M** (2023) Paradoxical associations between fitness components and behavioural phenotype in a wild bird. *Animal Behaviour* 198: 47-57
Contribution: data collection, article writing.

2022

- (67) Chimienti M, Kato A, Hicks O, Angelier F, **Beaulieu M**, Ouled-Cheikh Bonan J, Marciau C^P, Raclot T, Tucker M, Wisniewska DM, Chiaradia A, Ropert-Coudert Y (2022) The role of individual variability on predictive performance of machine learning applied to large bio-logging datasets. *Scientific Reports* 12: 19737
Contribution: data collection, article writing.
- (66) Degut A^P, Fischer K, Quque^P M, Criscuolo F, Michalik P, **Beaulieu M** (2022) Irreversible impact of early thermal conditions: an integrative study of developmental plasticity linked to mobility in a butterfly species. *Journal of Experimental Biology* 225: jeb243724
Contribution: conception, funding acquisition, data collection, article writing, supervision.
- (65) Rößler H^P, May A, Dähne M, **Beaulieu M** (2022) Long and winding road: training progress and trainability variation across a psychoacoustic experiment in penguins. *Applied Animal Behaviour Science* 256: 105764
Contribution: data analyses, article writing, supervision.
- (64) Rößler H^P, Lynch M, Ortiz ST, Larsen ON, **Beaulieu M** (2022) Neighbors matter: vocal variation in Gentoo penguins depends on the species composition of their colony. *Ornithology* 139: ukac031. Cover of the journal

Contribution: conception, funding acquisition, data collection, article writing, supervision.

2021

- (63) **Beaulieu M**, Dähne M, Köpp J^B, Marciau C, Kato A, Ropert-Coudert Y, Raclot T (2021) Exploring the interplay between nest vocalizations and foraging behaviour in breeding birds. *Animal Behaviour* 180: 375-391
Contribution: conception, funding acquisition, data collection, article writing, supervision.
- (62) Fischer K, Kreyling J, **Beaulieu M**, Beil M, Bog M, Bonte D, Holm S, Knoblauch S, Koch D, Muffler L^P, Mouginot P^P, Paulinich M^B, Scheepens N, Schiemann R^B, Schmeddes J, Schnittler M, Uhl G, van der Maaten-Theunissen M, Weier J^M, Wilmking M, Weigel R^P, Giennap P. 2021. Species-specific effects of thermal stress on the expression of genetic variation across a diverse group of plant and animal taxa under experimental conditions. *Heredity* 126: 23-37
Contribution: data collection, article writing, supervision.
- (61) Fragueira R^P, Helfenstein F, Fischer K, **Beaulieu M** (2021) Birds of different morphs use different reproductive strategies to achieve similar reproductive performance following exposure to a heatwave. *Journal of Animal Ecology* 90: 2594-2608
Contribution: conception, funding acquisition, data collection, article writing, supervision.
- (60) Neu A^P, **Beaulieu M**, Fischer K (2021) Limits on optimal decision making: host plant selection is not altered under challenging conditions in a tropical butterfly. *Animal Behaviour* 174: 87-95
Contribution: conception, data collection, article writing, supervision.

2020

- (59) **Beaulieu M**, Touzalin F, Dool S, Teeling EC, Puechmaille SP (2020) Timescale and colony dependent relationships between temperature anomalies and plasma oxidative markers in a long-lived bat species. *Conservation Physiology* 8: coaa083
Contribution: conception, data analyses, article writing.
- (58) Günter F^P, **Beaulieu M**, Freiberg KF^M, Toshkova N^M, Welzel I^M, Žagar A, Fischer K. 2020. Genotype-environment interactions rule the response of a widespread butterfly to temperature variation. *Journal of Evolutionary Biology* 33: 920-929
Contribution: conception, funding acquisition, article writing, supervision.
- (57) Günter F^P, **Beaulieu M**, Toshkova N^M, Fischer K. 2020. Clinal variation in investment into reproduction versus maintenance suggests a pace-of-life syndrome in a widespread butterfly. *Oecologia* 193: 1011-1020
Contribution: conception, funding acquisition, article writing, supervision.
- (56) Lorenz I^M, Fischer K, **Beaulieu M**. 2020. Antioxidant asymmetry and acclimation temperature independently reflect fight outcome in male crickets. *Animal Behaviour* 167: 221-231
Contribution: data analyses, article writing, supervision.
- (55) Mouginot P^P, Uhl G, Toshkova N^M, **Beaulieu M**. 2020. Differential oxidative costs of locomotory and genital damage in an orb-weaving spider. *Journal of Experimental Biology* 223: jeb219758
Contribution: data analyses, article writing, supervision.

2019

- (54) Charpentier MJE, Boundenga L, **Beaulieu M**, Dibakou SE, Arnathau C, Sidobre C, Willaume E, Mercier-Delarue S, Simon F, Rougeron V, Prugnolle F. 2019. A longitudinal molecular study of the ecology of malaria infections in free-ranging mandrills. *International Journal for Parasitology: Parasites and Wildlife* 10: 341-251
Contribution: data analyses, article writing.
- (53) Fragueira R^P, Verhulst S, **Beaulieu M**. 2019. Morph- and sex-specific effects of

challenging conditions on maintenance parameters in Gouldian finches. *Journal of Experimental Biology* 222, jeb196030

Contribution: conception, funding acquisition, data collection, article writing, supervision.

- (52) Fragueira R^P, **Beaulieu M**. 2019. Red does not always outperform black. Morph-specific behavioral variation in response to environmental changes. *Animal Behaviour* 148: 81-91

Contribution: conception, funding acquisition, data collection, article writing, supervision.

- (51) Günter F^P, **Beaulieu M**, Brunetti M^M, Lange L^B, Schmitz Ornés A, Fischer K. 2019. Latitudinal and altitudinal variation in ecologically important traits in a widespread butterfly. *Biological Journal of the Linnean Society* 128: 742-755

Contribution: conception, funding acquisition, article writing, supervision.

2018

- (50) Le Guen C^M, Kato A, Raymond B, Barbraud C, **Beaulieu M**, Bost CA, MacIntosh AJJ, Meyer X, Raclot T, Sumner M, Takahashi A, Thiebot JB, Ropert-Coudert Y. 2018. Reproductive performance and diving behaviour share a common sea-ice optimum in Adélie penguins (*Pygoscelis adeliae*). *Global Change Biology* 24: 5304-5317

Contribution: data collection, article writing.

- (49) Geiger RE^M, **Beaulieu M**, Franke K, Fischer K. 2018. High male density favours maintenance over reproduction in a butterfly. *Behavioral Ecology* 29: 1031-1037

Contribution: data collection, article writing, supervision.

2017

- (48) **Beaulieu M**, Ancel A, Chastel O, Criscuolo F, Raclot T. 2017. Socially-induced variation in physiological mediators of parental care in a colonial bird. *Hormones & Behavior* 93: 39-46. Cover of the journal.

Contribution: conception, data collection, data analyses, article writing.

- (47) **Beaulieu M**, Benoit L, Abaga S, Kappeler PM, Charpentier MJE. 2017. Mind the cell: seasonal variation in telomere length mirrors changes in leukocyte profile. *Molecular Ecology* 26: 5603-5613

Contribution: data analyses, article writing.

- (46) **Beaulieu M**, Franke K, Fischer K. 2017. Feeding on ripening and over-ripening fruit: interactions between sugar, alcohol and polyphenol contents in a tropical butterfly. *Journal of Experimental Biology* 220: 3127-3134

Contribution: conception, data collection, data analyses, article writing, supervision.

- (45) Ancel A, Cristofari R^P, Trathan P, Gilbert C, Fretwell P, **Beaulieu M**. 2017. Looking for new emperor penguin colonies? Filling the gaps. *Global Ecology & Conservation* 9: 171-179

Contribution: article writing.

- (44) Poisbleau M, **Beaulieu M**, Dehnhard N, Demongin L, Lepoint G, Sturaro N, Eens M. 2017. Extreme intra-clutch egg size dimorphism is not coupled with corresponding antioxidant and isotopic differences between eggs. *Comparative Biochemistry & Physiology - Part A* 205: 77-85

Contribution: data analyses, article writing.

2016

- (43) **Beaulieu M**. 2016. A bird in the house: the challenge of being ecologically relevant in captivity. *Frontiers in Ecology & Evolution* 4: 141

Contribution: conception, data analyses, article writing.

- (42) **Beaulieu M**, Bischofberger I^B, Lorenz I^B, Scheelen L^B, Fischer K. 2016. Reproducing butterflies do not increase antioxidant intake when they could benefit from them. *Biology Letters* 12: 20150941. Cover of the journal

Contribution: conception, data collection, data analyses, article writing, supervision.

2015

- (41) Ancel A, Gilbert C, Poulin N, **Beaulieu M**, Thierry B. 2015. New insights into the huddling patterns of emperor penguins. *Animal Behaviour* 110: 91-98.
Contribution: article writing.
- (40) **Beaulieu M**, Geiger RE^B, Reim E^M, Zielke L^M, Fischer K. 2015. Reproduction alters oxidative status when it is traded-off against survival. *Evolution* 69: 1786-1796
Contribution: conception, data collection, data analyses, article writing, supervision.
- (39) **Beaulieu M**, Gillen E^B, Hahn S^B, Pape JM^B, Fischer K. 2015. Behavioural antioxidant strategies to cope with high temperatures: a study in a tropical butterfly. *Animal Behaviour* 109: 89-99
Contribution: conception, data collection, data analyses, article writing, supervision.
- (38) **Beaulieu M**, González Acuña D, Thierry AM^P, Polito MJ^P. 2015. Relationships between isotopic values and oxidative status: insights from populations of Gentoo penguins. *Oecologia* 177: 1211-1220
Contribution: conception, funding acquisition, data analyses, article writing.
- (37) Kehl T^P, **Beaulieu M**, Kehl A^M, Fischer K. 2015. Old male sex: large ejaculate, many sperm but few offspring. *Behavioral Ecology & Sociobiology* 69: 1543-1552
Contribution: data analyses, article writing, supervision.
- (36) Speakman JR, Blount JD, Bronikowski AM, Buffenstein R, Isaksson C, Kirkwood TB, Monaghan P, Ozanne SE, **Beaulieu M**, Briga M, Carr S, Christensen L, Cocheme HM, Cram DL, Dantzer B, Harper JM, Jurk D, King A, Noguera JC, Salin K, Sild E, Simons M, Smith S, Stier A, Tobler M, Vitikainen E, Peaker M, Selman C. 2015. Oxidative stress and life-histories: unresolved issues and current needs. *Ecology & Evolution* 5: 5745-5757
Contribution: article writing.

2014

- (35) **Beaulieu M**, Costantini D. 2014. Biomarkers of oxidative status: missing tools in conservation physiology. *Conservation Physiology* 2: cou14
Contribution: conception, article writing.
- (34) **Beaulieu M**, Mboumba S, Willaume E, Kappeler PM, Charpentier MJE 2014 The oxidative cost of unstable social dominance. *Journal of Experimental Biology* 217: 2629-2632. Cover of the journal
Contribution: conception, data analyses, article writing.
- (33) **Beaulieu M**, Haas A^M, Schaefer HM. 2014. Self-supplementation and effects of dietary antioxidants during acute thermal stress. *Journal of Experimental Biology* 217: 370-375
Contribution: conception, funding acquisition, data collection, data analyses, article writing, supervision.
- (32) **Beaulieu M**, Schaefer HM. 2014. The proper time for antioxidant consumption. *Physiology & Behavior* 128: 54-59
Contribution: conception, funding acquisition, data collection, data analyses, article writing.
- (31) **Beaulieu M**, Sockman KW. 2014. Comparison of optimal foraging versus life-history decisions during nestling care through stable isotope analysis in Lincoln's Sparrow families. *Ibis* 156: 424-432
Contribution: conception, data collection, data analyses, article writing, supervision.
- (30) Lyons SM^P, **Beaulieu M**, Sockman KW. 2014. Contrast influences female attraction to performance-based sexual signals in a songbird. *Biology Letters* 10: 20140588.
Contribution: article writing.

2013

- (29) Ancel A, **Beaulieu M**, Gilbert C. 2013. The different breeding strategies of penguins: a review. *Comptes-Rendus Biologie* 336: 1-12

Contribution: article writing.

- (28) Ancel A, Gilbert C, **Beaulieu M**. 2013. The long engagement of the emperor penguin. *Polar Biology* 36: 573-577

Contribution: data analyses, article writing.

- (27) **Beaulieu M**, Schaefer HM. 2013. Rethinking the role of dietary antioxidants through the lens of self-medication. *Animal Behaviour* 86: 17-24

Contribution: conception, article writing.

- (26) **Beaulieu M**, Thierry AM^P, González Acuña D, Polito MJ^P. 2013. Integrating oxidative ecology into conservation physiology. *Conservation Physiology* 1: cot004

Contribution: conception, funding acquisition, data analyses, article writing.

- (25) Gerum RC^P, Zitterbart DP, Metzner C, **Beaulieu M**, Ancel A, Fabry B. 2013. The origin of travelling waves in emperor penguin huddles. *New Journal of Physics* 15: 125022.

Contribution: data collection, article writing.

2012

- (24) **Beaulieu M**, Sockman KW. 2012. One meadow for two sparrows: resource partitioning in a high elevation habitat. *Oecologia* 170: 529-540

Contribution: conception, data collection, data analyses, article writing, supervision.

- (23) **Beaulieu M**, Sockman KW. 2012. Song in the cold is 'hot': memory of and preference for sexual signals perceived under thermal challenge. *Biology Letters* 8: 751-753.

Contribution: data collection, data analyses, article writing.

- (22) Matragrano LL^P, **Beaulieu M**, Phillip JO, Rae AI, Sanford SE, Sockman KW, Maney DL. 2012. Rapid effects of hearing song on catecholaminergic activity in the songbird auditory pathway. *PLoS One* 7(6): e39388

Contribution: data analyses, article writing.

- (21) Matragrano LL^P, Sanford SE, Sockman KW, Salvante KG, **Beaulieu M**, Maney DL. 2012. Estradiol-dependent modulation of serotonergic markers in auditory areas of a seasonally breeding songbird. *Behavioral Neuroscience* 126: 110-122

Contribution: data analyses, article writing.

2011

- (20) **Beaulieu M**^P, Reichert S^M, Le Maho Y, Ancel A, Criscuolo F. 2011. Oxidative status and telomere length in a long-lived bird facing a costly reproductive event. *Functional Ecology* 25: 577-585

Contribution: conception, data collection, data analyses, article writing, supervision.

- (19) Spée M^P, Marchal L^M, Lazin D^F, Le Maho Y, Chastel O, **Beaulieu M**, Raclot T. 2011. Exogenous corticosterone and nest-abandonment: a study in a long-lived bird, the Adélie penguin. *Hormones and Behavior* 60: 362-372

Contribution: data collection, article writing, supervision.

- (18) Spée M^P, Marchal L^M, Thierry AM^F, Chastel O, Enstipp M, Le Maho Y, **Beaulieu M**, Raclot T. 2011. Exogenous corticosterone mimics a late fasting stage in captive Adélie penguins (*Pygoscelis adeliae*). *American Journal of Physiology – Regulatory, Integrative and Comparative Physiology* 300: 1241-1249

Contribution: data collection, article writing, supervision.

2010

- (17) **Beaulieu M**^P, Dervaux A^F, Thierry AM^F, Lazin D^F, Le Maho Y, Ropert-Coudert Y, Spée M, Raclot T, Ancel A. 2010. When sea-ice clock is ahead of Adélie penguins' clock. *Functional Ecology* 24: 93-102

Contribution: conception, data collection, data analyses, article writing, supervision.

- (16) **Beaulieu M**^P, Ropert-Coudert Y, Le Maho Y, Ancel A. 2010. Is abdominal implantation of

devices a good alternative to external attachment? A comparative study in Adélie penguins. *Journal of Ornithology* 151: 579-586

Contribution: conception, data collection, data analyses, article writing.

- (15) **Beaulieu M^P**, Ropert-Coudert Y, Le Maho Y, Ancel A, Criscuolo F. 2010. Foraging in an oxidative environment: relationship between $\delta^{13}\text{C}$ values and oxidative status in Adélie penguins. *Proceedings of the Royal Society B* 277: 1087-1092. Recommended by 'Faculty of 1000'

Contribution: conception, data collection, data analyses, article writing, supervision.

- (14) **Beaulieu M^P**, Spée M^P, Lazin D^F, Ropert-Coudert Y, Le Maho Y, Ancel A, Raclot T. 2010. Ecophysiological response of Adélie penguins facing an experimental increase of breeding constraints. *Journal of Experimental Biology* 213: 33-39. Cover of the journal

Contribution: conception, data collection, data analyses, article writing, supervision.

- (13) **Beaulieu M^P**, Thierry AM^F, Handrich Y, Le Maho Y, Massemin S, Ancel A. 2010. Adverse effects of instrumentation in incubating Adélie penguins. *Polar Biology* 33: 485-492.

Contribution: data collection, data analyses, article writing.

- (12) Nesti I^P, Ropert-Coudert Y, Kato A, **Beaulieu M^P**, Focardi S, Olmastroni S. 2010. Diving behaviour of chick-rearing Adélie penguins at Edmonson Point, Ross Sea. *Polar Biology* 33: 969-978

Contribution: data analyses, article writing.

- (11) Spée M^P, **Beaulieu M^P**, Chastel O, Le Maho Y, Raclot T. 2010. Should I stay or should I go? Hormonal control of nest abandonment in a long-lived bird, the Adélie penguin. *Hormones and Behavior* 58: 762-768.

Contribution: data collection, article writing.

- (10) Yosefi S, Hen G, Rosenblume CI, Cerasale D, **Beaulieu M^P**, Criscuolo F, Einat-Friedman M. 2010. Lack of leptin activity in blood samples of Adélie penguin and bar-tailed godwit. *Journal of Endocrinology* 207: 113-122.

Contribution: data collection, article writing.

- (9) Zimmer I^P, Wilson RP, **Beaulieu M^P**, Ropert-Coudert Y, Kato A, Ancel A, Plötz J. 2010. Dive efficiency versus depth in foraging emperor penguins. *Aquatic Biology* 8: 269-277

Contribution: data collection, article writing.

2009

- (8) Ancel A, **Beaulieu M^P**. 2009. Practical method of estimating fresh mass of Adélie penguin eggs. *Polar Biology* 32: 1091-1093

Contribution: data collection, article writing.

- (7) Ancel A, **Beaulieu M^P** (co-1st author), Le Maho Y, Gilbert C. 2009. Emperor penguin mates: keeping together in the crowd. *Proceedings of the Royal Society B* 276: 2163-2169.

Contribution: data collection, article writing.

- (6) **Beaulieu M^P**, Raclot T, Dervaux A^F, Le Maho Y, Ropert-coudert Y, Ancel A 2009 Can a handicapped parent rely on its partner? An experimental study within Adélie penguin pairs. *Animal Behaviour* 78: 313-320.

Contribution: conception, data collection, data analyses, article writing, supervision.

- (5) **Beaulieu M^P**, Thierry AM^F, Le Maho Y, Ropert-coudert Y, Ancel A. 2009. Alloparental feeding in Adélie penguins: why is it uncommon? *Journal of Ornithology* 150: 637-643

Contribution: conception, data collection, data analyses, article writing.

- (4) **Beaulieu M^P**, Thierry AM^F, Raclot T, Le Maho Y, Ropert-coudert Y, Gachot-Neveu H, Ancel A. 2009. Sex-specific parental strategies according to the sex of offspring in the Adélie penguin. *Behavioral Ecology* 20: 878-883

Contribution: conception, data collection, data analyses, article writing, supervision.

- (3) Ropert-Coudert Y, **Beaulieu M**^P, Hanuise N^P, Kato A. 2009. Diving into the world of bio-logging. *Endangered Species Research* 10: 21-27
Contribution: data collection, data analyses, article writing.

2008

- (2) Zimmer I^P, Wilson RP, **Beaulieu M**^P, Ancel A, Plötz J. 2008. Seeing the light: depth and time restrictions in the foraging capacity of emperor penguins at Pointe Géologie, Antarctica. *Aquatic Biology* 3: 217-226
Contribution: data collection, article writing.
- (1) Zimmer I^P, Wilson RP, Gilbert C, **Beaulieu M**^P, Ancel A, Plötz J. 2008. Foraging movements of emperor penguins at Pointe Géologie, Antarctica. *Polar Biology* 31: 229-243
Contribution: data collection, article writing.

Report

- **Beaulieu M**, Buschewski U, Liebers-Helbig D, May A, Rößler H, Dähne M, Wahlber M, Sørensen K, Dehnhardt G, Byl, JA, Lange T, Miersch L, Hoffmann J, Albrecht C, Frahnert S, Jäckel D, Ortiz Troncoso A. 2024. Hearing in Penguins. German Environment Agency. Project No. (FKZ) 3717 18 244 0

Conferences

- **Beaulieu M**. Connecting biologging and wild animal welfare, Jul. 2024, UFAW (Universities Federation for Animal Welfare) Conference, Porto, Portugal (oral presentation).
- **Beaulieu M**. Complementing behavioural assessment of welfare in the wild with physiological approaches, Aug. 2023, Behaviour, Bielefeld, Germany (oral presentation).
- **Beaulieu M.**, Köpp J, Rößler H, Dähne M. Examining temporal and spatial variation in the vocalizations of brush-tailed penguins, Sept. 2020, online meeting of the German Ornithological Society.
- **Beaulieu M**. Can oxidative markers be used to assess animal population health? 10th International Congress of Comparative Physiology and Biochemistry, Aug. 2019, Ottawa, Canada (invited oral presentation in the symposium 'Improving risk assessment and recovery of threatened species through consideration of physiological mechanisms').
- **Beaulieu M**, Dehnhardt G, Frahnert S, Hoffmann J, Lange T, Rößler H, Sørensen K, Wahlberg M, Dähne M. Hearing in penguins: a novel and multidisciplinary project. 10th International Penguin Conference, Aug. 2019, Dunedin, New Zealand (poster)
- **Beaulieu M**. Pay attention to details, they may mask the truth. 27th International Ornithological Congress, Aug. 2018, Vancouver, Canada (invited oral keynote presentation in the symposium 'Oxidative stress and life-history in birds').
- **Beaulieu M**, Benoit L, Abaga S, Kappeler PM, Charpentier MJE. Seasonal telomere dynamics in a free ranging primate. 110th Meeting of the German Zoological Society. Sept. 2017, Bielefeld, Germany (oral presentation)
- **Beaulieu M**, Schaefer HM. Thermal stress, oxidative balance and antioxidant consumption. 106th Meeting of the German Zoological Society. Sept. 2013, Munich, Germany (poster)
- **Beaulieu M**, Schaefer HM. Consuming antioxidants: not at any time. 9th Ecology and Behaviour Meeting. Apr. 2013, Strasbourg, France (oral presentation)
- **Beaulieu M**, Sockman KW. Temporal trophic segregation between Lincoln's sparrows and

white-crowned sparrows in a high elevation habitat. 96th Ecological Society of America Meeting. Aug. 2011, Austin, U.S.A. (oral presentation)

- **Beaulieu M**, Le Maho Y, Ancel A, Criscuolo F. Foraging strategies and oxidative stress: a pair affair in the Adélie penguin. 7th International Penguin Conference. Aug. 2010, Boston, U.S.A. (oral presentation)
- **Beaulieu M**, Spée M, Lazin D, Le Maho Y, Ancel A, Raclot T. Ecophysiological response of Adélie penguins facing an experimental increase in breeding constraints. 7th European Ornithologists' Union Conference. Aug. 2009, Zurich, Switzerland (oral presentation)
- **Beaulieu M**, Dervaux A, Thierry AM, Lazin D, Le Maho Y, Ropert-Coudert Y, Spée M, Raclot T, Ancel A. Ecophysiological response of Adélie penguin parents facing contrasting timing of sea-ice retreat. Xth SCAR (Scientific Committee on Antarctic Research) International Biology Symposium, Jul. 2009, Sapporo, Japan (oral presentation)
- **Beaulieu M**, Le Maho Y, Ancel A. Adélie penguin offspring take the rap for their instrumented parents. Biologging III. Sept. 2008, Monterey, U.S.A (oral presentation)

Invited talks and lectures

- **Beaulieu M**. Veterinarians, conservation and welfare, Dec. 2024, UniLaSalle Veterinary College, Rouen, France ([invited lecture for students](#)).
- **Beaulieu M**. Hearing and vocalizing in penguins, Oct. 2019, Chizé Center for Biological Studies, Chizé, France ([invited seminar](#)).
- **Beaulieu M**. Examining information transfer at different scales in colonial birds, May 2019, Leibniz Institute for Zoo and Wildlife Research, Berlin, Germany ([invited seminar](#)).
- **Beaulieu M**. Hell is not always other people: effects of social environment on oxidative status and fitness components. Nov. 2016, Institut Pluridisciplinaire Hubert Curien, University of Strasbourg, France ([invited seminar](#)).
- **Beaulieu M**. Oxidative status in conservation physiology. Apr. 2016, University of Neuchâtel, Neuchâtel, Switzerland ([invited seminar for students](#)).
- **Beaulieu M**. Bats, oxidative status and ageing. Dec. 2015, University College, Dublin, Ireland ([invited seminar](#)).
- **Beaulieu M**. Reconsidering our approach to examine antioxidant intake by animals. Mini-symposium on oxidative stress, does it play a role in life-histories and ageing? The Rank Prize Funds. Apr. 2014, Grasmere, U.K. ([invited oral presentation](#)).
- **Beaulieu M**. Refining our understanding of antioxidant intake in ecological studies. March 2014, University of Bern, Switzerland ([invited seminar for students](#)).

Supervised student projects

- **2020:** Supervision of a Bachelor student from the University of Greifswald (Germany):
 - J Köpp (main PI): 'Examination of nest relief ceremonies in the Adélie penguin'.
- **2018-22** Supervision of two PhD students at the University of Greifswald (Germany):
 - : - A Degut (co-PI): 'Effect of early thermal conditions on dispersal-related traits across a latitudinal gradient'.

- H Rößler (main PI): 'Communication and hearing capacity in penguins'
- **2018:** Supervision of two Master students at the University of Greifswald (Germany):
 - I Lorenz (main-PI): 'Aggressive behavior and oxidative status in crickets'
 - J Weier (co-PI): 'Morphology heritability in a tropical butterfly'
- **2017:** Supervision (co-PI) of a Bachelor student at the University of Greifswald (Germany):
 - M Paulinich, 'Fitness heritability under variable thermal conditions in a tropical butterfly'
 Supervision (main PI) of Master students at the University of Greifswald (Germany):
 - M Basin, 'Effect of thermal conditions on the behavior of a dimorphic finch'
 - D Treschnak: 'Courtship behavior in a dimorphic finch'
 - K Linzel: 'Feeding behavior in a dimorphic finch'
- **2016:** Supervision (main PI) of Bachelor students at the University of Greifswald (Germany):
 - S Ostermann, 'Impact of a heat wave on the feeding behavior of a polymorphic tropical finch'
 - M Baumgarten, 'Temperament differences in a polymorphic tropical finch'
 - S Shresta, 'Effects of temperament on reproductive performance in a tropical finch'
- **2015-19** : Supervision of two PhD students at the University of Greifswald (Germany):
 - R Fragueira (main PI): 'Effects of elevated temperatures on the behavior, physiology and reproduction of a tropical polymorphic species'
 - F Günter (co-PI): 'Physiological defense mechanisms to cope with extreme environments in *Pieris napi* butterflies'
- **2015:** Supervision (main PI) of Bachelor students at the University of Greifswald (Germany):
 - L Scheelen & I Bischofberger: 'Food selection of a tropical butterfly across the oviposition period'
 - V Lochte: 'Temperature, antioxidants and agonistic behavior in butterflies'
 - J Fritsch: 'Prophylactic polyphenol intake by butterflies'.
 Supervision (main PI) of a Master student at the University of Greifswald (Germany):
 - S Reimer: 'Physiological trade-offs in *Pieris napi* butterflies'.
- **2014:** Supervision (main PI) of Bachelor students at the University of Greifswald (Germany):
 - R Geiger, E Gillen & S Hahn: 'Influence of temperature on the oxidative balance, the feeding behavior and the flight activity of a tropical butterfly'
 - I Lorenz: 'Influence of alcohol intake on the oxidative balance and the flight activity of a frugivorous butterfly'.
- **2013:** Supervision (main PI) of Master student at the University of Freiburg, (Germany):
 - A Haas: 'Influence of temperature on the oxidative balance and the feeding behavior of a tropical finch'
- **2011:** Supervision (co-PI) of an undergraduate student at the University of North Carolina at Chapel Hill (USA):
 - A Rohtla: 'Song teaching in Lincoln's sparrows'. This work received the RE

Coker Award.

- **2010:** Supervision of four American volunteers for fieldwork on sparrows in the Rocky Mountains (Silverton, Colorado, USA).
- **2009:** Supervision (co-PI) of a Master student at the University of Strasbourg (France):
 - S Reichert: 'Telomere length and reproductive effort in a long-lived bird'.
- **2006-08** Supervision of three French volunteers for fieldwork on penguins in Dumont d'Urville, Adélie Land, Antarctica.

Teaching details

- **2019:** Initiation of journal clubs for students at the German Oceanographic Museum, Germany
- **Winter 2018-19:** Lectures in Evolutionary Ecology (Master)
- **Summer 2018:** Lecture in Animal Ecology (Bachelor)
- **Apr.-Jul. 2014-18:** Seminars in 'Animal Conservation' for Master students, University of Greifswald (Germany).
- **Oct.-Dec. 2014-17 & 2021:** Seminars in 'Zoology & Animal Ecology' for Bachelor students, University of Greifswald (Germany).
- **Aug. 2014-19 & 2021:** Ornithological excursions on Hiddensee Island (Germany) for the module 'General Ecology' for Bachelor students, University of Greifswald (Germany).
- **Jun. 2014-16:** Assistance for ornithological excursions to National Parks of Western Pomerania (Germany) with Master's students.
- **Nov. 2012:** Teaching assistance in the Master course "Animal Ecology" at the University of Freiburg (Germany)
- **Feb. 2010-11:** Assistance in the undergraduate course "Bird Biology" for field trips on the Outer Banks (North Carolina, U.S.A.).
- **2007:** Initiation of journal clubs for students at the IPHC-DEPE, France