

MEGAN A. OWEN

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EDUCATION

University of California Los Angeles (EEB)	PhD 2014
City College of New York, Biology (EEB)	MA 1994
City College of New York, Biology (Biology)	BS 1992

RESEARCH POSITIONS

- **2017-present. Director**, Population Sustainability, Institute for Conservation Research, San Diego Zoo Global.
- **2013-2017. Associate Director**, Recovery Ecology, Institute for Conservation Research, San Diego Zoo Global
- **2011-2013. Conservation Program Manager**, Applied Animal Ecology, Institute for Conservation Research, San Diego Zoo Global
- **2007-2011. Conservation Program Specialist**, Applied Animal Ecology, Institute for Conservation Research (*formerly CRES*), San Diego Zoo Global.
- **2005-2007. Research Coordinator**, Applied Animal Ecology, CRES, Zoological Society of San Diego.
- **2003-2005. Research Fellow**, Behavior, CRES, Zoological Society of San Diego.
- **1997-2003. Research Technician**, Behavior, CRES, Zoological Society of San Diego.
- **1995-1997. Biological Technician**, United States Geological Service / National Biological Service, Anchorage, AK
- **1992-1994. Graduate Research Fellow**, Hudson Bay Project, Churchill, Manitoba, Canada.

APPOINTMENTS

- **2018-present. USFWS Polar Bear Recovery Implementation Team.** *Science and Monitoring Working Group*
- **2018-present. International Polar Bear Conservation Center.** *Advisory Board Member*
- **2017-present. AZA-SSP Polar Bear Research Council.** *Co-chair*
- **2016-present. AZA-Bear Taxon Advisory Group.** *Research Advisor*
- **2012-present. IUCN/SSC Bear Specialist Group.** *Captive Bear Expert Team*
- **2010-present. AZA-SSP.** *Advisor, Giant Panda SSP*
- **2009-2013. Polar Bear Sustainability Alliance.** *Research Advisor*
- **2008-present. Polar Bears International.** *Senior Research Advisor*
- **2004-present. Papoose Wildlife Conservation.** *Board Member, Advisor*

SCIENTIFIC PUBLICATIONS

54. Greggor A, Berger-Tal O, ...**Owen MA**...Blumstein DT. *Submitted: Frontiers in Ecology and Evolution.* A framework for cultural change in conservation science.
53. Van Horn RC, Sheppard J, Swaisgood RR, Appleton R, Sanchez I, Vallejos DJ, Vallejos J, **Owen MA.** *Submitted: Ursus* Den and den site preferences of dry forest Andean bears.
52. Martin-Wintle MS, **Owen MA**, Zhou X, Zhang G, Wintle NJP, Hall SS, Swaisgood RR. *In preparation for submission: Animal Behaviour.* Experienced mothers strategically allocate maternal care effort.
51. **Owen MA**, Pagano A, Wisdom S, Kirschhoffer J, Bowles AE, O'Neill C. *In preparation for submission: Journal of Wildlife Management.* Estimating audibility of vehicular noise to denning polar bears.
50. Teng J, Swaisgood RR, **Owen MA**... Zhang Z. *Submitted: Nature Communications.* Climate influences recent past distribution of giant pandas.
49. Khadpekar Y, Whiteman JP, Durrant BS, **Owen MA**, Prakash S. *In press: Ursus.* Scent marking behavior by female sloth bears in estrus.
48. Martin-Wintle MM, **Owen MA**, Wintle NP, Zhang G, Zhang H, Swaisgood RR. *In revision: Scientific Reports.* Stereotypic behaviors predict reproductive performance and litter sex ratio in giant pandas.
47. Charlton BD, **Owen MA**, Swaisgood RR. *In press.* Scent anointing in giant pandas: medicinal, status signalling, or both? *Journal of Mammalogy*

46. Charlton BD, **Owen MA**, Swaisgood RR. *In press*. Influence of season and social context on giant panda (*Ailuropoda melanoleuca*) vocal behaviour. *PLoS ONE*
45. Wei W, Swaisgood RR, Pilfold NP, **Owen MA**, ...Zhang Z. *In press: Current Biology*. Is China's protected area system working?
44. **Owen MA**, Pagano AM, Wisdom S, Bowles A., 2019. Estimating propagation and audibility of industrial noise in subnivean polar bear dens. *The Journal of the Acoustical Society of America*, 146:2823.
43. Van Horn RC, Sutherland-Smith M, Brach Sarcos AE, Thomas G, Shanks JA, **Owen MA**. 2019. The Andean bear alopecia syndrome may be caused by social housing. *Zoo Biology*
42. Charlton BD, **Owen MA**, Swaisgood RR. 2019. Coevolution of vocal signal structure and hearing sensitivity in mammals. *Nature Communications* 10:2448.
41. Goldenberg SZ, **Owen MA**, Brown JL, Wittemyer G, Oo ZM, Leimbruber P. 2019. Increasing conservation translocation success by building social functionality in released populations. *Global Ecology and Conservation*
40. Yan X, Zhang H, Li D, Wu D, Zhou S, Sun M, Hu H, Liu X, Mou S, He S, **Owen MA**, Yan H. 2019. Acoustic recordings provide detailed information regarding the behavior of cryptic wildlife to support conservation translocations. *Scientific Reports* 9:51772
39. Wei W, Swaisgood RR, **Owen MA**, Pilfold NP,Zhang Z. 2019. The role of den quality in giant panda conservation. *Biological Conservation*. *Doi: 10.1016/j.biocon.2018.12.031*
38. Pilfold NW, Letoluai A, Ruppert K, Glikman J, Stacy-Dawes J, O'Connor D, **Owen MA**. 2019. Confirmation of black leopard (*Panthera pardus pardus*) living in Laikipia County, Kenya. *African Journal of Ecology*. DOI: 10.1111/aje.12586
37. Charlton BD, Martin MS, **Owen MA**, Hemin Z, Swaisgood RR. 2018. Vocal behaviour predicts mating success in giant pandas. *Royal Society of Open Science* DOI 10.1098/rsos.181323.
36. Charlton BD, **Owen MA**, Keating JL, Martin MS, Swaisgood RR. 2018. Sound transmission in a bamboo forest and its implications for information transfer in giant panda (*Ailuropoda melanoleuca*) bleats. *Scientific Reports* 8:12754.
35. Pagano AM, Robbins CT, Carnahan T, **Owen MA**, Batson T, Wagner N, Cutting A, Nicassio N, Hash A, Williams TM. 2018. Costs of locomotion in two large plantigrade carnivores: polar bears and grizzly bears. *Journal of Experimental Biology* 221, jeb175372
34. Wei F, Constanza R, ...**Owen MA**,... et al. 2018. The value of ecosystem services from giant panda reserves. *Current Biology* 13: 2174-2180.
33. Khadpekar Y, Whiteman JP, Durrant BS, **Owen MA**, Prakash S. 2018. Approaches to studying behavior in captive sloth bears through animal keeper feedback. *Zoo Biology* 37:408-415.
32. Wei W, Swaisgood RR, ...**Owen MA**, Pilfold NP, Zhang Z. 2018. Giant panda distributional and habitat-use shifts associated with a changing landscape. *Conservation Letters*. DOI: 10.1111/conl.12575
31. Swaisgood RR, Martin-Wintle MS, **Owen MA**, Zhou X, Zhang H. 2018. Developmental stability of foraging behavior: evaluating suitability of captive giant pandas for translocation. *Animal Conservation* doi: 10.1111/acv.12418.
30. Pagano AM, Durner GM, Rode KD, Peacock E, Costa D, Atwood TC, **Owen MA**, Williams TM. 2018. High energy-high fat lifestyle challenges an Arctic apex predator, the polar bear. *Science* 359:368-572.
29. Disheng L, Wintle NJP, Zhang G, Wang C, Luo, B, Martin-Wintle MS, **Owen MA**, Swaisgood RR. 2017. Analyzing the past to understand the future: Natural mating yields better reproductive rates than artificial insemination in the giant panda. *Biological Conservation* 216:10-17.
28. Knott K, Mastromonaco G, **Owen MA**, Kouba A. 2017. Pregnancy detection in polar bears through evaluation of urinary hormone metabolites: Characterization of the reproductive cycle and challenges for species conservation. *Conservation Physiology* 5(1), cox023.
27. Pagano AM, Rode KD, Cutting A, **Owen MA**, Jensen S, Ware JV, Robbins CT, Durner GM, Atwood TC, Obbard ME, Middel KR, Thiemann GW, Williams TM. 2017. Using tri-axial accelerometers to remotely identify wild polar bear behaviors. *Endangered Species Research* 32:19-33.
26. Steinman KJ, O'Brien JK, Fetter GA, Curry E, Roth TL, **Owen MA**, Robeck TR. 2017. An improved method for enzyme immunoassay analysis for androgens in polar bear (*Ursus maritimus*) urine using enzyme hydrolysis. *Aquatic Mammals* 43:3.
25. **Owen MA**, Swaisgood RR, Blumstein DT. 2017. Contextual influences on animal decision: Implications for behavior based wildlife conservation and management. *Integrative Zoology* 12:32-48.
24. Greggor AL, Berger-Tal O, Blumstein DT, Angeloni L, ...**Owen MA**...Sutherland WJ. 2016. Prioritising animal behaviour research to increase conservation efficacy. *Trends in Ecology and Evolution* 31:953-964.

23. Zheng X, **Owen MA**, Nie Y, Hu Y, Swaisgood RR, Yan L, Wei F. 2016. A systematic and hierarchical approach to visually assigning individual identity to wild giant pandas from camera trap photos. *Journal of Zoology, London*. doi:10.1111/jzo.12377
22. **Owen MA**, Keating JK, Denes SK, Hawk K, Fiore A, Thatcher J, Becerra J, Hall S, Swaisgood R. 2016. Hearing in context: Conservation implications for a highly vocal endangered species. *Global Ecology and Conservation* 6:121-131.
21. Gilad O, Swaisgood RR, **Owen MA**, Zhou X. 2016. Odor cues for long-lasting mother-daughter recognition in the giant panda. *Current Zoology* 1:1-4
20. **Owen MA**, Swaisgood RR, Zhou X, Blumstein DT. 2016. Signalling behaviour is influenced by transient social context a spontaneously ovulating mammal. *Animal Behaviour* 111:157-165.
19. Ware JV, Rode KD, Pagano AM, Bromaghin J, Robbins CT, J Erlenbach J, Jensen S, Cutting A, Nicassio-Hiskey N, Hash A, **Owen MA**, Jansen HT. 2015. Validation of mercury tip-switch and accelerometer activity sensors for identifying resting versus active behavior in bears. *Ursus* 26: 86-96.
18. Berger-Tal O, Blumstein DT, Carroll S, Fisher RN, Mesnick SL, **Owen MA**, Saltz D, Cassady St Claire, Swaisgood RR. 2015. A systematic survey of the integration of animal behavior into conservation. *Conservation Biology* 30:744–753.
17. **Owen MA**, Swaisgood RR, Slocomb C, Amstrup SC, Durner G & Simac K. 2015. An experimental investigation into chemical communication in the polar bear (*Ursus maritimus*). *Journal of Zoology, London* 295:36-43.
16. Schakner ZA, Petelle MB, Berger-Tal OD, **Owen MA**, Blumstein DT. 2014. Developing effective tools for conservation behaviorists: Reply to Greggor et al. *Trends in Ecology and Evolution* 29:651-652.
15. **Owen MA**, Hall SS, Bryant L & Swaisgood RR. 2014. The influence of ambient noise on maternal behavior in a Bornean sun bear (*Helarctos malayanus euryspilus*). *Zoo Biology* 33:49-53.
14. **Owen MA**, Swaisgood RR, McGeehan LM, Xiaoping Z & Lindburg DG. 2013. The dynamics of male-female multimodal signaling and behaviour in the giant panda. *Ethology* 119:869-880.
13. Shier DM, Lea AJ & **Owen MA**. 2012. Beyond masking: Endangered Stephen’s kangaroo rats respond to traffic noise with footdrumming. *Biological Conservation* 150:53-58.
12. **Owen MA** & Bowles AE. 2011. Auditory psychophysics and the management of threatened large carnivore, the polar bear (*Ursus maritimus*). *International Journal of Comparative Psychology* 24:244-254.
11. **Owen MA**, Keating JL, Denes SK, Hawk K, Boroski J, Fiore A & Swaisgood RR. 2011. Behavioral audiogram of the giant panda (*Ailuropoda melanoleuca*): Preliminary results. *Journal of the Acoustical Society of America* 130:2460.
10. Shier DM, Lea AJ & **Owen MA**. 2011. Endangered Stephen’s kangaroo rats respond to road noise with footdrumming. *Journal of the Acoustical Society of America* 130:2320.
9. Bowles AE, **Owen MA**. 2010. From psychophysics to management of noise-disturbance in a large, Arctic carnivore, the polar bear. *Journal of the Acoustical Society of America* 127: 1757-1757.
8. **Owen MA**, Swaisgood RR. 2008. On thin ice: Climate change and the future of Polar Bears. *Biodiversity*. 9:123-129.
7. Bowles AE, **Owen MA**, Denes SL, Graves SK, Keating JL. 2008. Preliminary results of a behavioral audiometric study of the polar bear. *Journal of the Acoustical Society of America* 123:3509.
6. Peters G, **Owen MA**, Rogers L. 2007. Humming in bears: a peculiar sustained mammalian vocalization. *Acta Theriologica*. 52:379-389.
5. **Owen MA**, Swaisgood RR, Czekala NM, Lindburg DG. 2005. Enclosure choice and well being in giant pandas: Is it all about control? *Zoo Biology* 24:475-481.
4. **Owen MA**, Czekala NM, Swaisgood RR, Steinman K, DL Lindburg. 2005. Seasonal and diurnal dynamics of glucocorticoids and behavior in giant pandas. *Ursus* 16:208-221.
3. **Owen MA**, Swaisgood RR, Czekala NM, Steinman K, DL Lindburg. 2004. Monitoring stress in captive giant pandas (*Ailuropoda melanoleuca*): Behavioral and hormonal responses to ambient noise. *Zoo Biology* 23: 147-164.
2. Swaisgood RR, Lindburg DL, Zhou X, **Owen MA**. 2000. The effects of sex, reproductive condition and context on discrimination of conspecific odors by giant pandas. *Animal Behaviour* 57:1045-1053.
1. Robertson GJ, **Owen MA**, Rockwell RF. 1995. Responses of snow geese to artificially induced hatching asynchrony and increased clutch size. *Auk* 112:790-794.

BOOK CHAPTERS & TECHNICAL REPORTS

9. **Owen MA**. Neonatal behavior and social behavior in the polar bear. *In review: Ethology of Marine Mammals: Polar Bears*. Springer.
8. Swaisgood RR, McShea WM, Wildt D, Hull V, Zhang J, **Owen MA**, Zhang Z, Dvornicky-Raymond Z, Valitutto M, Wei F. (*In press*). Giant Panda (*Ailuropoda melanoleuca*). *In: Bears of the World*.

7. Martin-Wintle MS, Kersey DC, Wintle NJP, Aitken-Palmer C, **Owen MA**, Swaisgood RR. 2019. Comprehensive Breeding Techniques for the Giant Panda. *In: Reproductive sciences in animal conservation* (2nd ed.) Springer, New York, NY
6. **Owen MA** & Swaisgood RR. (*In press*). Guidelines for systematic behavioral observations for the giant panda. *In Lindburg, DG & Wong, S. Giant Panda Husbandry Manual*. Association of Zoos and Aquariums.
5. Swaisgood R, Zhang G, Wei R, **Owen MA** & Li D. (*In press*) Management for pregnancy and the peri-partum period. *In Lindburg, DG and Wong, S. Giant Panda Husbandry Manual*. Association of Zoos and Aquariums.
4. Hall SS, **Owen MA**, Swaisgood RR. 2015. Saving Pandas from Extinction: Why Captive Breeding Matters. *In: The Bear Book Volume II*. M. Reynolds-Hogland (Ed). Bear Trust International, Bozeman MT.
3. Van Horn RC, **Owen MA**. 2015. Could historically advantageous maternal investment by female bears create challenges for conservation breeding efforts? *International Bear News* 24(1):34.
2. O'Neill C, **Owen MA**, Wisdom S & Kirschoffer J. 2012. Received sounds in artificial polar bear dens. *Technical report for Polar Bears International* by JASCO Applied Sciences. 102pp.
1. Swaisgood RR, **Owen MA**, Czekala NM, Mauroo N, Hawk K & Tang J. 2006. Evaluating stress and well being in the giant panda: a system for monitoring. *In: Wildt DE, Zhang AJ, Zhang H, Janssen D, and S Ellis editors. Giant pandas in captivity: biology and medicine*. Cambridge University Press. pp.299-314.

GRANTS & FELLOWSHIPS

- Heller Foundation. 2019. Field-based molecular assessment of Sumatran tiger population connectivity. \$52,000
- Horne Foundation. 2019. Post-release monitoring of orphaned African elephants. \$15,000.
- Offield Foundation. 2019. Conservation ecology of polar bears: movement, foraging and maternal care. \$62,000.
- Anonymous donor. 2019. Post-release monitoring of translocated orphan African elephants. \$30,000.
- Pfleger Foundation. 2019. Elephant conservation ecology in East Africa. \$40,000.
- Horne Foundation. 2018. Conservation technology applications to African elephants in Kenya. \$15,000.
- Pfleger Family Foundation. 2018. Elephant conservation ecology in East Africa. \$42,000.
- International Bear Association. 2018. Community-based conservation of Andean bears in northeast Peru. \$30,000.
- Ocelot Foundation. 2018. Polar bear den monitoring \$4,900.
- Ocelot Foundation. 2017. Polar bear den monitoring \$4,800.
- MacBeth Foundation. 2016. Polar bear pathogen surveillance project. \$60,000.
- Ocelots Foundation. 2016. Bear research program support. \$2,500.
- Maryanne Pfister Group. 2013. Giant panda conservation research. \$15,500.
- Anonymous donor. 2012. Maternal denning in the polar bear. \$25,000.
- Polar Bears International. 2012. Seasonal dynamics of urinary cortisol metabolites in polar bears. \$26,200.
- University of California, Los Angeles. 2011. Doctoral Fellowship.
- Ocelots Foundation. 2011. Remote camera go-kits for pilot study of free-ranging denning bears. \$645.
- National Fish & Wildlife Foundation (NFWF)/ Polar Bears International. 2009. Reception of vehicular and natural noise in polar bear dens. \$107,028.
- Mara Strock. 2008. Hearing sensitivity of the giant panda. \$5,000.
- Patricia Yuenling. 2008. Hearing sensitivity of the giant panda. \$50,000.
- National Fish & Wildlife Foundation (NFWF)/ Polar Bears International. 2008. Polar bear den acoustics study: planning. \$12,000.
- Polar Bears International. 2008. Olfactory communication in the polar bear. \$25,300.
- Polar Bears International. 2007. Auditory sensitivity of the polar bear: a captive study with implications for management in the wild, II: \$15,000.
- Polar Bears International. 2005. Auditory sensitivity of the polar bear: a captive study with implications for management in the wild, I: \$60,000.
- Polar Bears International. 2003. Characterization of the estrous cycle in captive polar bears (*Ursus maritimus*): correlation of physiologic, behavioral and endocrine parameters: \$6,000.
- Hong Kong Society for Giant Panda Conservation. 2002. Behavioral and hormonal assessment of stress and the effects of environmental enrichment in captive giant pandas (*Ailuropoda melanoleuca*) II: \$14,484.
- Hong Kong Society for Giant Panda Conservation. 2001. Behavioral and hormonal assessment of stress and the effects of environmental enrichment in captive giant pandas (*Ailuropoda melanoleuca*) I: \$13,968.

CONFERENCE PRESENTATIONS/SPEAKING ENGAGEMENTS

Over 100 presentations to scientific and lay audiences focused on conservation science, conservation interventions, long-term ecological research and climate change. *Details available upon request.*

SELECTED POPULAR PUBLICATIONS

Owen MA. 2018. Some Bear: The Extraordinary Legacy of Gao Gao. ZooNooz.

Owen MA. 2012. Collaborations in panda research. ZooNooz.

Owen MA. 2010. Polar bears and climate change. USA Today Magazine.

Owen MA & Swaisgood RR. 2010. Partnerships in polar bear conservation. AZA Connect. May.

Owen MA. 2010. Noise disturbance. The Encyclopedia of Applied Animal Behaviour and Welfare. Edited by J N Marchant-Forde, P D McGreevy, D S Mills, D B Morton, C J Nicol. CABI Publishing. Oxfordshire, UK.

Owen MA. 2010. Polar bears denning: Do not disturb. Conservation Update. Winter.

Owen MA & Hawk K. 2010. Welcome to the World, Yun Zi. ZooNooz.

Bowles AE & **Owen MA.** 2009. The 'Grr' in the growl. Polar Bears International Newsletter.

Owen MA. 2008. On thin ice: Polar bears and climate change. ZooNooz.

Simerson J & **Owen MA.** 2007. Polar bear research in zoos: An interdisciplinary approach. Animal Keepers Forum 34(8): 312-316.

Owen MA & Simerson J. 2006/07. Can you hear me now? Polar bears and sensitivity to noise pollution. CRES Report, Winter.

Simerson J & **Owen MA.** 2006. Can you hear me now? ZooNooz.

Lindburg DL & **Owen MA.** 2003. Panda reproduction: The mystery of twinning. CRES Report. Winter.

WEB-BASED PUBLICATIONS

Over 80 blogs, primarily on bear research and SDZICR conservation programs. <http://blogs.sandiegozoo.org> & zoonooz.sandiegozoo.org

PROFESSIONAL SERVICE & MEMBERSHIP

Reviewer: Royal Society Open Science, Marine Mammal Science, Animal Behaviour, *Ursus*, Journal of Mammalogy, Journal of Animal Welfare Science, International Journal of Comparative Psychology, *Folia Zoologica*, Zoo Biology, Scientific Reports, Quarterly Review of Biology

Member: Acoustical Society of America, International Bear Association, American Zoo and Aquarium Association, The Wildlife Society.