

Reviewing a decade of movement ecology for conservation

Rocío Joo¹, S. Picardi¹, T.A. Clay²,
M.E. Boone¹, S.C. Patrick², M. Basille¹

¹ University of Florida ² University of Liverpool

GEER - April 2019



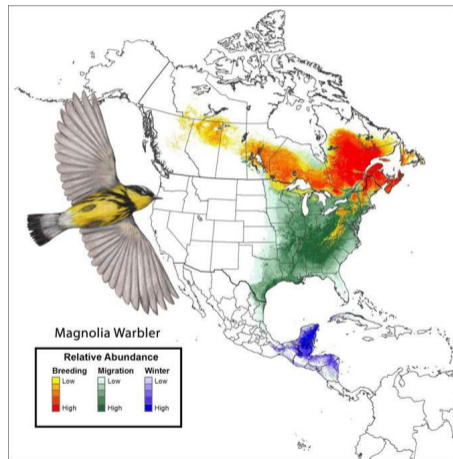
UNIVERSITY OF
LIVERPOOL

✉ rocio.joo@ufl.edu

🐦 [rocio_joo](https://twitter.com/rocio_joo)

Movement and conservation

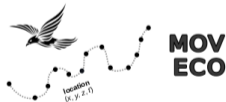
- Conservation of mobile species must account for movement (Thirgood et al. 2014; Torres et al. 2011)
- Need for: 1) sound research in movement ecology, 2) linking movement ecology to conservation



source: State of North American Birds report

In this work

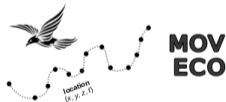
QUANTITATIVE REVIEW



In this work



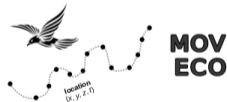
QUANTITATIVE
REVIEW



In this work



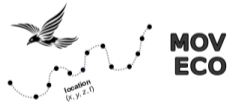
QUANTITATIVE REVIEW



In this work



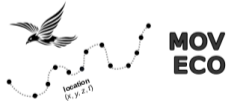
QUANTITATIVE REVIEW



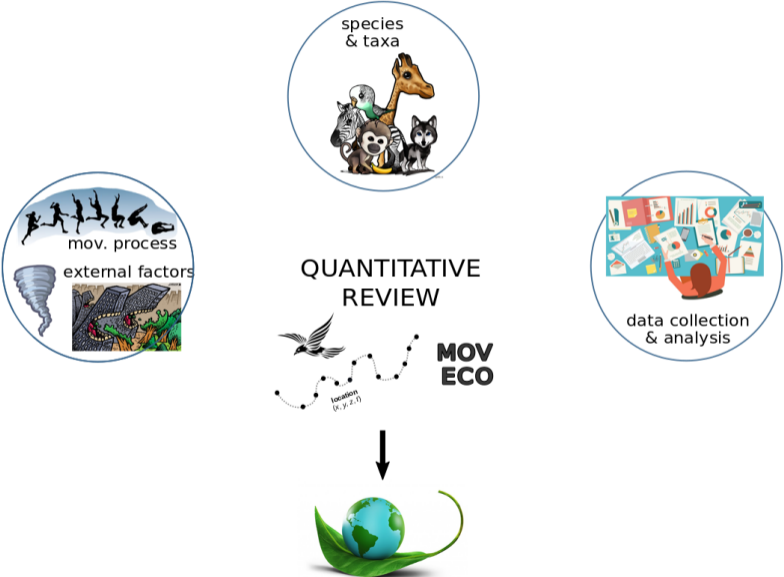
In this work



QUANTITATIVE REVIEW

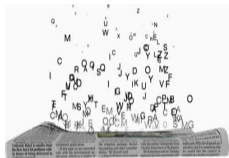


In this work

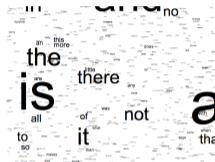




Identify
mov-eco papers



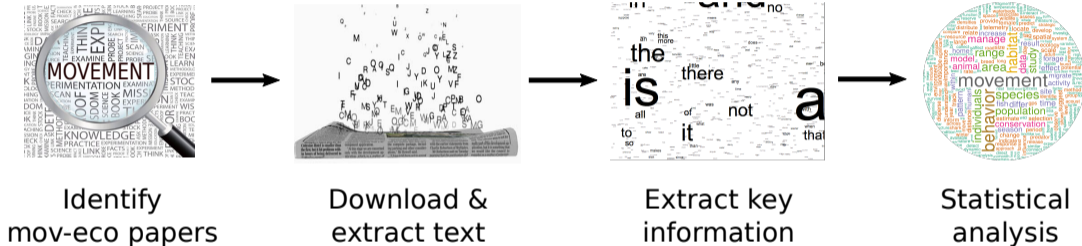
Download &
extract text



Extract key
information

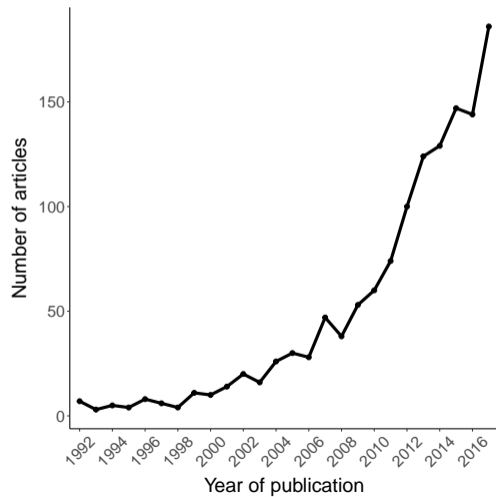


Statistical
analysis

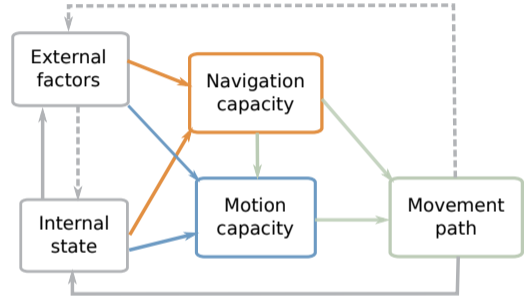


1060 movement ecology papers related to conservation and management

Overview



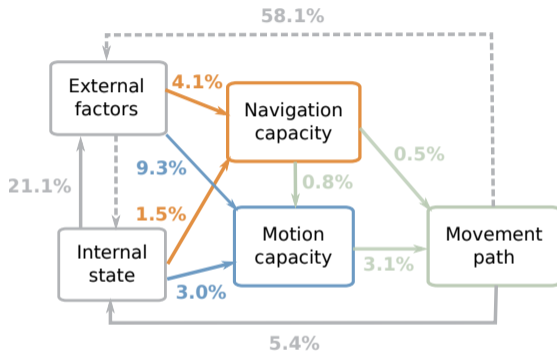
Movement ecology framework



- Navigation process
- Motion process
- Movement propagation process
- Internal state dynamics
- External state dynamics

(From Nathan et al. 2008)

Movement ecology framework

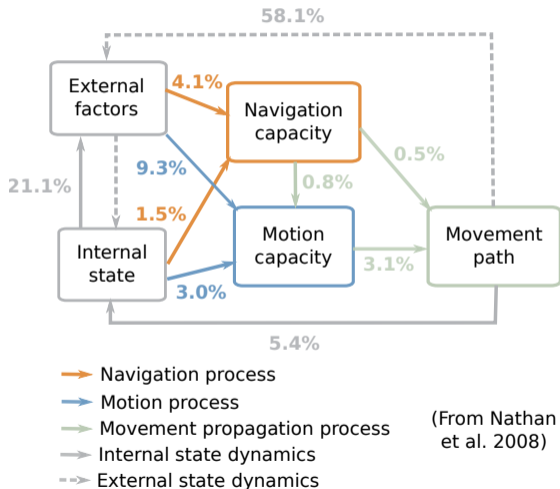


- Navigation process
- Motion process
- Movement propagation process
- Internal state dynamics
- -> External state dynamics

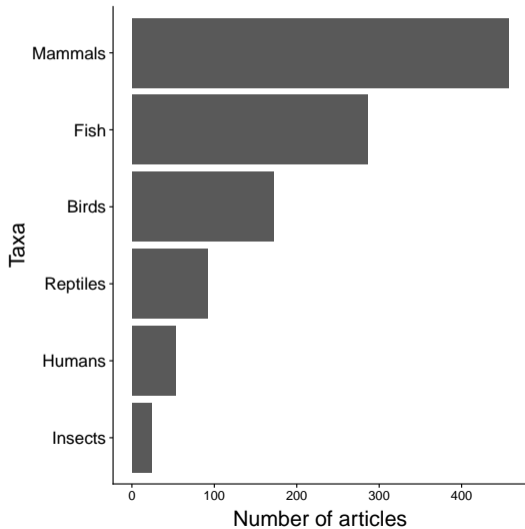
(From Nathan et al. 2008)

Movement ecology framework

External factor	Perc.
1 Environment	64,7 %
2 Anthropogenic	14,1 %
3 Animal interaction	13,3 %
4 Other	0,1 %

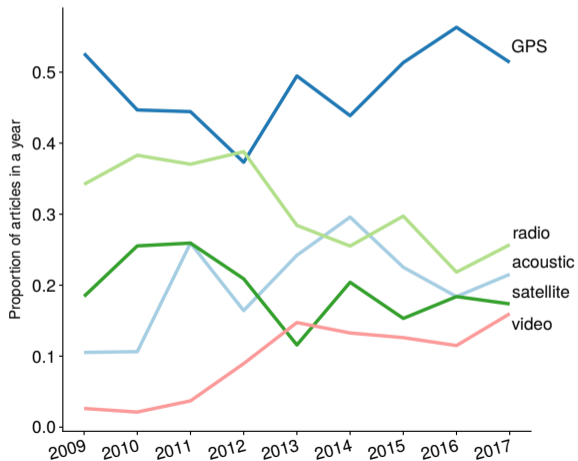


Species & Taxa

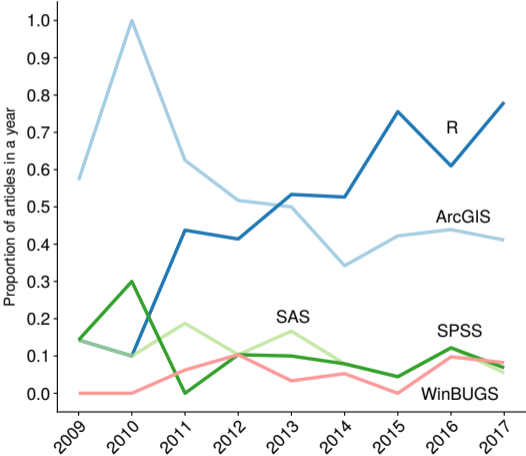


Data collection & analysis

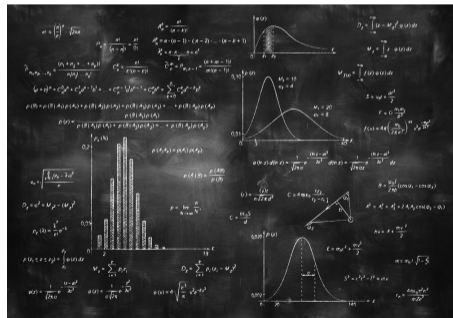
Tracking devices



Data collection & analysis



Statistical methods

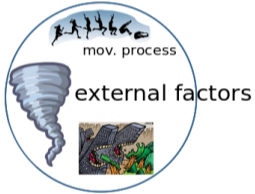


Method	Perc.
ANOVA	11,8 %
density kernel	4,9 %
GLM	4,2 %
min convex polygon	3,3 %
individual-based model	3,0 %

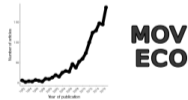
QUANTITATIVE REVIEW



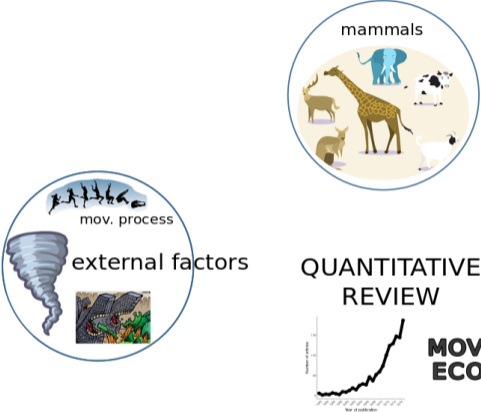
Summary



QUANTITATIVE REVIEW



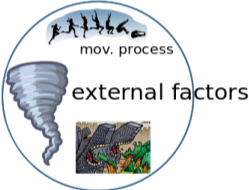
Summary



Summary

mov. process

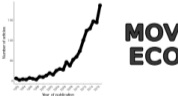
external factors



mammals



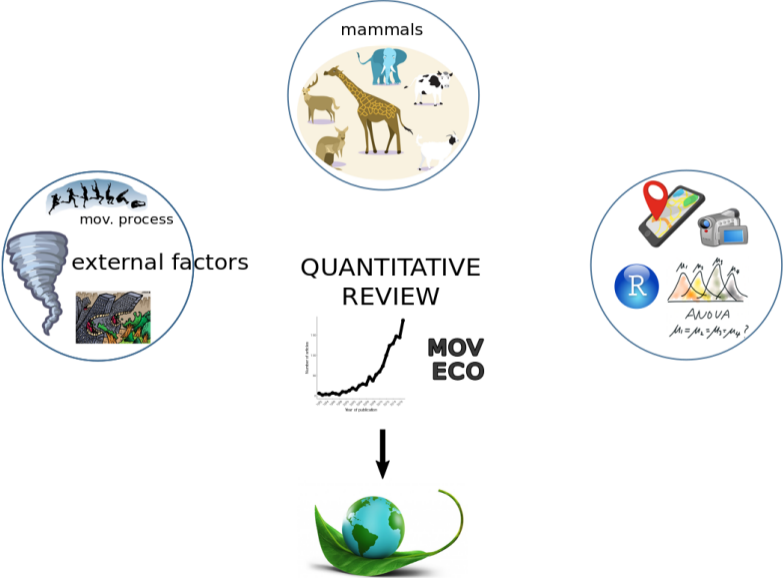
QUANTITATIVE REVIEW



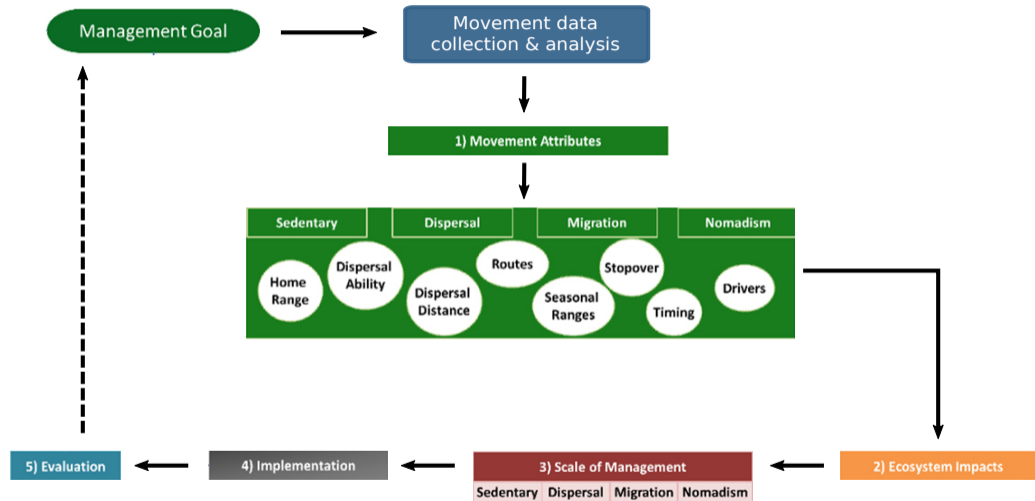
ANOVA

$\mu_1 = \mu_2 = \mu_3 = \mu_4 ?$

Summary

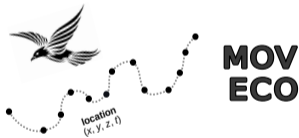


Movement for conservation



(adapted from Allen & Singh 2016)

Thanks for your attention



✉ rocio.joo@ufl.edu

🐦 [rocio_joo](https://twitter.com/rocio_joo)