Global Open Access to Mortality Data:
A Step Toward Safer Transport Infrastructure for Wildlife

Clara Grilo
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Akanksha Saxena
Manisha Bhardwaj

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universität freiburg
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RISKY

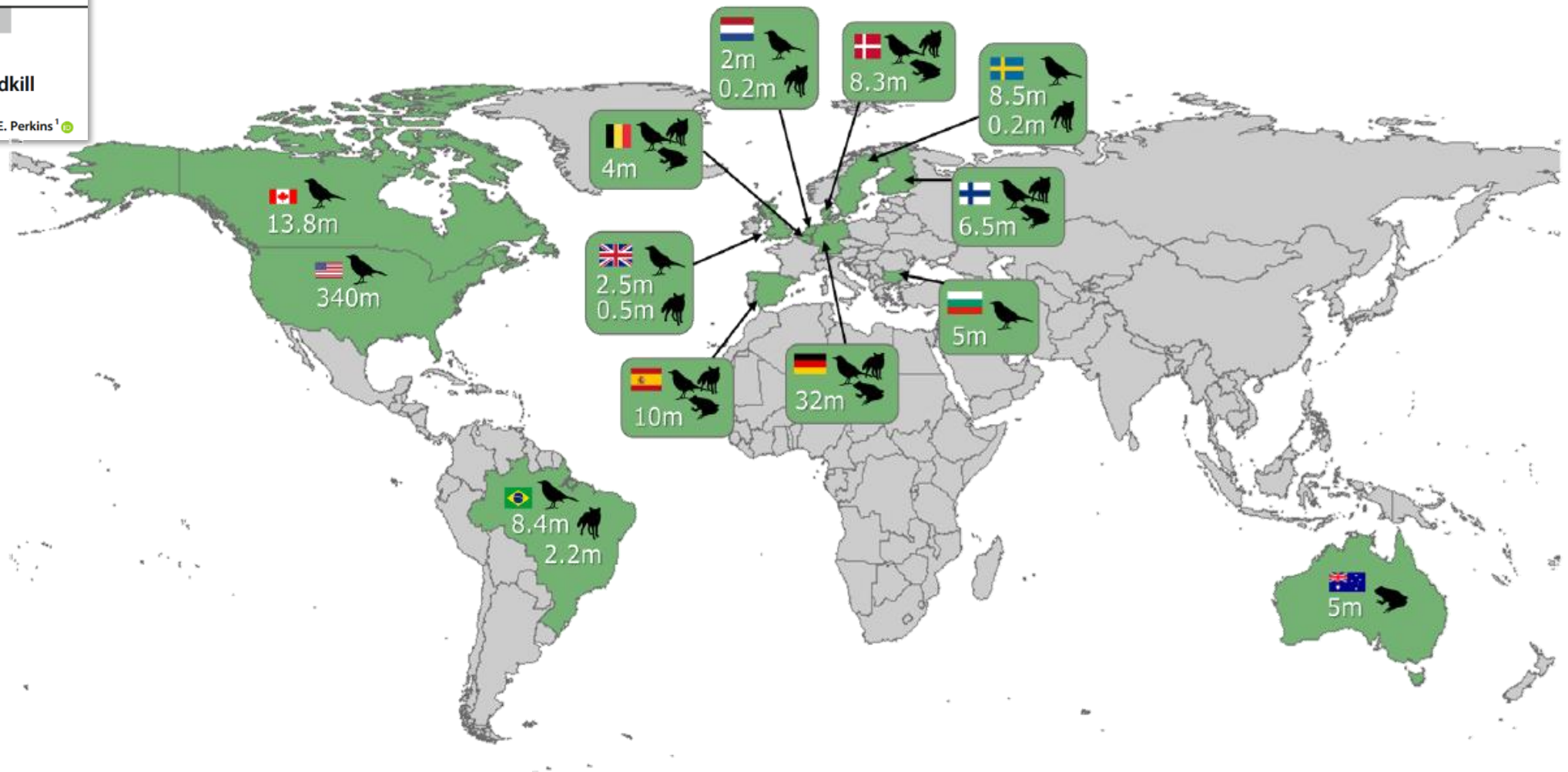
Wildlife-vehicle collisions

European Journal of Wildlife Research (2020) 66: 18
https://doi.org/10.1007/s10344-019-1357-4

REVIEW

The value of monitoring wildlife roadkill

Amy L. W. Schwartz[1] · Fraser M. Shilling[2] · Sarah E. Perkins[1]



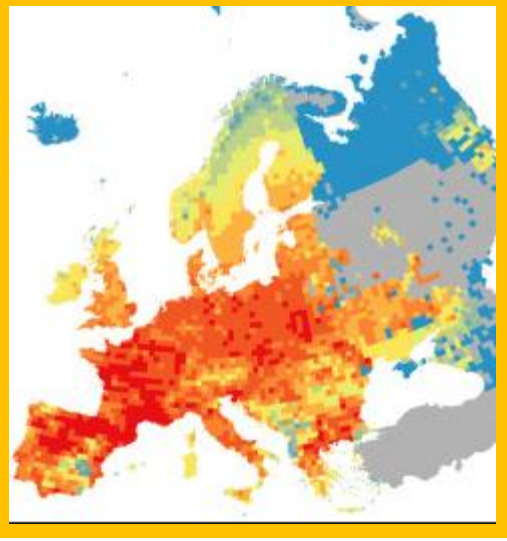
RISKY

Where? When? Why?

Biological Conservation
Volume 249, September 2020, 108729

A forecasting map of avian roadkill-risk in Europe: A tool to identify potential hotspots

Federico Morelli [a], Yanina Benedetti [a], Juan D. Delgado [b]



PLOS One

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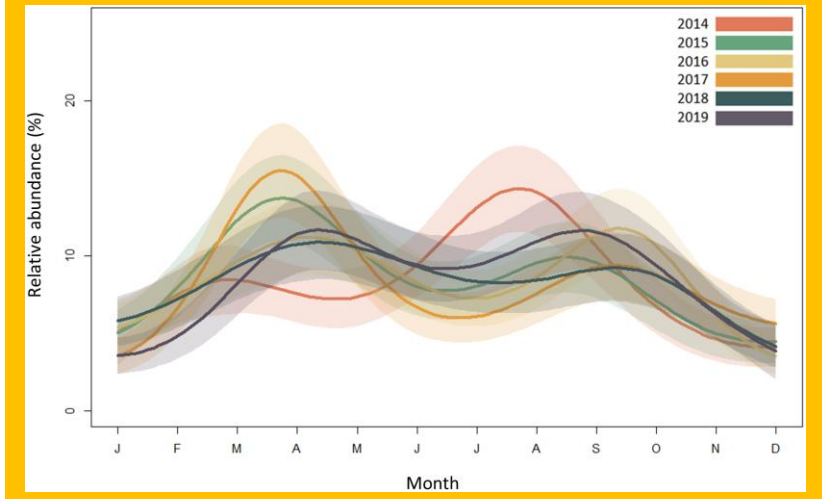
OPEN ACCESS PEER-REVIEWED
RESEARCH ARTICLE

Temporal patterns of wildlife roadkill in the UK

Sarah Raymond, Amy L. W. Schwartz, Robert J. Thomas, Elizabeth Chadwick, Sarah E. Perkins

Published: October 6, 2021 • https://doi.org/10.1371/journal.pone.0258083



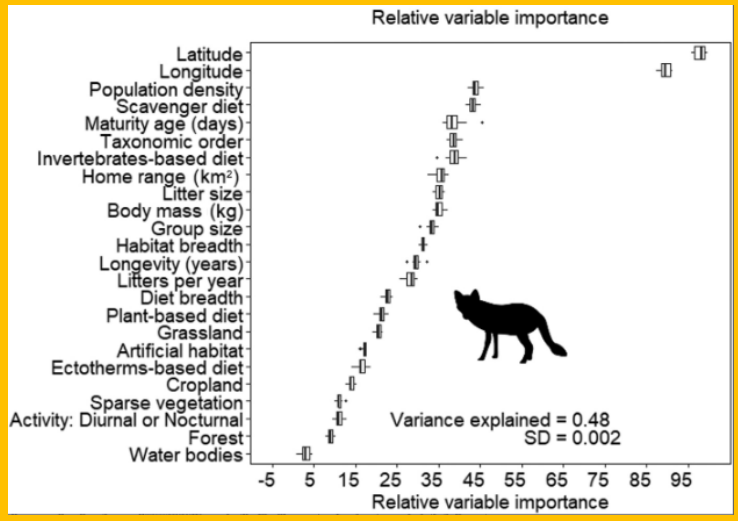
Global Ecology and Biogeography
A Journal of Macroecology

RESEARCH ARTICLE | Open Access

Roadkill patterns in Latin American birds and mammals

Pablo Medrano-Vizcaíno, Clara Grilo, Fernando Antônio Silva Pinto, William Douglas Carvalho, Ramiro Dário Melinski, Eduardo D. Schultz, Manuela González-Suárez

First published: 25 June 2022 | https://doi.org/10.1111/geb.13557 | Citations: 45



RISKY

How to mitigate?

RISKY

Why Collect Big Mortality Data and make it Open access?

Prevent the collection of redundant data

Standardization of data in a user-friendly format

Valuable resources for both local and macro-scale analyses

New hypotheses, conduct meta-analyses

Identify vulnerable species

Inform infrastructure planning

Support conservation priorities

Promote transparency & collaboration

Promotes the advance of infrastructure ecology

Why share data?

Road safety & Infrastructure Quality

- Prevent accidents
- Clarify causes of accidents
- Protect infrastructure assets

Financial Risk Reduction

- Avoid costly accidents and repairs
- **Enable cost-effective solutions**

Planning and Development

- Improve infrastructure siting
- Enhance mitigation planning
- Assess mitigation effectiveness

Public Image and Stakeholder Trust

- **Strengthen public and stakeholder confidence**
- **Support licensing and permitting processes**

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Open access data

animals

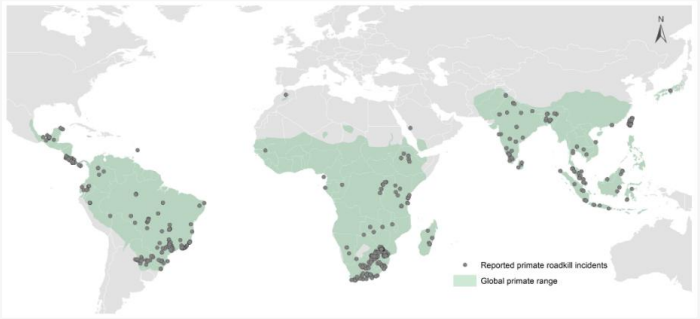
MDPI

Article

Road Infrastructure and Primate Conservation: Introducing the Global Primate Roadkill Database

Laura C. Praill [1,2], Timothy M. Eppley [3,4,5], Sam Shanee [6,7], Pamela M. K. Cunneyworth [8], Fernanda D. Abra [9,10,11], Néstor Allgas [6], Hassan Al-Razi [12], Marco Campera [13], Susan M. Cheyne [1], Wendy Collinson [14,15], Giuseppe Donati [1], Birthe Linden [14,16], Sophie Manson [1,17], Marjan Maria [12], Thais Q. Morcatty [1], K. A. I. Nekaris [1,17], Luciana I. Oklander [18,19], Vincent Nijman [1,*] and Magdalena S. Svensson [1]

Figure 1. Geographical locations of all primate roadkill incidents included in the Global Primate Roadkill Database as of May 2023.



scientific data

Check for updates

OPEN

DATA DESCRIPTOR

A dataset of road-killed vertebrates collected via citizen science from 2014–2020

Florian Heigl [1✉], Norbert Teufelbauer [2], Stefan Resch [3], Silke Schweiger [4], Susanne Stückler [4] & Daniel Dörler [1]

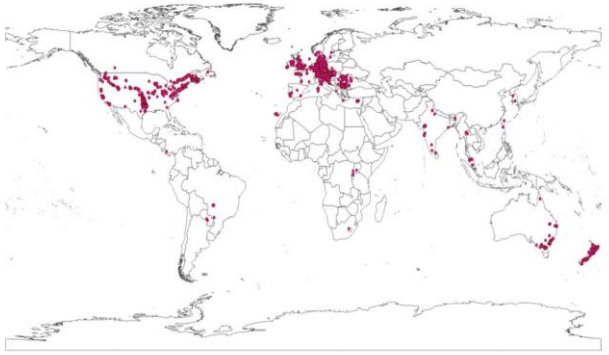
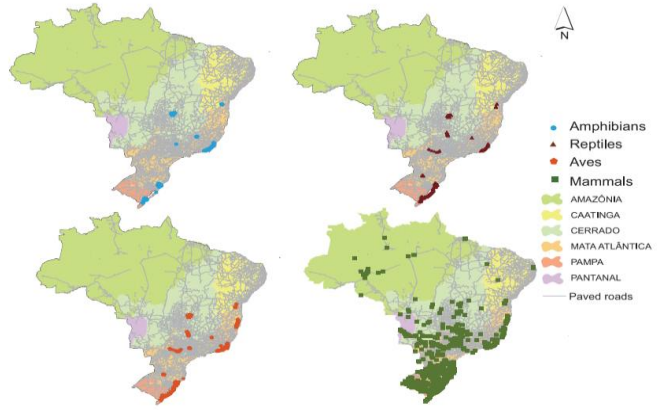


Fig. 3 Global map showing the distribution of reported road-kills. The underlying world map is provided under a CC0 license by Natural Earth (naturalearthdata.com).

Data Papers

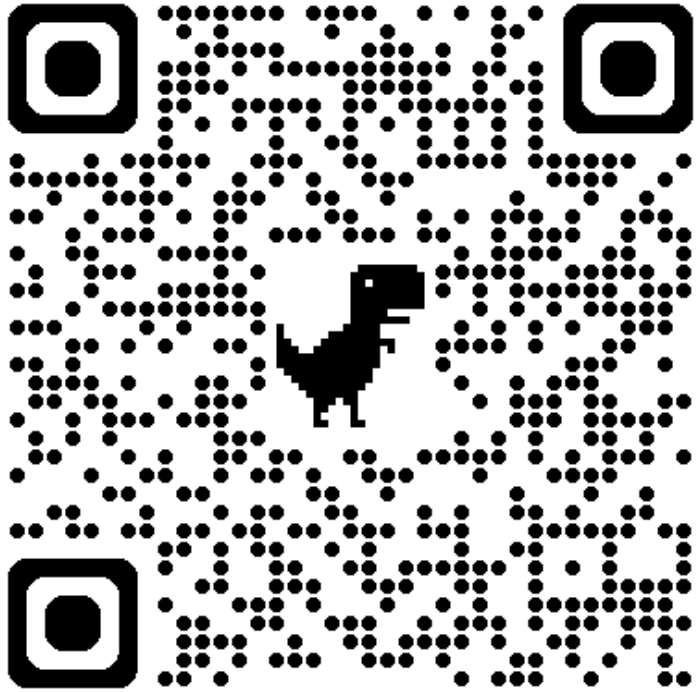
Ecology, 99(11), 2018, pp. 2625

BRAZIL ROAD-KILL: a data set of wildlife terrestrial vertebrate road-kills



Our project

RISKY



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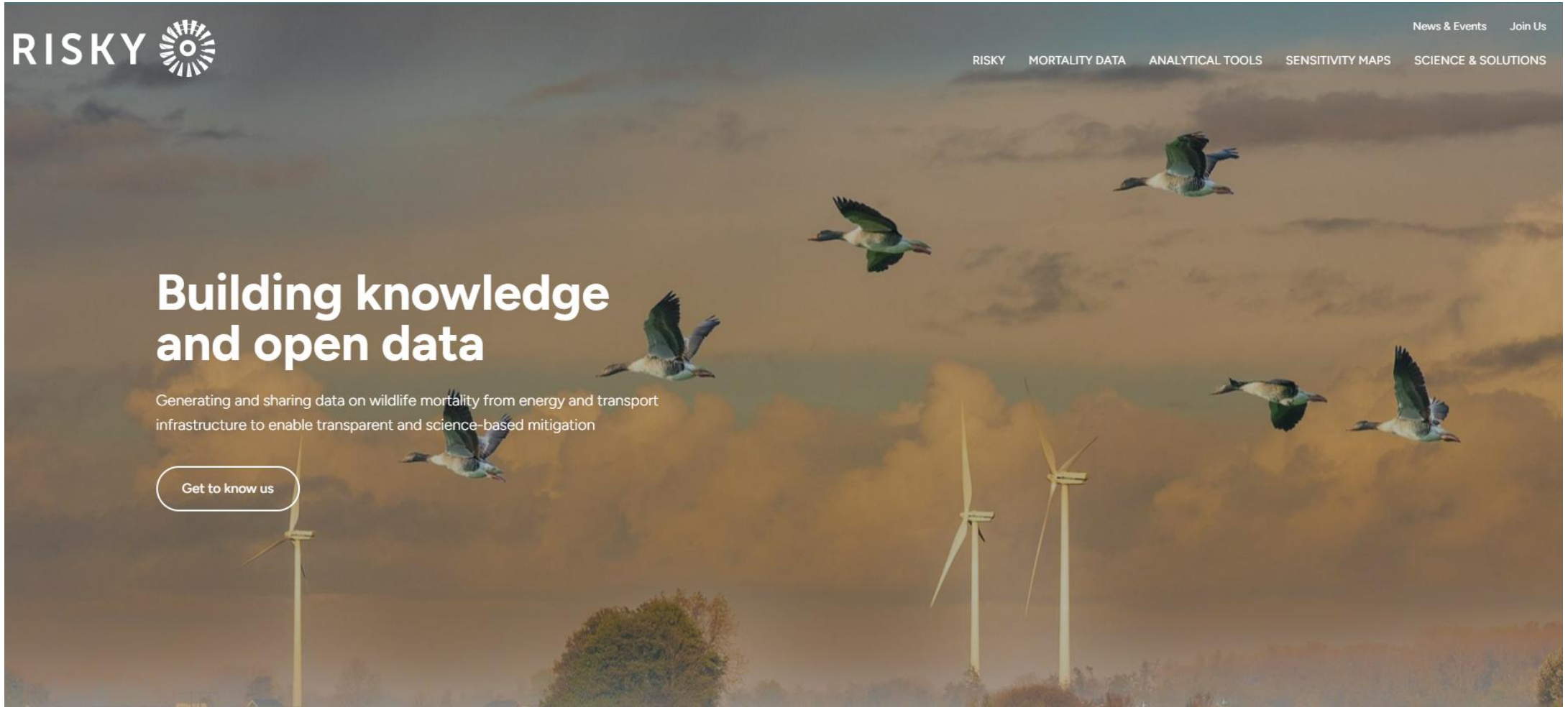
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MORTALITY DATA
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SENSITIVITY MAPS
SCIENCE & SOLUTIONS
Building knowledge and open data
Generating and sharing data on wildlife mortality from energy and transport infrastructure to enable transparent and science-based mitigation
Get to know us

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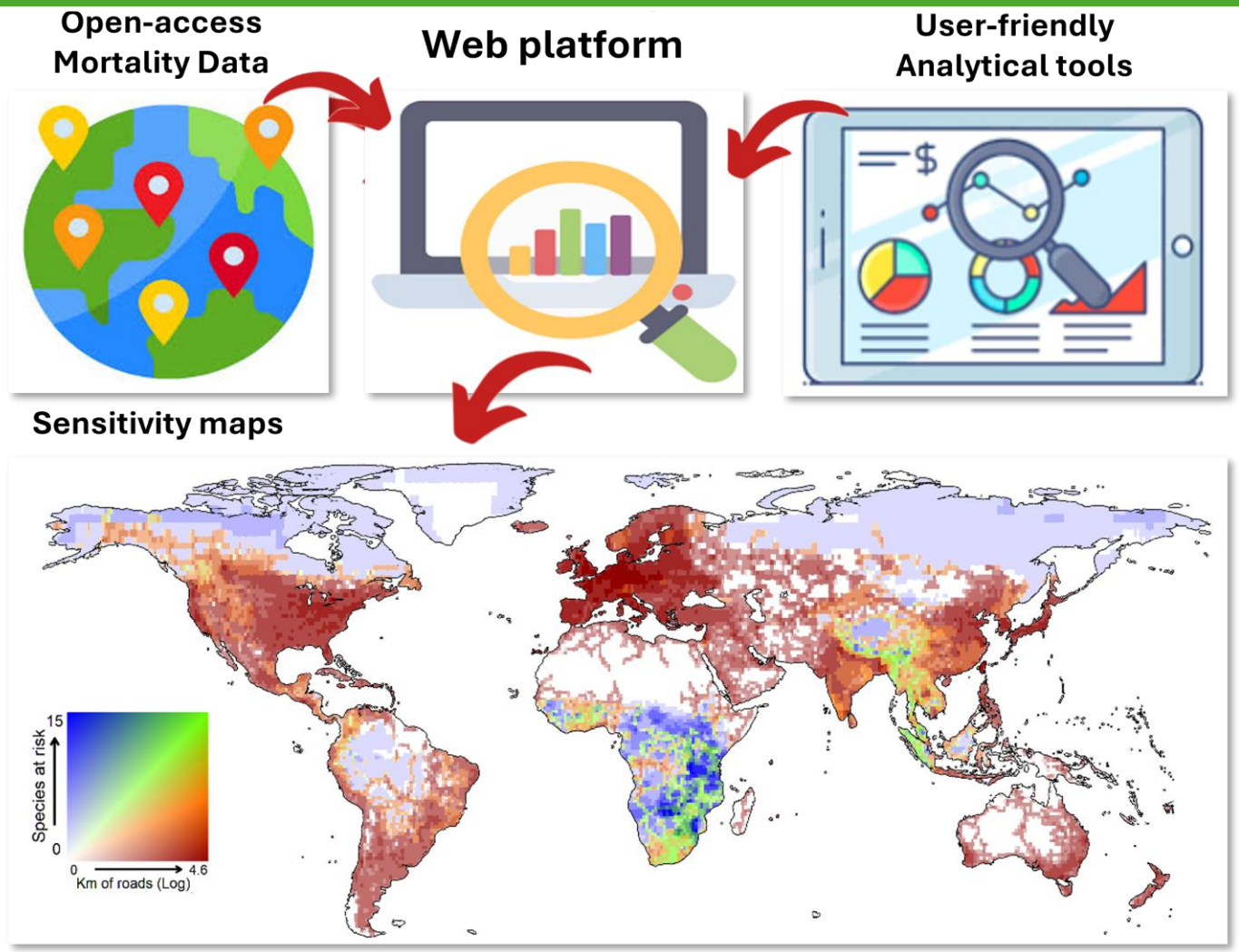

Open-access
Mortality Data
Web platform
User-friendly
Analytical tools
Sensitivity maps
Species at risk
15
0
0
4.6
Km of roads (Log)

Mortality

Locations

- Literature review
- Invite the authors
- Share data
- Standardize the dataset
- Publish in open access (datapaper)

Rates

- Literature review
- Compile nº deaths & survey effort
- Estimate mortality rates (ind./infrastructure/year)
- Correct mortality rates by carcass persistence
- Publish in open access

RISKY

Mortality locations (roads)

scientific data

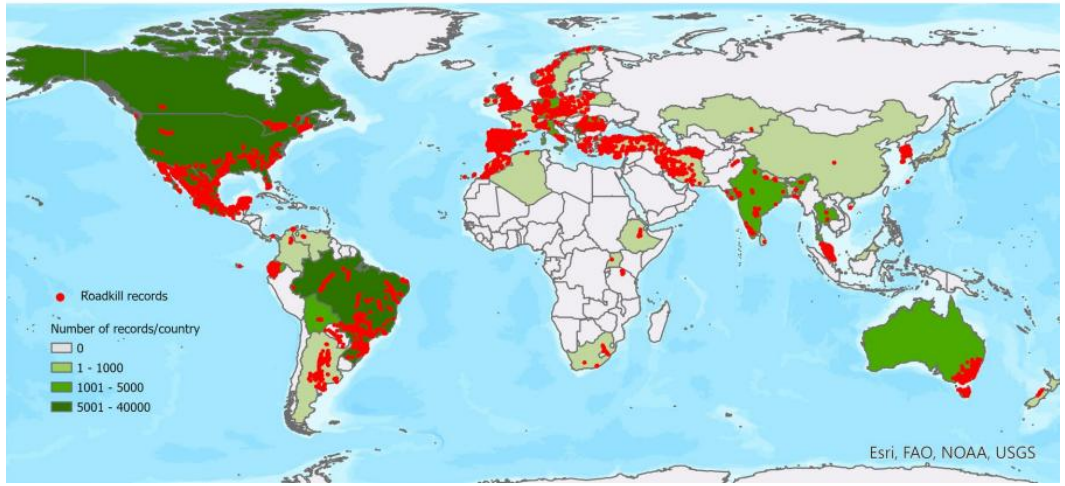
Check for updates

OPEN

DATA DESCRIPTOR

Global Roadkill Data: a dataset on terrestrial vertebrate mortality caused by collision with vehicles

Clara Grilo[1,2,3,4,319], Tomé Neves[1,2,3,319], Jennifer Bates[5], Aliza le Roux[6,7], Pablo Medrano-Vizcaíno[8,9], Mattia Quaranta[1,2,3], Inês Silva[10], Kylie Soanes[11], Yun Wang[12] & Data Collection Consortium*



+ 400 authors + 50 countries + 200 000 records

RISKY

Mortality locations (roads)

126 threatened species

Upcoming datasets

Argentina + France + Greece + India

2854 locations

RISKY

Mortality locations (railways)

+ 26 authors

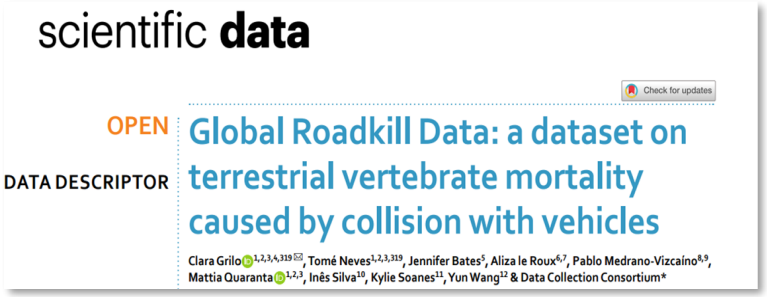
+ 12 countries

+ 31758 records

18 threatened species

RISKY

Mortality locations


scientific data

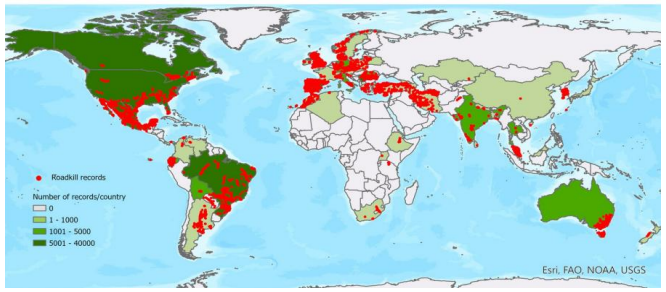
Check for updates

OPEN

DATA DESCRIPTOR

Global Roadkill Data: a dataset on terrestrial vertebrate mortality caused by collision with vehicles

Clara Grilo[1,2,3,4,319], Tomé Neves[1,2,3,319], Jennifer Bates[5], Aliza le Roux[6,7], Pablo Medrano-Vizcaíno[8,9], Mattia Quaranta[1,2,3], Inês Silva[10], Kylie Soanes[11], Yun Wang[12] & Data Collection Consortium*

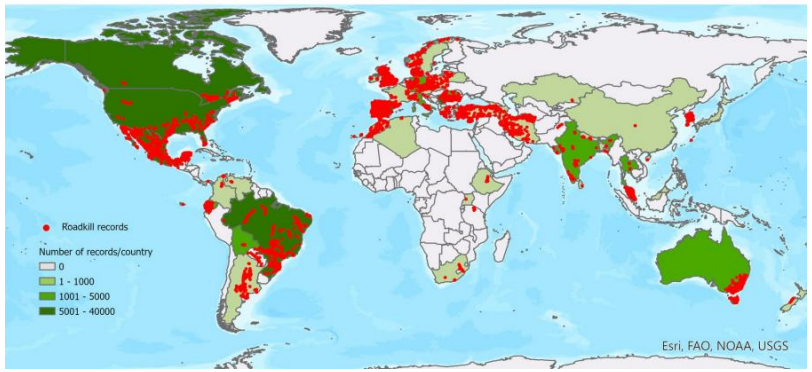


Opportunities

- Identify knowledge gaps and define priority areas or taxa that are currently underestimated.
- Provide an overview of species affected by mortality, highlighting patterns across taxa.
- Identify threatened or protected species documented as roadkill.
- Describe spatial and temporal patterns of wildlife mortality.
- Detect road and landscape characteristics associated with higher collision likelihood.
- Using systematic surveys allows assessment of population-level impacts.

RISKY

Risk of collisions



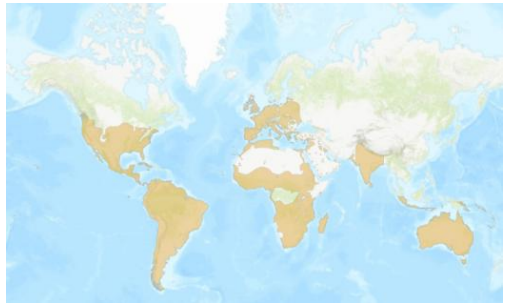
Mortality rates

+

Species traits

+

Species range



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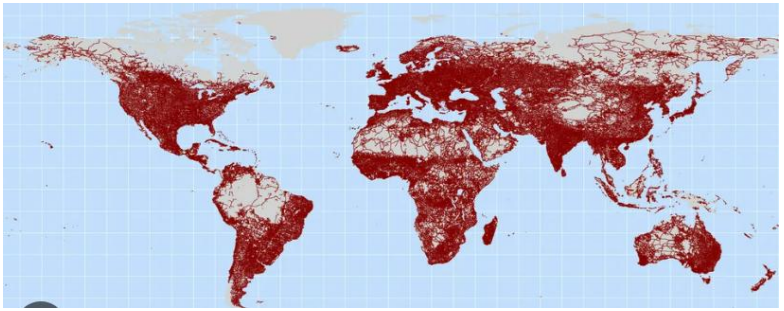
Road map



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Risk of collisions

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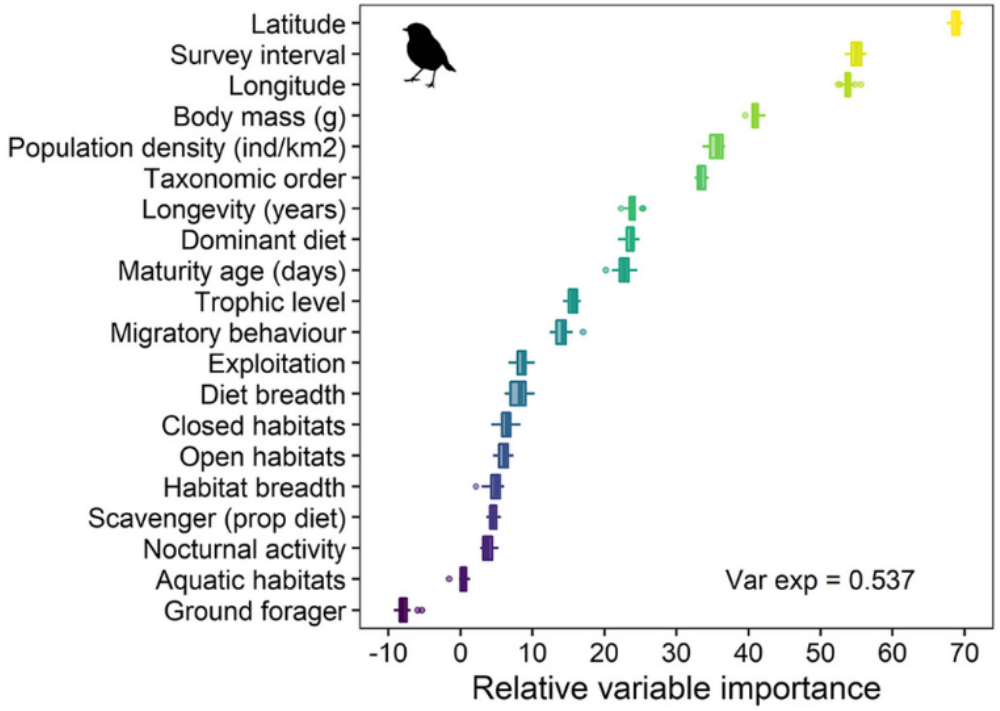
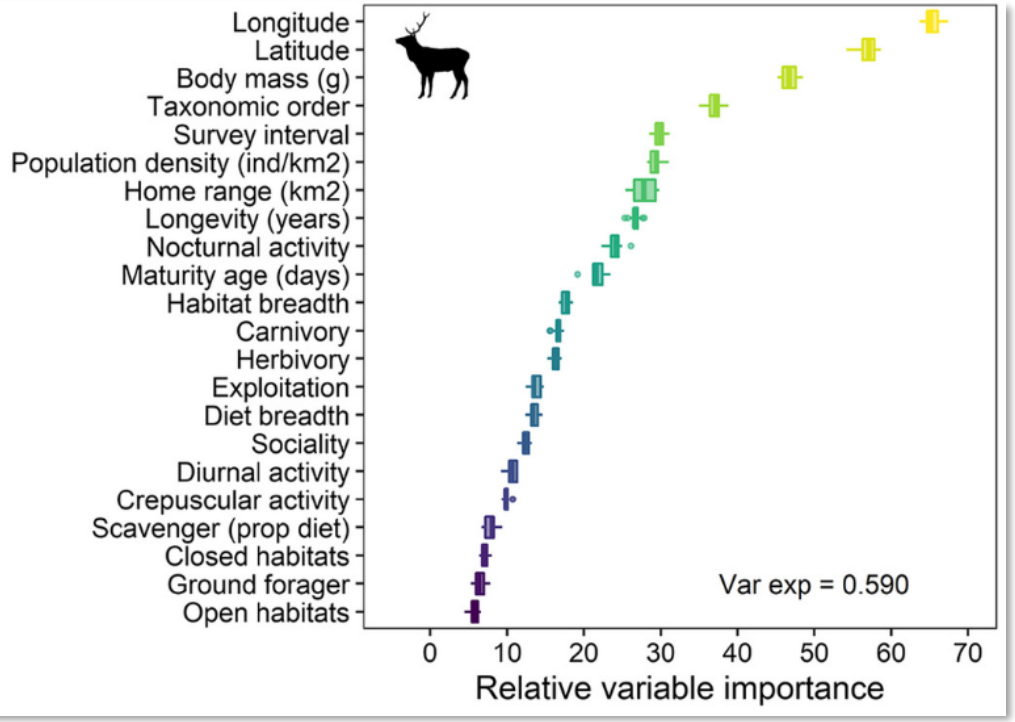
Research Communications | Full Access

Roadkill risk and population vulnerability in European birds and mammals

Clara Grilo, Elena Koroleva, Richard Andrášik, Michal Bíl, Manuela González-Suárez

First published: 08 June 2020 | https://doi.org/10.1002/fee.2216 | Citations: 123





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Risk of collisions

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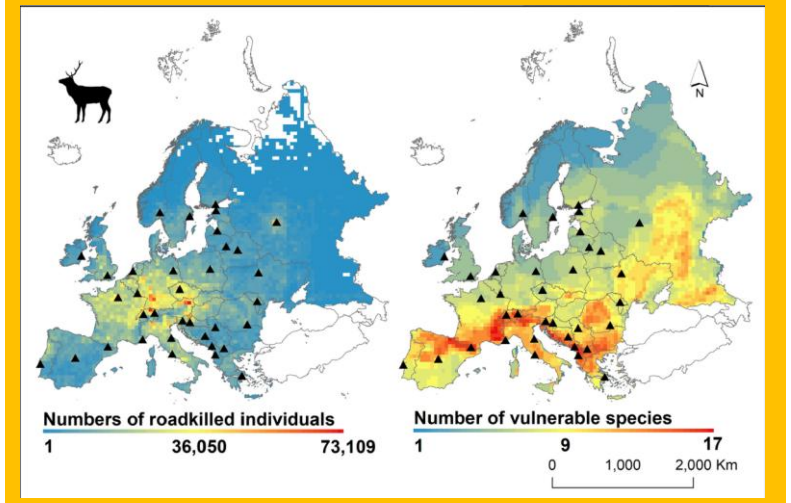
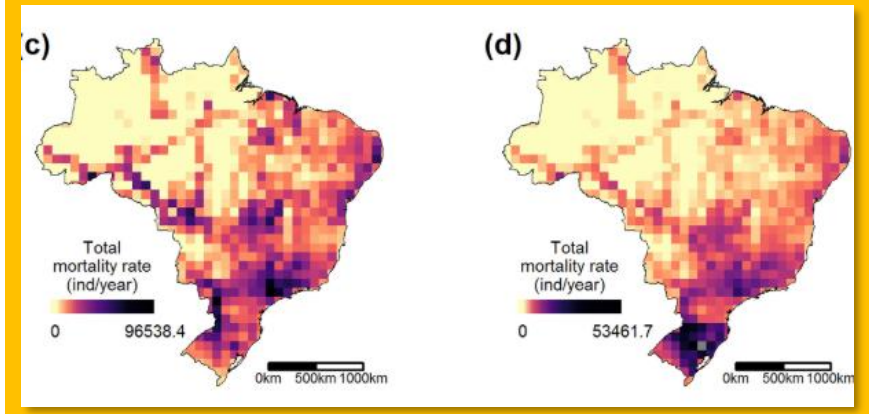


Global Ecology and Biogeography
A Journal of Macroecology

RESEARCH PAPER | Full Access

Spatial and species-level predictions of road mortality risk using trait data

Manuela González-Suárez, Flávio Zanchetta Ferreira, Clara Grilo



Global Ecology and Biogeography
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RESEARCH ARTICLE | Open Access

Roadkill patterns in Latin American birds and mammals

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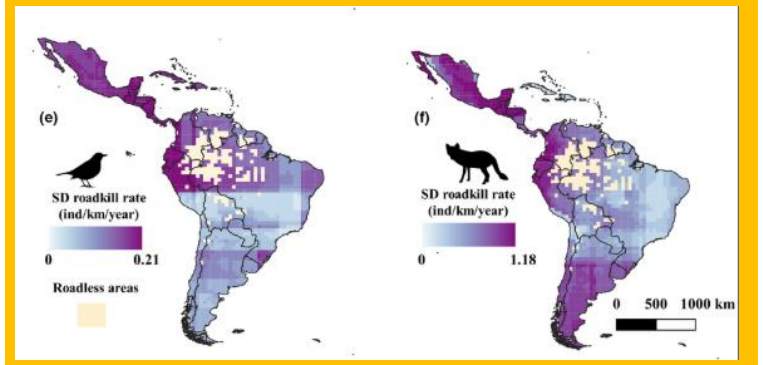


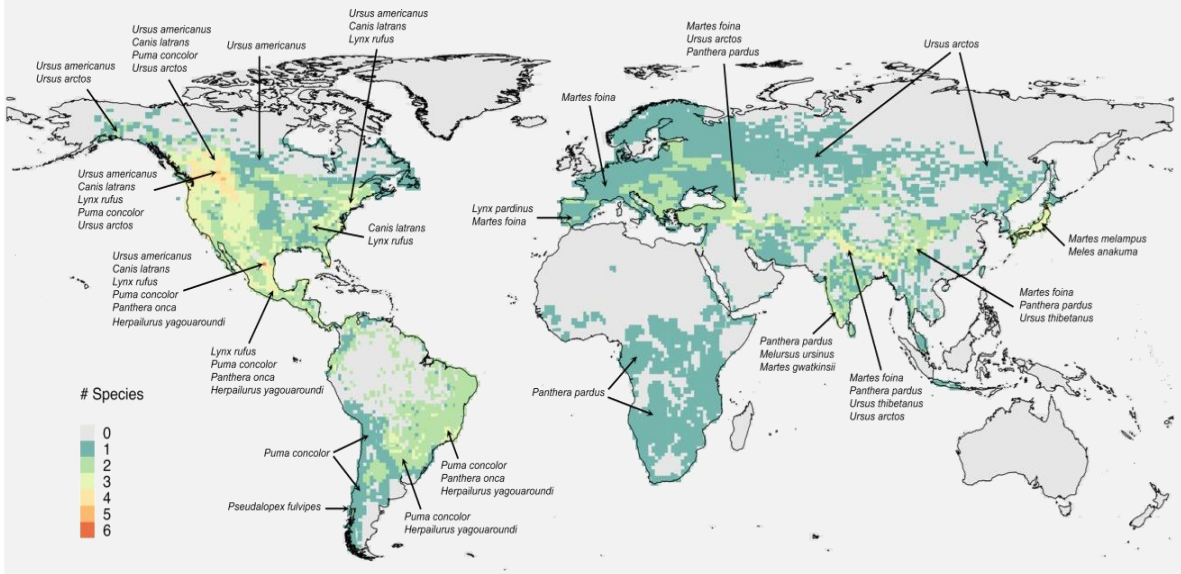
Risk of extinction

Global Ecology and Biogeography, (Global Ecol. Biogeogr.) (2017) **26,** 592–600

RESEARCH PAPER

Global exposure of carnivores to roads

Ana Ceia-Hasse[1,2,3,4]*, Luís Borda-de-Água[3,4], Clara Grilo[5] and Henrique M. Pereira[1,2,3,4]



Contents lists available at ScienceDirect

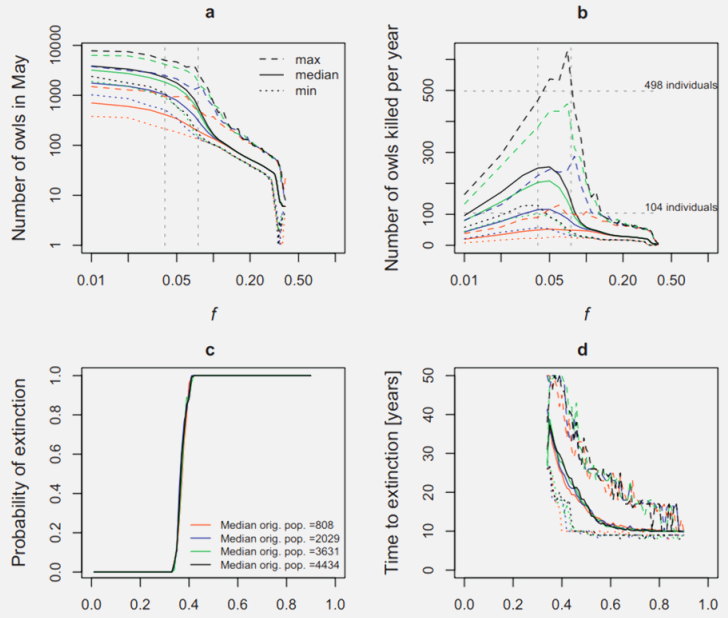
Ecological Modelling

journal homepage: www.elsevier.com/locate/ecolmodel

Modeling the impact of road mortality on barn owl (*Tyto alba*) populations using age-structured models

Luís Borda-de-Água[a,*], Clara Grilo[b], Henrique M. Pereira[a,c]

[a] Centro de Biologia Ambiental, Faculdade de Ciências da Universidade de Lisboa, 1749 016 Lisboa, Portugal
[b] Departamento de Biologia e CESAM, Universidade de Aveiro, 3810-193 Aveiro, Portugal
[c] German Centre for Integrative Biodiversity Research (iDiv) Halle-Jena-Leipzig, Deutscher Platz 5e, 04103 Leipzig, Germany



Risk of extinction

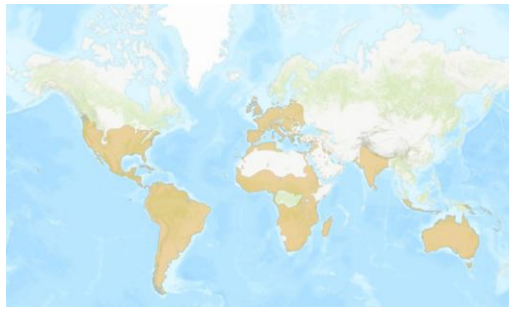
Mortality rates

+

Demographic parameters

+

Species range



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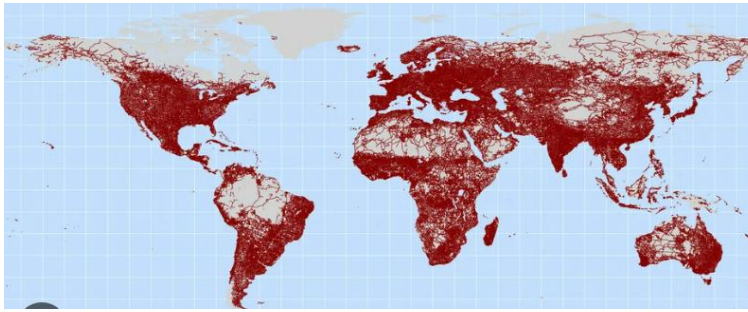
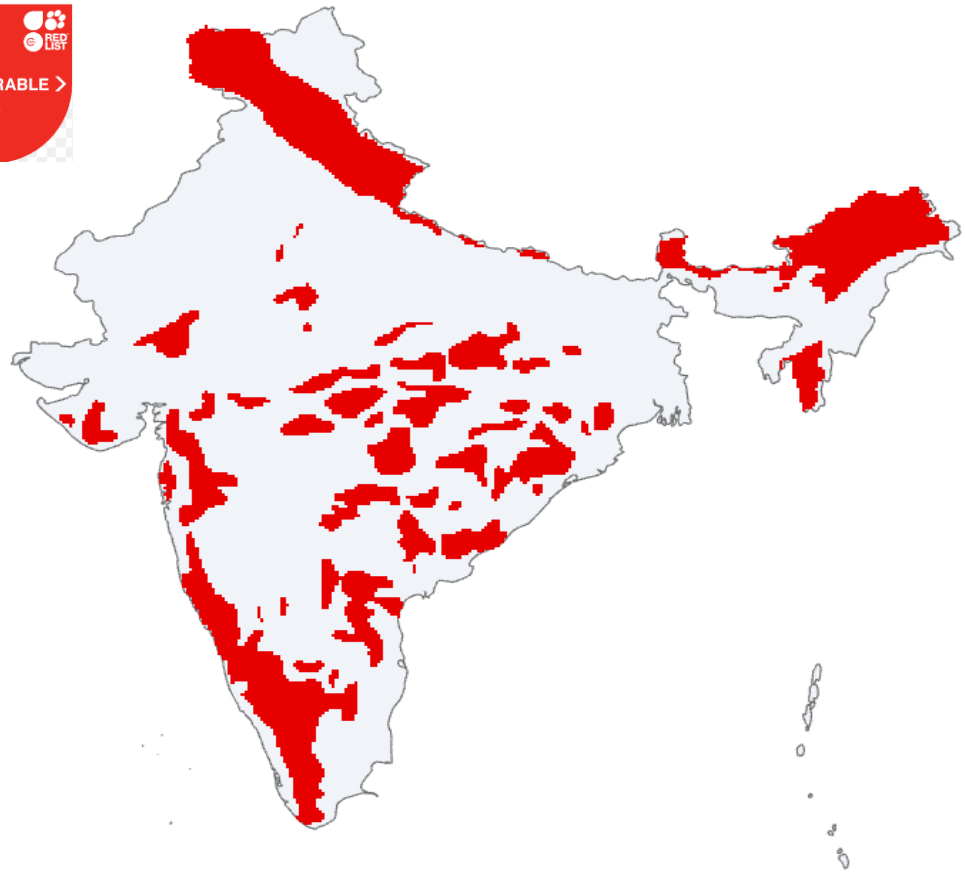
Infrastructure network



Risk of extinction

Predict which species can be impacted by mortality

VULNERABLE
VU



0.03

ind./km/year

Risk of extinction

Predict which species can be impacted by mortality

	Leopard
Roadkill rate (ind/km/year)	0.03
Population density (ind/km2)	0.04
Maturity age (months)	30
Interval between births (months)	19.5
Max litter size	3
Survival rates	♂ cub: 0.39; juvenile:0.80 adult:0.94 ♀ cub: 0.39; juvenile:0.93 adult:0.86
Longevity (months)	194
Max dispersal length (km)	15

Risk of extinction

Predict which species can be impacted by mortality

0.03

ind./km/year

Survival

Extinction

2030

< 4%

< 46%

2050

< 68%

2080

Global Open Access to Mortality Data

Transparency, not exposure

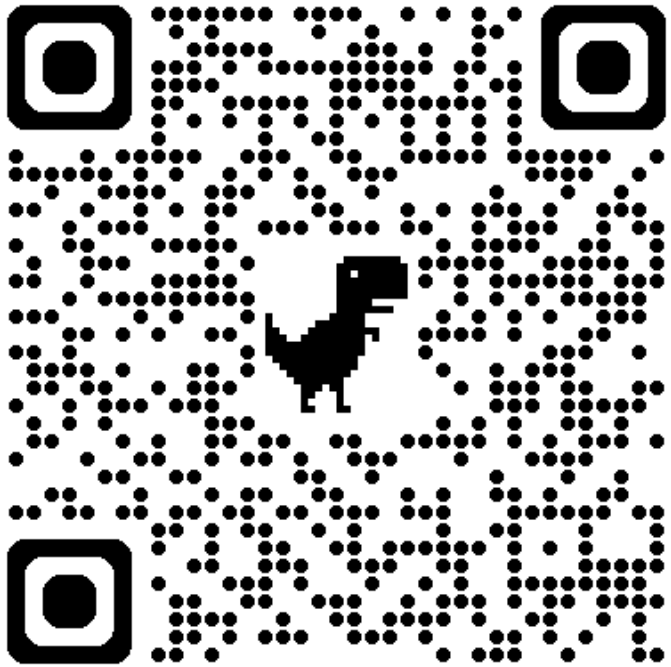
Data drives better decisions

Collaboration accelerates progress

RISKY

THANK YOU FOR YOUR INTEREST!

Clara Grilo
Contact: clara.grilo@cibio.up.pt



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