

# Study design and statistical inference in multi-species models: The story so far

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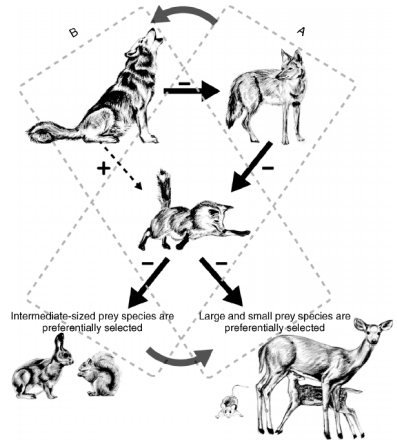
*Dr. Chris Sutherland (ECo, UMASS Amherst)*  
*Dr. Simone Tenan (Museo delle Scienze, Trento, Italy)*

# Multi-species Studies



# Definitions

- Multi-species
- Focal species
- By-catch species



[Levi & Wilmer, 2012]

# Why?

- Biological interactions
  - Competition
  - Predation
- Cost efficient
- Monitoring communities/landscapes
- Working with existing data

# How?



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## View Project: MultiSpeciesReview

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Steinmetz\_et\_al\_2012\_Biological\_Conserv  
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Kery\_2008\_Auk\_Estimating\_abundance

204 files. Page 1

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Name: Steinmetz\_et\_al\_2012\_Biological\_Conserv

Time: 01 Aug 2013 11:01:58

Size: 923.1 (KB)

Completed

Final

Application Paper

Paper Title

Authors: Robert Steinmetz, Naret Sei

Journal: Biological Conservation

Year Published: 2013

No. species seen: 8

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Special Issue: Defaunation  
Tigers, leopards, and  
interactions in a g  
Robert Steinmetz<sup>a,\*</sup>, Na  
<sup>a</sup>World Wildlife Fund for Nature – Thailand  
<sup>b</sup>Kang Mongkran's University of Technology

### ARTICLE INFO

Article history:  
Received 15 July 2012  
Received in revised form 10 November  
Accepted 12 December 2012

## Methods in Ecology and Evolution

### APPLICATION

## ViXen: An open-source package for managing multimedia data

Prabhu Ramachandran, Kadambari Devarajan

First published: 12 October 2017 [Full publication history](#)

DOI: 10.1111/2041-210X.12892 [View more citations](#)

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[CiteSpace](#) 26

Both authors contributed equally to this work.

### Abstract

1. There is a dearth of good toolkits to manage the different data formats that are associated with ecological datasets. In this paper, we describe a flexible, general-purpose, easy-to-use, extensible, and open-source toolkit that was built to manage an ecological study involving thousands of camera trap videos.
2. ViXen, the software package described here, can be used to view data files, including videos, images, audio files, portable document format (PDF) files, and text, in multiple formats. It can be used to annotate these data files, using metadata in the form of arbitrary user labels.



# Review

- Total number of papers: **204**
- Applications: **115**
- Methods: **89**

# Tags

- Study Year
- Season
- Method Used
- Detector Type
- Detector Spacing
- Detector Justification
- Focal Species
- Bycatch Species
- Occupancy Parameters
- Region
- Spatial Scale
- Species

# Vital Statistix

- Journals : **77**
- Years : **1981 - 2017**
- Continents : **6**
- Countries : **43**
- Methods Used: **28**
- Taxa : **8**

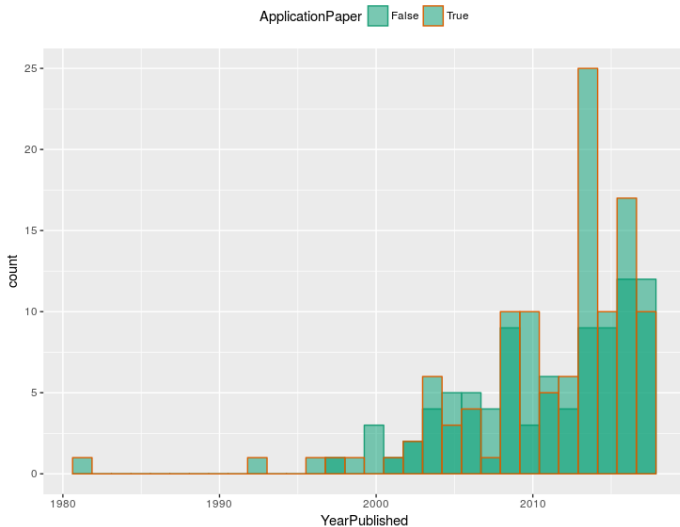


Image Source: <http://www.coloring.me/>

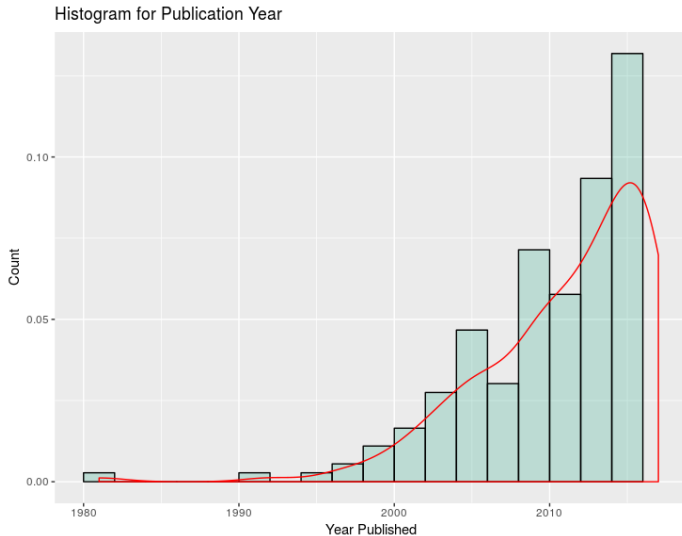
# Journals

- **16** - Methods in Ecology and Evolution
- **15** - Biological Conservation, Ecology
- **11** - Journal of Applied Ecology
- **9** - The American Naturalist | Trends in Ecology and Evolution
- **8** - Ecological Applications | Forest Ecology and Management | PLoS ONE
- **5** - Biometrics, Ecography

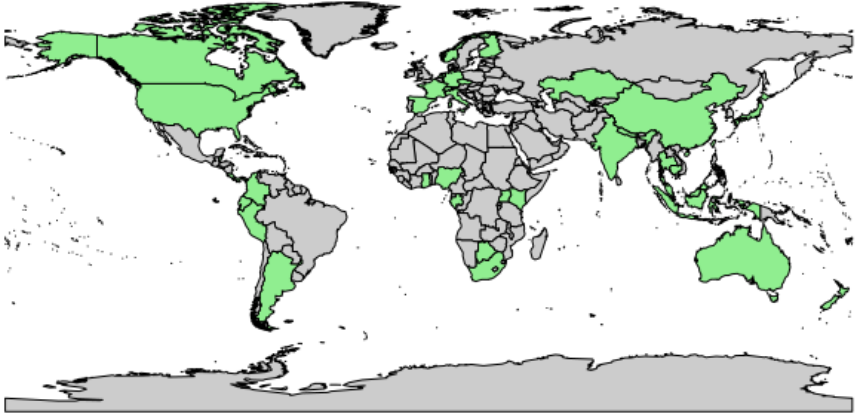
# Year Published



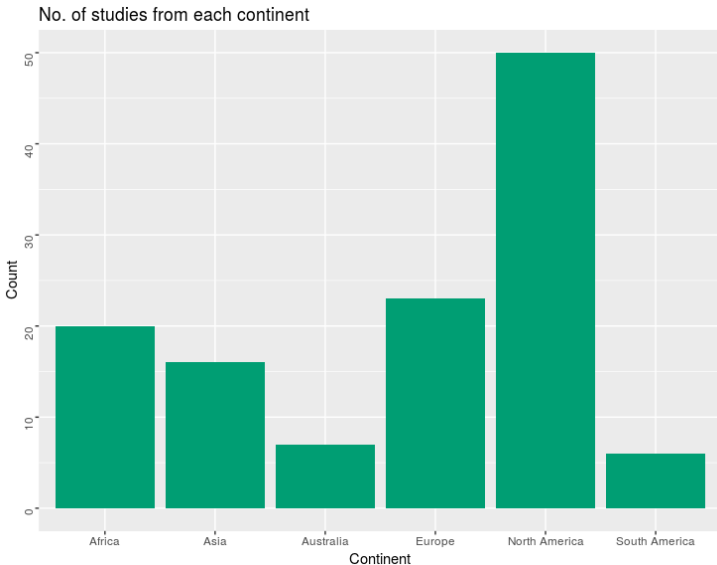
# When?



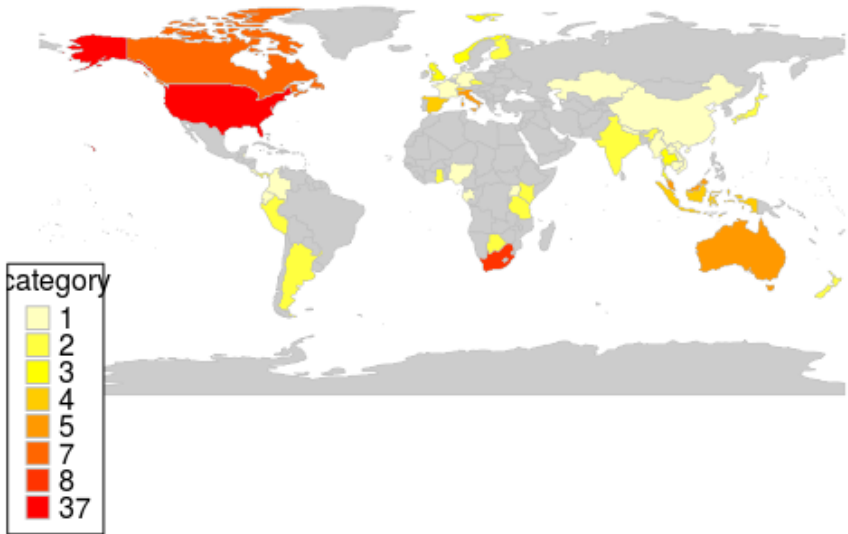
# Where?



# Continents



# Studies Across the Globe



# What?

A word cloud visualization where the word 'mammals' is the largest and most prominent, centered in a dark grey font. Surrounding it are several other biological terms in various sizes and colors: 'plants' is written vertically in orange to the right; 'invertebrates' is in orange above 'mammals'; 'amphibians' is in teal to the left of 'invertebrates'; 'fish' is in teal to the right of 'amphibians'; 'birds' is in large green letters below 'mammals'; 'fungi' is in small teal letters to the right of 'birds'; and 'reptiles' is written vertically in teal below 'birds'.

mammals

plants

invertebrates

amphibians

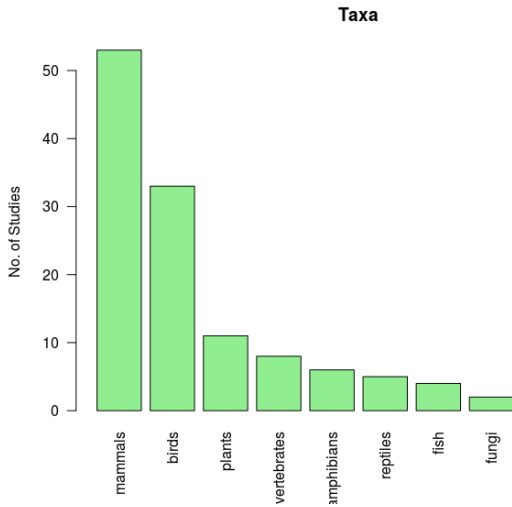
fish

birds

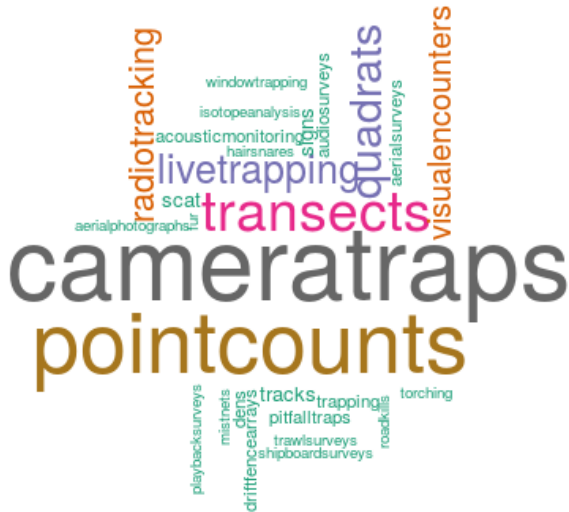
fungi

reptiles

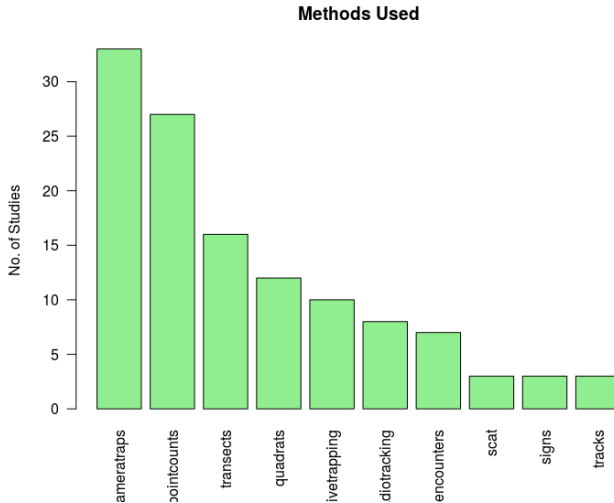
# Taxa



# Methods Used



# Methods Used



# Future Directions

- Include more studies
- Finish data entry for all the tags
- Do a similar review of the methods available



Image Source: [http://cucsa.org.uk/wp-content/uploads/2015/10/Work\\_In\\_Progress.png](http://cucsa.org.uk/wp-content/uploads/2015/10/Work_In_Progress.png)

# Acknowledgements



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