Steffi LaZerte

How can ornithologists find R packages?

Comment les ornithologues peuvent-ils trouver des packages R?

Symposium: Great R packages for Ornithologists, AOS & SCO-SOC 2021

@steffilazerte
steffilazerte
steffilazerte.ca

Dr. Steffi LaZerte
Analysis and Data Tools for Science

BRANDON UNIVERSITY

What is R? | Qu'est ce que R?

A statistical programming language and environment

- Great for data management/manipulation (not just stats)
- Free and Open Source Software (FOSS)
- Almost infinitely extensible with packages

Un environment et langage de programmation statistique

- Idéal pour la gestion/manipulation des données (pas seulement les stats)
- Source libre et ouvert
- Presque infiniment extensible avec des packages

What is R? | Qu'est ce que R?

A statistical programming language and environment

- Great for data management/manipulation (not just stats)
- Free and Open Source Software (FOSS)
- Almost infinitely extensible with packages

Un environment et langage de programmation statistique

- Idéal pour la gestion/manipulation des données (pas seulement les stats)
- Source libre et ouvert
- Presque infiniment extensible avec des packages

Sounds great! | Parfait!

How can ornithologists find R packages?

Comment les ornithologues peuvent-ils trouver des packages R?

Package collections | Collections de packages

rOpenSci

(https://ropensci.org)

tidyverse

(https://tidyverse.org/)

metaverse

(https://rmetaverse.github.io/)

https://r-universe.dev

In development, soon with tags and categories!

En développement, bientôt avec des tags et des catégories!

The 'predictiveecology' universe

Builds | Packages | Articles | API

```
# Enable this universe
options(repos = c(
    predictiveecology = 'https://predictiveecology.r-universe.dev',
    CRAN = 'https://cloud.r-project.org'))

# Install some packages
install.packages('SpaDES.core')
```

Commit	Package	Version	Maintainer	Src	Build	R-4.1	R-4.0	System Dependencies
2021-07-28	SpaDES.core	1.0.8.9014	Alex M Chubaty		2021-07-28			
2021-07-26	reproducible	1.2.7.9004	Eliot J B McIntire		2021-07-26			
2021-07-23	LandR	1.0.4.9024	Eliot J B McIntire		2021-07-23			
2021-07-15	CBMutils	0.0.7.9003	Alex M Chubaty		2021-07-15			libstdc++6 (10.2.0)
2021-07-14	usefulFuns	0.1.0	Tati Micheletti		2021-07-14			
2021-07-14	quickPlot	0.1.7.9002	Eliot J B McIntire		2021-07-14			
2021-07-14	fireSenseUtils	0.0.4.9080	Eliot J B McIntire		2021-07-16			
2021-07-14	amc	0.2.1	Alex M Chubaty		2021-07-14			
2021-07-14	SpaDES.tools	0.3.8.9000	Alex M Chubaty		2021-07-14			libstdc++6 (10.2.0)
2021-07-14	pemisc	0.0.3.9001	Eliot J B McIntire		2021-07-14			
2021-07-14	map	0.0.3	Eliot J B McIntire		2021-07-14			
2021-07-14	LandWebUtils	0.1.4	Eliot J B McIntire		2021-07-14			
2021-07-13	SpaDES.install	0.0.4.9000	Alex M Chubaty		2021-07-13			
2021-07-12	NetLogoR	0.3.8.9000	Eliot J B McIntire		2021-07-14			
2021-06-15	Require	0.0.13.9000	Eliot J B McIntire		2021-07-15			

Predictive Ecology Group

Ecological forecasting models and data

r-universe/predictiveecology

Victoria, BC, Canada

https://PredictiveEcology.org

Maintainers

Eliot J B McIntire

Alex M Chubaty

R Task Views

Annotated collections of packages

- Browse on CRAN (main network of R packages)
  https://cran.r-project.org/web/views/
- Environmetrics, Spatial, Survival, Tracking

Collections annotées de packages

- Naviguez sur CRAN (réseau principal de packages R)
  https://cran.r-project.org/web/views/
- Environmetrics, Spatial, Survival, Tracking

R Task Views

@steffilazerte

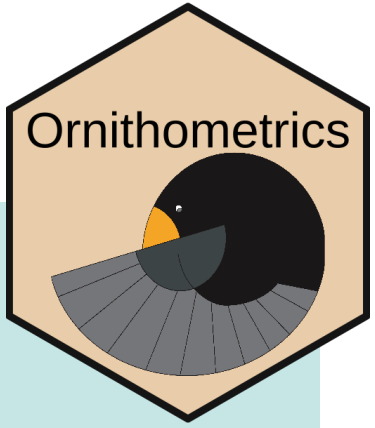
Annotated collections of packages

- Browse on CRAN (main network of R packages)
  https://cran.r-project.org/web/views/
- Environmetrics, Spatial, Survival, Tracking

Collections annotées de packages

- Naviguez sur CRAN (réseau principal de packages R)
  https://cran.r-project.org/web/views/
- Environmetrics, Spatial, Survival, Tracking

Stay tuned! | Restez à l'écoute!



Symposium: Great R packages for Ornithologists

Putting it all together: Ornithometrics — a task view for ornithology

Marc-Olivier Beausoleil

Tuesday Aug 10th 11:05am Eastern

Methods *journals* | *Journaux* de méthodes

@steffilazerte

Methods in Ecology and Evolution

http://www.methodsinecologyandevolution.org/

Application Free Access

CODYN: An R package of community dynamics metrics

Lauren M. Hallett, Sydney K. Jones, A. Andrew M. MacDonald, Matthew B. Jones, Dan F. B. Flynn, Julie Ripplinger, Peter Slaughter, Corinna Gries, Scott L. Collins

Methods in Ecology and Evolution | Volume 7, Issue 10

First published: 02 April 2016

Abstract

APPLICATION Free Access

ASSIGNR: An R package for isotope-based geographic assignment

Chao Ma, Hannah B. Vander Zanden, Michael B. Wunder, Gabriel J. Bowen

Methods in Ecology and Evolution | Volume 11, Issue 8

First published: 29 May 2020

Abstract

APPLICATION Free Access

The *geodiv* R package: tools for calculating gradient surface metrics

Annie C. Smith, Kyla M. Dahlin, Sydne Record, Jennifer K. Costanza, Adam M. Wilson, Phoebe L. Zarnetske

Methods in Ecology and Evolution | Accepted Articles

First published: 22 July 2021

Journal of Open Source Software

https://joss.theoj.org/

PUBLISHED Published 2 days ago

cvCovEst: Cross-validated covariance matrix estimator selection and evaluation in R

R

@PhilBoileau DOI 10.21105/joss.03273

PUBLISHED Published 5 days ago

pollucheck v1.0: A package to explore open-source air pollution data

R

@adithirugis DOI 10.21105/joss.03435

PUBLISHED Published 9 days ago

caracas: Computer algebra in R

R Python

@mikldk DOI 10.21105/joss.03438

PUBLISHED Published 10 days ago

grapesAgri1: Collection of Shiny Apps for Data Analysis in Agriculture

R

@pratheesh3780 DOI 10.21105/joss.03437

Methods *sections* | *Sections* méthodes

@steffilazerte

seewave

To determine whether the odds of being an atypical singer increased with urbanization, we performed a logistic regression of male singer type (atypical/typical) against the urbanization index using R statistical software (version 3.3.2; R Core Team 2016). We calculated bias-corrected and adjusted (BCa) bootstrap 95% CI for coefficients. We performed 10 000 replicates using the boot package for R (version 1.3-20; Angelo and Ripley 2017). Figures were created using the R package ggplot2 (version 2.2.1; Wickham 2009). Spectrograms were created with Hanning window lengths of 1024 using the R packages ggplot2 and seewave (version 2.0.5; Sueur *et al.* 2008).

LaZerte et al. 2019. More Mountain Chickadees (*Poecile gambeli*) sing atypical songs in urban than in rural areas

Methods *sections* | *Sections* méthodes

seewave

To determine whether the odds of being an atypical singer increased with urbanization, we performed a logistic regression of male singer type (atypical/typical) against the urbanization index using R statistical software (version 3.3.2; R Core Team 2016). We calculated bias-corrected and adjusted (BCa) bootstrap 95% CI for coefficients. We performed 10 000 replicates using the boot package for R (version 1.3-20; Angelo and Ripley 2017). Figures were created using the R package ggplot2 (version 2.2.1; Wickham 2009). Spectrograms were created with Hanning window lengths of 1024 using the R packages ggplot2 and seewave (version 2.0.5; Sueur *et al.* 2008).

What does this imply?

Cite R packages you use!!!

Qu'est-ce que cela implique?

Citez les packages R que vous utilisez!!!

LaZerte et al. 2019. More Mountain Chickadees (*Poecile gambeli*) sing atypical songs in urban than in rural areas

Methods *sections* | *Sections* méthodes

Symposium: Great R packages for Ornithologists

seewave and tuneR: Sound analysis in ornithology

Sunny Tseng

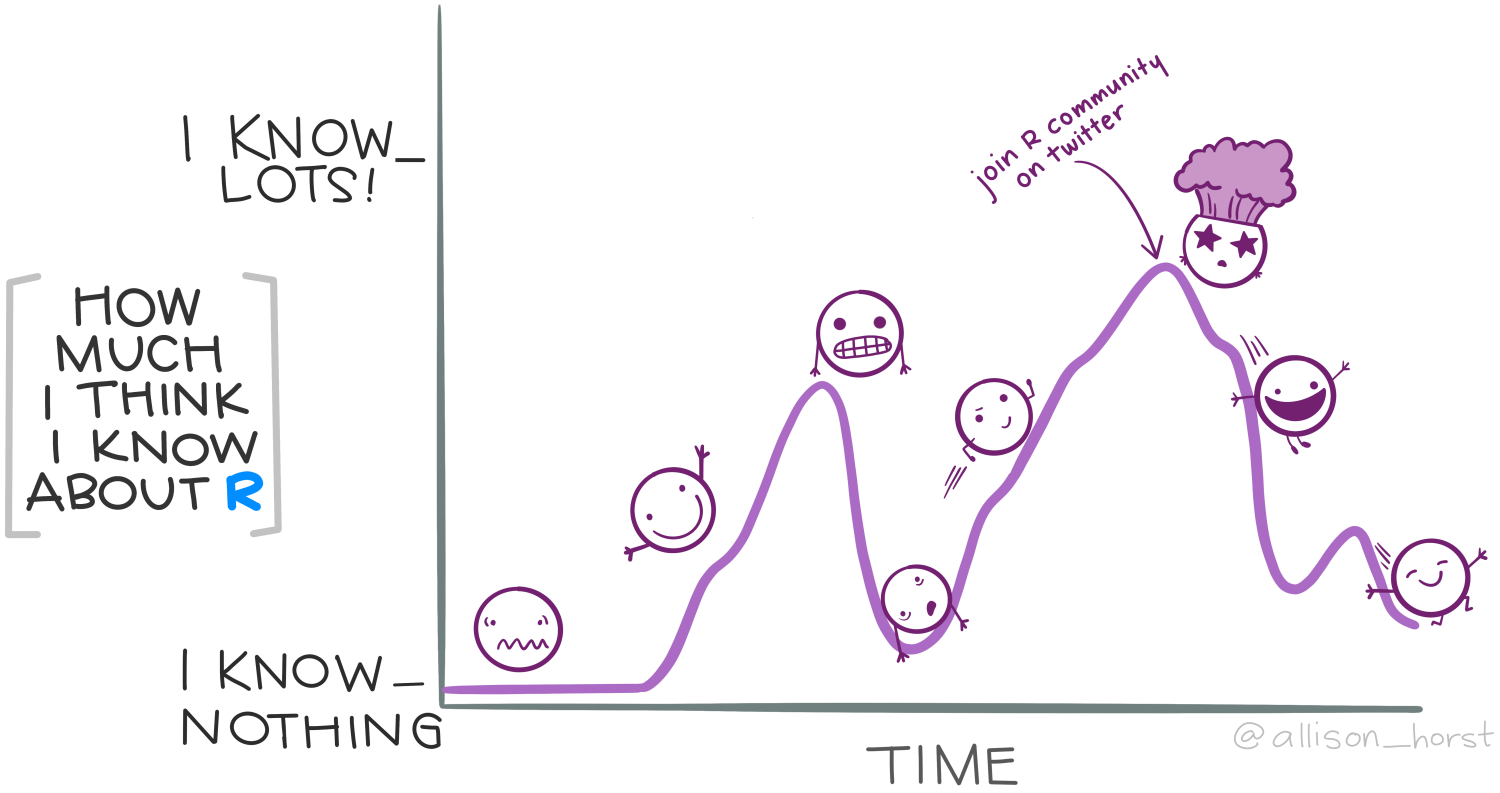
Tuesday Aug 10th 10:17am Eastern

Ask your colleagues! | Demandez à vos collègues!

@steffilazerte

Don't code alone 😁 Ne code pas seul

Follow `#RStats` on Twitter | Suivez `#RStats` sur Twitter



Artwork | Oeuvre @allisonhorst

Ask your colleagues! | Demandez à vos collègues!

@steffilazerte

In this symposium alone... | Dans ce seul symposium...

- **dplyr**: A useful toolbox for manipulating data
- **sf**, **raster**, and **tmap**: The spatial data trinity
- **osmdata**: Roadless areas and avian diversity,
- **seewave** and **tuneR**: Sound analysis in ornithology
- **warbler** and **Rraven**: Bioacoustics in R
- **soundecology**: Using acoustic indices for landscape assessment and monitoring
- **naturecounts**: Millions of bird occurrence records at your fingertips
- **bbsAssistant**: An R package for downloading and handling data and information from the North American Breeding Bird Survey
- **motus**: Managing motus data in R
- **track2KBA**: An R package for identifying important sites for biodiversity from tracking data
- **MixSIAR**: An R package for avian diet analysis
- **INLA**: A way for ecologists to overcome their worst impulses
- **pavo**: Color analysis in birds
- moult and **moultmcmc**: Inference for moult phenology models

> 18 packages used by your colleagues... Who else has exciting things to share?
> 18 packages utilisés par vos collègues... Qui d'autre a des choses passionnantes à partager?

Take home | Conclusion

LOTS of packages for ornithologists!	BEAUCOUP de paquets pour les ornithologues!
R is not just for Stats	R n'est pas seulement pour les statistiques
Cite the packages you use	Citez les packages que vous utilisez
Don't code alone 😁	😁 Ne code pas seul
Ask your colleagues!	Demandez à vos collègues!

Take home | Conclusion

LOTS of packages for ornithologists!
R is not just for Stats
Cite the packages you use
Don't code alone 😁
Ask your colleagues!

BEAUCOUP de paquets pour les ornithologues!
R n'est pas seulement pour les statistiques
Citez les packages que vous utilisez
😁 Ne code pas seul
Demandez à vos collègues!

Thanks to the Software Sustainability Institute for sponsoring this symposium!

Merci au Software Sustainability Institute d'avoir parrainé ce symposium!

Dr. Steffi LaZerte
Analysis and Data Tools for Science

BRANDON UNIVERSITY

@steffilazerte | steffilazerte | steffilazerte.ca

Slides: https://steffilazerte.ca/presentations.html; Created with the R package xaringan, using remark.js, knitr, and R Markdown
Icons from Ionicons and Academicons; Compiled on 2021-07-30