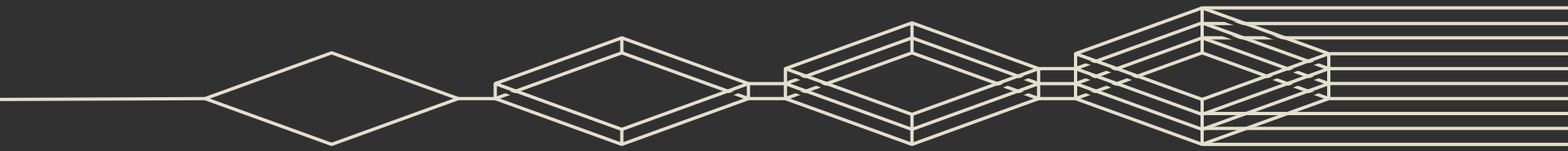
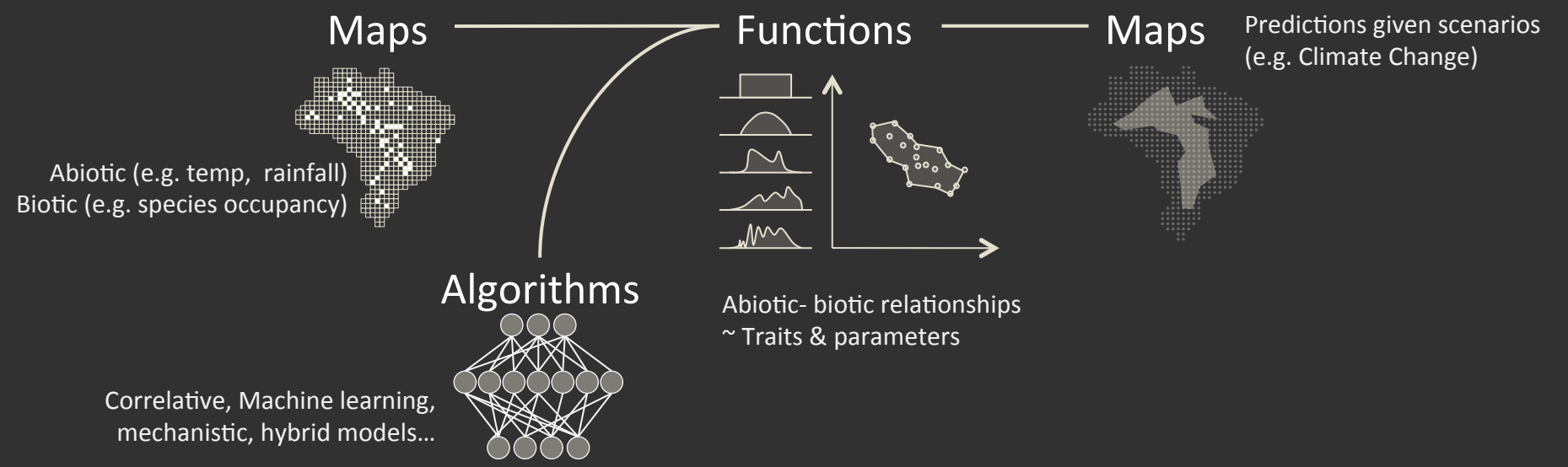
ZOÖN



2020SCIENCE

Species Distribution Modelling

"ranks among the most widely reviewed topics in the ecological literature…" Araújo, M & Peterson, T (2012). Ecol. 93:1527-1539.



MaxEnt, R, BioMod, BIOVEL, OpenModeller, ModEco, GARP, BioMapper, Canoco, Winbugs, OpenBugs, Domain, ANN, AquaMaps, BioClim, BRT, CSM, CTA, ENFA, Envelope Score, Env Distance, GA, GAM, GBM, Dismo, Glm, GLS, Mahalanobis Dist., MARS, MaxEnt, Random Forests, Species, HyperNiche, SRE, SVM , Graf, INLA, BayesComm...

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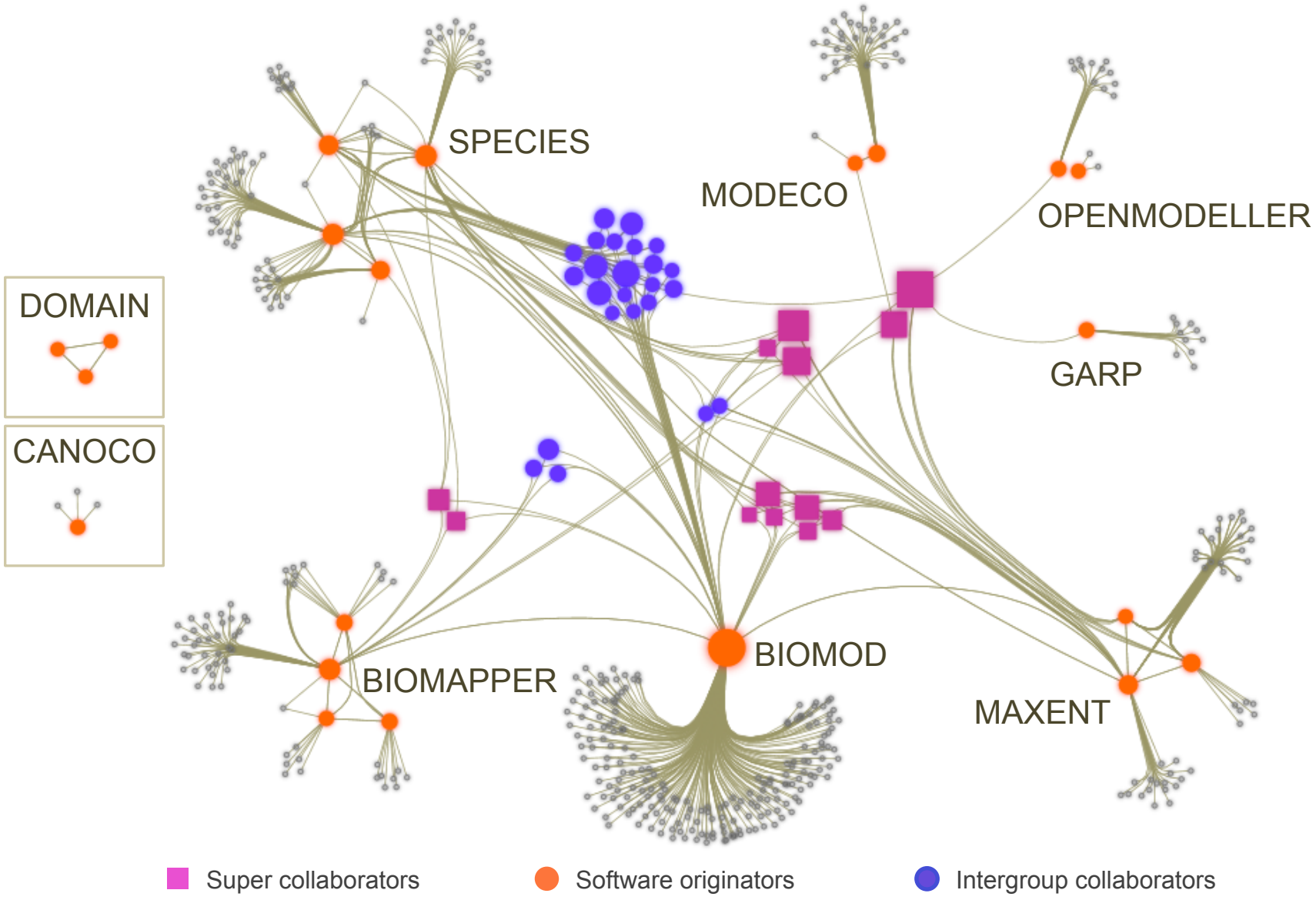
Software Sociology: co-authorship amongst software projects



Ahmed, SE., McInerny, GJ. et al. (*2015*) *Diversity & Distributions.* DOI: 10.1111/ddi.12305

2414$_{3388}$

Methodological comparison

Elith, J.,et al. (2006). Ecography, 29, 129-151.

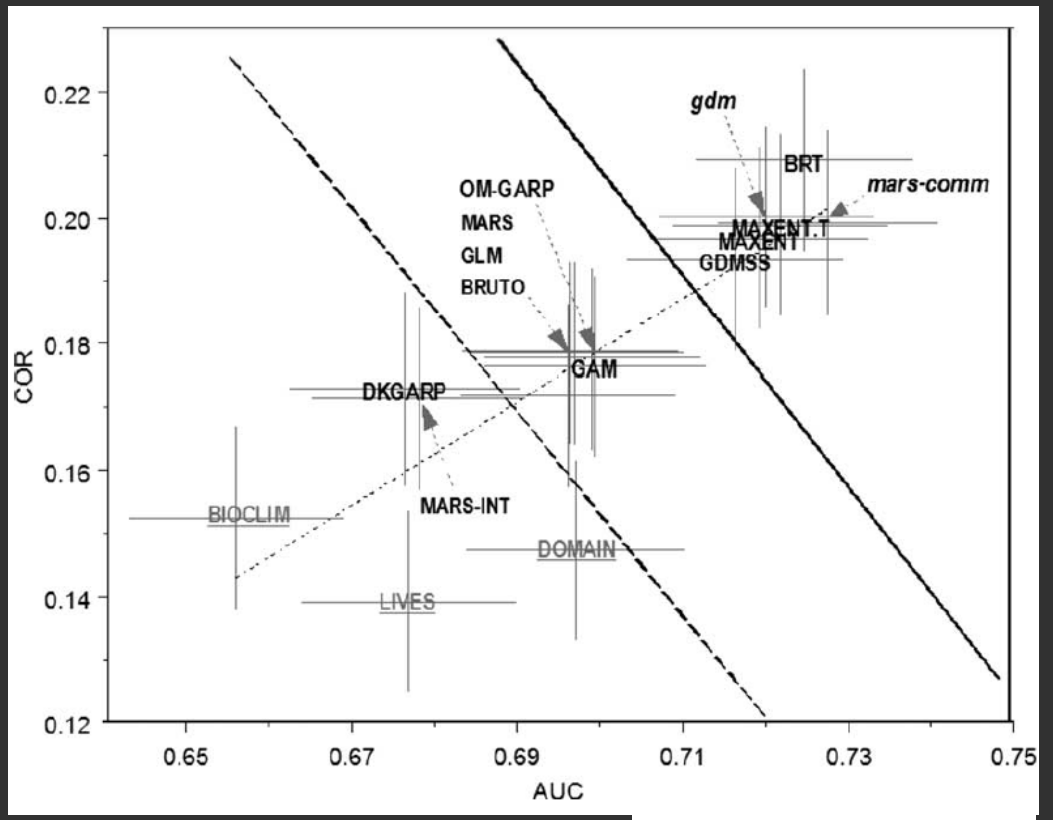
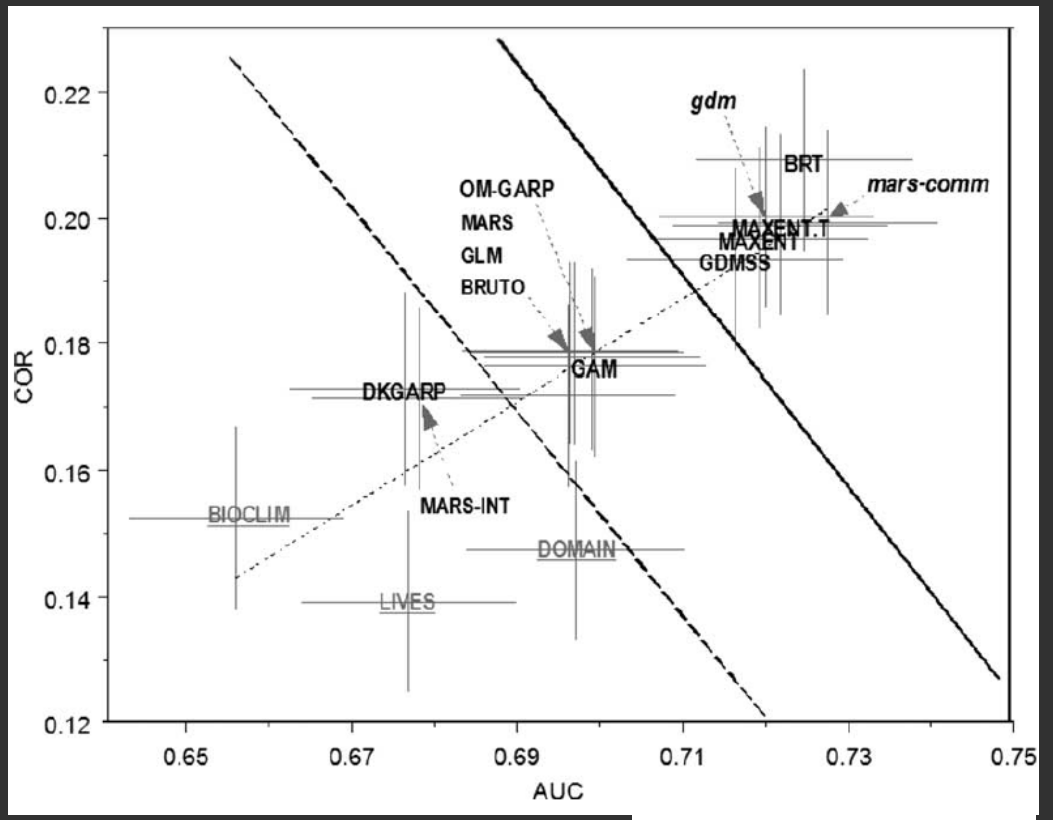


Fig. 3. Mean AUC vs mean correlation (COR) for modelling methods, summarised across all species. The grey bars are standard errors estimated in the GLMM (see Appendix), reflecting variation for an average species in an average region. The labels are broad classifications of the methods: grey underlined = only use presence data, black capitals = use presence and background samples, black lower case italics = community methods.

2414 3388

Methodological comparison

Elith, J.,et al. (2006). Ecography, 29, 129-151.



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Peer reviewed validation has been published

MAXENT R

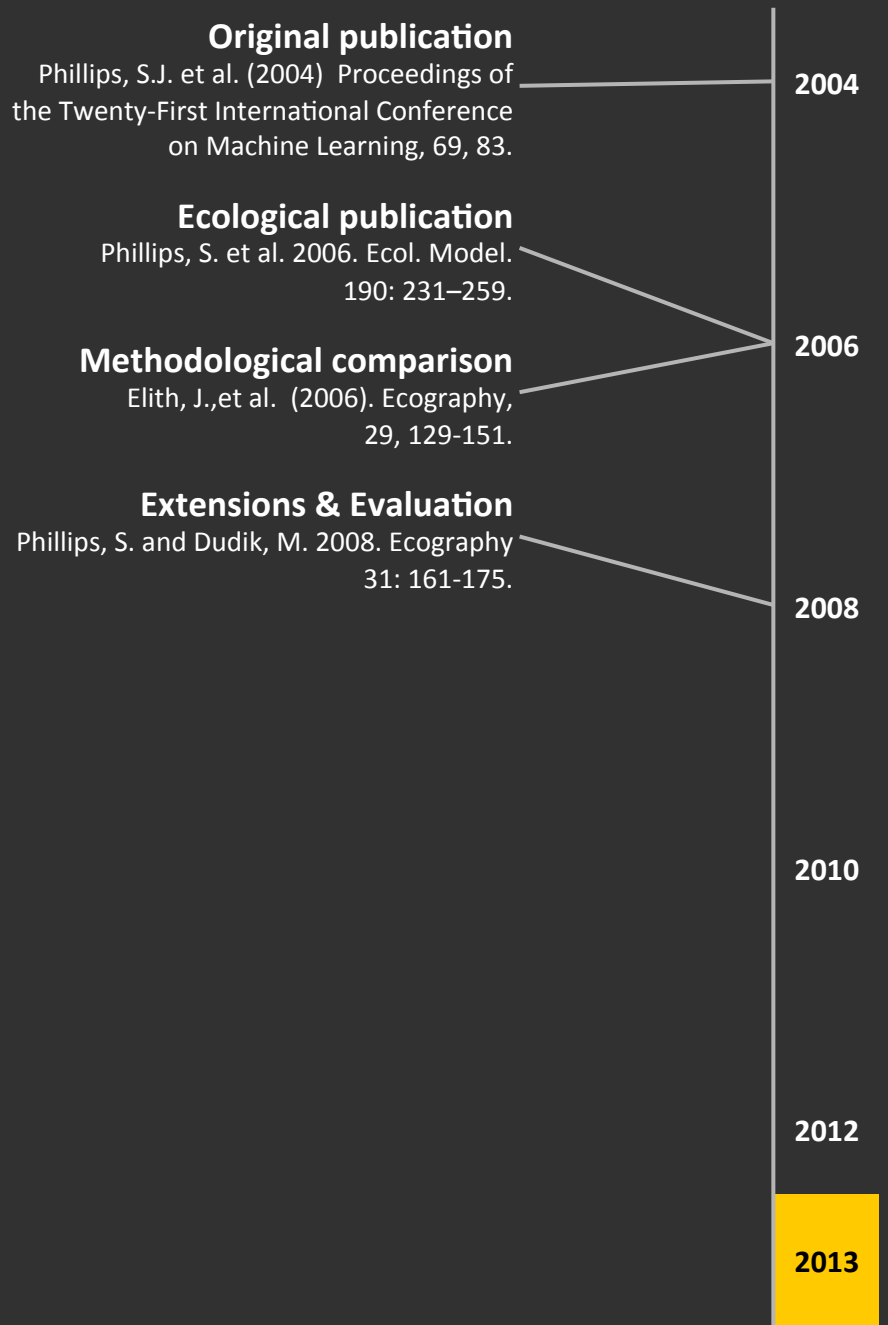
84.7% 11.7%

Ahmed, SE., McInerny, GJ. et al. (*2015*) *Diversity & Distributions.* DOI: 10.1111/ddi.12305

Only 8% claimed they had validated software against other methods as a primary reason for choice

Joppa, L. McInerny, G J et al. (2013). Science. 340(6134), 814-815.

MaxEnt


Original publication
Phillips, S.J. et al. (2004) Proceedings of the Twenty-First International Conference on Machine Learning, 69, 83.
Ecological publication
Phillips, S. et al. 2006. Ecol. Model. 190: 231–259.
Methodological comparison
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Extensions & Evaluation
Phillips, S. and Dudik, M. 2008. Ecography 31: 161-175.
2004
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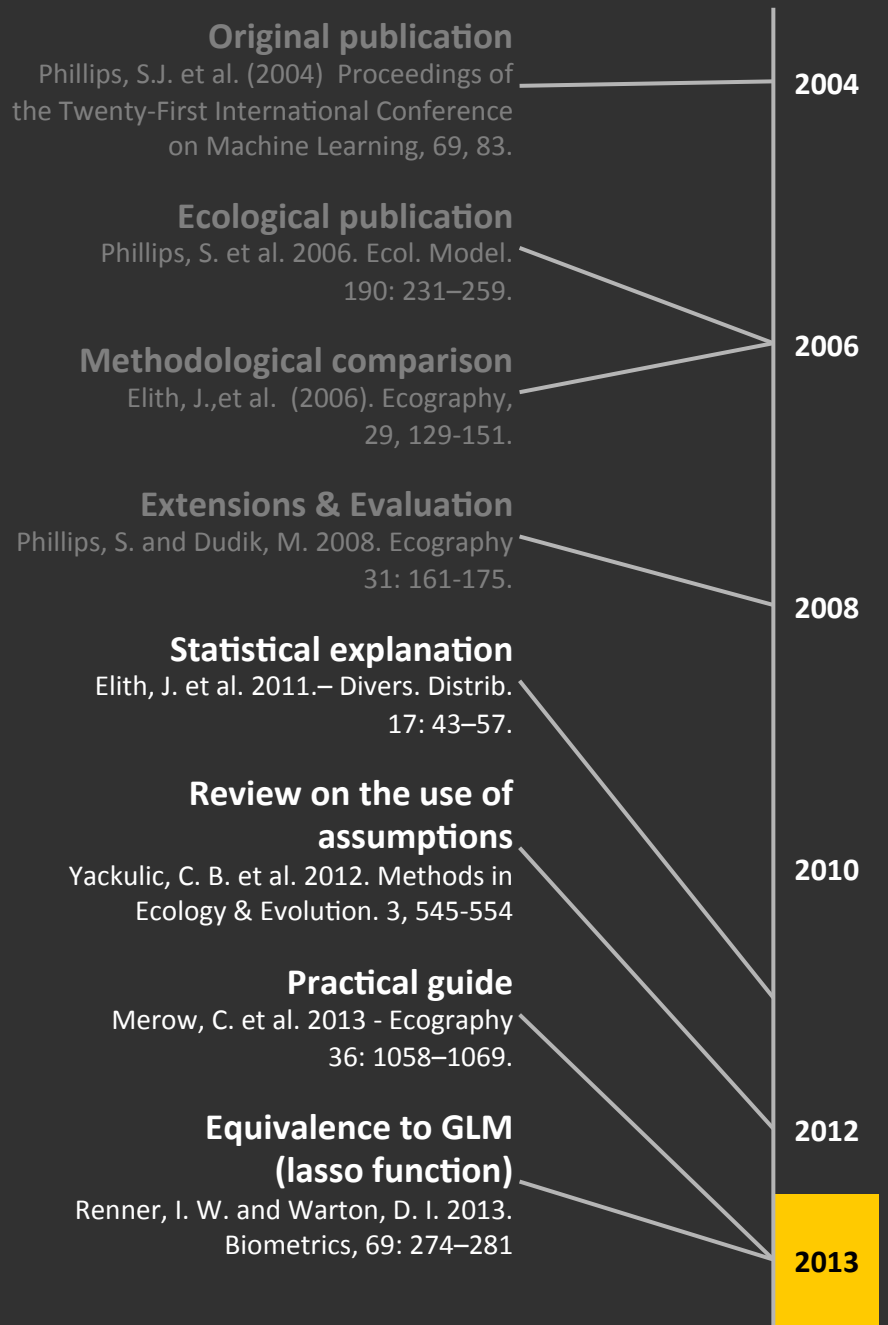
MaxEnt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Practical guide
Merow, C. et al. 2013 - Ecography 36: 1058–1069.
Equivalence to GLM (lasso function)
Renner, I. W. and Warton, D. I. 2013. Biometrics, 69: 274–281
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MaxEnt

2013 2015 N cites scholar.google.co.uk/

Original publication
581 870
Phillips, S.J. et al. (2004) Proceedings of the Twenty-First International Conference on Machine Learning, 69, 83.

Ecological publication
2723 4312
Phillips, S. et al. 2006. Ecol. Model. 190: 231–259.

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Extensions & Evaluation
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Phillips, S. and Dudik, M. 2008. Ecography 31: 161-175.

Statistical explanation
467 1066
Elith, J. et al. 2011.– Divers. Distrib. 17: 43–57.

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2004
2006
2008
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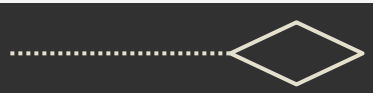
- **Non-comparable version of Maxent in Open Modeller**
- **2nd attempt using matlab code form Phillips**
- **OM-MAXENT – 3rd try**
  http://wiki.eubrazilopenbio.eu/index.php/OpenModeller_Maxent
- **User alerts non-comparable version of Maxent in ModEco**
  https://groups.google.com/forum/#!topic/maxent/jqC7mJcDPbg
- **24 releases**
  http://www.cs.princeton.edu/~schapire/maxent/
- **Maxent in R package 'dismo'**
  http://cran.r-project.org/web/packages/dismo/index.html
- **Spanish & Russian translations of manual**
  http://www.cs.princeton.edu/~schapire/maxent/
- **24,600 page returns on Google search**
  (5400 for biomod)
- **Active community**
  https://groups.google.com/forum/#!forum/Maxent 1725 topics / 34to 120 posts a month

UNPRODUCTIVE SCIENTIFIC DISCOURSE



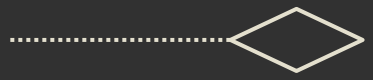
Beale CM, Lennon JJ, Gimona A (2008) *PNAS* 105:14908–14912.

Araujo et al. (2009) *PNAS 10.1073/pnas.0813294106.*

Beale CM, Lennon JJ, Gimona A (2009) PNAS *10.1073/pnas.0902229106*

Each study assumes what other studies did previously. Everyone else is wrong.

INACCESSIBLE BENCHMARKS



Elith, J., Graham, C.H. *et al*. (2006) *Ecography*.. 29, 129–151.

Pollock, L. J., et al. (2014), *Methods in Ecology and Evolution,* 5: 397–406.

New models cannot access the data contained in the most influential papers.

LABORIOUS META-ANALYSES

Soininen, J. & Luoto, M. (2014) *GEB*. doi: 10.1111/geb.12204

Reviews have to rake through the literature by hand. And require others to do the same.

We need ‘Able’ software…

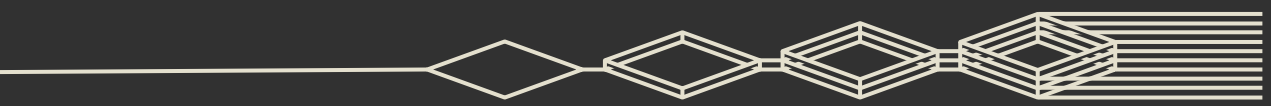
Discoverable Repeatable Citeable Reviewable
Modifiable Accessible Reproducible Extensible

We need ‘Able’ software…

Discoverable Repeatable Citeable Reviewable
Modifiable Accessible Reproducible Extensible

ZOÖN* aims to create a framework and online repository for *Species Distribution Modelling* ** within the R statistical computing environment.

*** ZOÖN – Any individual in a compound animal**
https://github.com/zoonproject
http://zoonproject.wordpress.com/



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