

# Riqueza de Algas

*Diego*

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## Diversidad de Algas en PS

### Distribucion posterior de la riqueza de especies

```
## Loading required package: knitr
## Loading required package: dplyr
##
## Attaching package: 'dplyr'
##
## The following object is masked from 'package:stats':
##
##   filter
##
## The following objects are masked from 'package:base':
##
##   intersect, setdiff, setequal, union
##
## Loading required package: coda
## Loading required package: boot
```

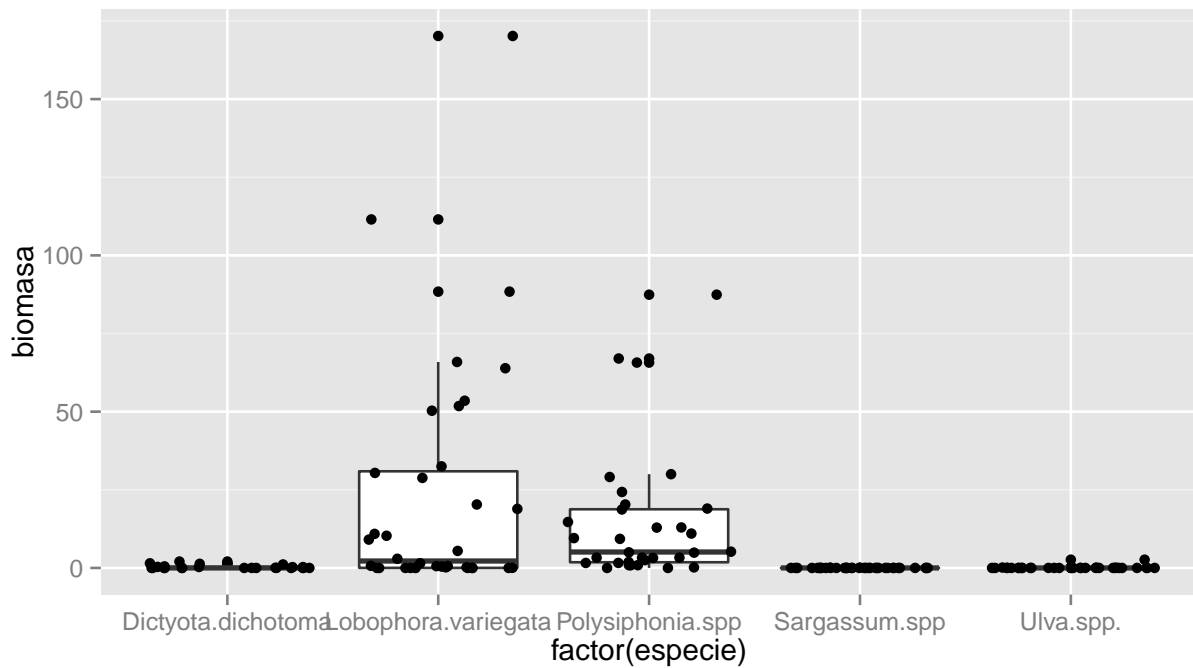
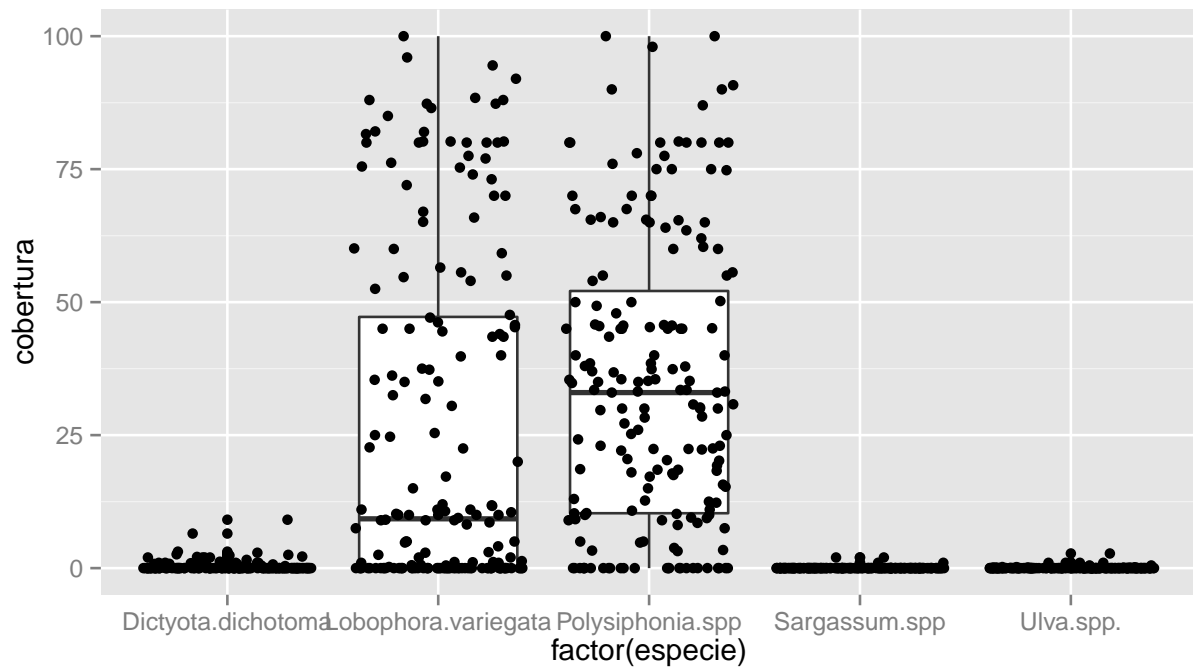
Riqueza de especies y acumulación de algas, modelando la ocurrencia y la detectabilidad simultaneamente. Los datos se agruparon por transecto contando la aparición en los cuadrantes. Este análisis sigue el método de Dorazio et al. (2006). Este método es conocido como “detection-based hierarchical model for estimating species diversity” (Iknayan et al. 2014). Posterior computed in 17.4905170679092 minutes.

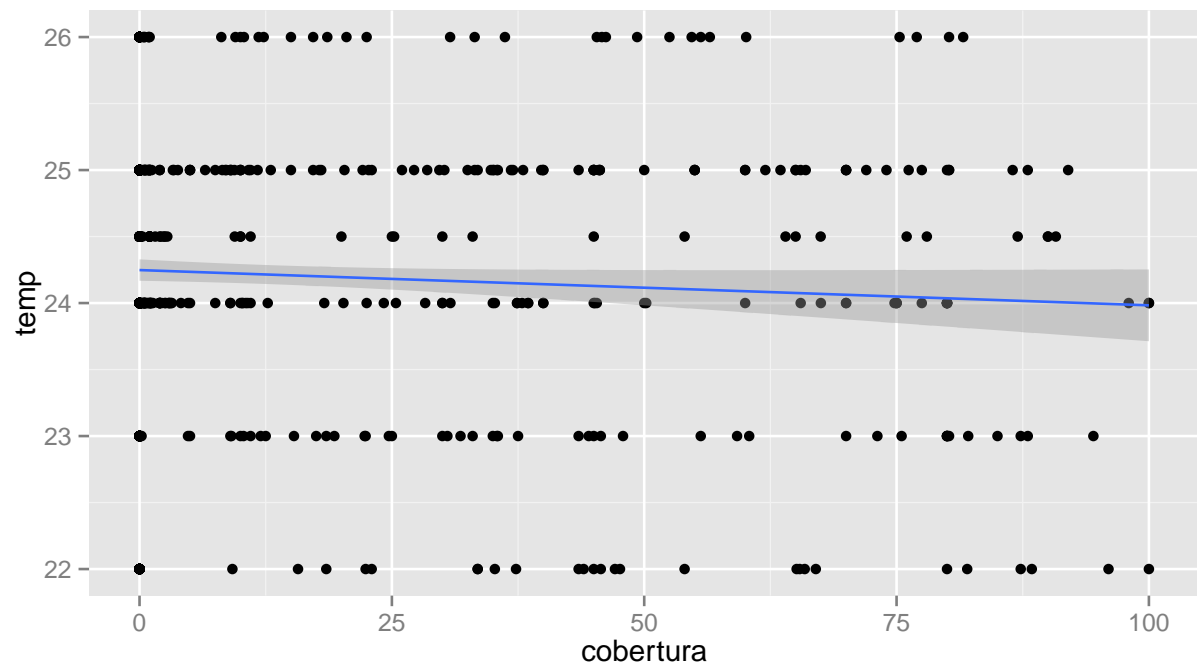
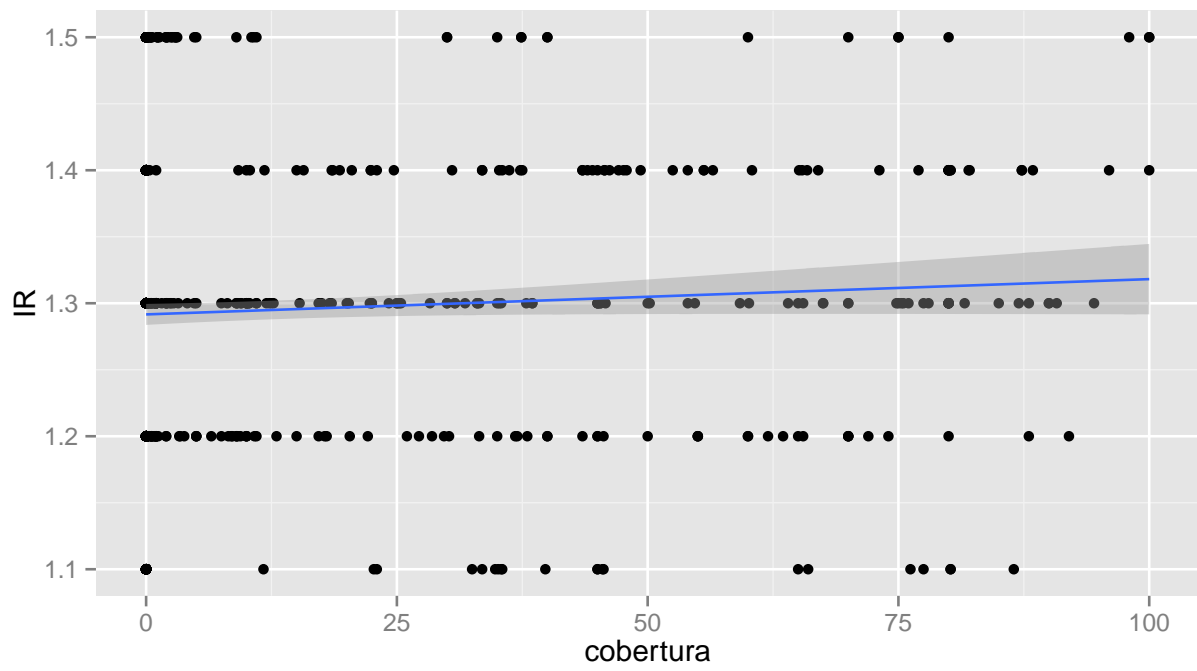
En rojo se muestra la mediana y en azul la media.

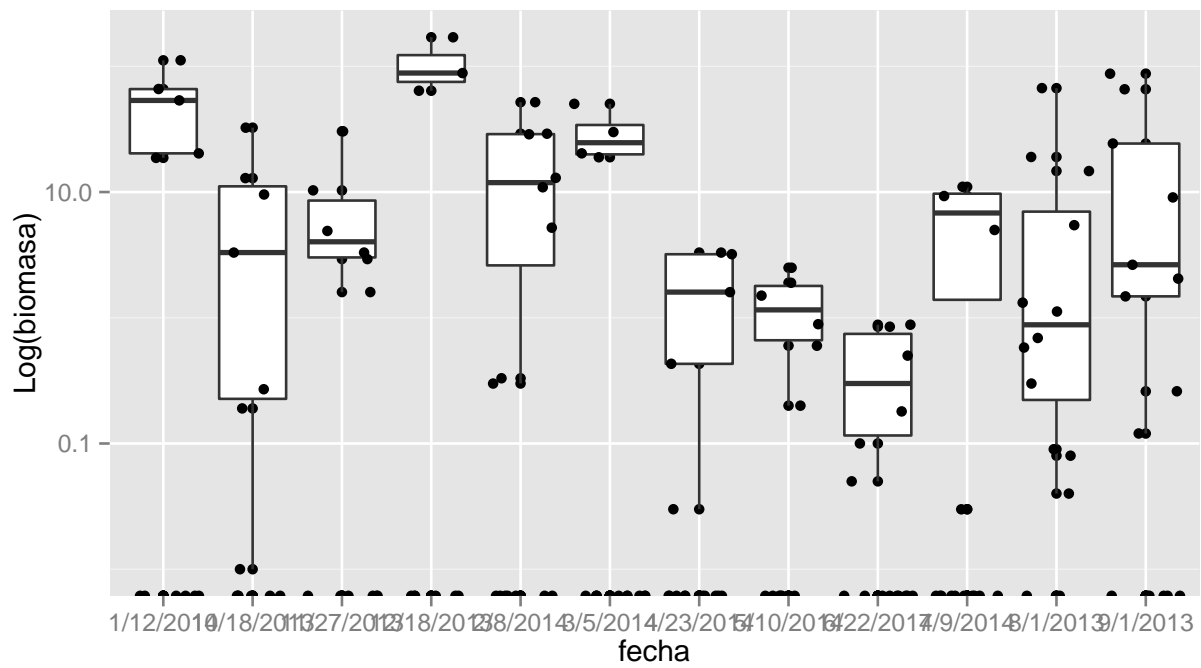
# PS exploration

Relacion entre sp y variables

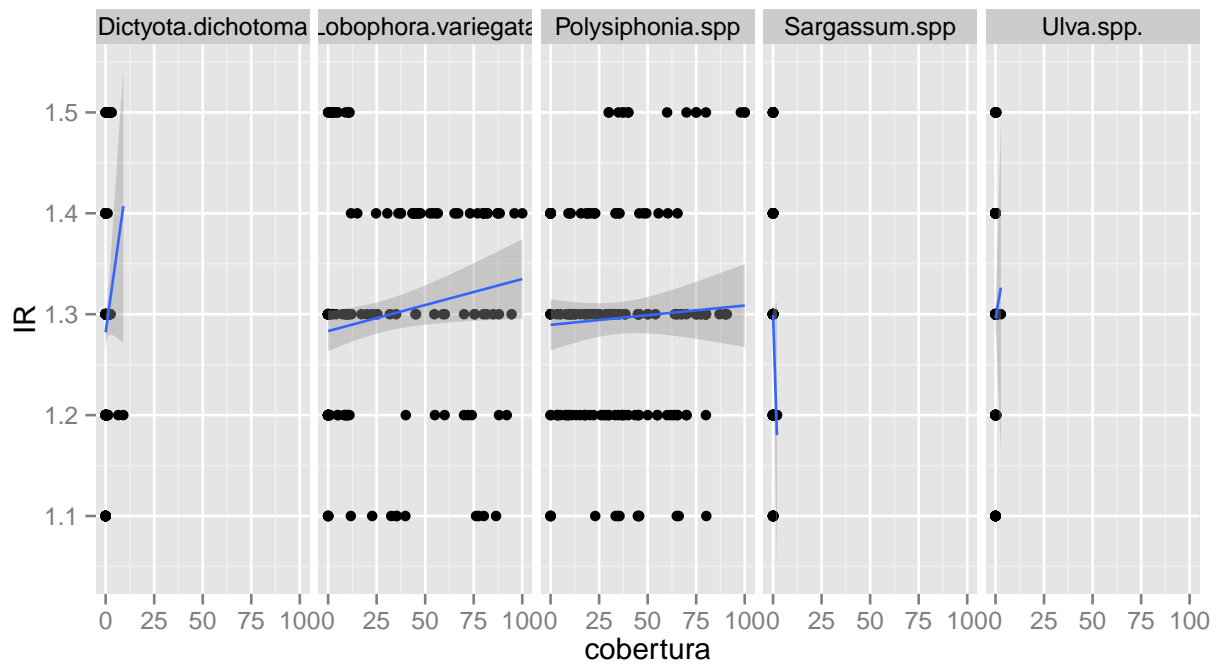
Algas-Full dataset

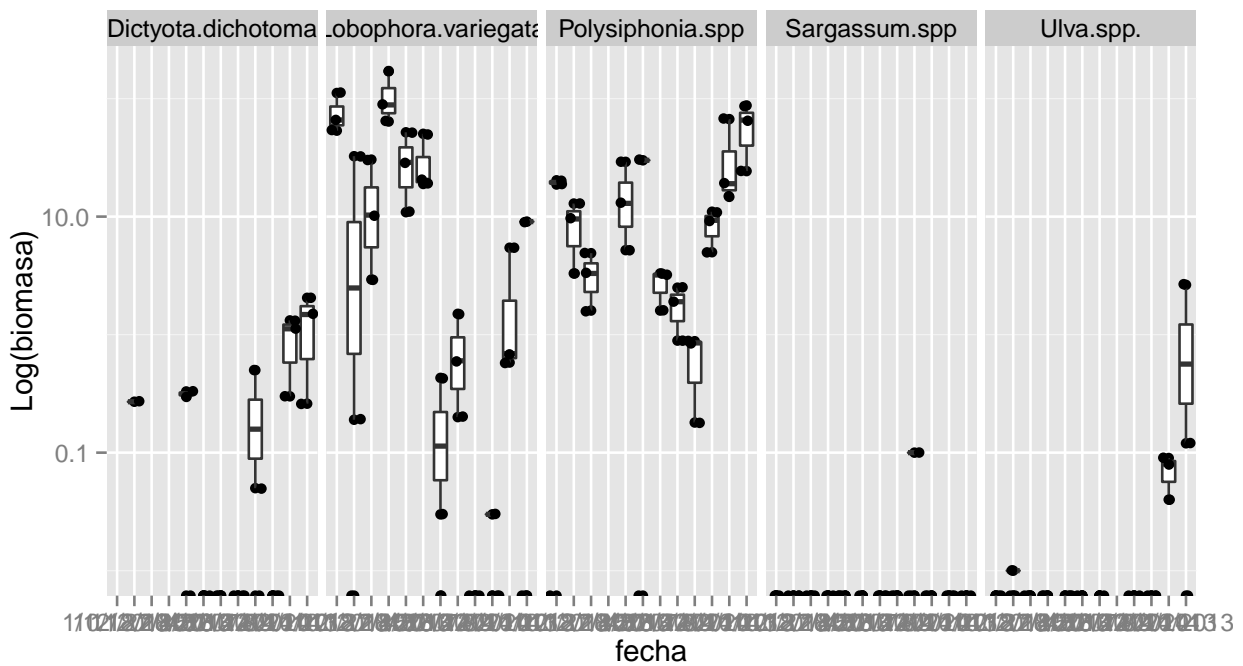
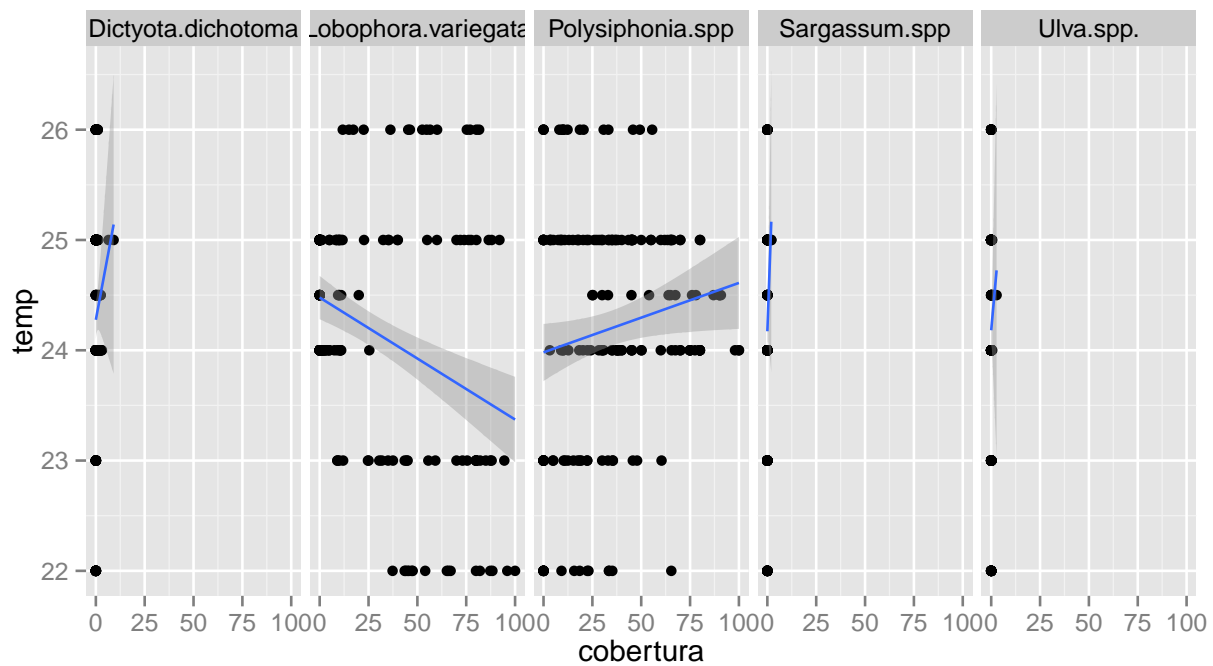






Algas-Por especie





## Modelo de la abundancia de los erizos

### Algebra del modelo

The N-mixture model or Poisson-Binomial mixture model (Royle 2004). In this model, all that is required to estimate detection probability and abundance is counts of unmarked individuals that are replicated in

two dimensions: there must be a number of sites and there must be a number of replicate observations (i.e., counts) for at least some of the sites. The N-mixture model is a hierarchical extension of the Poisson GLM. We use the Poisson GLM as the base model for N but we regard N as latent variables (i.e., as unobserved or only partly observed). We augment the Poisson GLM with a model that describes how the observations  $C_{ij}$  are related to the latent variable  $N_i$ . The model is also called a Poisson/binomial mixture model.

## References

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- Dorazio, Robert M, J Andrew Royle, Bo Söderström, and Anders Glimskär. 2006. “Estimating Species Richness and Accumulation by Modeling Species Occurrence and Detectability.” *Ecology* 87 (4): 842–854.
- Iknayan, Kelly J, Morgan W Tingley, Brett J Furnas, and Steven R Beissinger. 2014. “Detecting Diversity: emerging Methods to Estimate Species Diversity.” *Trends in Ecology & Evolution* 29 (2) (February): 97–106. doi:[10.1016/j.tree.2013.10.012](https://doi.org/10.1016/j.tree.2013.10.012). <http://www.sciencedirect.com/science/article/pii/S0169534713002619>.
- Royle, J Andrew. 2004. “N-Mixture Models for Estimating Population Size from Spatially Replicated Counts.” *Biometrics* 60 (1): 108–115.