

Example of Analyses with **funrar**

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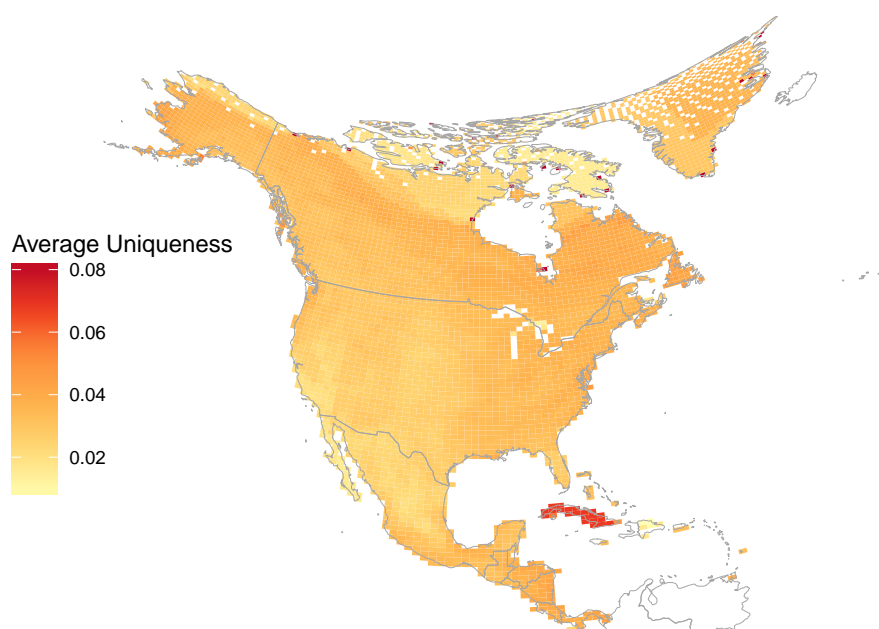
18 janvier, 2017

With **funrar** you can compute **F**unctional **R**arity indices. We are using a North American Mammals datasets to show the kind of questions you can come up with.

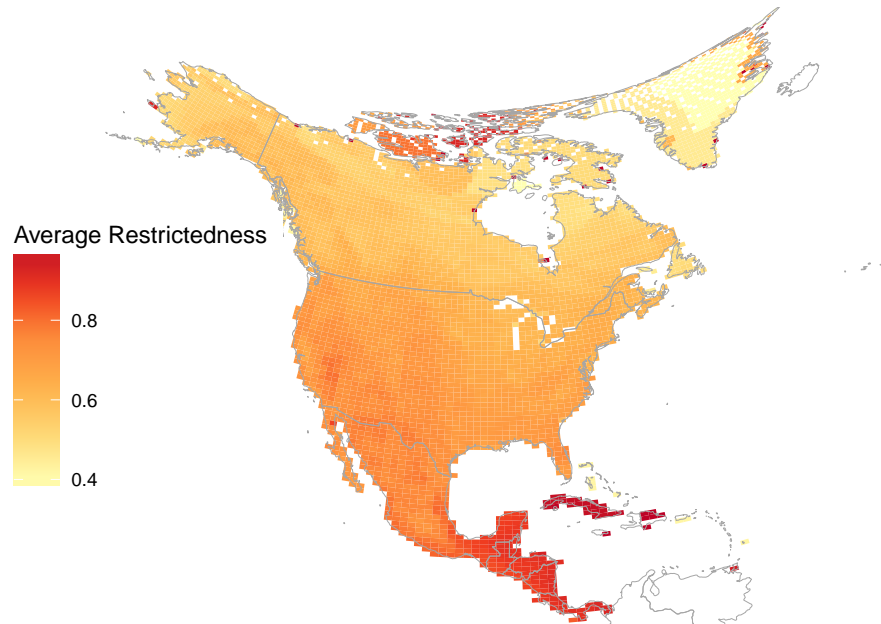
For example, you can try to map the hotspots of Regional Functional Uniqueness, i.e. the communities with highest number of functionally unique species (relatively to the whole species pool).

Hotspots

Functional Uniqueness

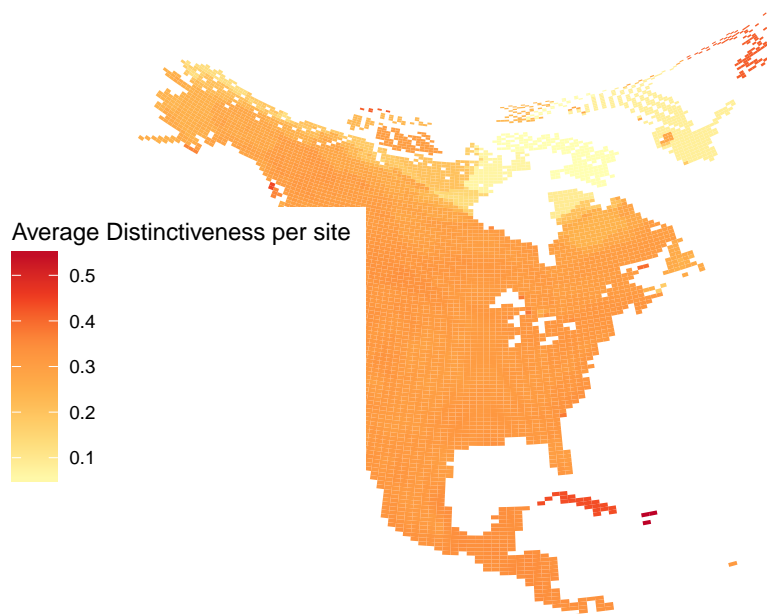


Geographical Restrictedness



Functional Distinctiveness

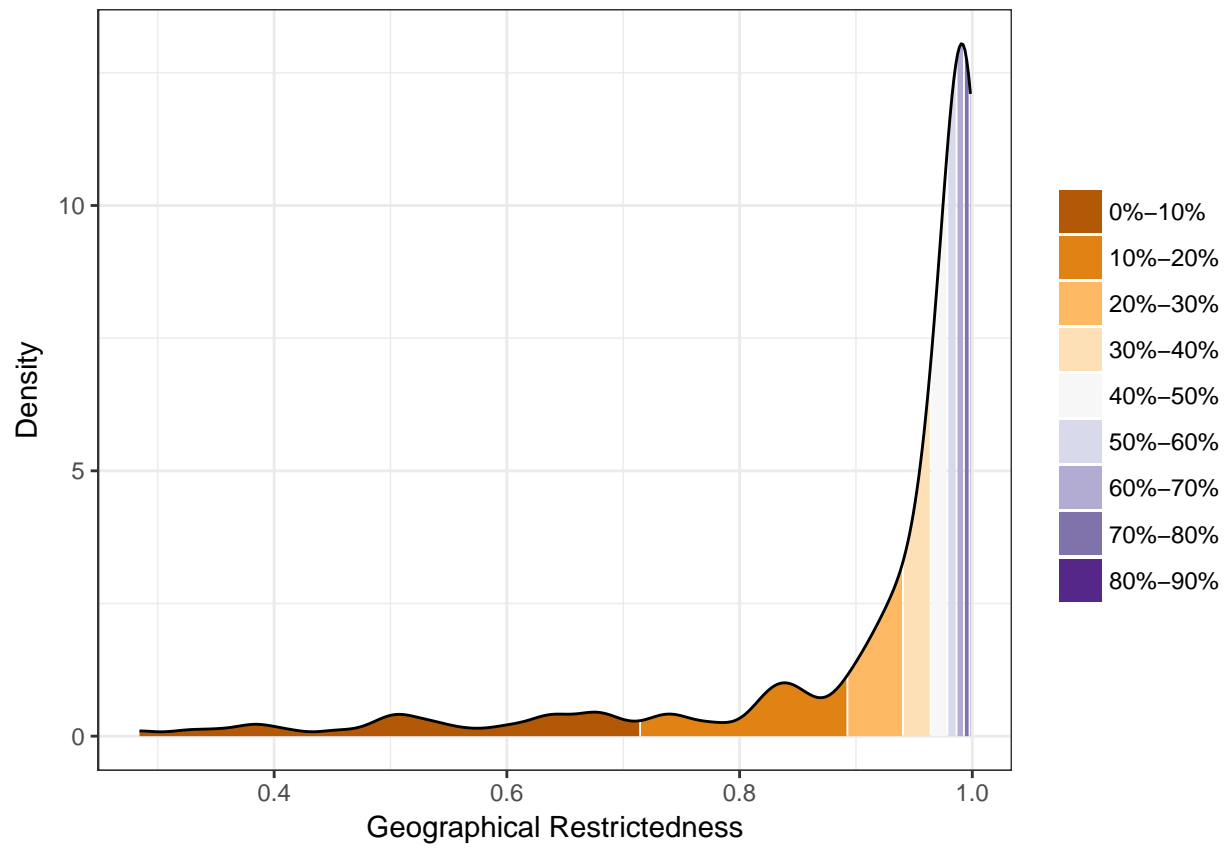
Warning: Removed 552 rows containing non-finite values (stat_summary2d).



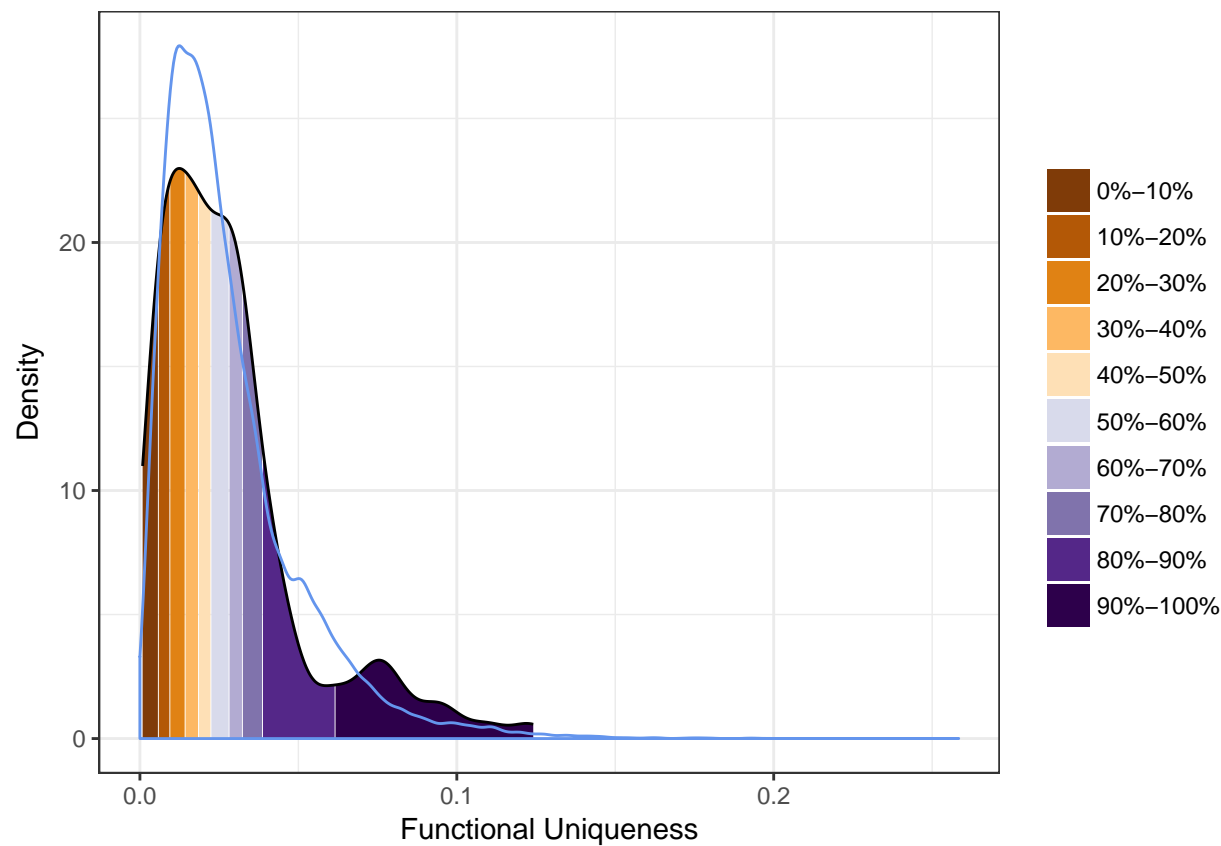
Total distribution of indices

```
##          species          Ui          Ri
## Alouatta_palliata      : 1  Min.   :0.0006121  Min.   :0.2828
## Alouatta_pigra         : 1  1st Qu.:0.0115721  1st Qu.:0.9242
## Ammospermophilus_interpres: 1  Median :0.0223622  Median :0.9787
## Ammospermophilus_leucurus : 1  Mean   :0.0281722  Mean   :0.9174
## Ammospermophilus_nelsoni  : 1  3rd Qu.:0.0344888  3rd Qu.:0.9966
## Antilocapra_americana   : 1  Max.   :0.1243665  Max.   :0.9999
## (Other)                 :259
##      std_Ui
## Min.   :0.00000
## 1st Qu.:0.08856
## Median :0.17575
## Mean   :0.22270
## 3rd Qu.:0.27374
## Max.   :1.00000
##
```

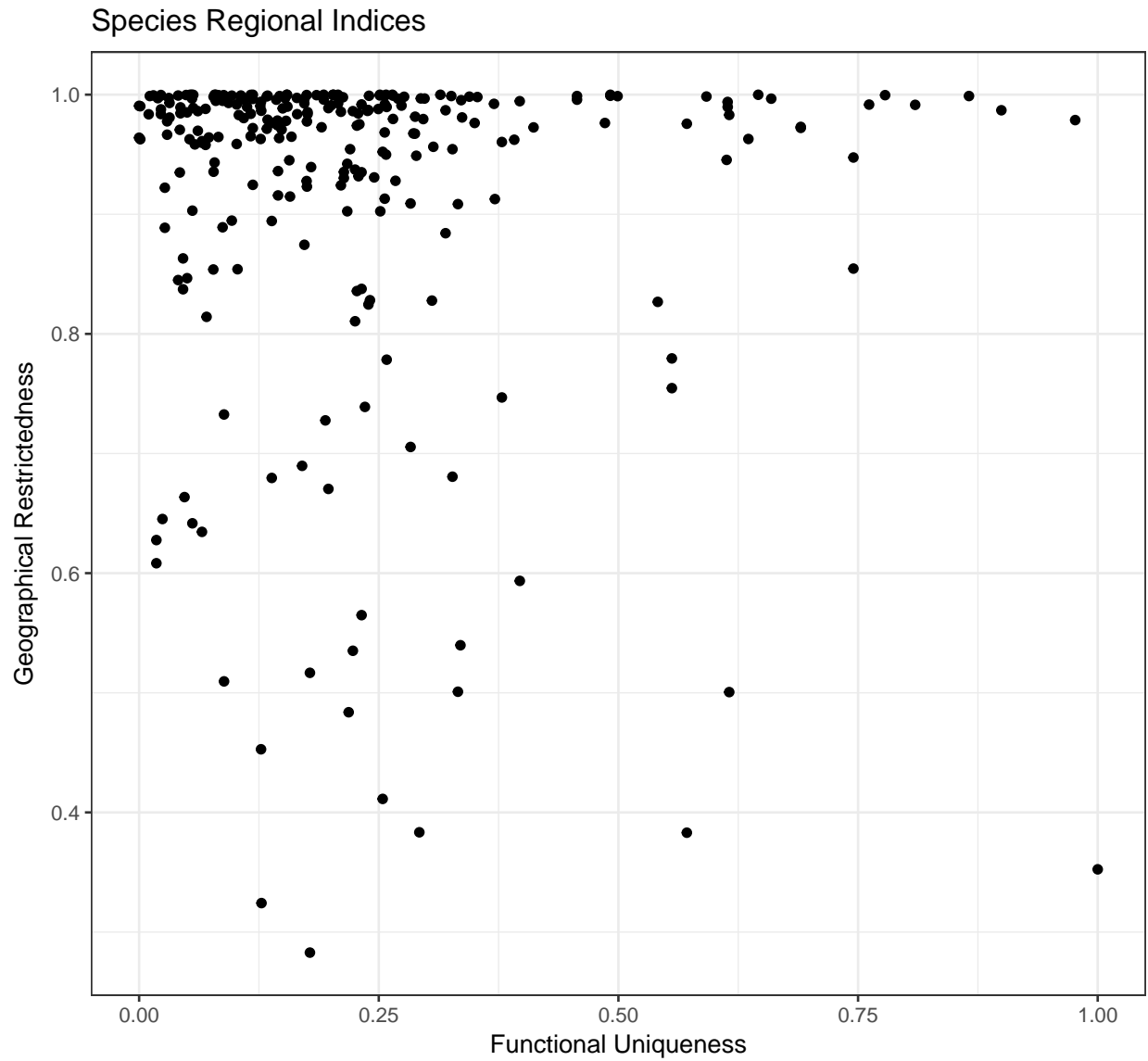
Geographical Restrictedness



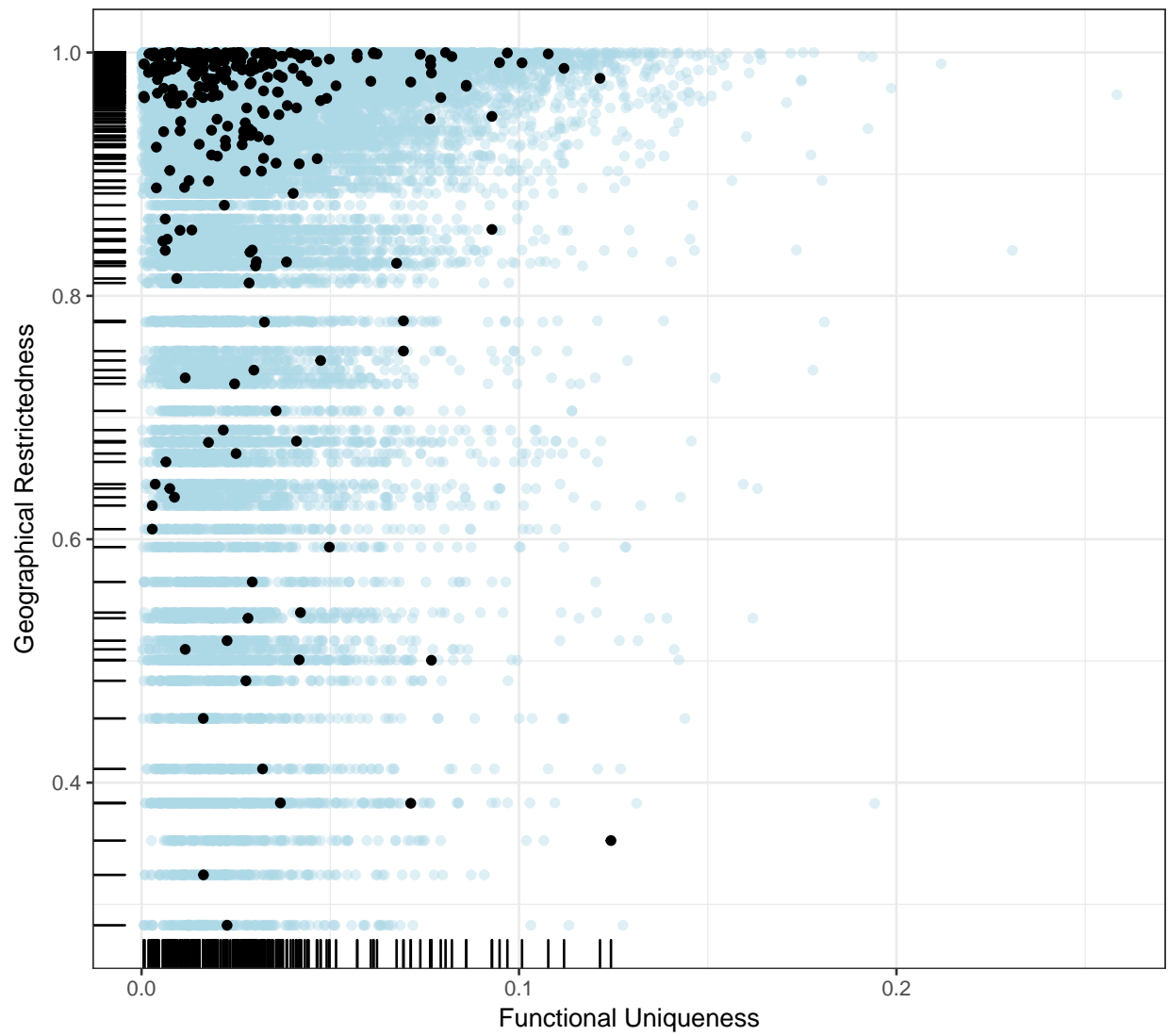
Functional Uniqueness



Biplot

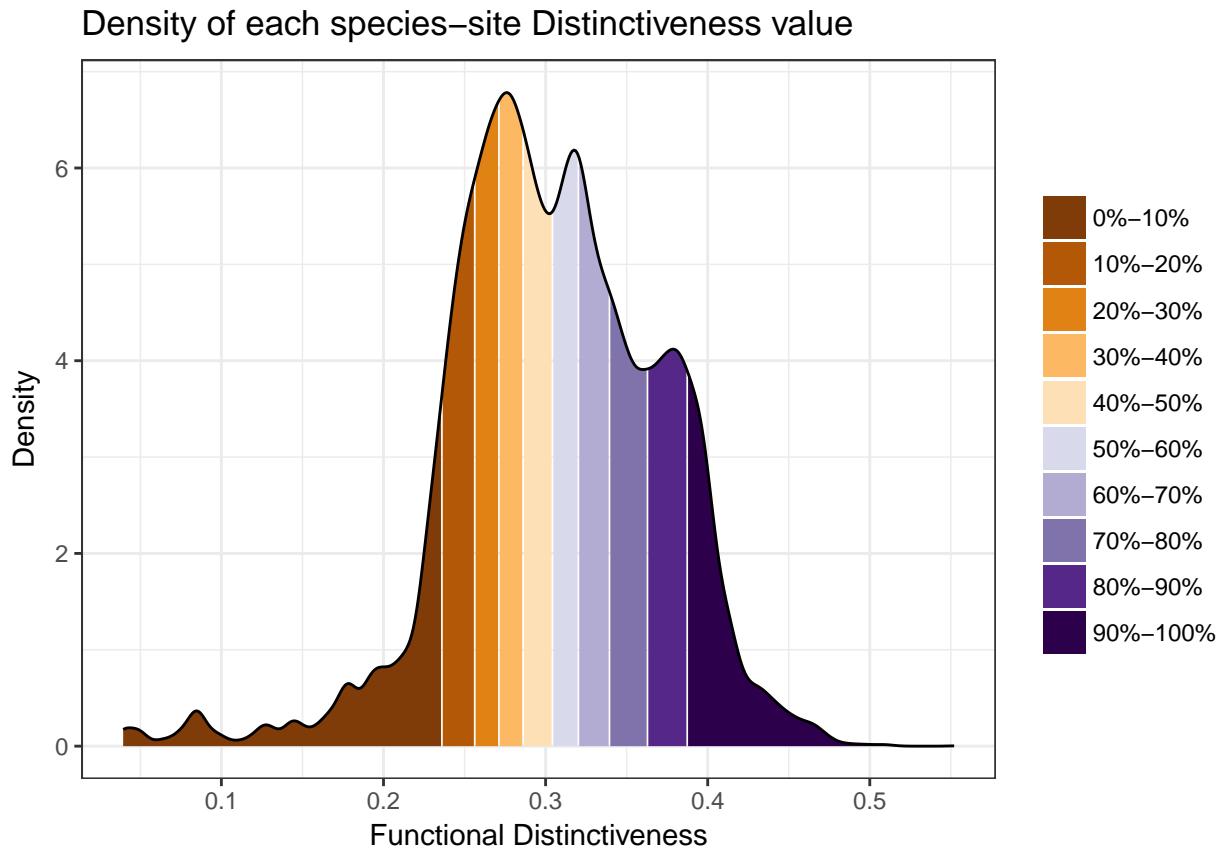


Species Regional Indices with null model (shuffled traits)

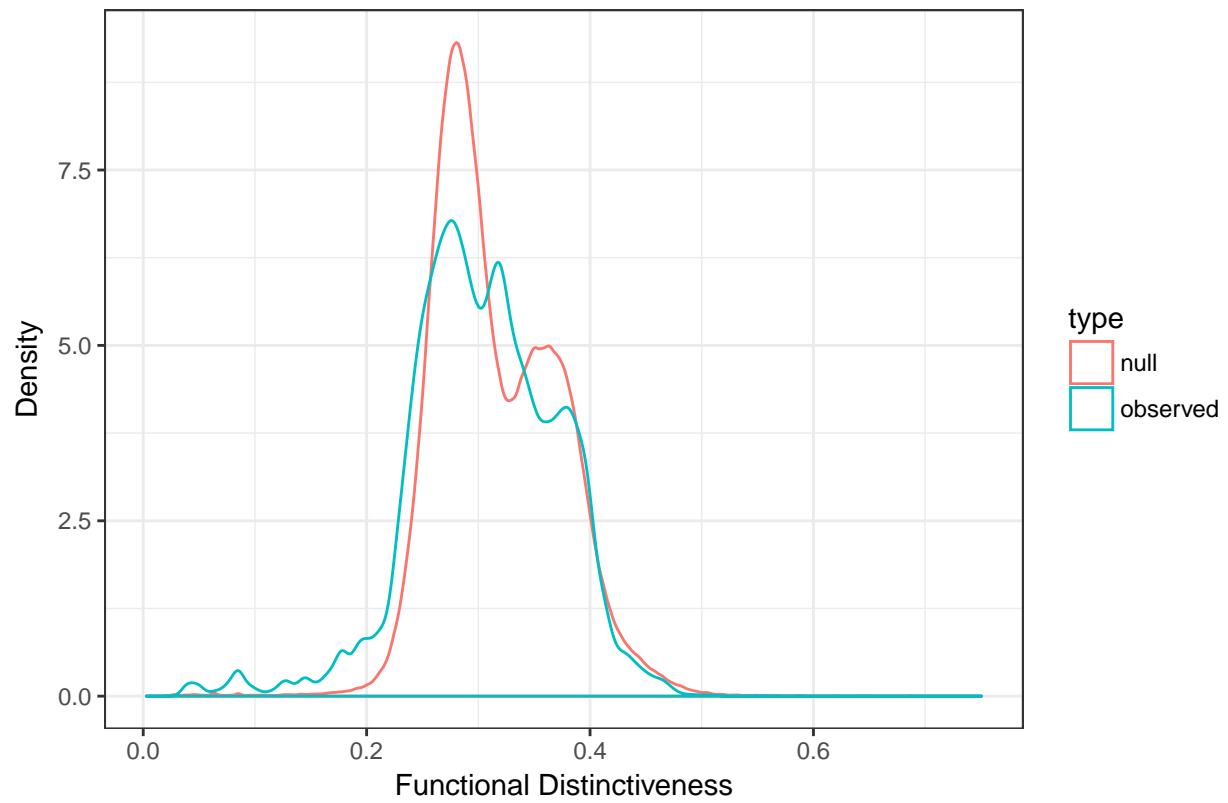


Functional Distinctiveness

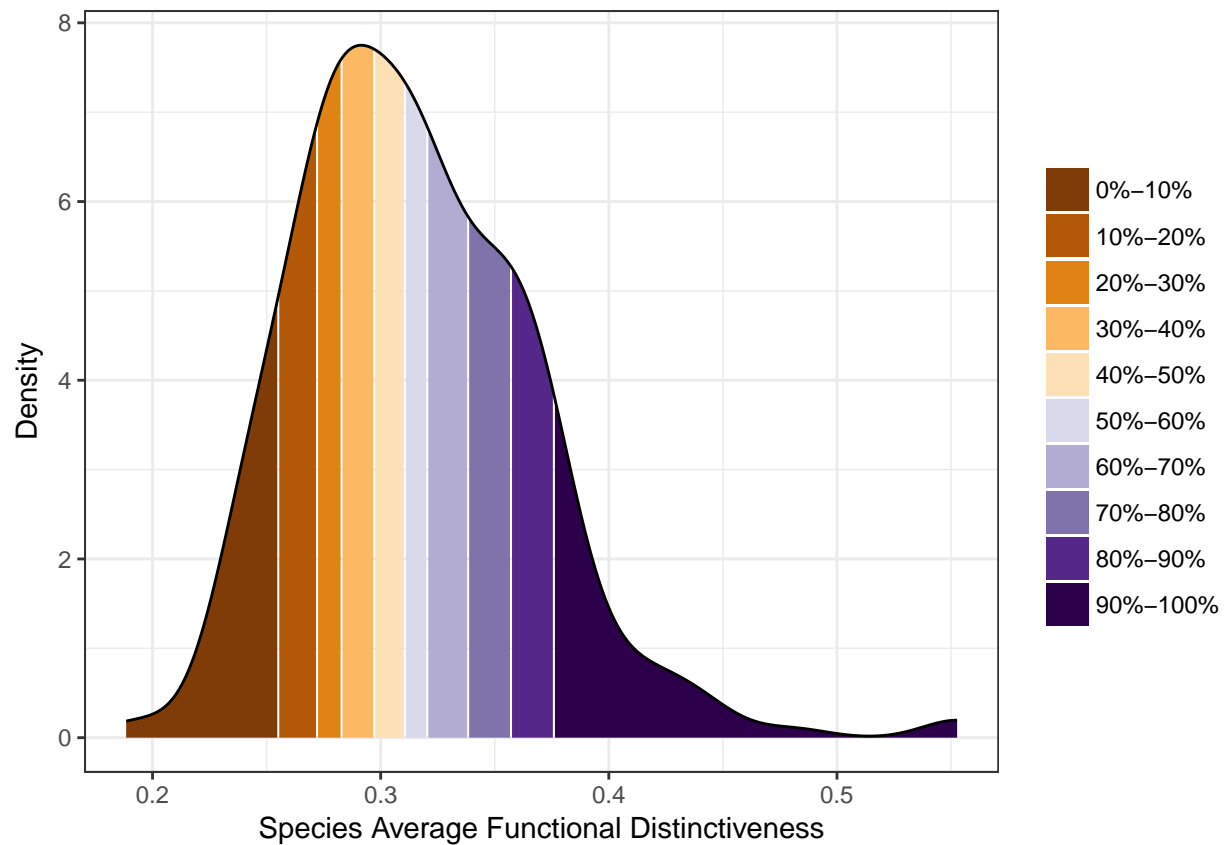
For each site-species combination



Site–Species Di Density with null model

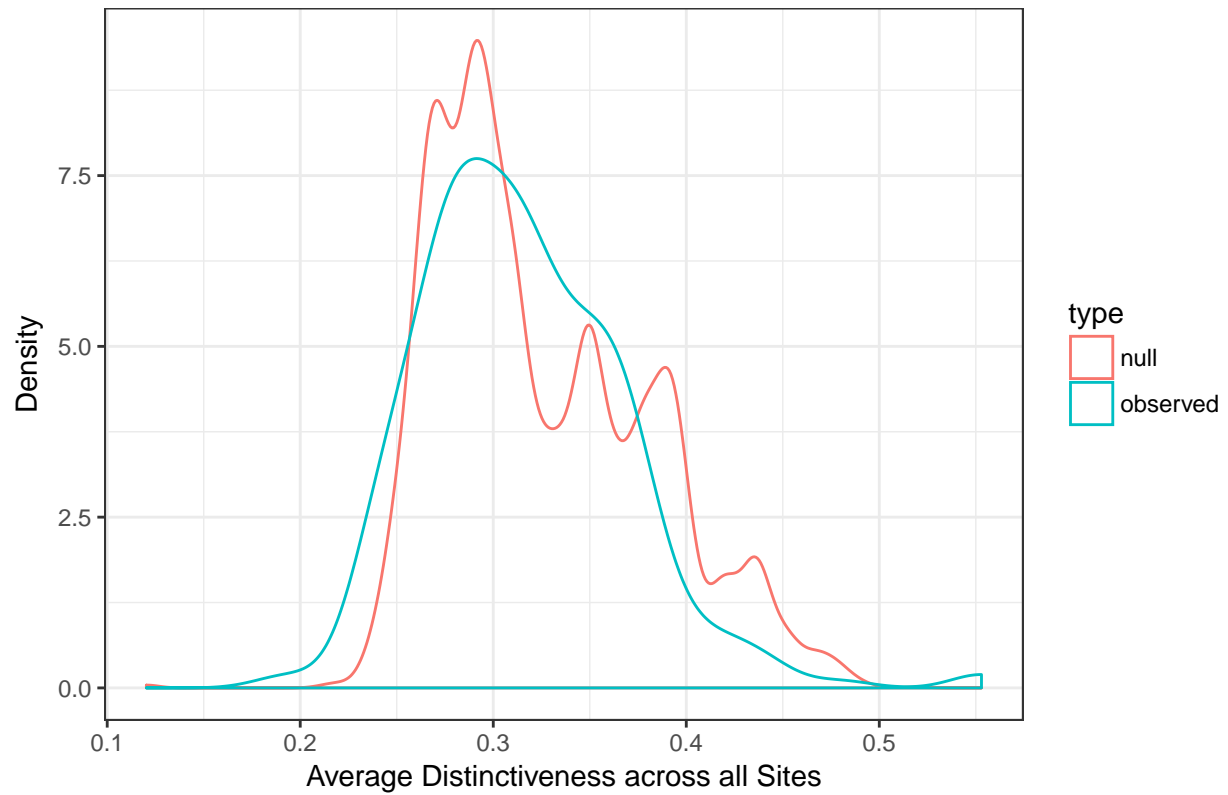


Average Distinctiveness of a species across all sites



```
## Warning in bind_rows(x, .id): binding factor and character vector,
## coercing into character vector
## Warning: Removed 1 rows containing non-finite values (stat_density).
```

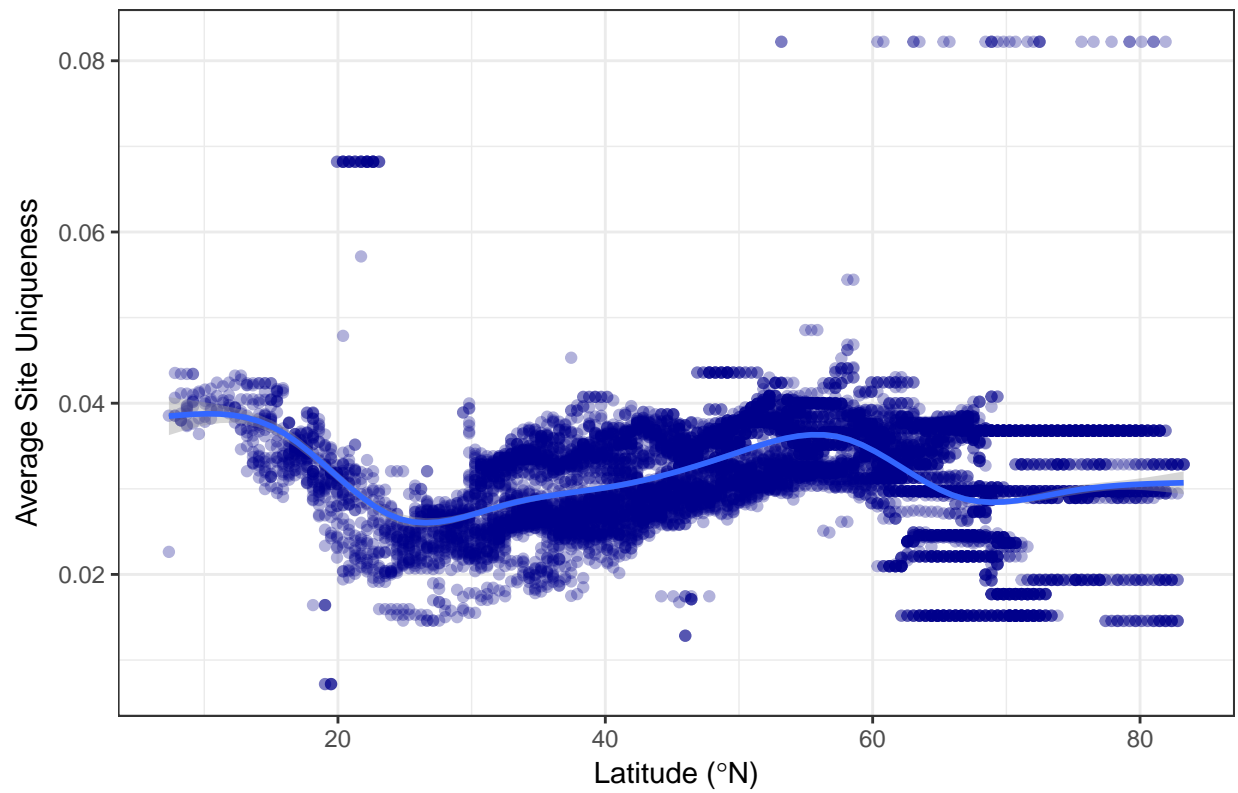
Average Species Di Density with null model



Functional Uniqueness

```
## `geom_smooth()` using method = 'gam'
```

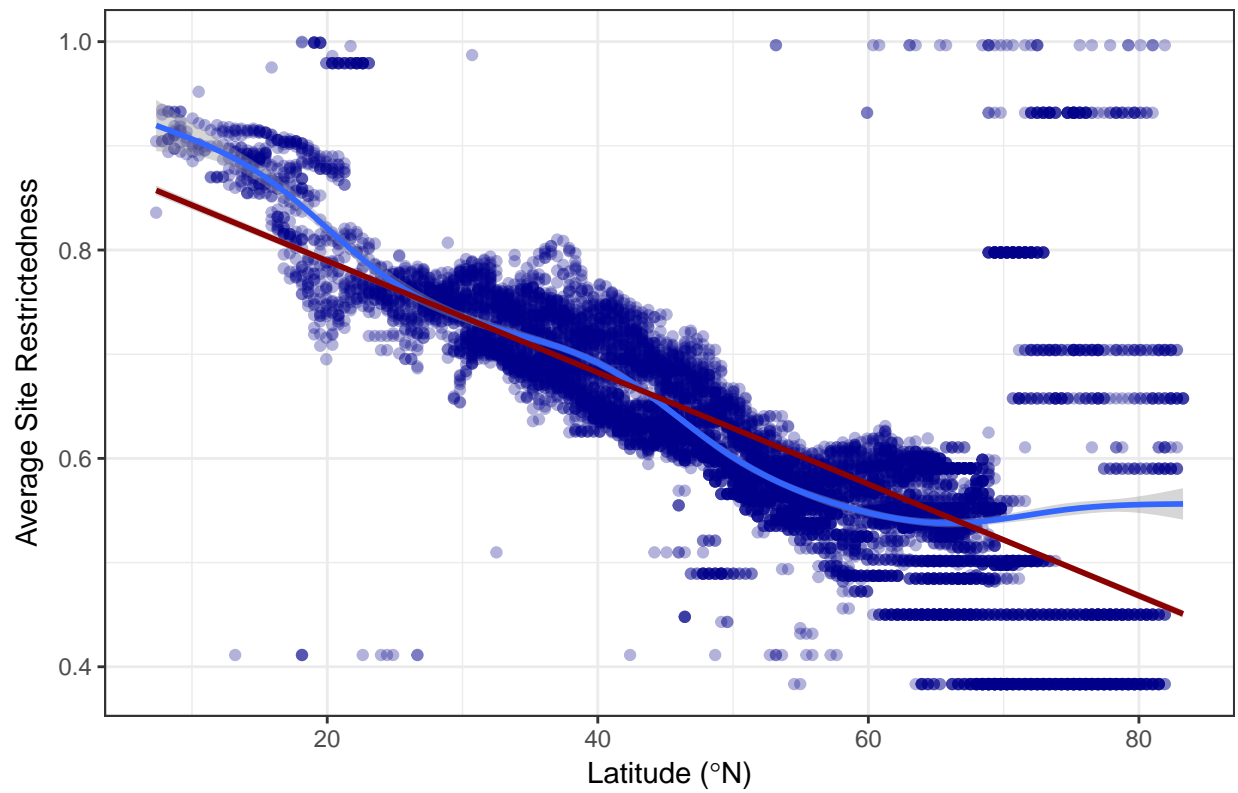
Latitudinal Gradient of Uniqueness (n=9497)



Geographical Restrictedness

```
## `geom_smooth()` using method = 'gam'
```

Latitudinal Gradient of Restrictedness (n=9497)



Functional Distinctiveness

```
## `geom_smooth()` using method = 'gam'  
## Warning: Removed 552 rows containing non-finite values (stat_smooth).  
## Warning: Removed 552 rows containing missing values (geom_point).
```

Latitudinal Gradient of Distinctiveness (n=9055)

