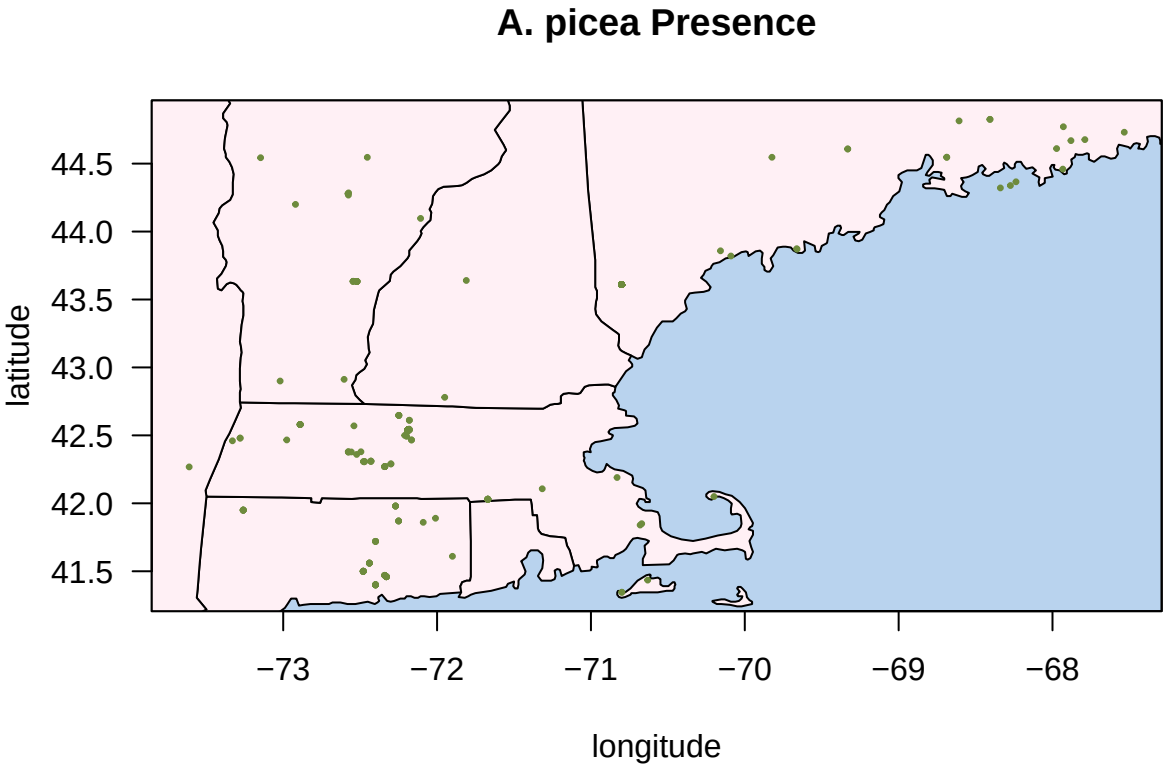
Genetics-based Environmental Niche Modeling

Data Summary

- Use datasets HF147-12 and HF147-15
- Data are hosted by the Environmental Data Initiative and the HF Archive
- EDI has an API for R !(EDIutils)[https://github.com/EDIorg/EDIutils]
- Data from HF archive can be sourced with URL, this is less desirable as URLS could change
- Make sure to remove duplicated rows (see `unique()`)
- Relevant species are:
  - *Aphaenogaster picea*
  - *A. fulva*
  - *A. tenneseensis*
  - *A. treatae*
  - *A. rudis*
  - aphNA = un-assignable specimens

```
##   latitude longitude   ant.species Month Day Year
## 1  44.5000  -72.5100 rudis complex     5  20 1905
## 2  43.6230  -72.5190 tennesseensis     8  30 1911
## 3  44.2380  -70.0350 rudis complex     1  10 1921
## 4  41.4903  -71.5071 rudis complex     5  25 1922
## 5  43.1474  -70.9445 rudis complex     9  14 1924
## 6  43.1474  -70.9445 rudis complex     5  20 1925
```

```
##
##         fulva        fulva          picea        picea          rudis
##           428          224            507           28            636
##        rudis  rudis complex tennesseensis       treatae
##            14            531             14             9
```



Modeling and Analyses

Data Cleaning

- Check species naming errors
- Check location errors
- Fix errors
- Remove problem data
- Check data

Input/Outputs

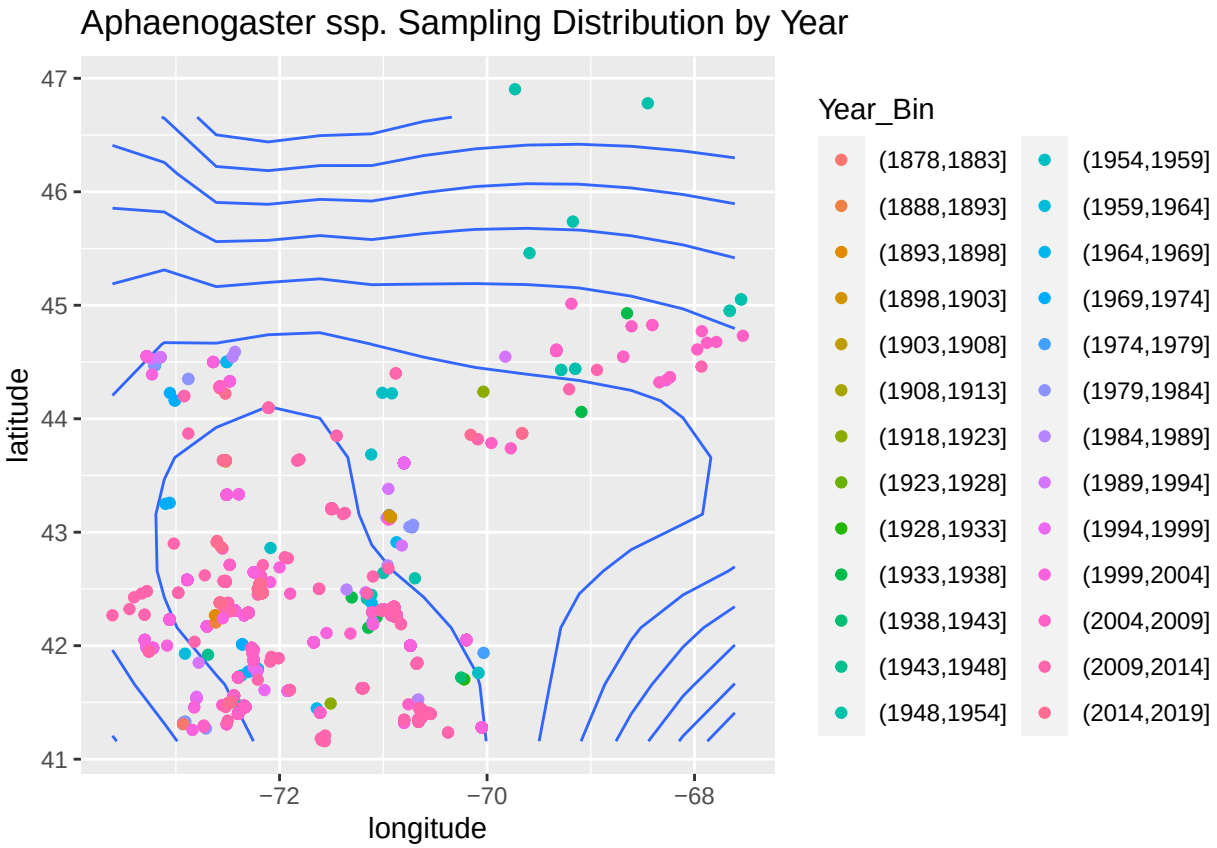
- Ant data
- Climate data
- Landscape data

Input	Description	Output
Ant distribution		
Climate		
Landscape		

Dependencies

Check: Sampling Depth

```
fig.cp
```



Assess Sampling Coverage and Depth

Species Distribution Models

Results

- Assess patterns of distribution for each species
- Assess co-distribution patterns
- Assess mutualist distributions
- Assess conservation edges