# Final Project

Reka Ivanyi

```
require(phytools)
```

```
Loading required package: phytools

Loading required package: ape

Loading required package: maps
```

```
packageVersion("phytools")
```

```
[1] '2.3.0'
```

```
library(ggtree)
```

```
ggtree v3.14.0 Learn more at https://yulab-smu.top/contribution-tree-data/

Please cite:

Guangchuang Yu. Using ggtree to visualize data on tree-like structures.
Current Protocols in Bioinformatics. 2020, 69:e96. doi:10.1002/cpbi.96


Attaching package: 'ggtree'

The following object is masked from 'package:ape':

    rotate
```

```
library(tidyverse)
```

```
-- Attaching core tidyverse packages ------------------------ tidyverse 2.0.0 --
v dplyr     1.1.4     v readr     2.1.5
v forcats   1.0.0     v stringr   1.5.1
v ggplot2   3.5.1     v tibble    3.2.1
v lubridate 1.9.3     v tidyr     1.3.1
v purrr     1.0.2

-- Conflicts ------------------------------------------ tidyverse_conflicts() --
x tidyr::expand() masks ggtree::expand()
x dplyr::filter() masks stats::filter()
x dplyr::lag()    masks stats::lag()
x purrr::map()    masks maps::map()
x dplyr::where()  masks ape::where()
i Use the conflicted package (<http://conflicted.r-lib.org/>) to force all conflicts to beco
```

```
library(aplot)
```

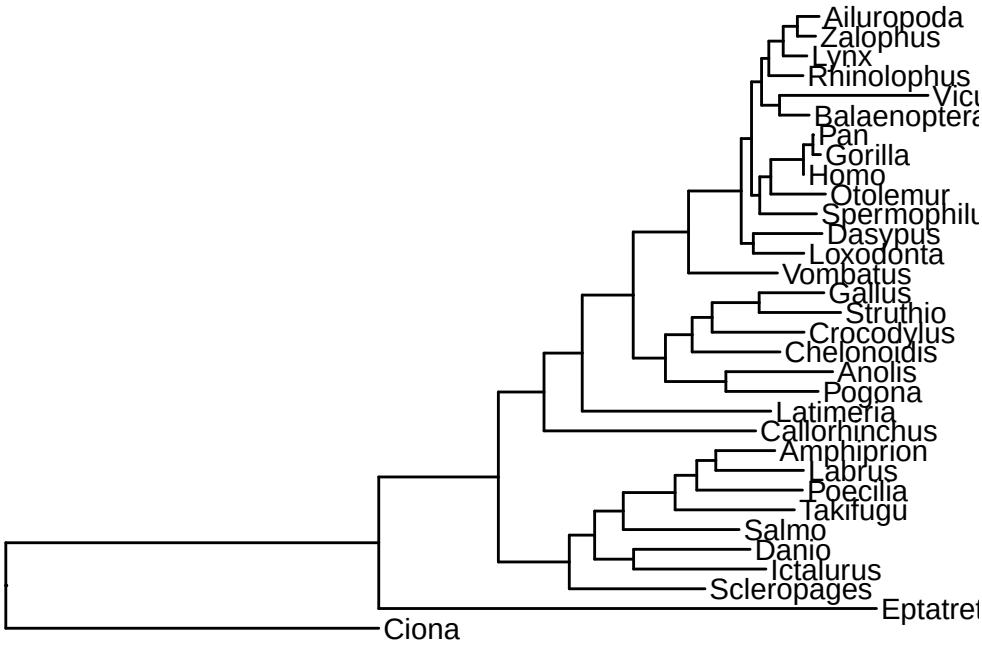
### Making the Tree

```
tr<-ladderize(read.nexus("Vert.tree.nex"))
tr$tip.label
```

```
 [1] "Ciona"         "Eptatretus"    "Scleropages"   "Ictalurus"
 [5] "Danio"         "Salmo"         "Takifugu"      "Poecilia"
 [9] "Labrus"        "Amphiprion"    "Callorhinchus" "Latimeria"
[13] "Pogona"        "Anolis"        "Chelonoidis"   "Crocodylus"
[17] "Struthio"      "Gallus"        "Vombatus"      "Loxodonta"
[21] "Dasypus"       "Balaenoptera"  "Vicugna"       "Rhinolophus"
[25] "Zalophus"      "Ailuropoda"    "Lynx"          "Otolemur"
[29] "Gorilla"       "Pan"           "Homo"          "Spermophilus"
```

```
tree<-root(tr, outgroup="Eptatretus")
tree<-tr

ggtree(tree)+
  geom_tiplab()
```


Ailuropoda
Zalophus
Lynx
Rhinolophus
Vicu
Balaenoptera
Pan
Gorilla
Homo
Otolemur
Spermophilu
Dasypus
Loxodonta
Vombatus
Gallus
Struthio
Crocodylus
Chelonoidis
Anolis
Pogona
Latimeria
Callorhinchus
Amphiprion
Labrus
Poecilia
Takifugu
Salmo
Danio
Ictalurus
Scleropages
Eptatret
Ciona