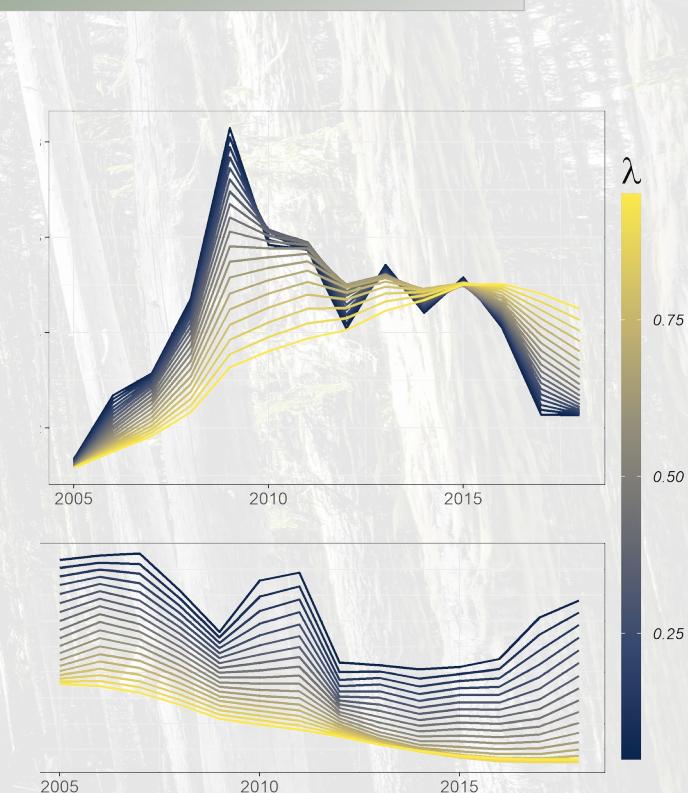
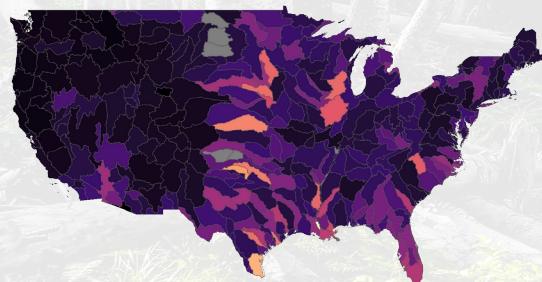
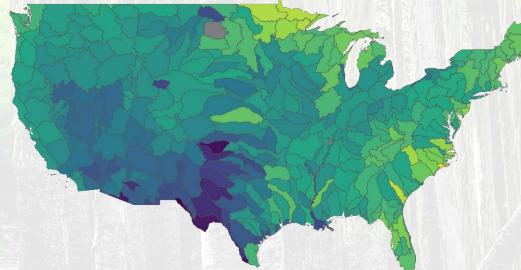


# rFIA: *Unlocking the FIADB in R*

---



# Curse of complexity

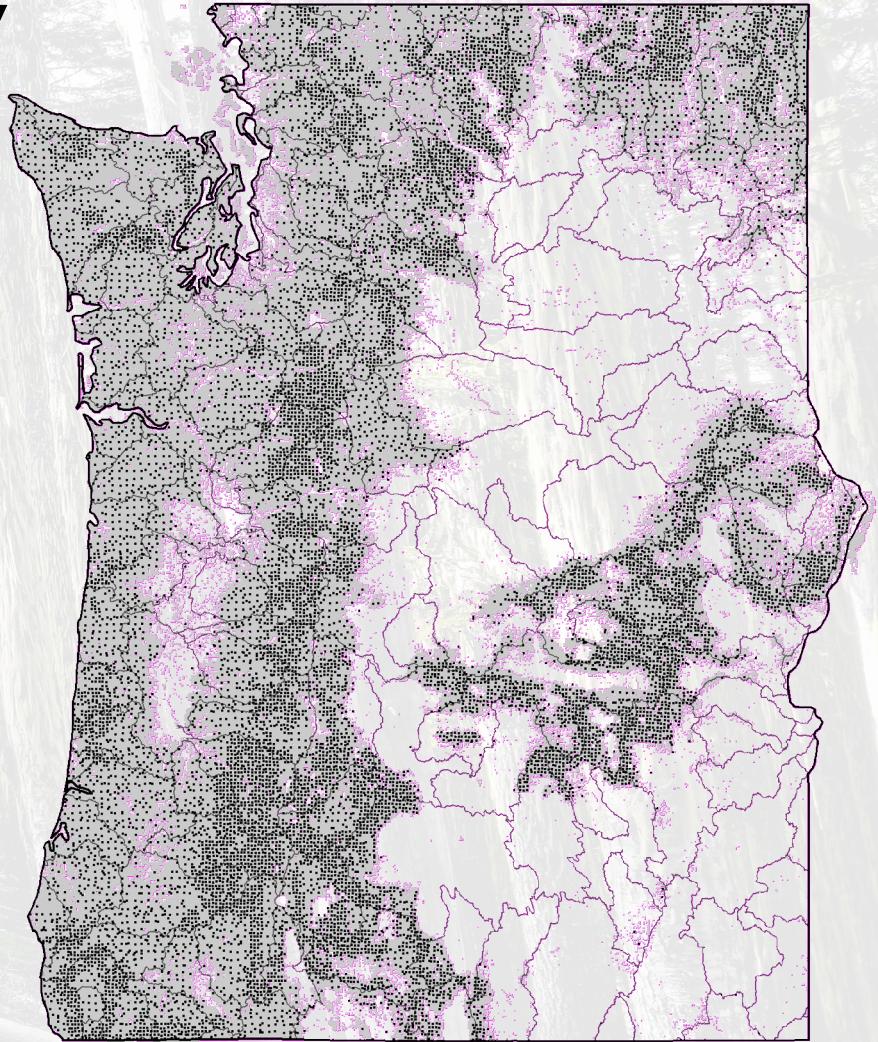
---



\$\$\$\$

# Curse of complexity

---



# Curse of complexity



```
end) non_zero_plots,  
grp_by_attrib  
from (SELECT SUM((COALESCE(TREE.TPA_UNADJ * CASE  
WHEN TREE.DIA IS NULL THEN  
POP_STRATUM.ADJ_FACTOR_SUBP  
ELSE  
CASE LEAST(TREE.DIA, 5 - 0.001)  
WHEN TREE.DIA THEN  
POP_STRATUM.ADJ_FACTOR_MICR  
ELSE  
CASE  
LEAST(TREE.DIA,  
COALESCE(PLOT.MACRO_BREAKPOINT_DIA,  
9999) - 0.001)  
WHEN TREE.DIA THEN  
POP_STRATUM.ADJ_FACTOR_SUBP  
ELSE  
POP_STRATUM.ADJ_FACTOR_MACR  
END  
END  
END,  
0))) AS y_hid_adjusted, -- edit to ref_pop_attribute.sql_query  
peu.cn estn_unit_cn, -- addition to ref_pop_attribute.sql_query  
pev.cn eval_cn, -- addition to ref_pop_attribute.sql_query  
pop_stratum.cn pop_stratum_cn, -- addition to  
-- ref_pop_attribute.sql_query  
plot.cn plt_cn, -- addition to ref_pop_attribute.sql_query  
&grp_by_attrib grp_by_attrib -- addition to ref_pop_attribute.sql_query  
FROM &FIADB_SCHEMA.POP_EVAL_GRP PEG  
JOIN &FIADB_SCHEMA.POP_EVAL_TYP PET  
ON (PET.EVAL_GRP_CN = PEG.CN)  
JOIN &FIADB_SCHEMA.POP_EVAL PEV  
ON (PEV.CN = PET.EVAL_CN)
```

# Curse of complexity



3.1.38	VOLCFNET	Net cubic-foot volume
3.1.39	VOLCFGRS	Gross cubic-foot volume
3.1.40	VOLCSNET	Net cubic-foot volume in the sawlog portion of a sawtimber tree
3.1.41	VOLCSGRS	Gross cubic-foot volume in the sawlog portion of a sawtimber tree
3.1.42	VOLBFNET	Net board-foot volume in the sawlog portion of a sawtimber tree
3.1.43	VOLBFRGS	Gross board-foot volume in the sawlog portion of a sawtimber tree
3.1.44	VOLFSND	Sound cubic-foot volume
3.1.45	GROWCFGS	Net annual merchantable cubic-foot growth of a growing-stock tree on timberland
3.1.46	GROWBFSL	Net annual merchantable board-foot growth of a sawtimber tree on timberland
3.1.47	GROWCFAL	Net annual sound cubic-foot growth of a live tree on timberland
3.1.48	MORTCFGS	Merchantable cubic-foot volume of a growing-stock tree for mortality purposes on timberland
3.1.49	MORTBFSL	Merchantable board-foot volume of a sawtimber tree for mortality purposes on timberland
3.1.50	MORTCFAL	Sound cubic-foot volume of a tree for mortality purposes on timberland
3.1.51	REMVCFGS	Merchantable cubic-foot volume of a growing-stock tree for removal

# Curse of complexity

---



# What is rFIA?

---

- Open source R package
  - *install.packages("rFIA")*
- Easy to use, but extremely powerful



# What is rFIA?

---

- Open source R package
  - *install.packages("rFIA")*
- Easy to use, but extremely powerful
- **Original goal:** Provide a highly flexible implementation of FIA's **post-stratified estimators**



# What does rFIA offer?

---

## Traditional Design-based

- Consistent w/ EVALIDator
- Enhanced spatial and temporal estimation capacity
- Flexible selection of domains/ conditions of interest
- “Temporally- Indifferent” alternatives

# **What does rFIA offer?**

---

## **Traditional Design-based**

- Consistent w/ EVALIDator
- Enhanced spatial and temporal estimation capacity
- Flexible selection of domains/ conditions of interest
- “Temporally- Indifferent” alternatives

## **Model-based, assisted**

- Plot, subplot, condition, tree-level summaries for 60+ forest variables
- Optionally return design information for use in modeling
- Aimed at specific inference for now

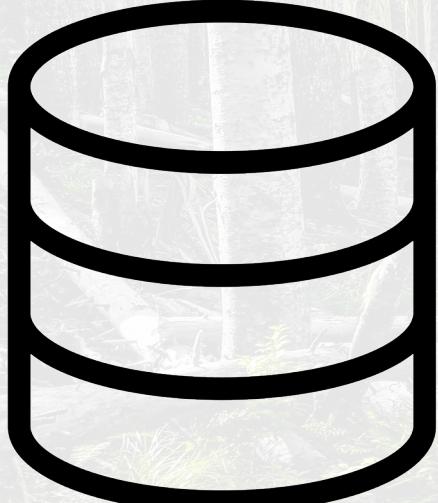
# rFIA Basics

---

```
fl = getFIA("FL")
```

```
fl = readFIA("/data/")
```

**Raw data**

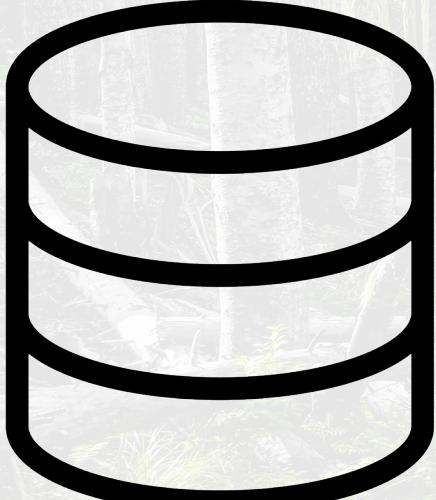


# rFIA Basics

```
fl = getFIA("FL")
```

```
fl = readFIA("/data/")
```

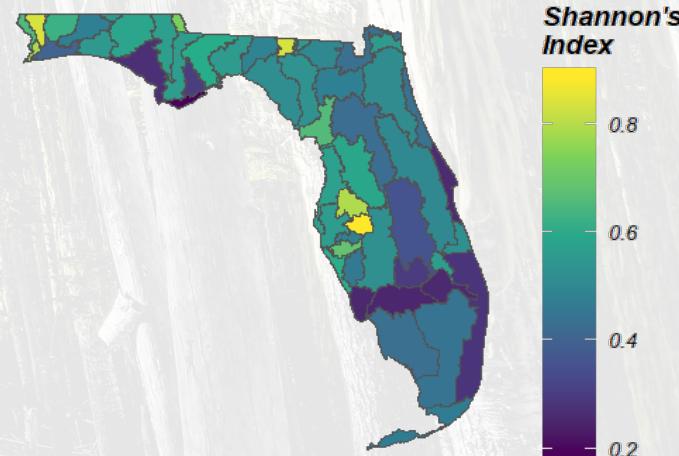
**Raw data**



*diversity(fl)*

*diversity(fl, polys=huc)*

**Population estimates**

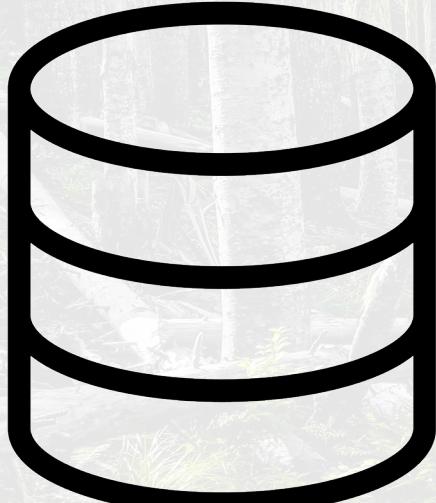


# rFIA Basics

```
fl = getFIA("FL")
```

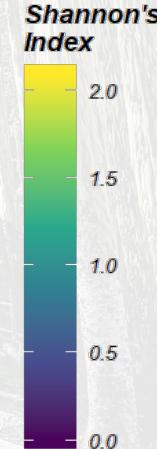
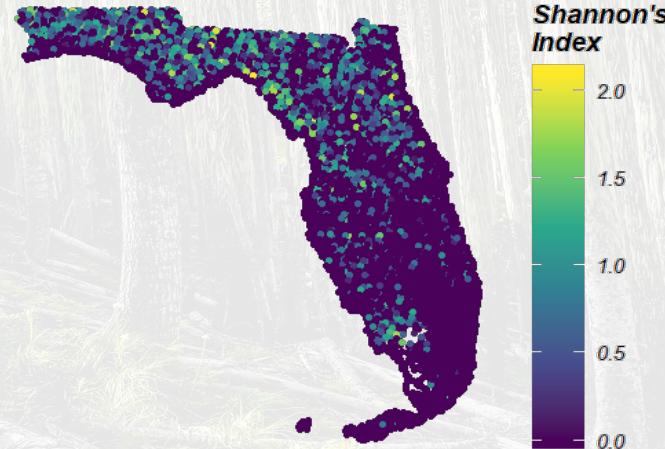
```
fl = readFIA("/data/")
```

## Raw data

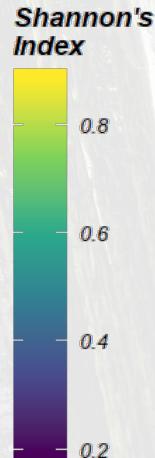
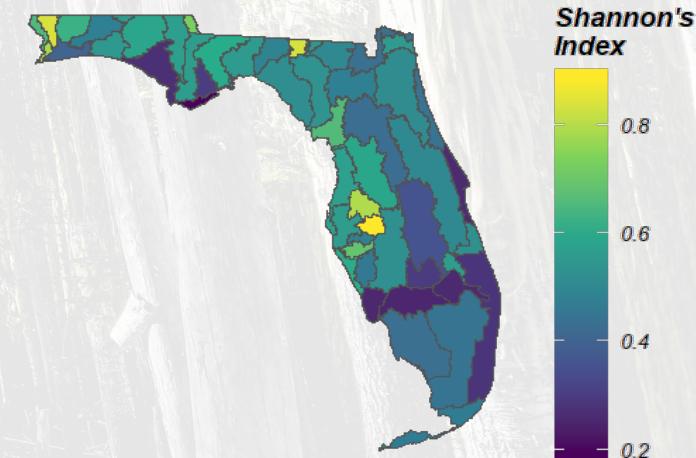


```
diversity(fl, byPlot=T)
```

## Plot-level summaries



## Population estimates



# rFIA Basics

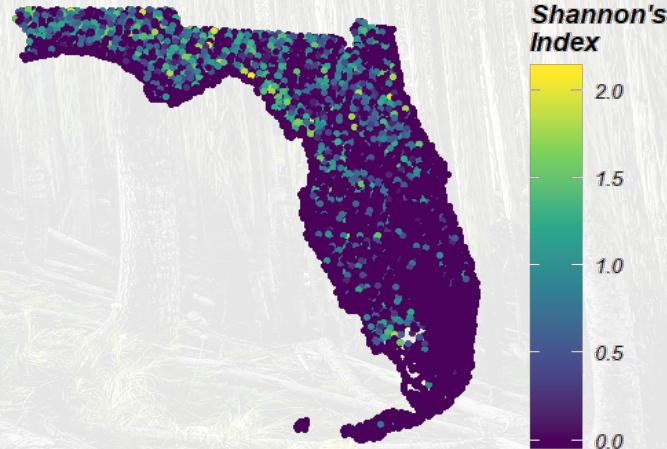


## Model-Assisted

- ◆ “mase”
- ◆ “forestinventory”
- ◆ “maSAE”
- ◆ *DIY*

*diversity(fL, byPlot=T)*

## **Plot-level summaries**



## Model-Based

- ◆ “sae”
- ◆ “JoSae”
- ◆ “yalimpute”
- ◆ *DIY*