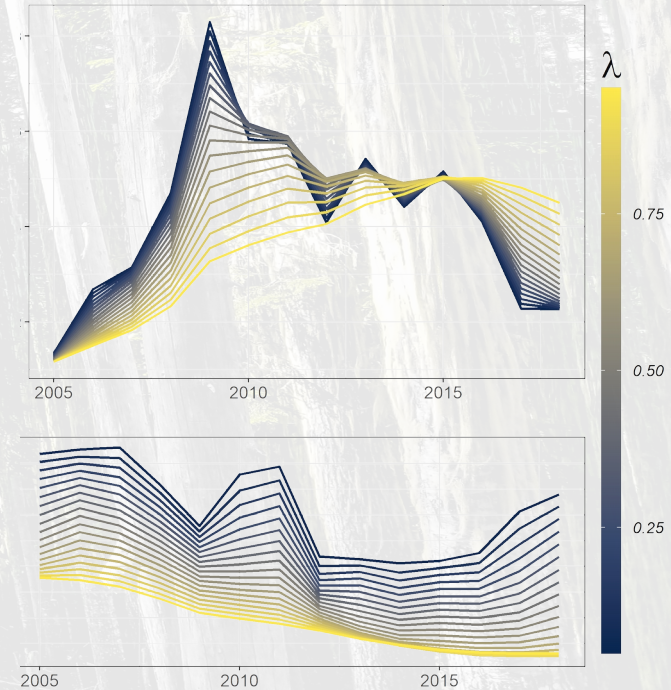
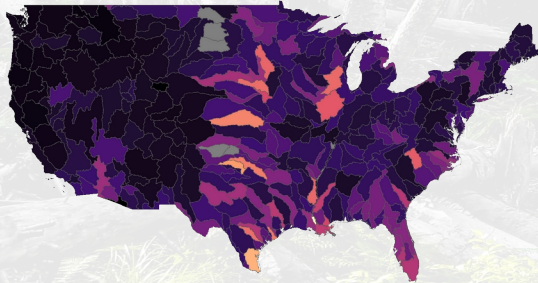
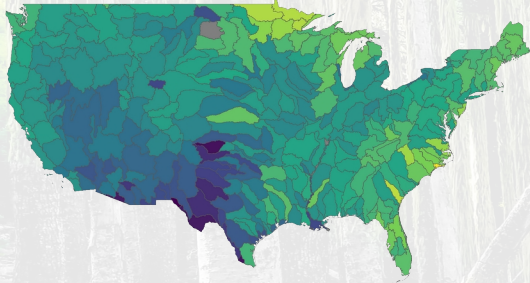
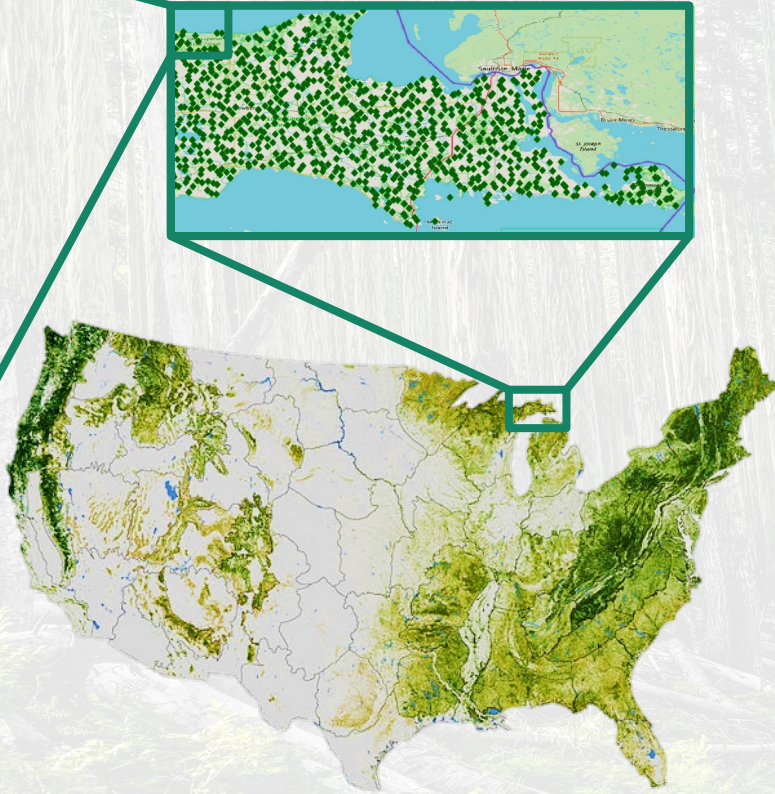


rFIA: *Unlocking the FIADB in R*

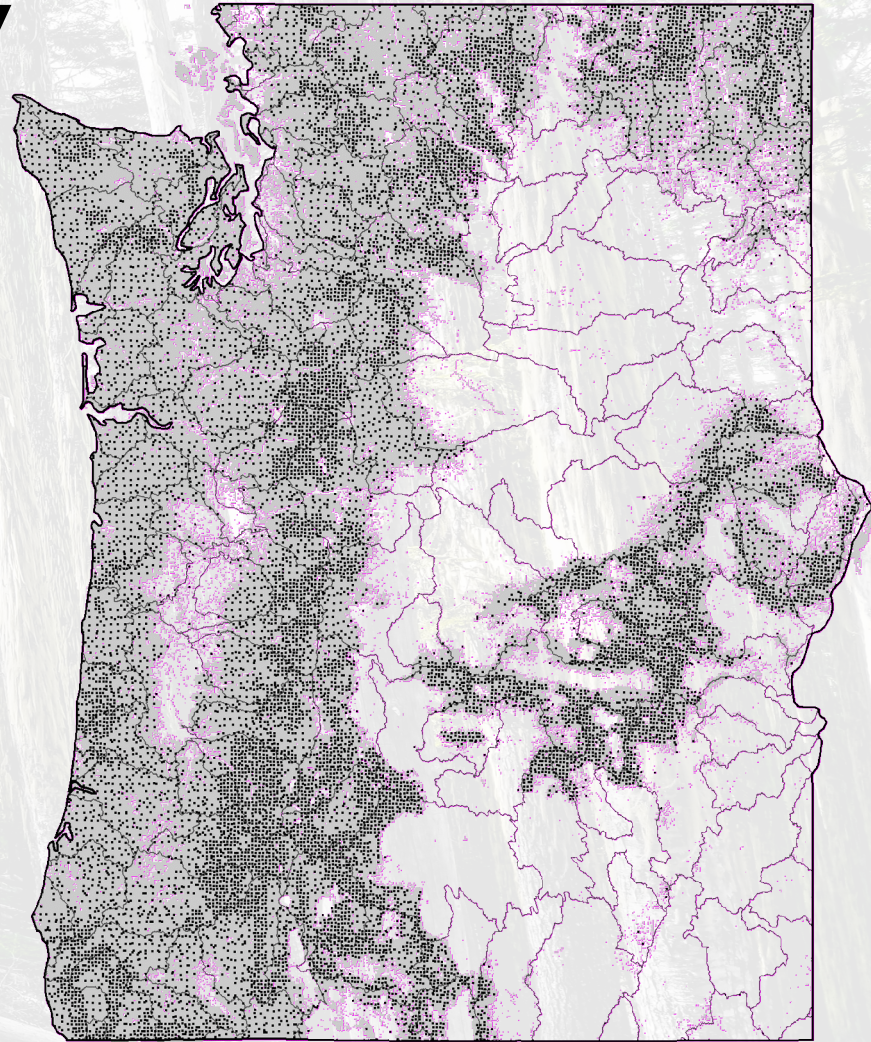


Curse of complexity



\$\$\$

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	VOLBFGRS	Gross board-foot volume in the sawlog portion of a sawtimber tree
3.1.44	VOLCFSND	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
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- “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/")
```

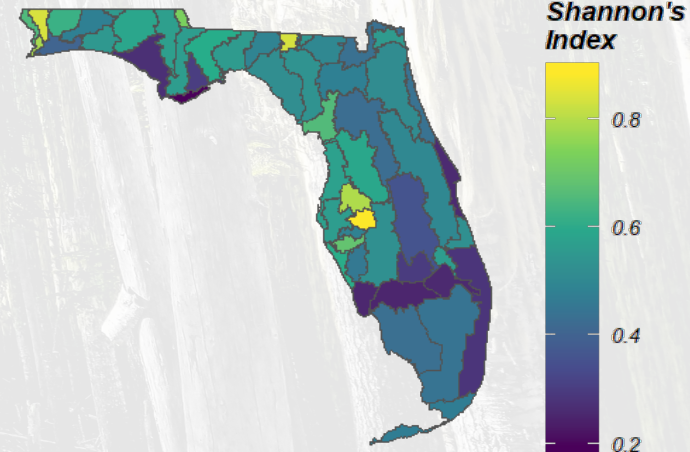
```
diversity(fl)
```

```
diversity(fl, polys=huc)
```

Raw data



Population estimates



rFIA Basics

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

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

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

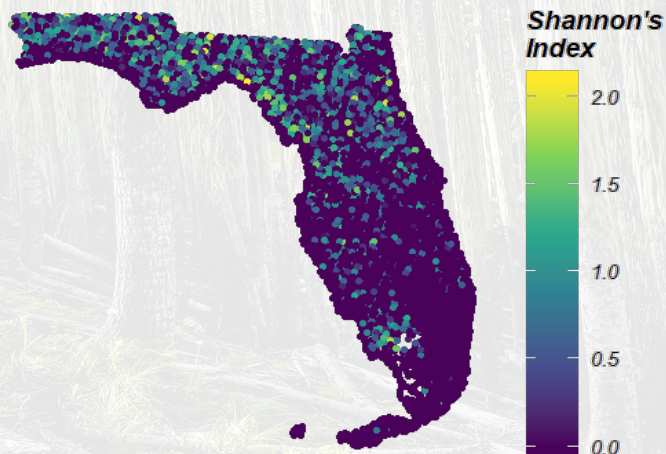
```
diversity(fl)
```

```
diversity(fl, polys=huc)
```

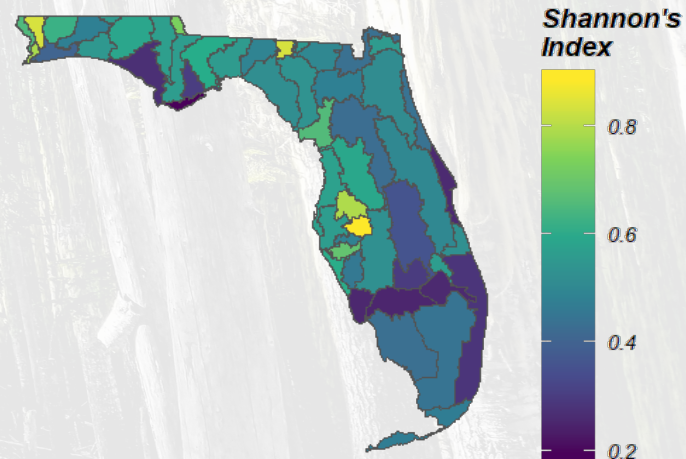
Raw data



Plot-level summaries



Population estimates



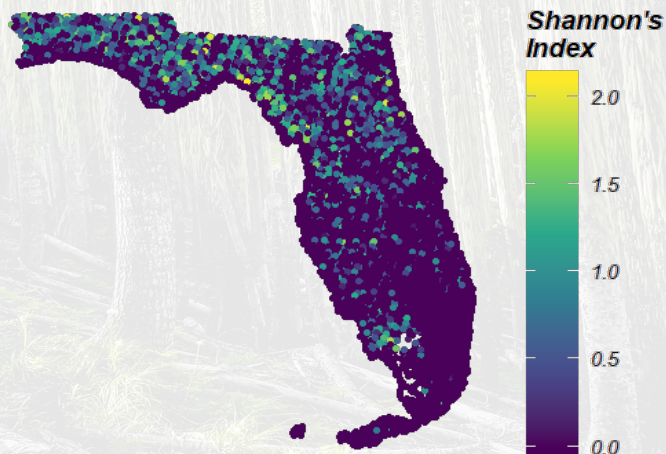
rFLA Basics

diversity(fl, byPlot=T)

Model-Assisted

- ♦ “mase”
- ♦ “forestinventory”
- ♦ “maSAE”
- ♦ DIY

Plot-level summaries



Model-Based

- ♦ “sae”
- ♦ “JoSae”
- ♦ “yalmpute”
- ♦ DIY