Supplemental figures for:

Frank, Jereme; Weiskittel, Aaron; Walker, David; Westfall, James A.; Radtke, Philip J.; Affleck, David L.R.; Coulston, John; MacFarlane, David W. 2018. **Gaps in available data for modeling tree biomass in the United States.** Gen. Tech. Rep. NRS-184. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station. 57 p. https://doi.org/10.2737/NRS-GTR-184.

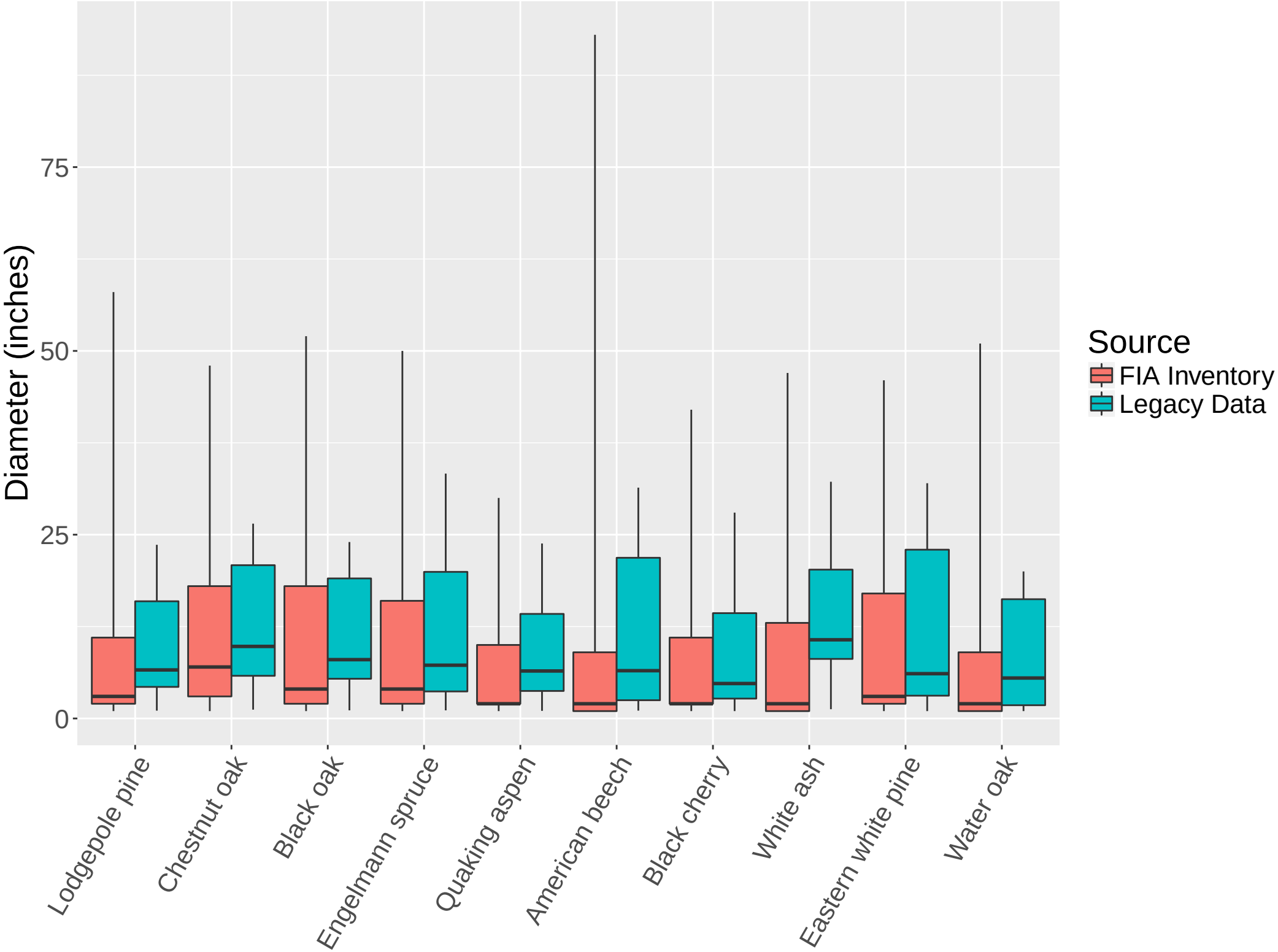
Click on bookmarks to the left or links below to access supplemental figures:

Figure S2.—Boxplots showing the diameter distributions of forest land trees in the FIA database compared to trees in the legacy tree database.

Figure S3.—Tree frequency by diameter class in the FIA and legacy tree databases.

Figure S4.—Known biomass study locations and maximum number of trees sampled across the United States plotted over biomass per acre as estimated from the FIA database.

Figure S2.—Boxplots showing the diameter distributions of forest land trees in the FIA database compared to trees in the legacy tree database. The 25th and 95th quantiles are represented by the bottom and top of the box, respectively, and maximum and minimum values are represented by the top and bottom of the lines, respectively. The line that dissects the box marks the median value. Separate graphs are shown for species ranked 11-20 and 21-30 in total biomass in the FIA database.


Diameter (inches)
75
50
25
0
Lodgepole pine
Chestnut oak
Black oak
Engelmann spruce
Quaking aspen
American beech
Black cherry
White ash
Eastern white pine
Water oak
Source
FIA Inventory
Legacy Data

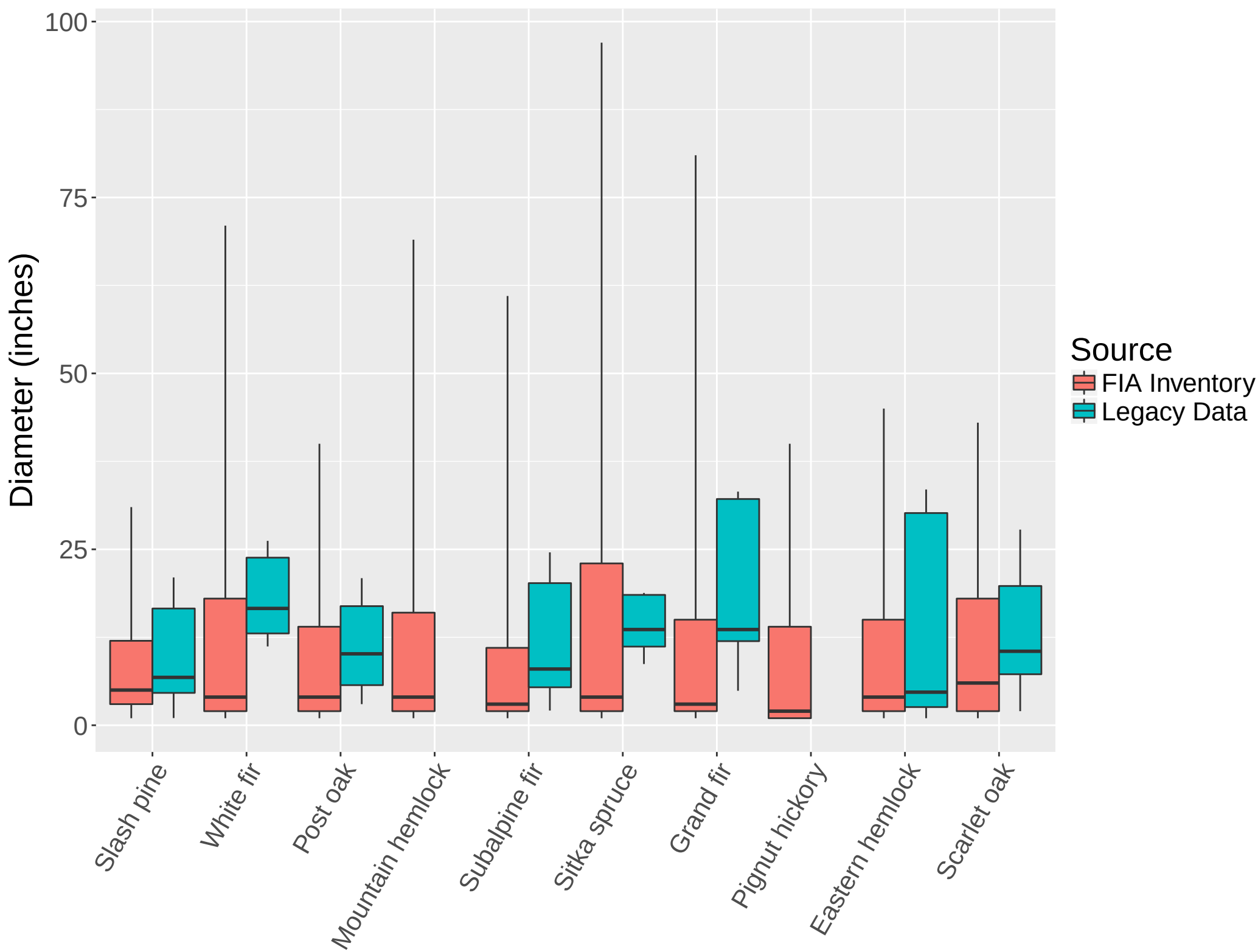
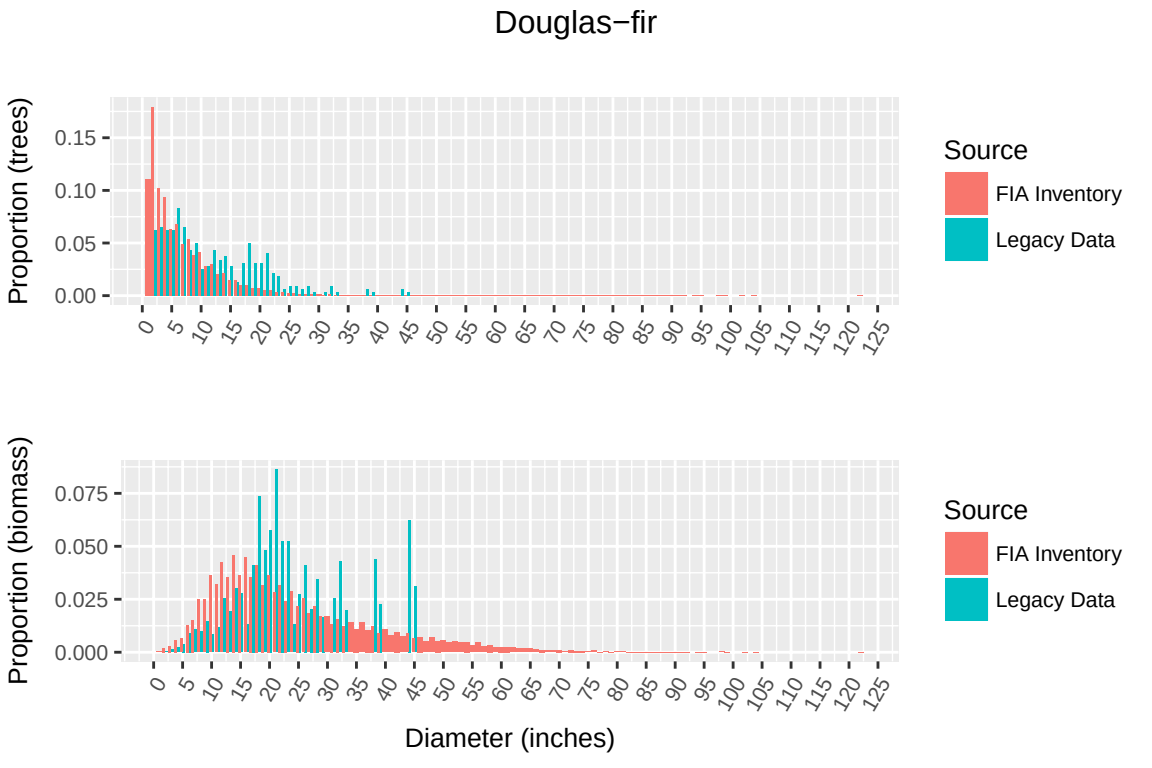
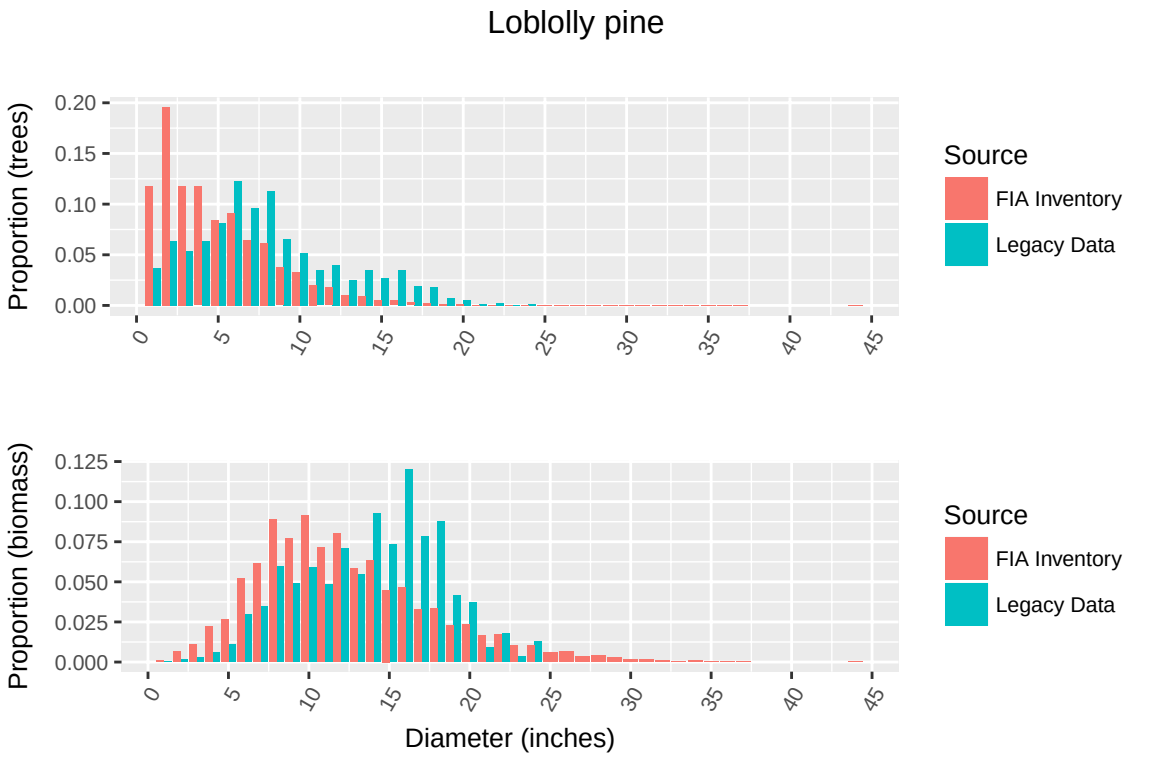
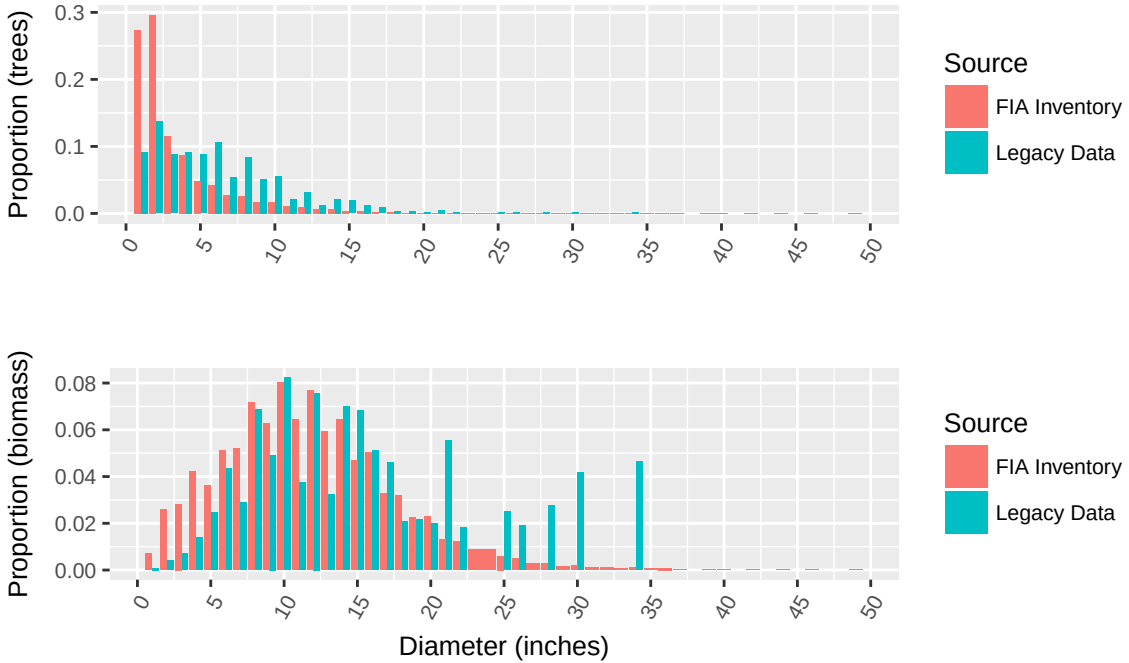

Diameter (inches)
100
75
50
25
0
Slash pine
White fir
Post oak
Mountain hemlock
Subalpine fir
Sitka spruce
Grand fir
Pignut hickory
Eastern hemlock
Scarlet oak
Source
FIA Inventory
Legacy Data

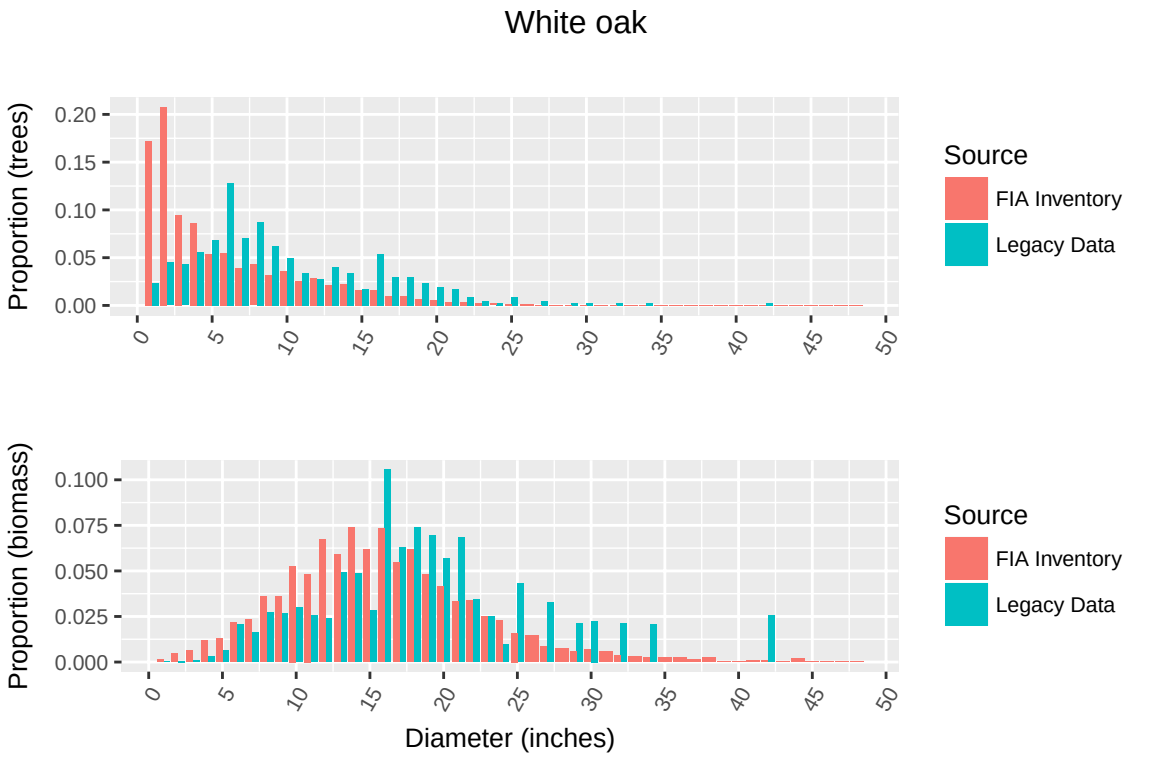
Figure S3.—Tree frequency by diameter class in the FIA and legacy tree databases (top panels) and the proportion of biomass by diameter in the FIA and legacy tree databases (bottom panels). Individual graphs are shown on the follow pages for the 30 species with the most biomass in the FIA database.

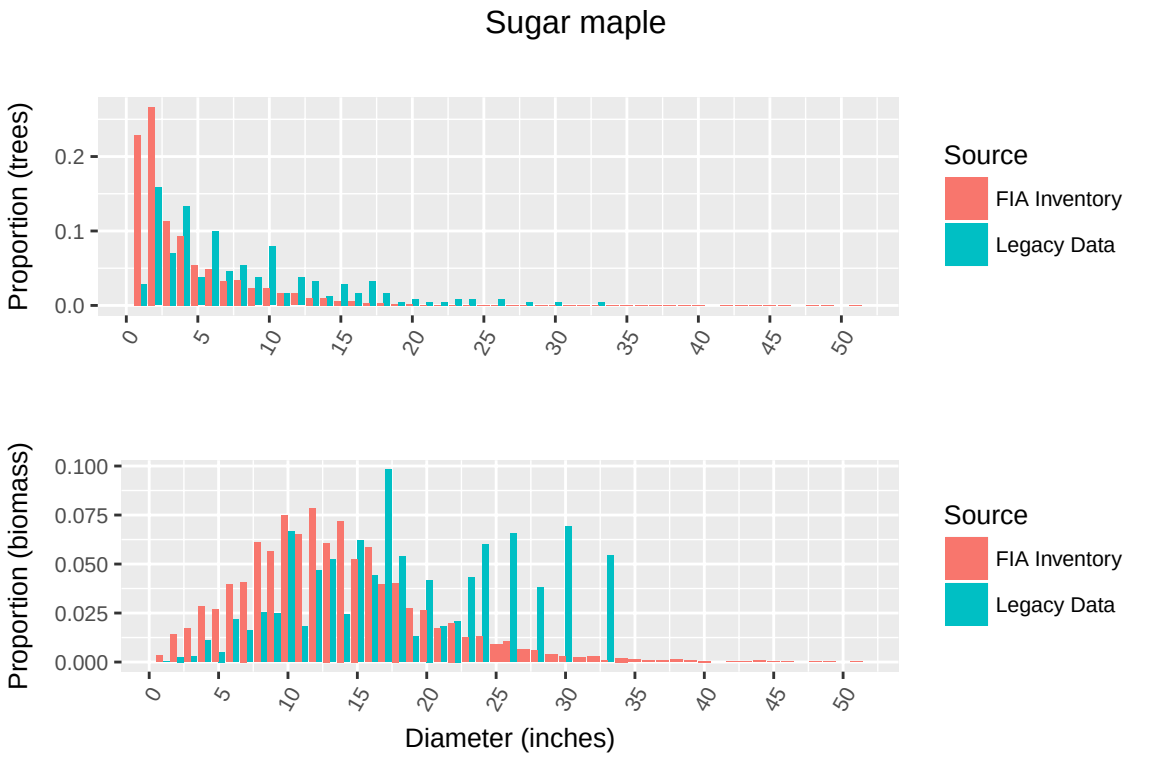

Douglas−fir
Proportion (trees)
0.15
0.10
0.05
0.00
0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120 125
Source
FIA Inventory
Legacy Data
Proportion (biomass)
0.075
0.050
0.025
0.000
0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105 110 115 120 125
Source
FIA Inventory
Legacy Data
Diameter (inches)


Loblolly pine
Proportion (trees)
0.20
0.15
0.10
0.05
0.00
0
5
10
15
20
25
30
35
40
45
Source
FIA Inventory
Legacy Data
Proportion (biomass)
0.125
0.100
0.075
0.050
0.025
0.000
Diameter (inches)

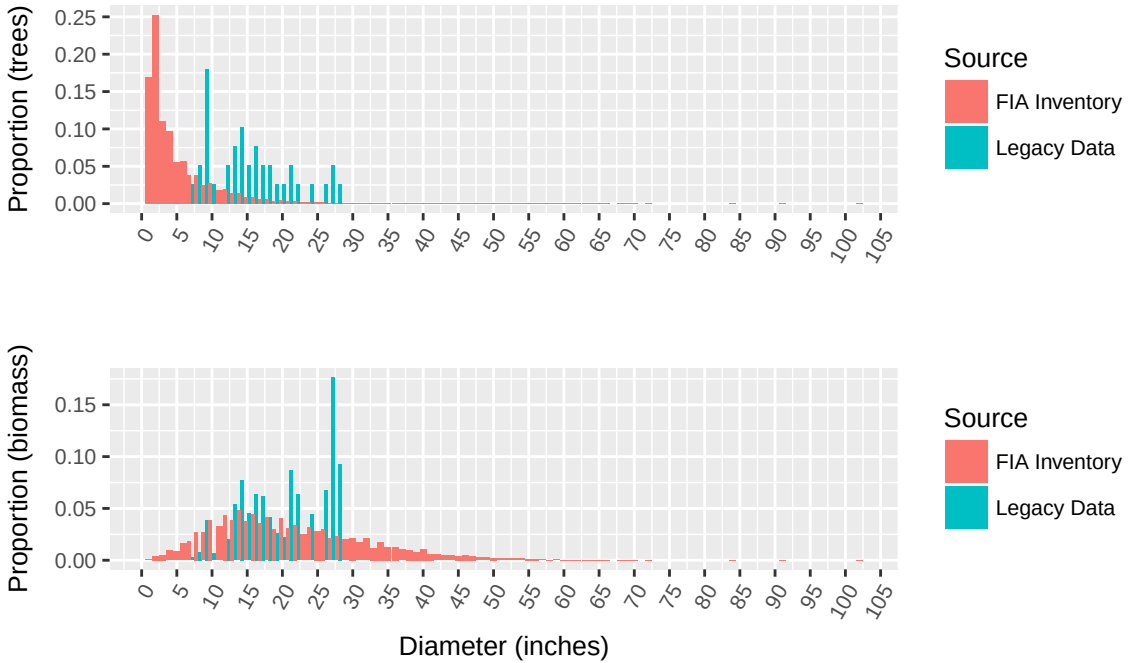
Red maple


Proportion (trees)
0.3
0.2
0.1
0.0
0
5
10
15
20
25
30
35
40
45
50
Source
FIA Inventory
Legacy Data
Proportion (biomass)
0.08
0.06
0.04
0.02
0.00
Diameter (inches)

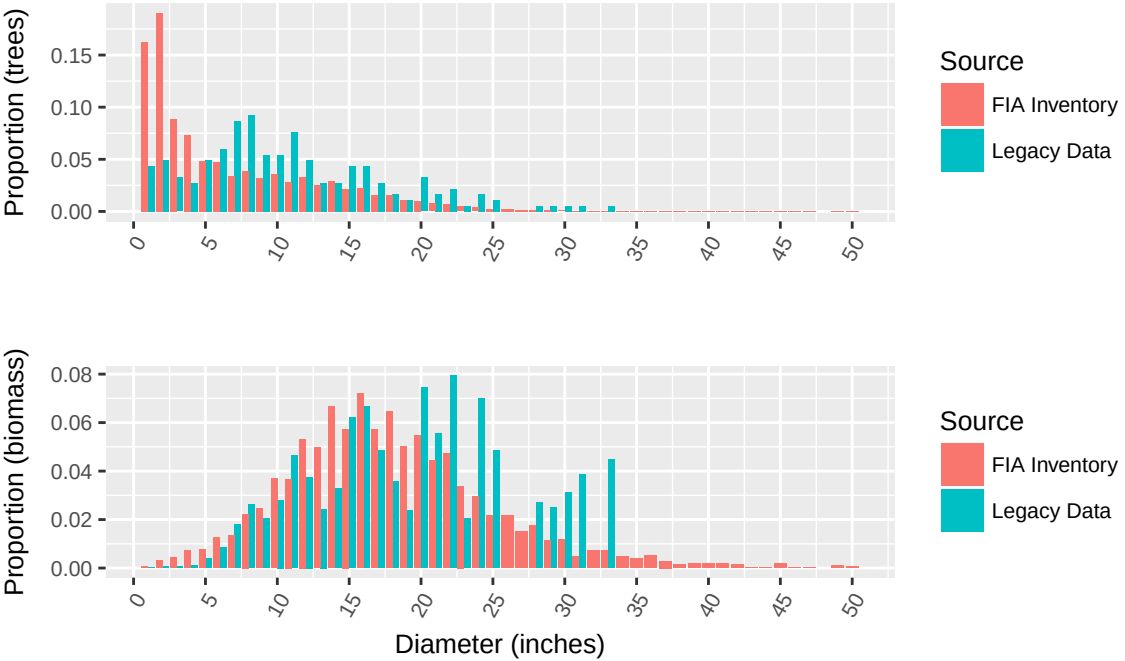

White oak
Proportion (trees)
0.20
0.15
0.10
0.05
0.00
0
5
10
15
20
25
30
35
40
45
50
Source
FIA Inventory
Legacy Data
Proportion (biomass)
0.100
0.075
0.050
0.025
0.000
Diameter (inches)

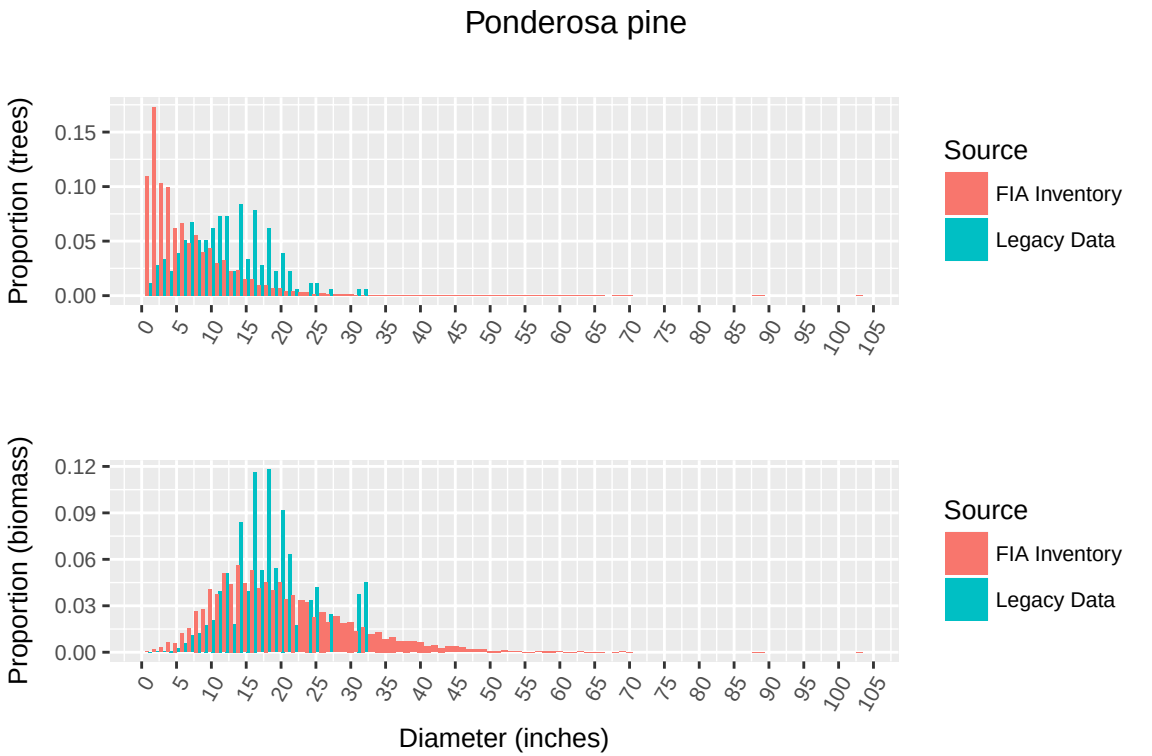

Sugar maple
Proportion (trees)
0.2
0.1
0.0
0
5
10
15
20
25
30
35
40
45
50
Source
FIA Inventory
Legacy Data
Proportion (biomass)
0.100
0.075
0.050
0.025
0.000
Diameter (inches)

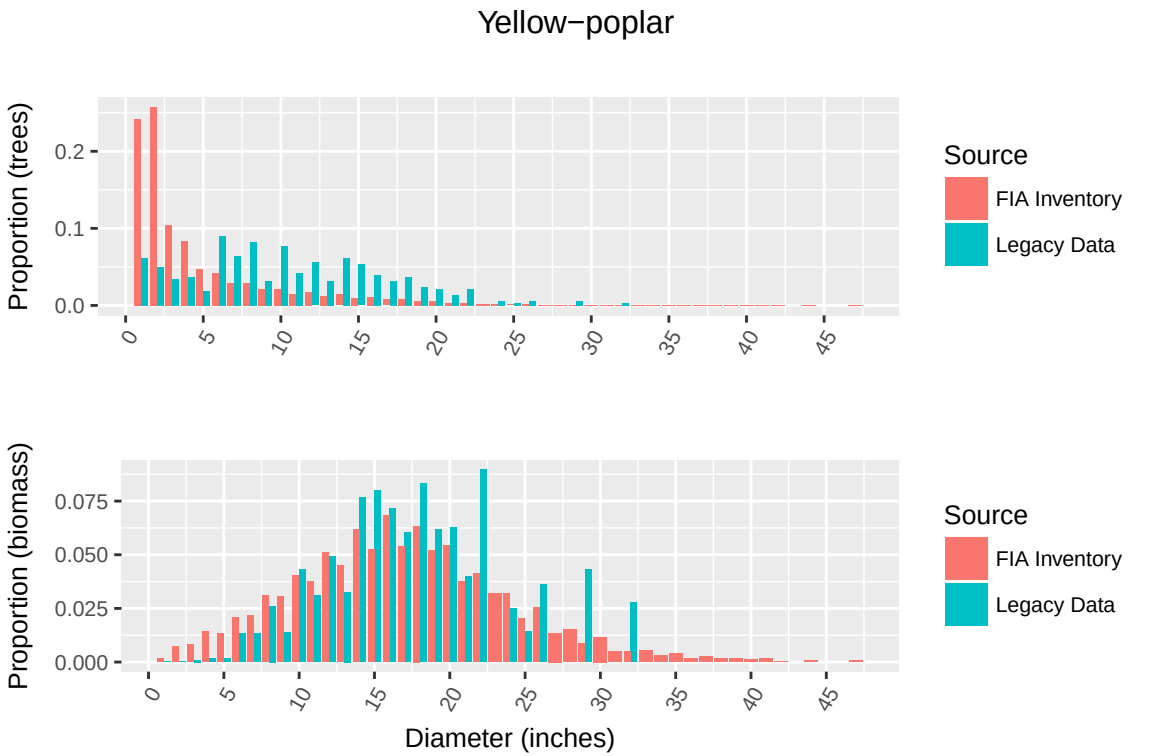
Western hemlock

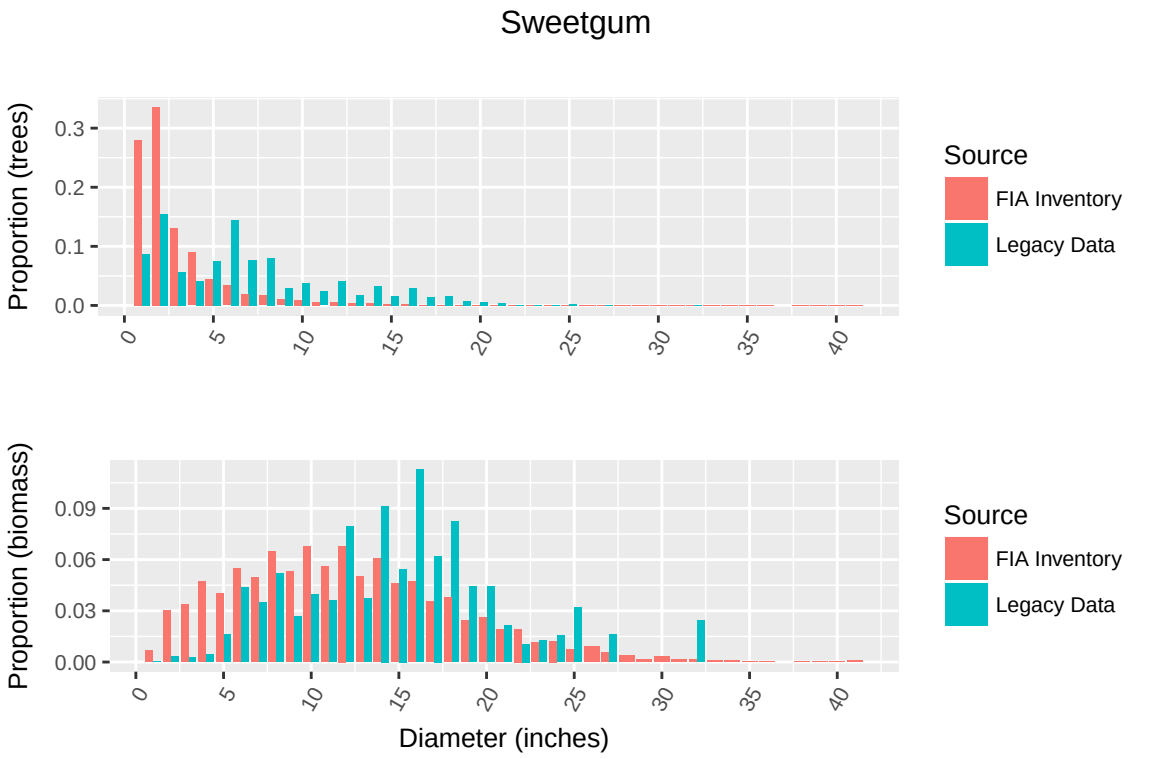


Northern red oak

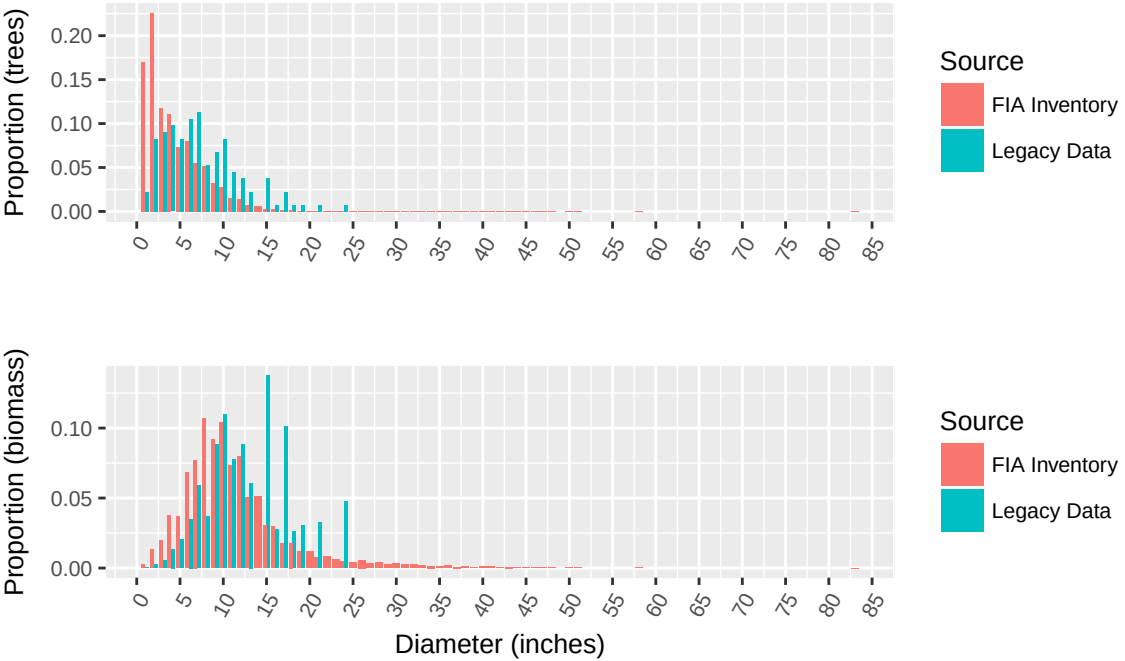



Ponderosa pine
Proportion (trees)
0.15
0.10
0.05
0.00
0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105
Source
FIA Inventory
Legacy Data
Proportion (biomass)
0.12
0.09
0.06
0.03
0.00
0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 105
Source
FIA Inventory
Legacy Data
Diameter (inches)

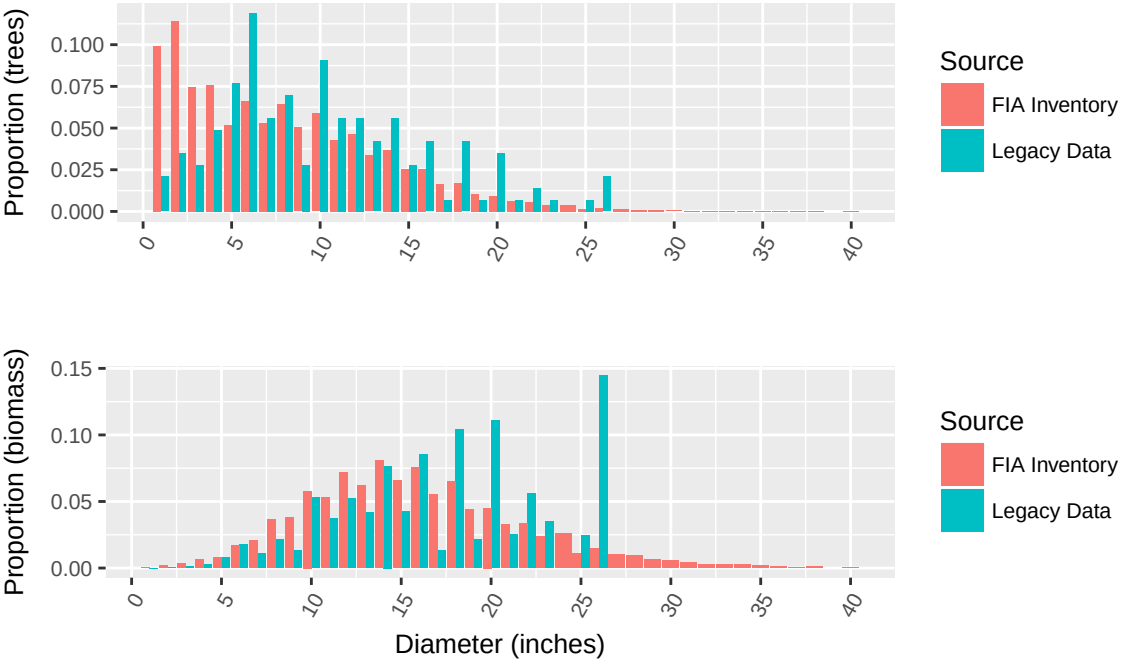

Yellow−poplar
Proportion (trees)
0.2
0.1
0.0
0
5
10
15
20
25
30
35
40
45
Source
FIA Inventory
Legacy Data
Proportion (biomass)
0.075
0.050
0.025
0.000
0
5
10
15
20
25
30
35
40
45
Diameter (inches)
Source
FIA Inventory
Legacy Data


Sweetgum
Proportion (trees)
0.3
0.2
0.1
0.0
0
5
10
15
20
25
30
35
40
Source
FIA Inventory
Legacy Data
Proportion (biomass)
0.09
0.06
0.03
0.00
Diameter (inches)

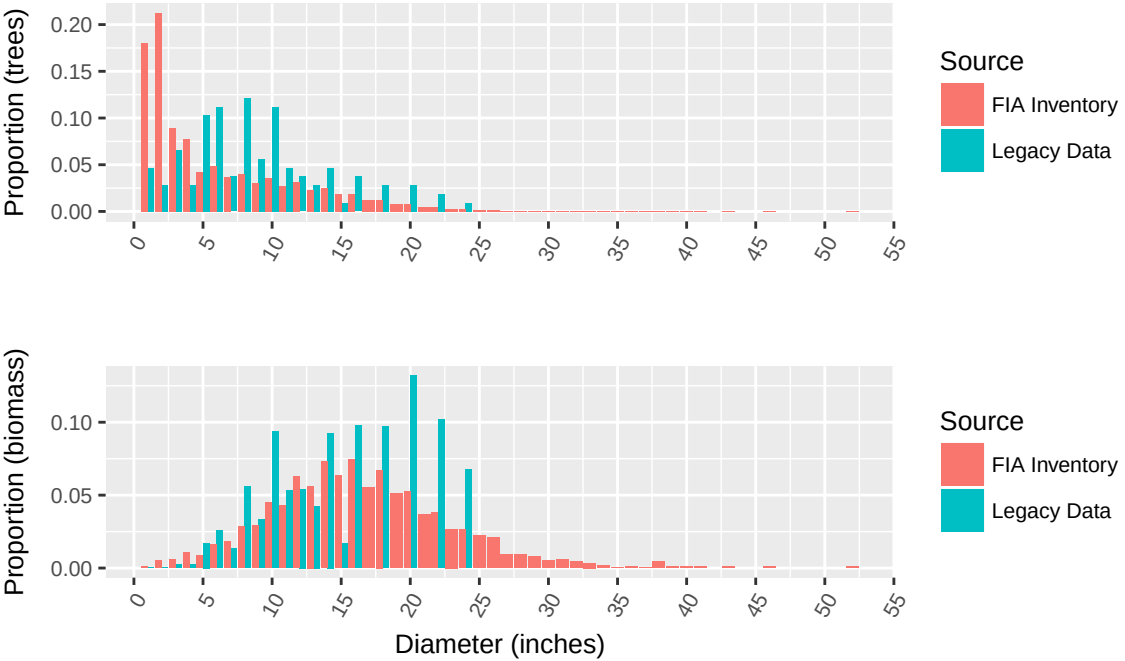
Lodgepole pine



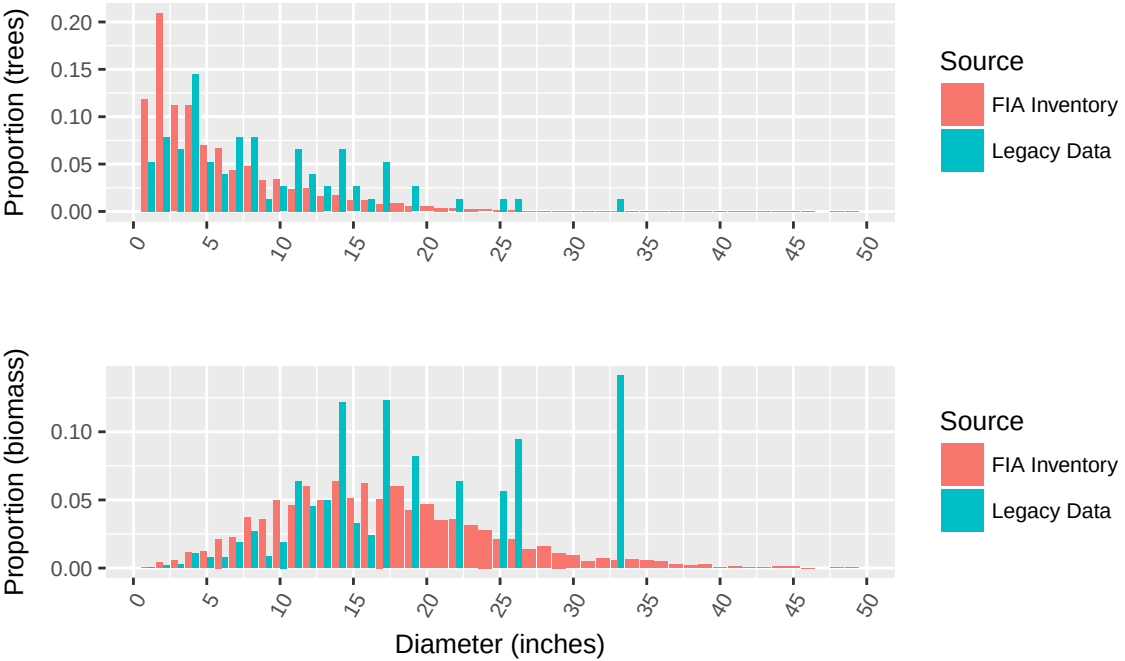
Chestnut oak



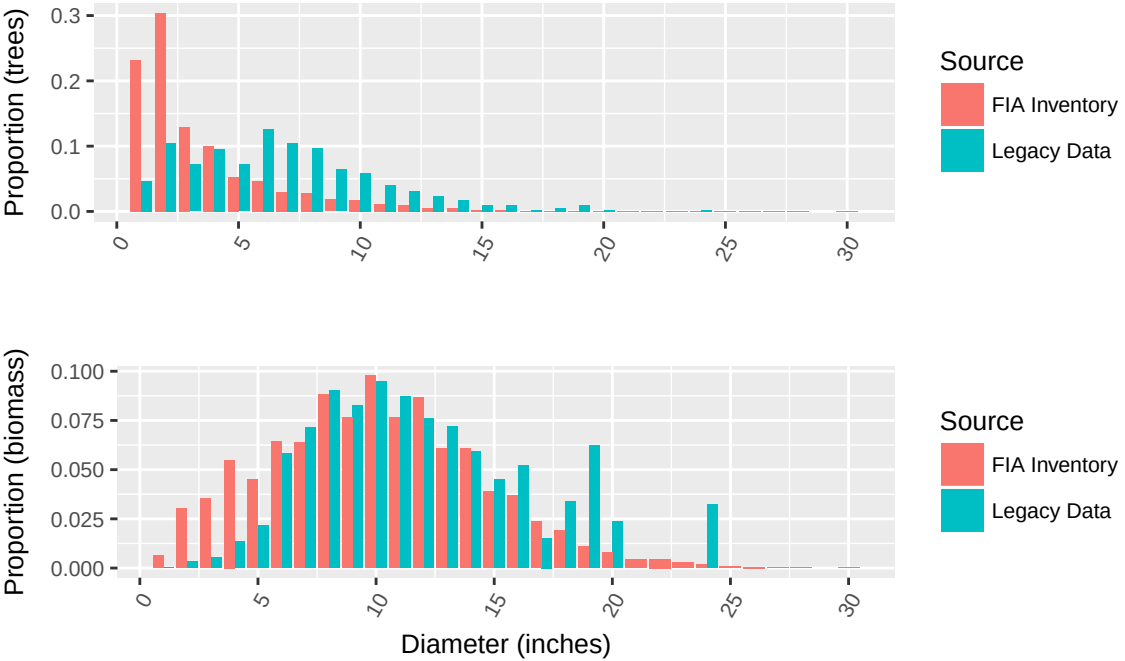
Black oak


Proportion (trees)
0.20
0.15
0.10
0.05
0.00
0
5
10
15
20
25
30
35
40
45
50
55
Source
FIA Inventory
Legacy Data
Proportion (biomass)
0.10
0.05
0.00
0
5
10
15
20
25
30
35
40
45
50
55
Diameter (inches)
Source
FIA Inventory
Legacy Data

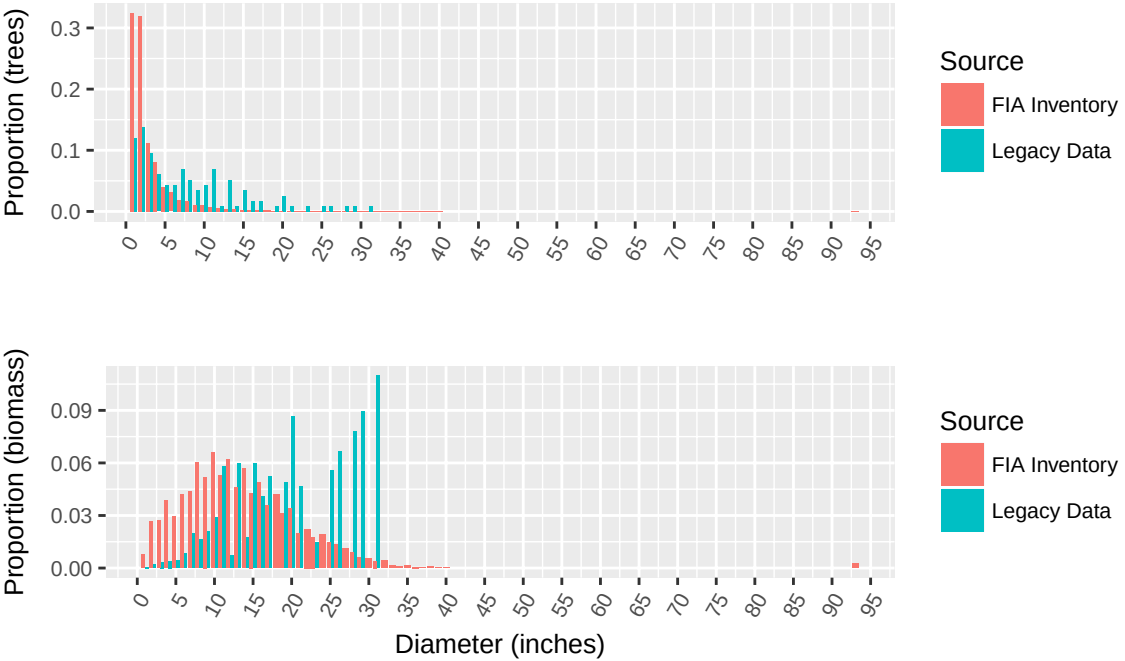
Engelmann spruce



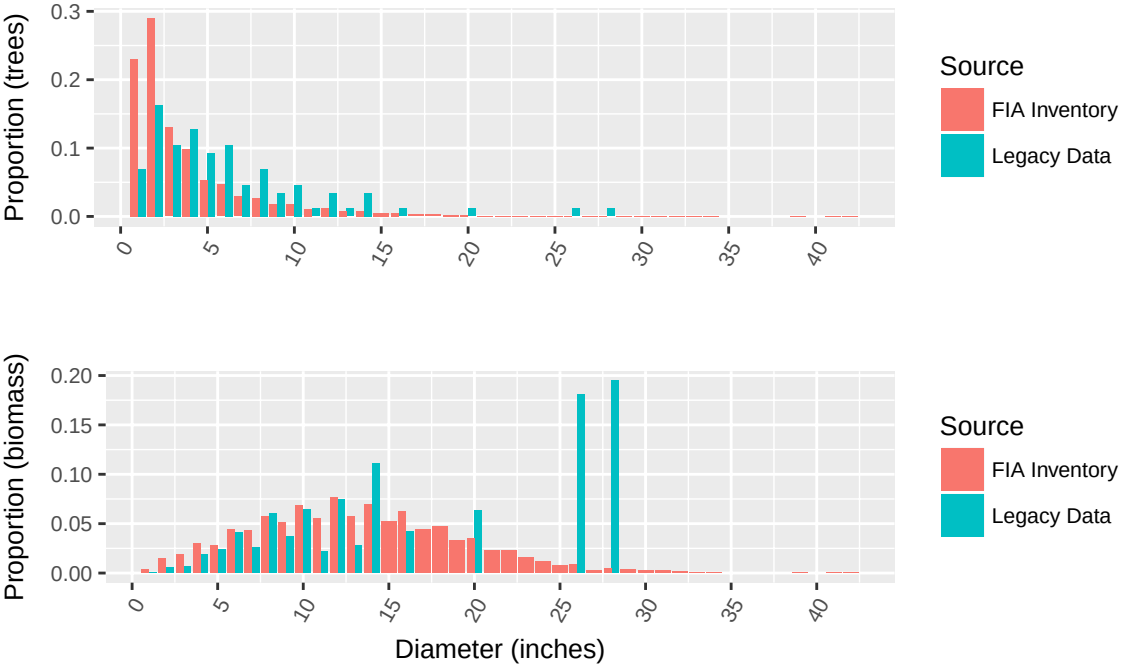
Quaking aspen



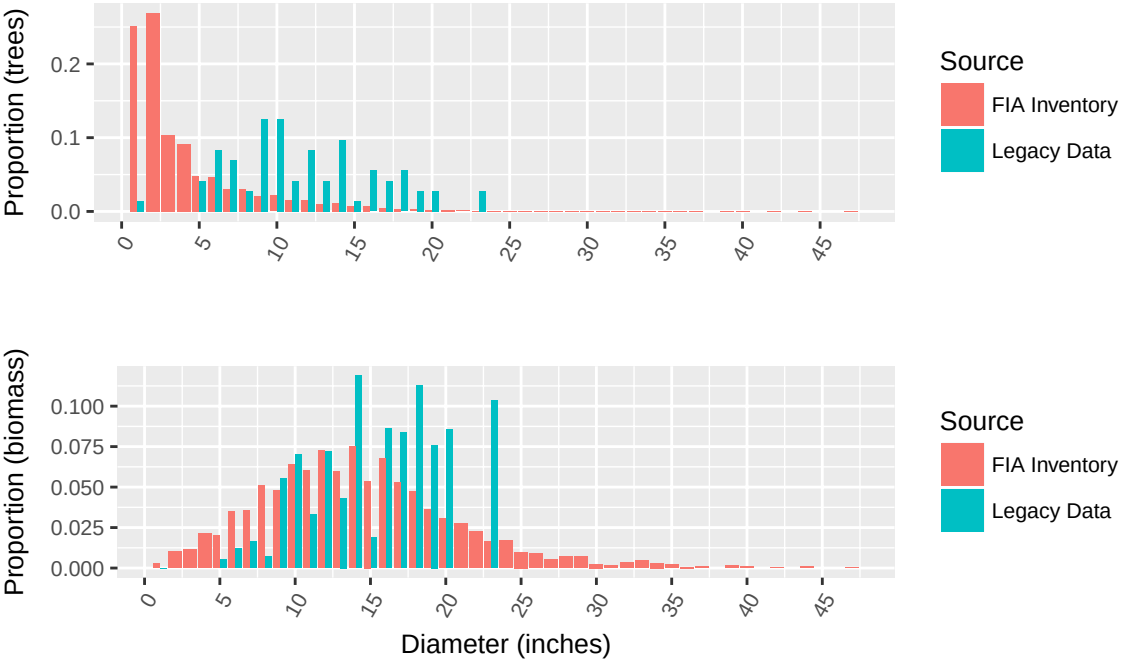
American beech



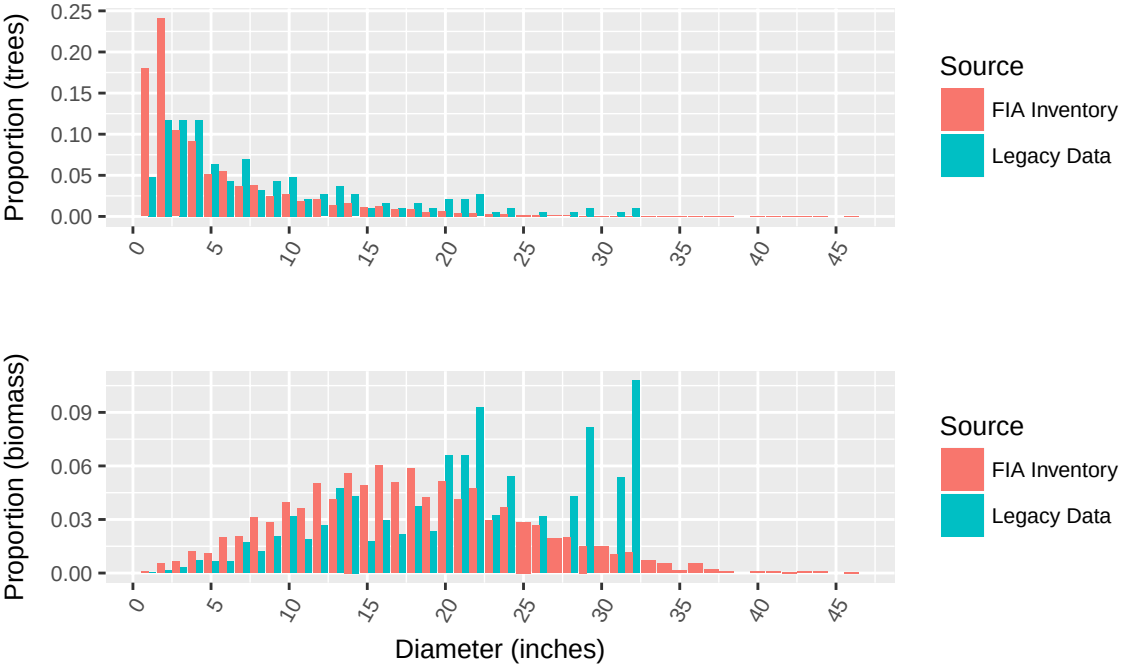
Black cherry



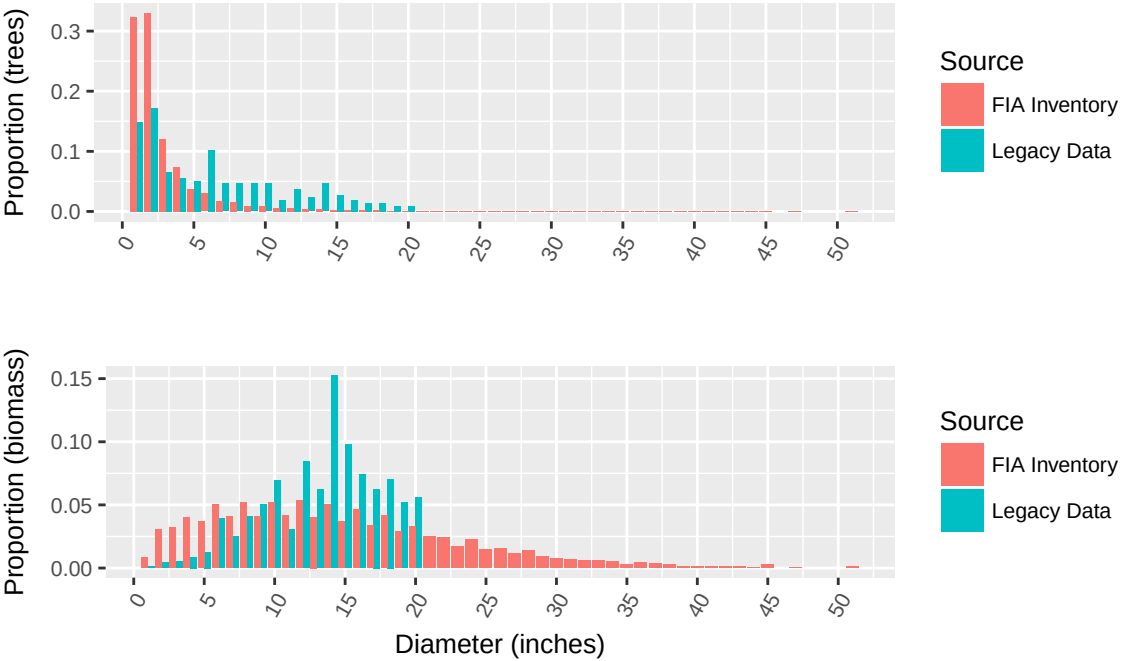
White ash

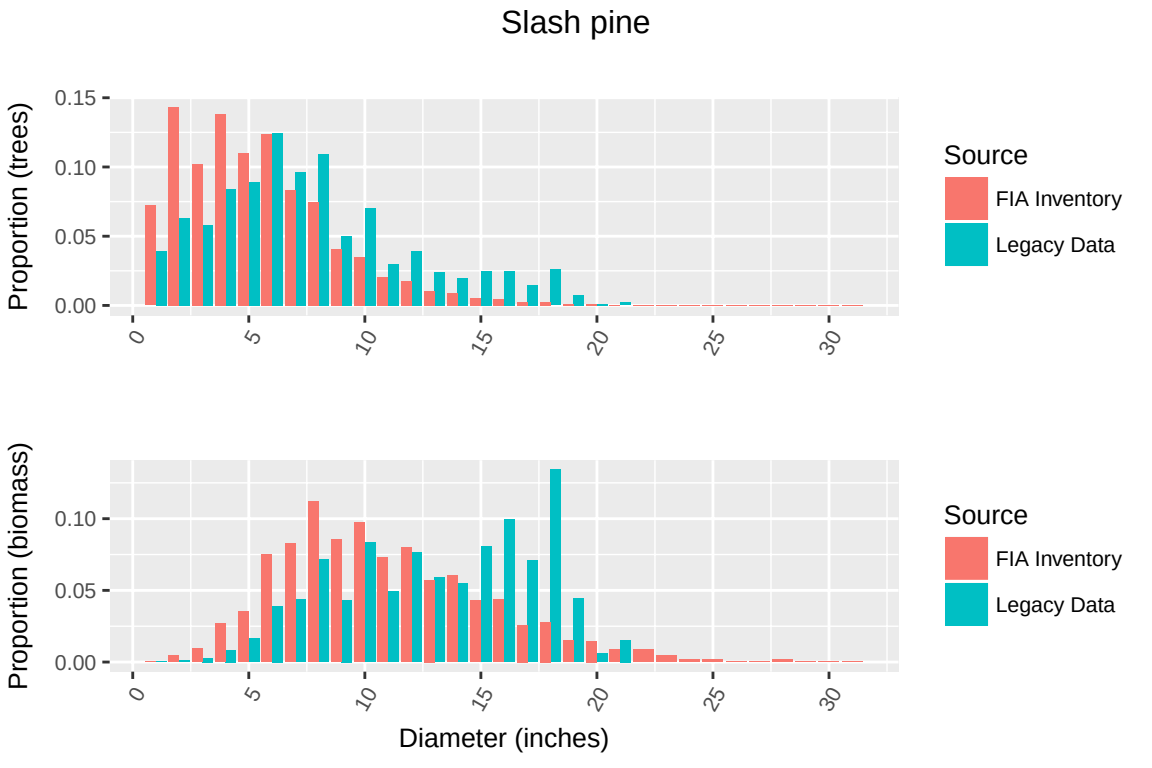

Proportion (trees)
0.2
0.1
0.0
0
5
10
15
20
25
30
35
40
45
Source
FIA Inventory
Legacy Data
Proportion (biomass)
0.100
0.075
0.050
0.025
0.000
0
5
10
15
20
25
30
35
40
45
Diameter (inches)
Source
FIA Inventory
Legacy Data

Eastern white pine

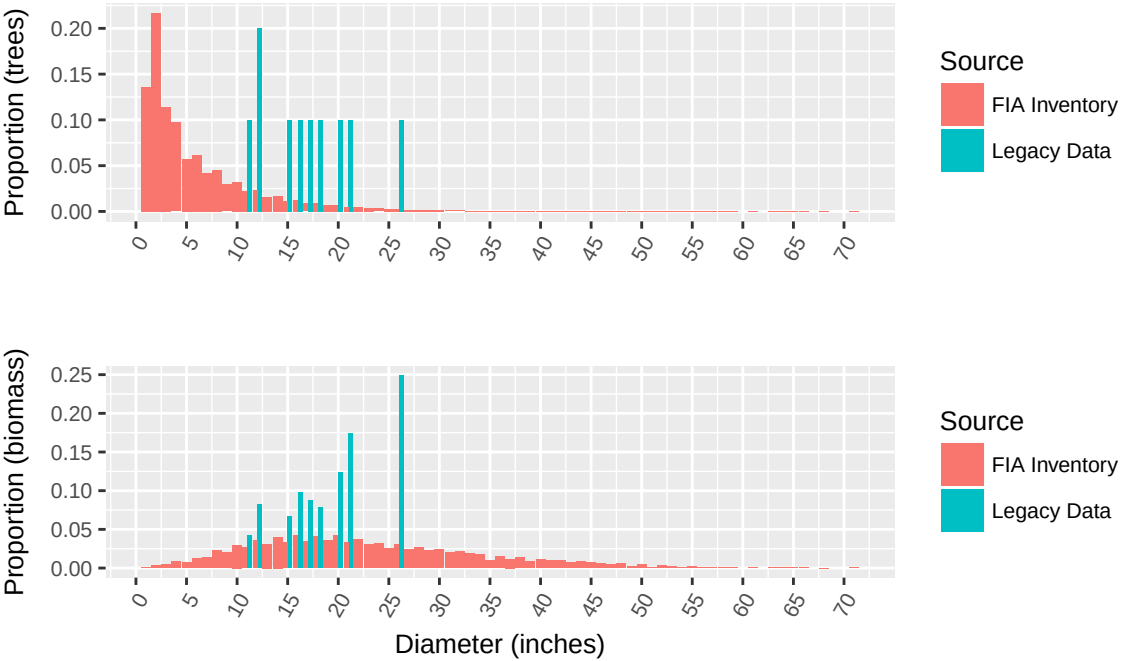


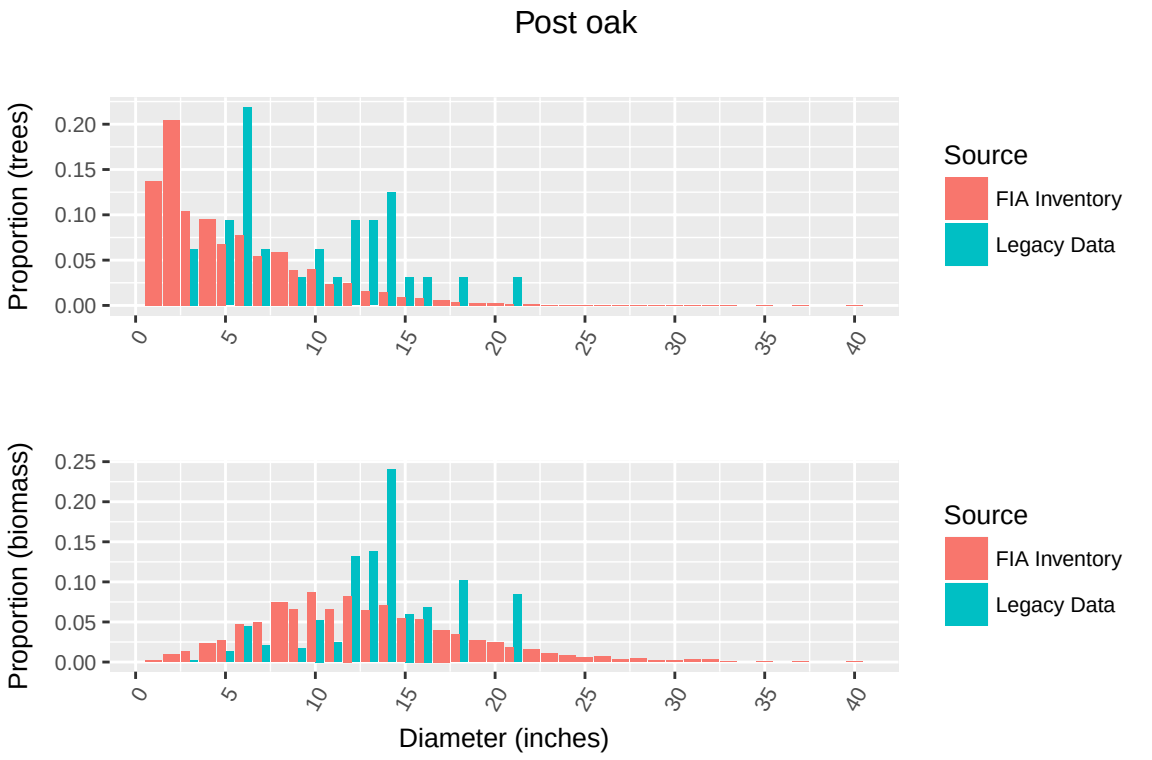
Water oak


Proportion (trees)
0.3
0.2
0.1
0.0
0
5
10
15
20
25
30
35
40
45
50
Source
FIA Inventory
Legacy Data
Proportion (biomass)
0.15
0.10
0.05
0.00
Diameter (inches)

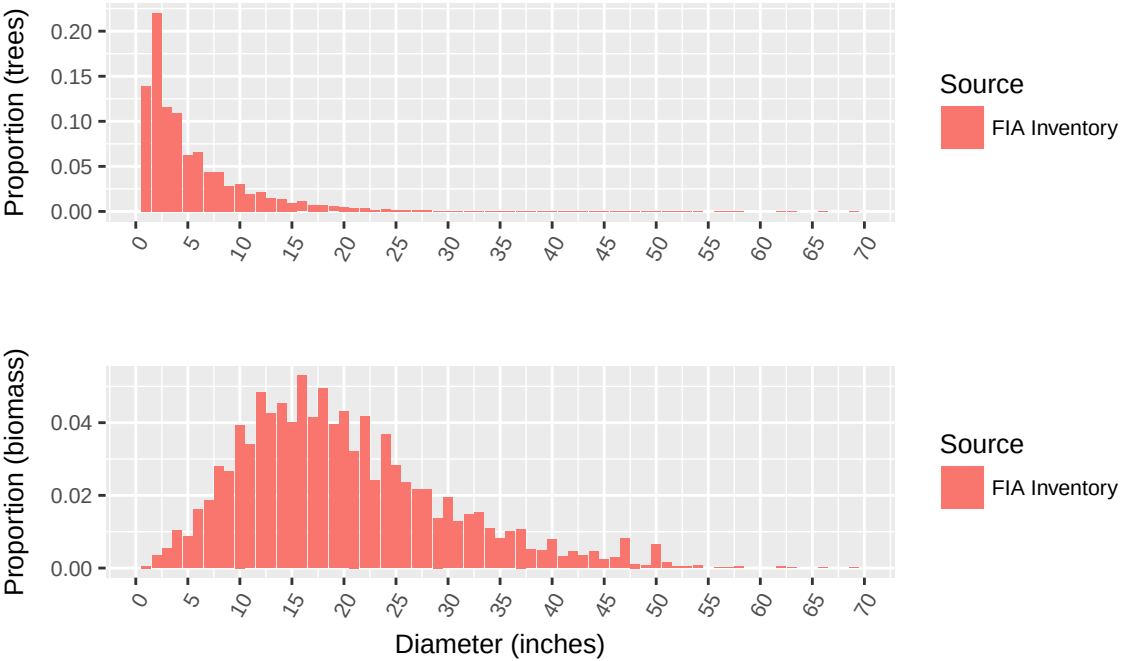

Slash pine
Proportion (trees)
0.15
0.10
0.05
0.00
0
5
10
15
20
25
30
Source
FIA Inventory
Legacy Data
Proportion (biomass)
0.10
0.05
0.00
0
5
10
15
20
25
30
Diameter (inches)
Source
FIA Inventory
Legacy Data

White fir

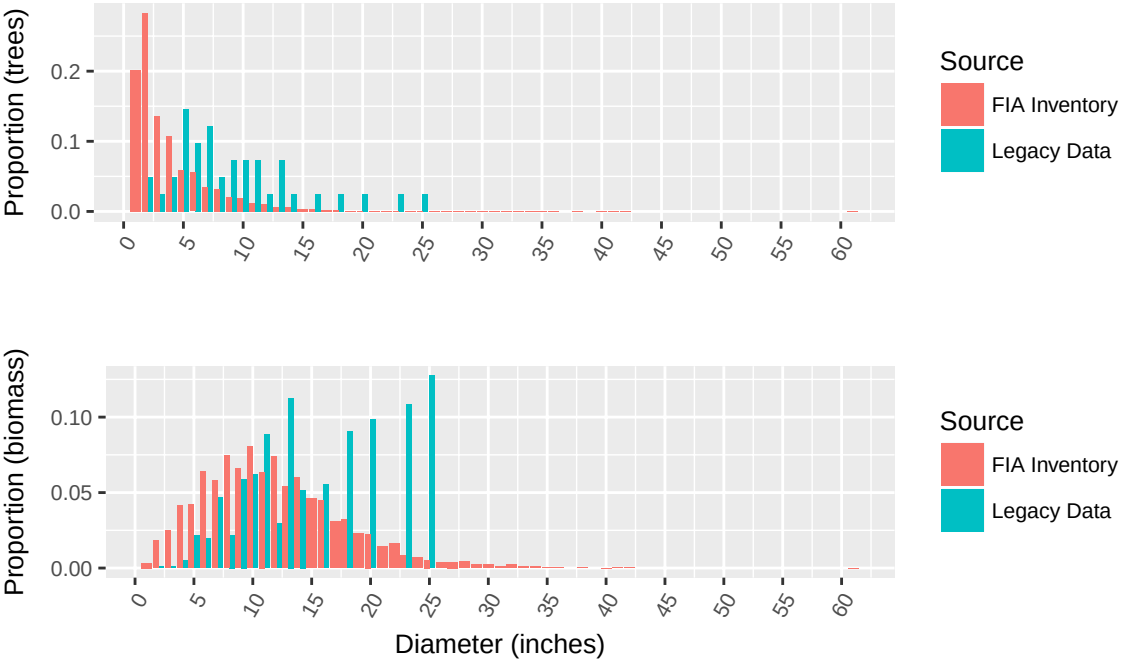

Proportion (trees)
0.20
0.15
0.10
0.05
0.00
0 5 10 15 20 25 30 35 40 45 50 55 60 65 70
Source
FIA Inventory
Legacy Data
Proportion (biomass)
0.25
0.20
0.15
0.10
0.05
0.00
0 5 10 15 20 25 30 35 40 45 50 55 60 65 70
Diameter (inches)
Source
FIA Inventory
Legacy Data


Post oak
Proportion (trees)
0.20
0.15
0.10
0.05
0.00
0
5
10
15
20
25
30
35
40
Source
FIA Inventory
Legacy Data
Proportion (biomass)
0.25
0.20
0.15
0.10
0.05
0.00
0
5
10
15
20
25
30
35
40
Diameter (inches)
Source
FIA Inventory
Legacy Data

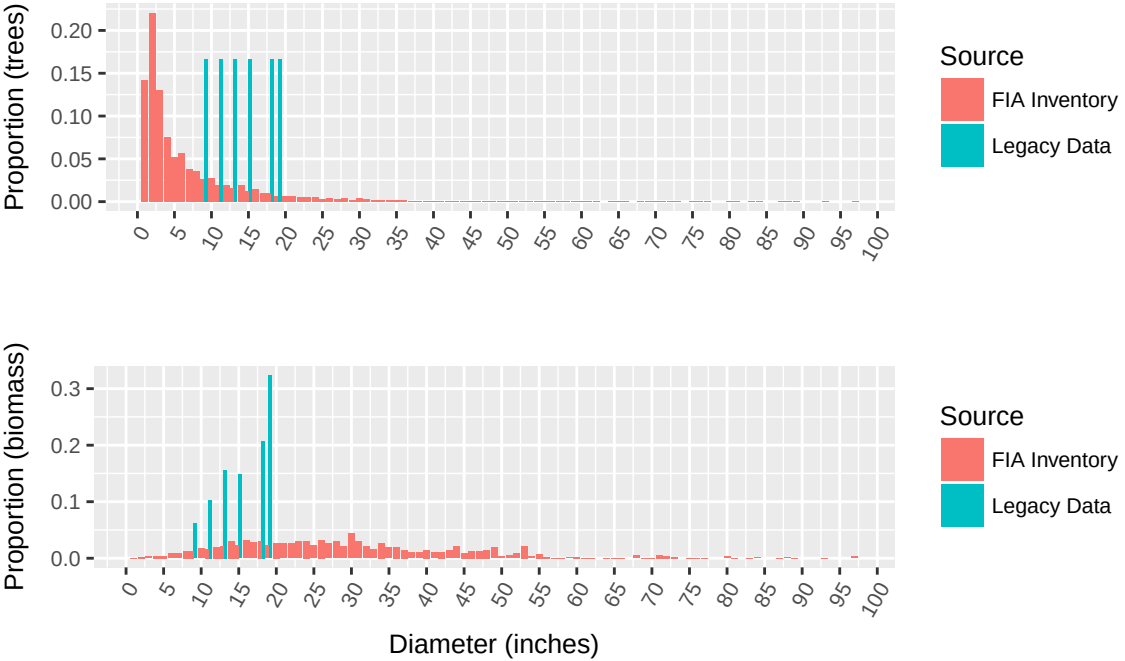
Mountain hemlock

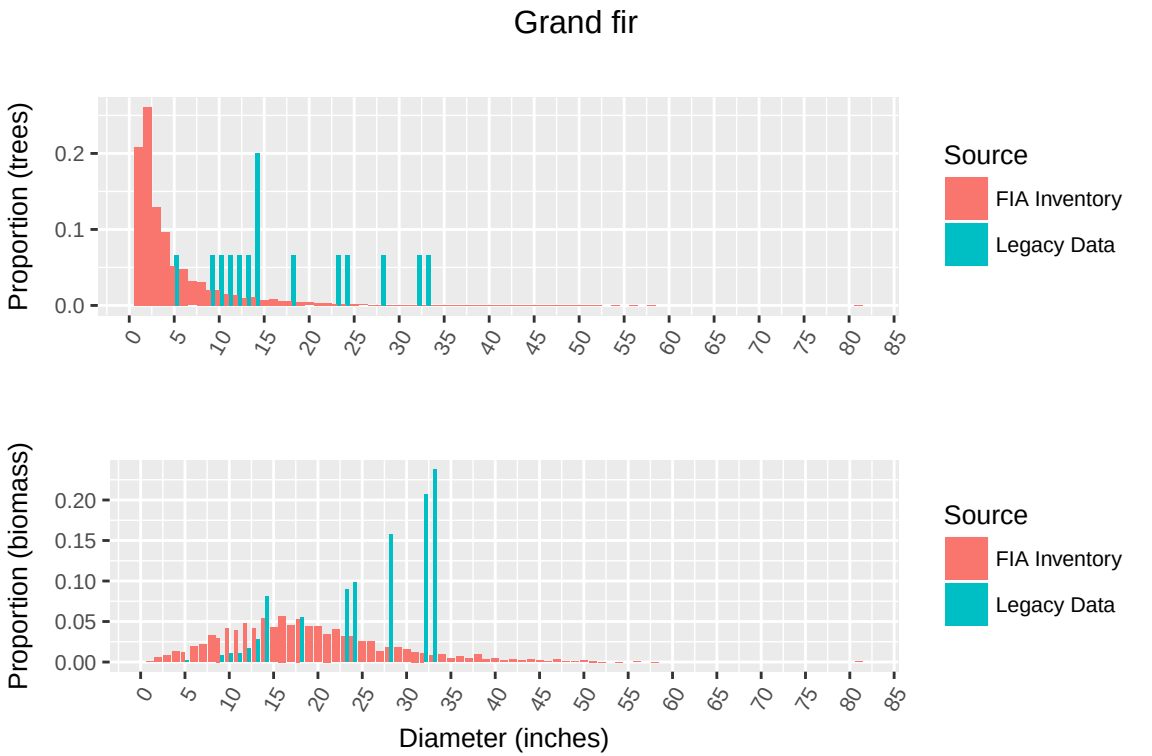


Subalpine fir

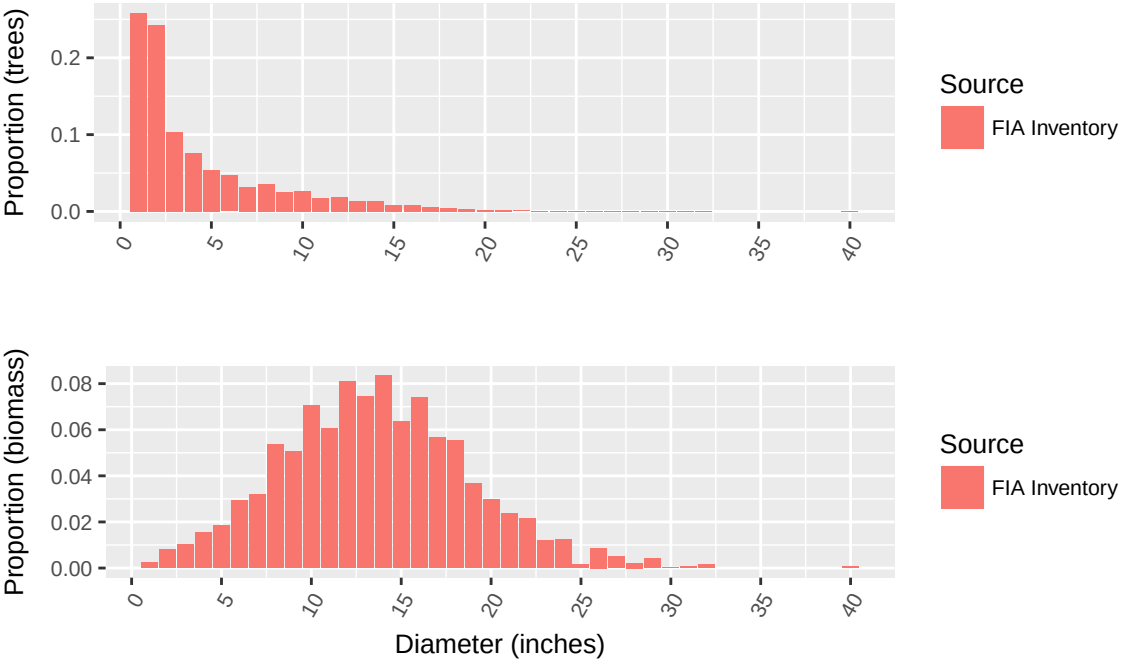


Sitka spruce

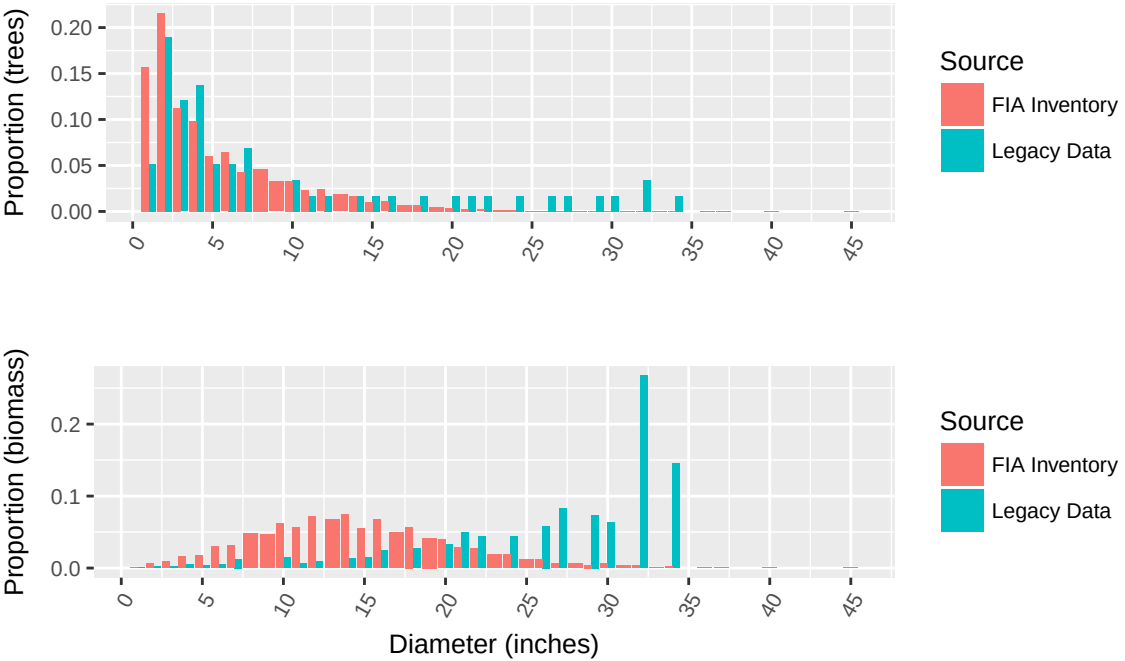



Grand fir
Proportion (trees)
0.0
0.1
0.2
0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85
Source
FIA Inventory
Legacy Data
Proportion (biomass)
0.00
0.05
0.10
0.15
0.20
0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85
Diameter (inches)
Source
FIA Inventory
Legacy Data

Pignut hickory



Eastern hemlock



Scarlet oak

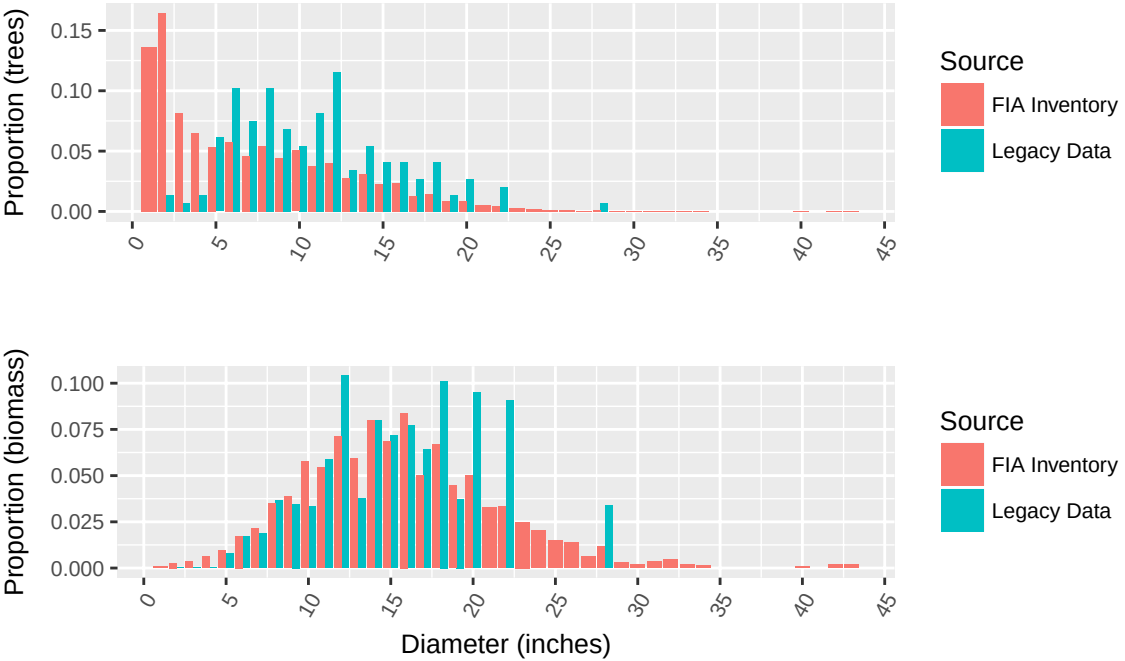
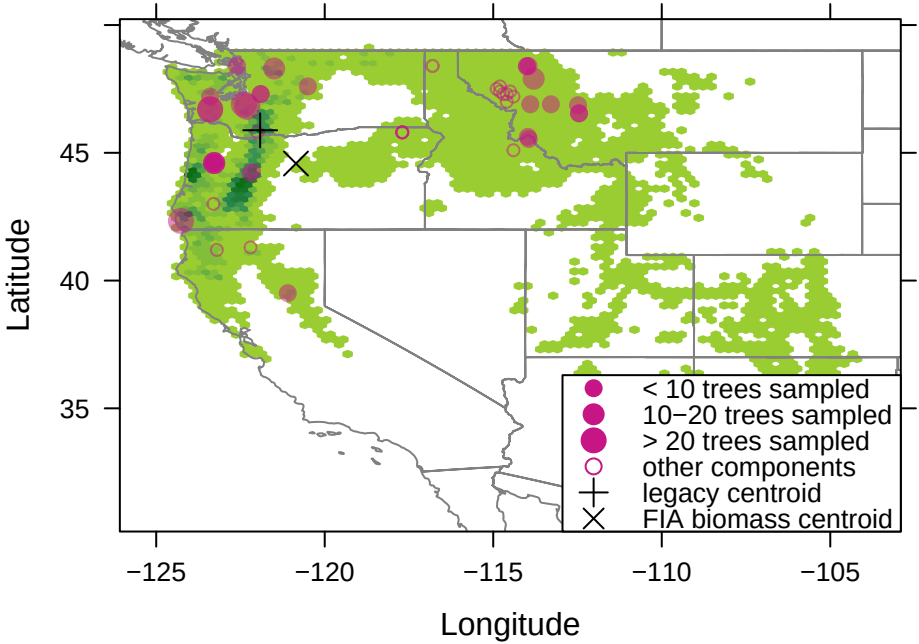
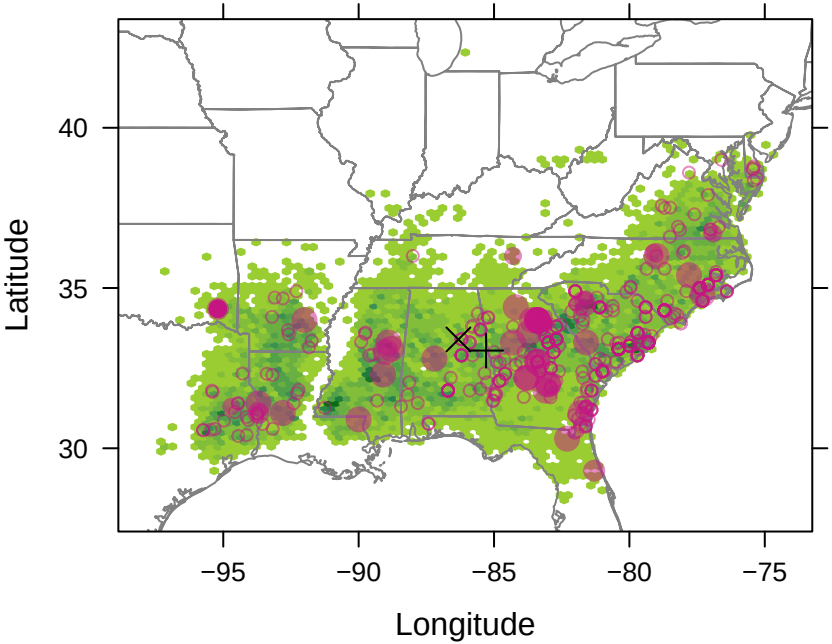

Proportion (trees)
0.15
0.10
0.05
0.00
0
5
10
15
20
25
30
35
40
45
Source
FIA Inventory
Legacy Data
Proportion (biomass)
0.100
0.075
0.050
0.025
0.000
Diameter (inches)

Figure S4.—Known biomass study locations and maximum number of trees sampled across the United States plotted over biomass per acre as estimated from the FIA database. Low biomass sites appear in lighter shades of yellow and green, and high biomass sites appear in shades of dark green and blue. Individual maps are shown on the following pages for the 30 species with the most biomass in the FIA database.

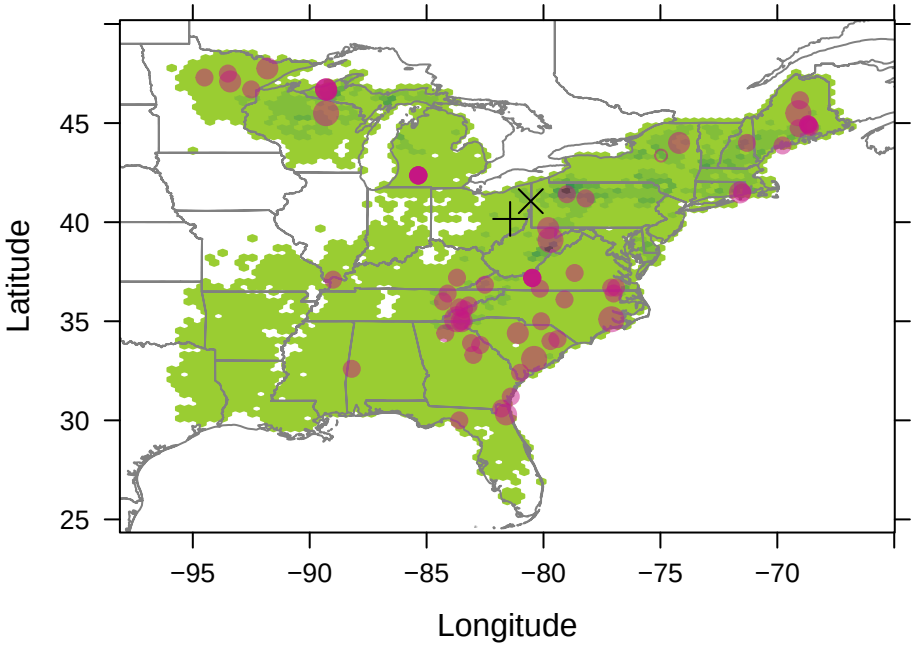
Douglas−fir


45
40
35
Latitude
−125
−120
−115
−110
−105
Longitude
< 10 trees sampled
10−20 trees sampled
> 20 trees sampled
other components
legacy centroid
FIA biomass centroid

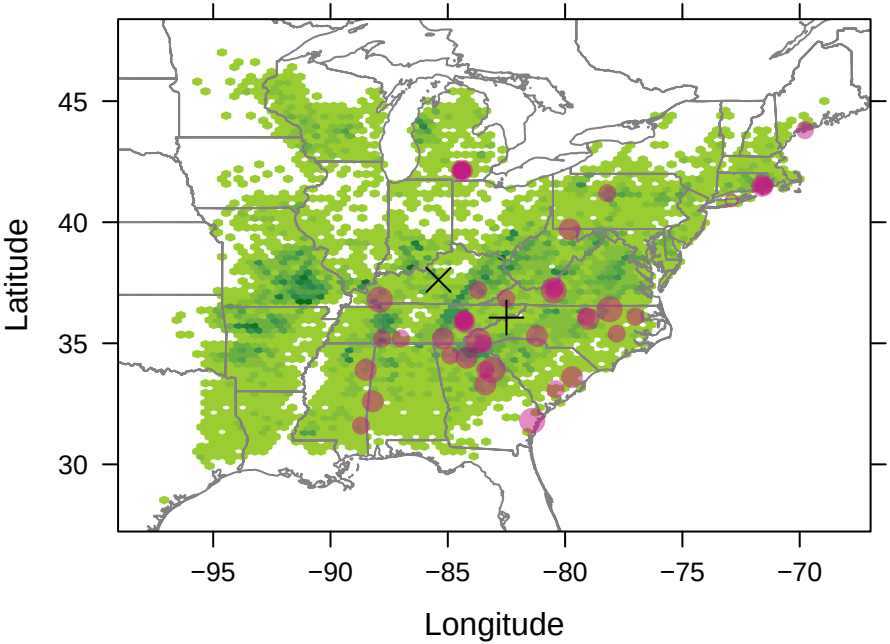
Loblolly pine



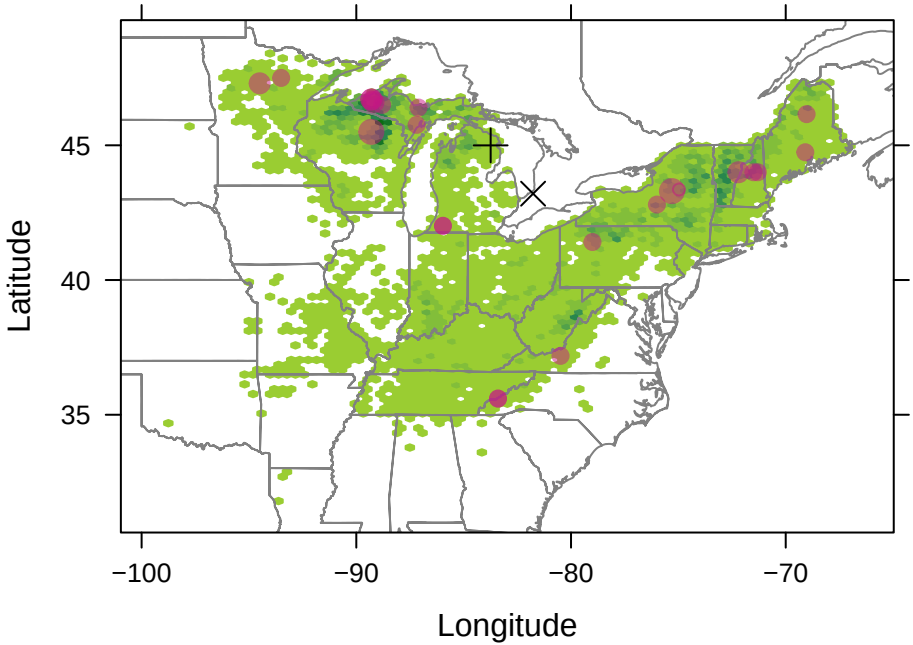
Red maple



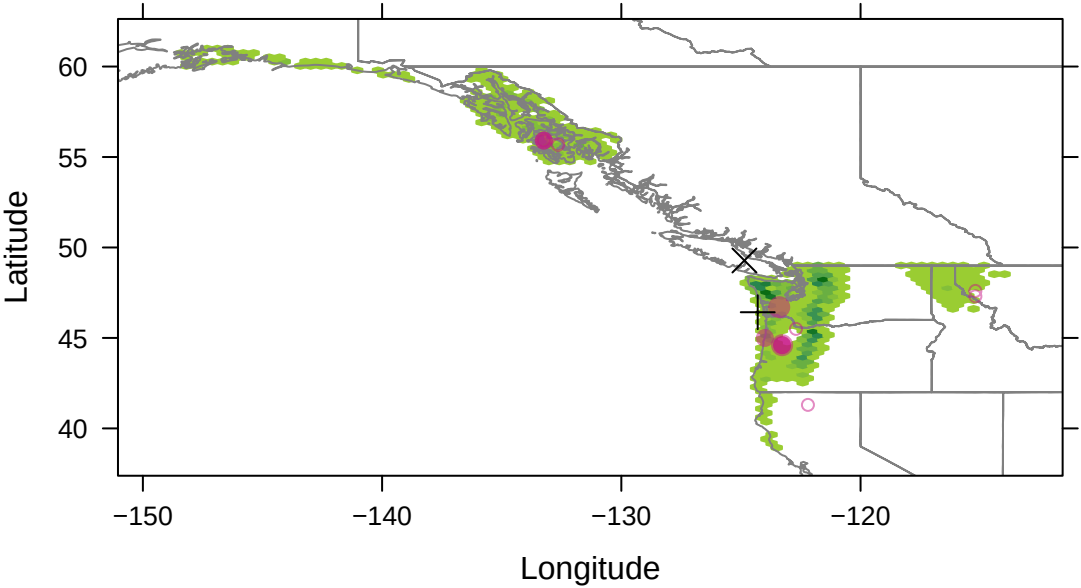
White oak



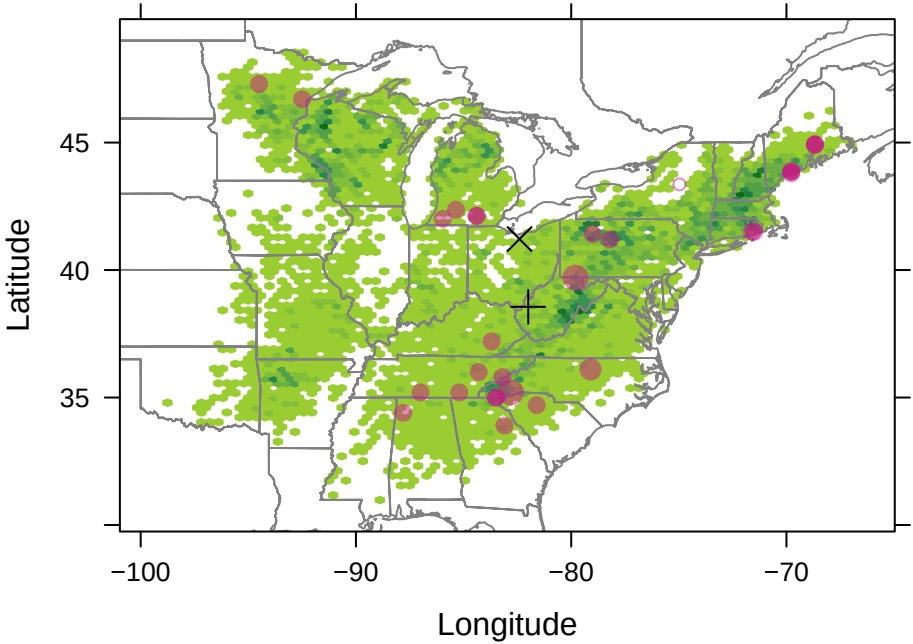
Sugar maple



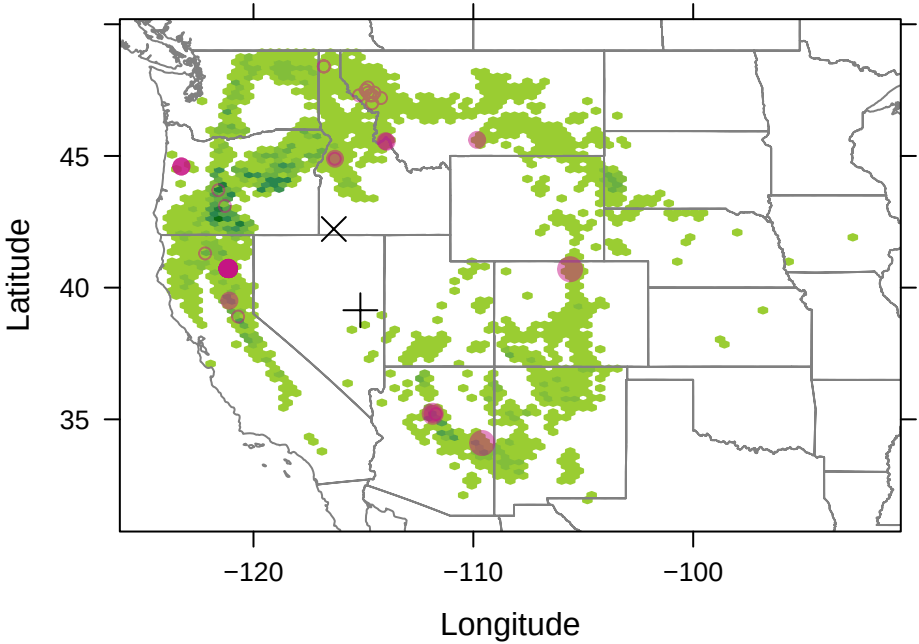
Western hemlock



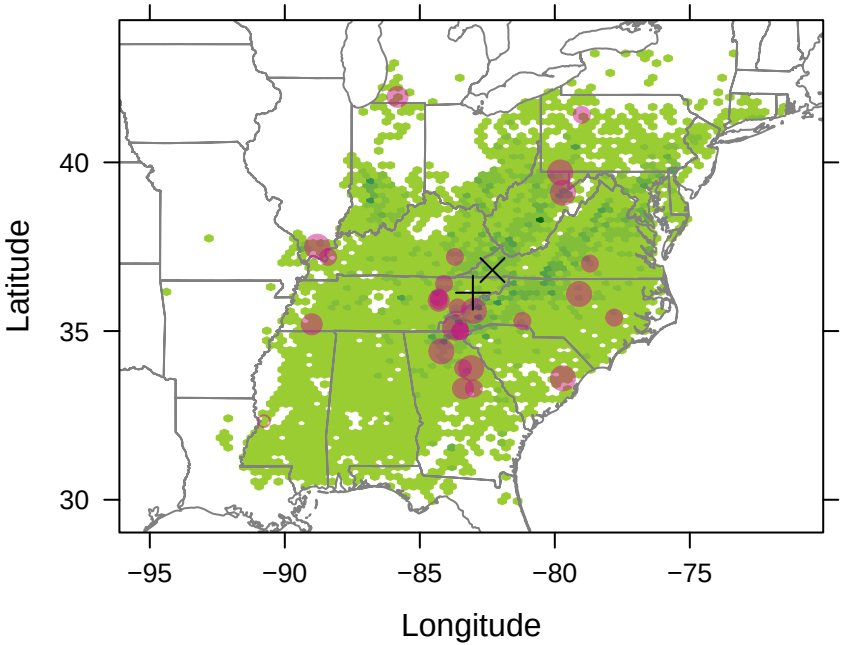
Northern red oak



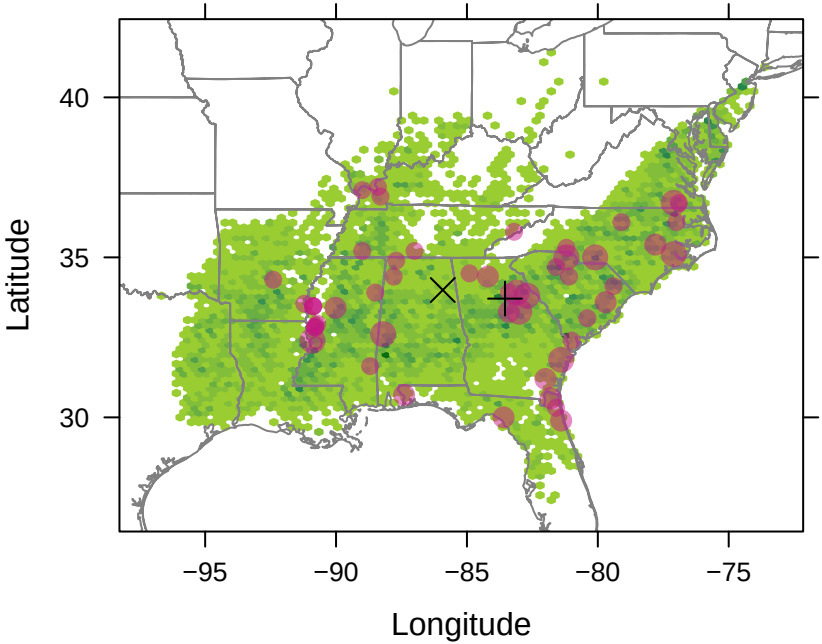
Ponderosa pine



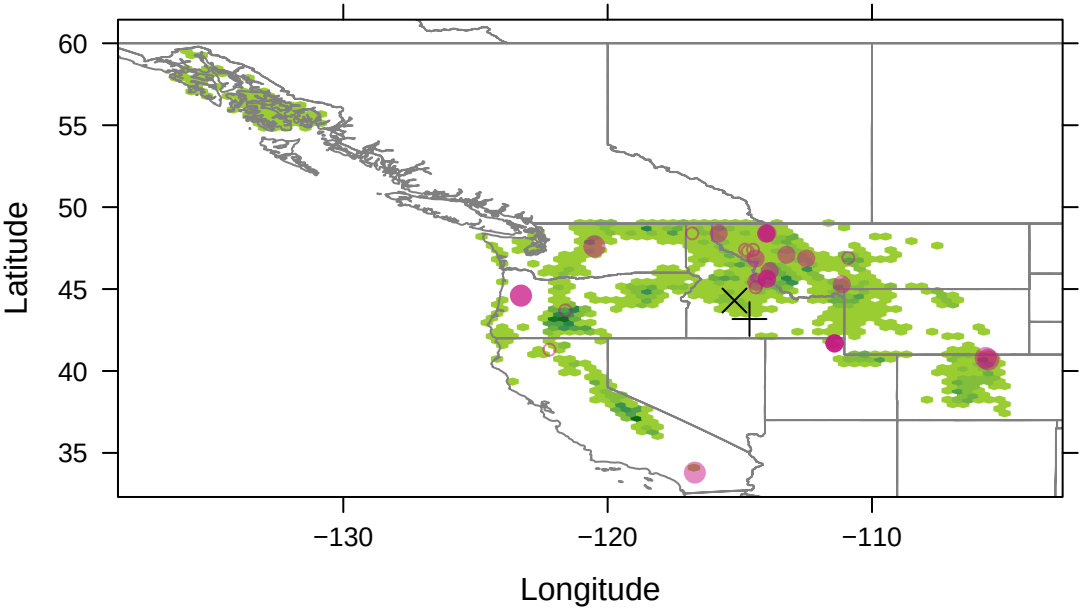
Tulip poplar



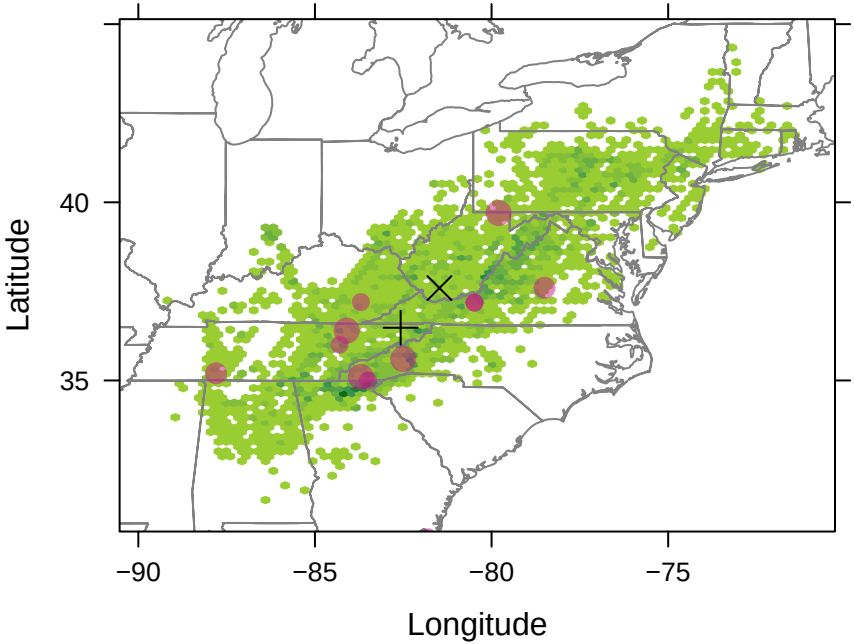
Sweetgum



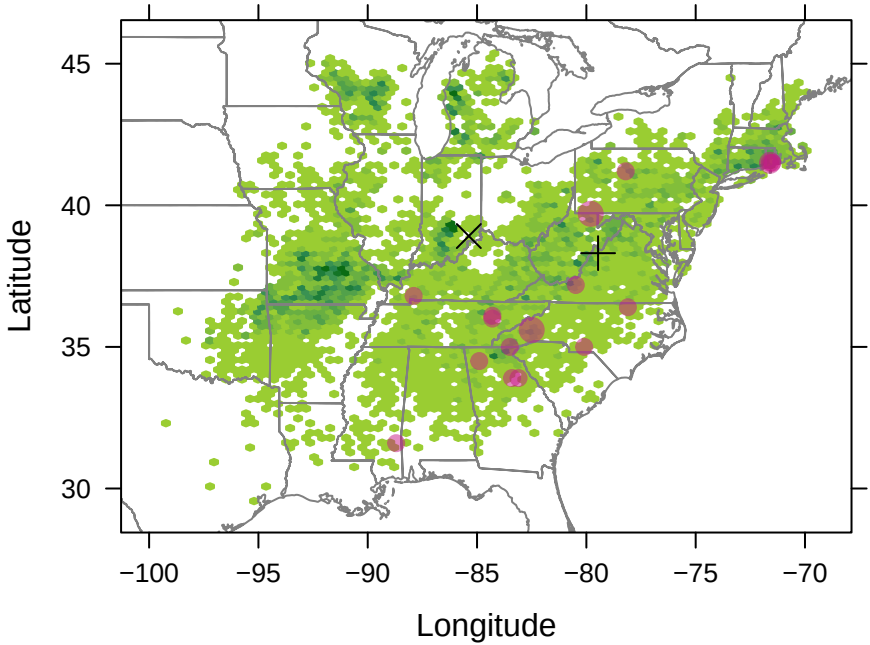
Lodgepole pine



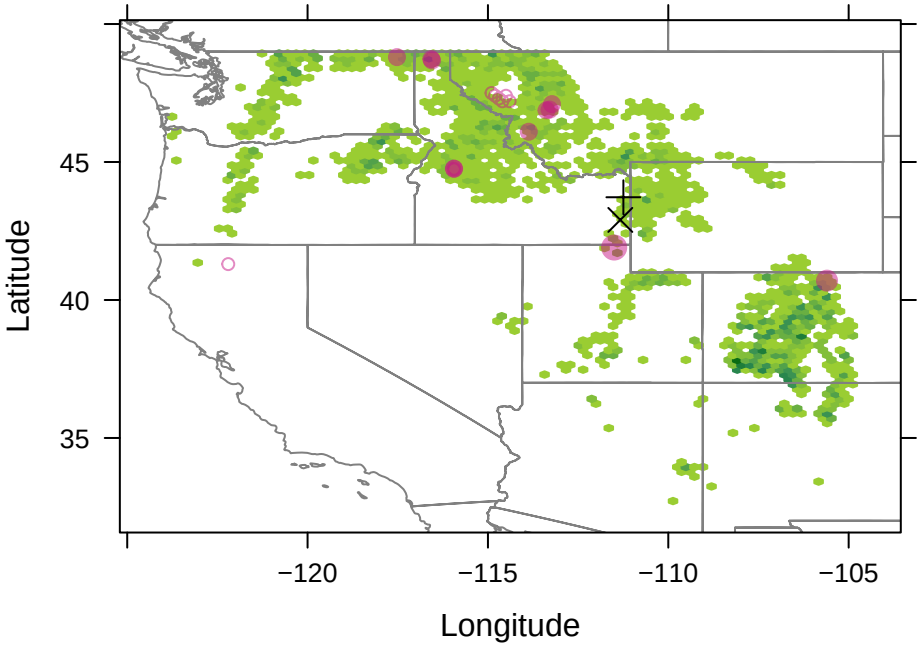
Chestnut oak



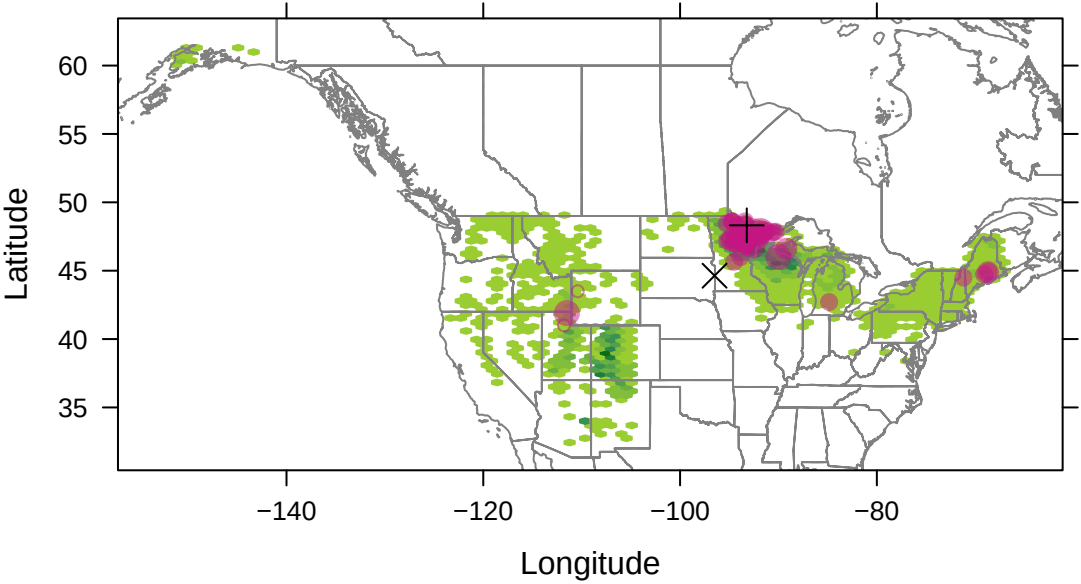
Black oak



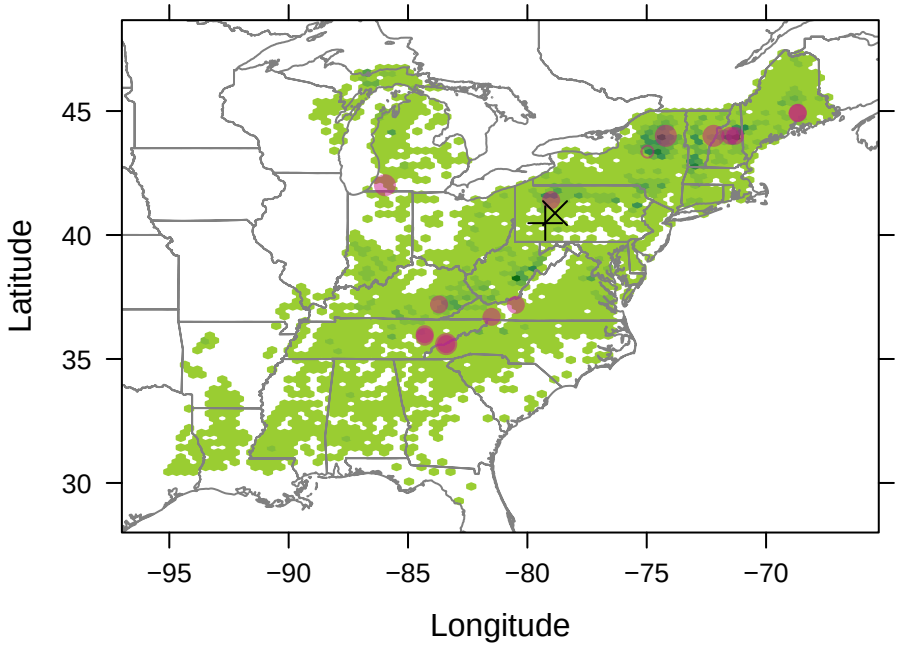
Engelmann spruce



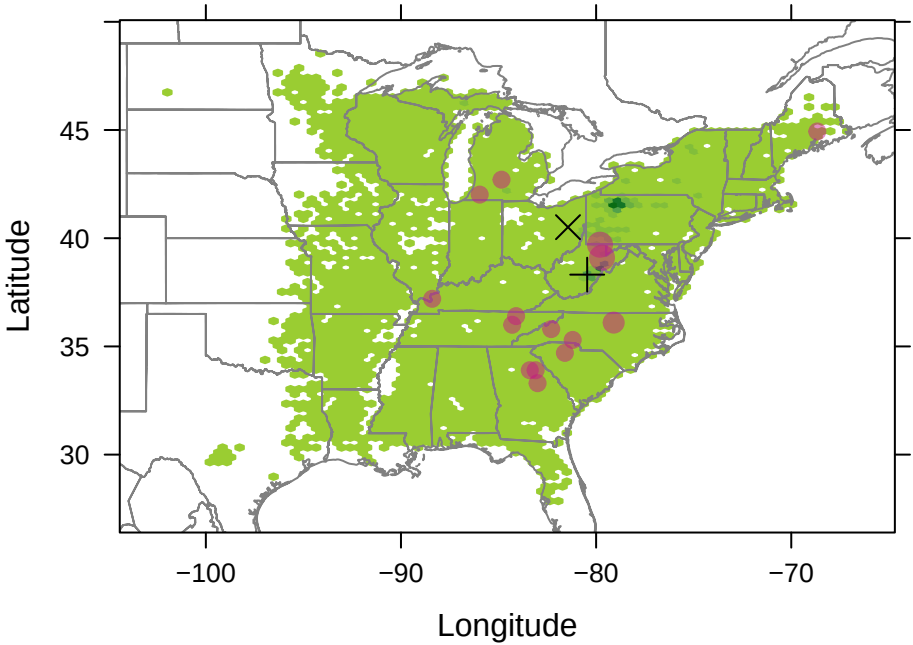
Quaking aspen



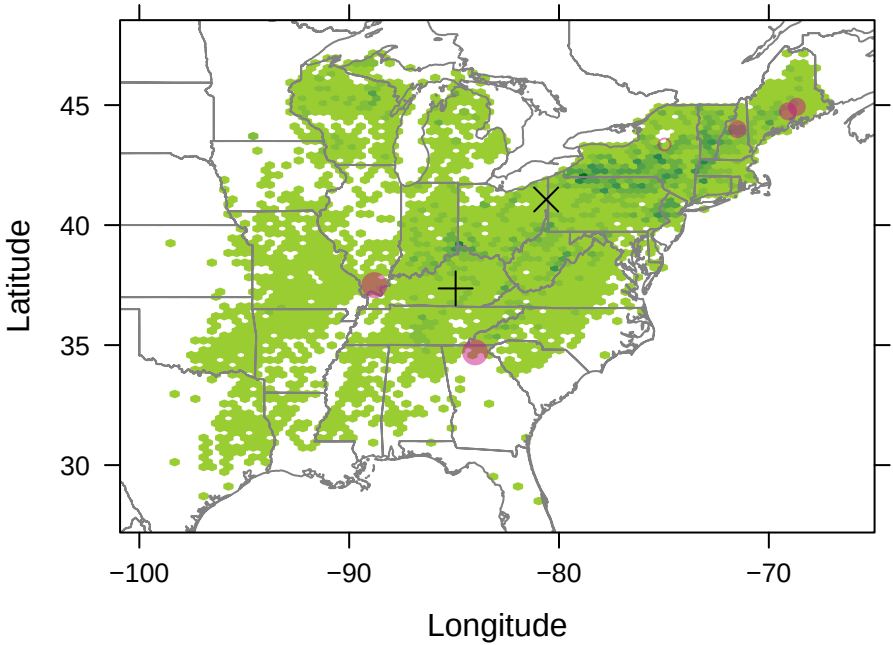
American beech



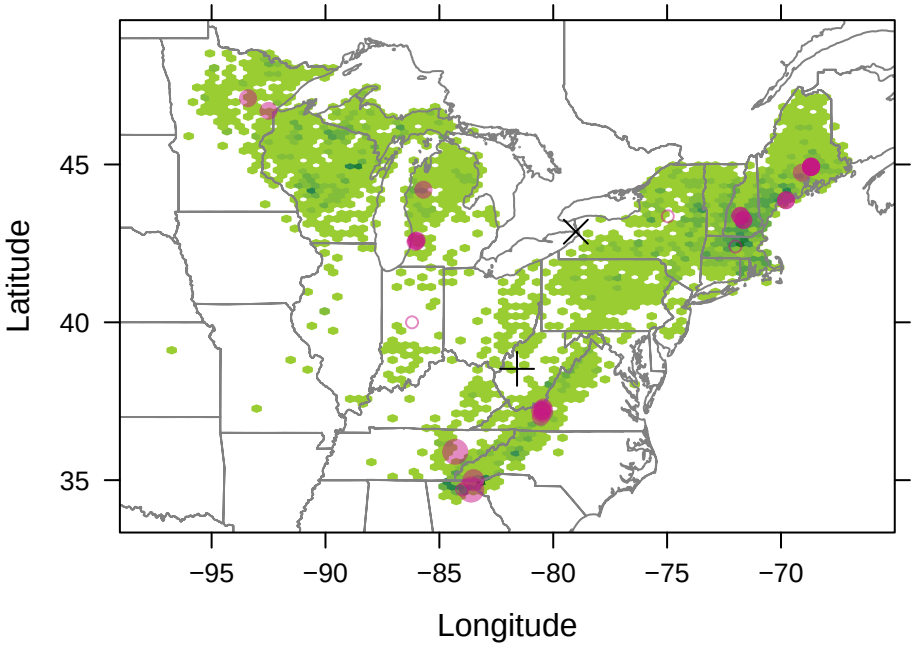
Black cherry



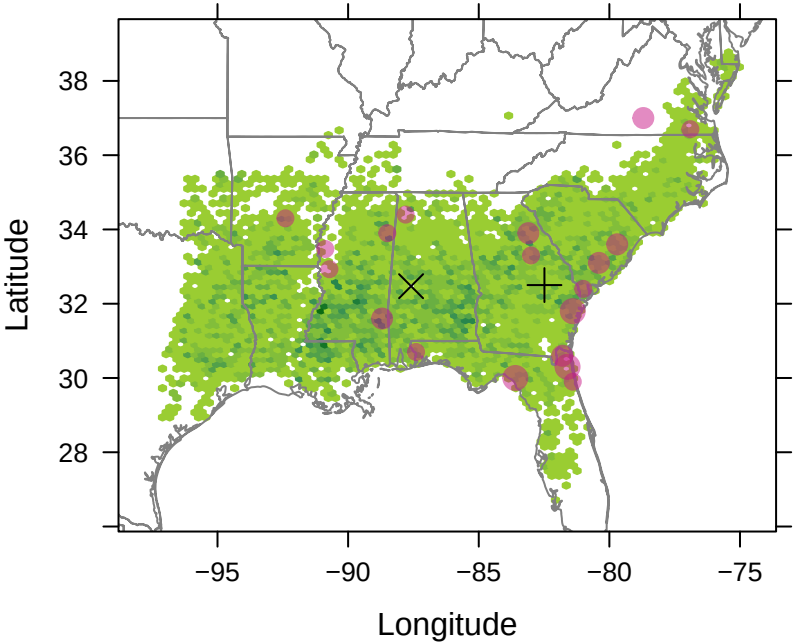
White ash



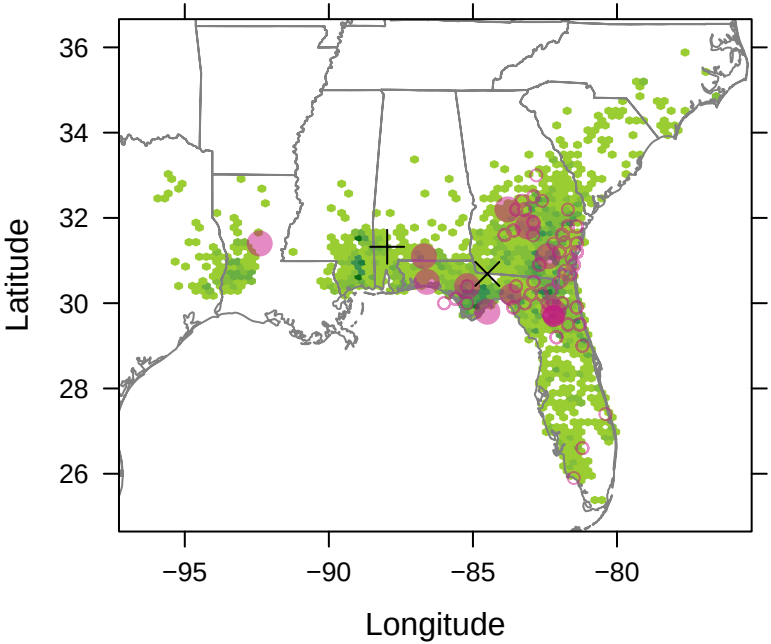
Eastern white pine



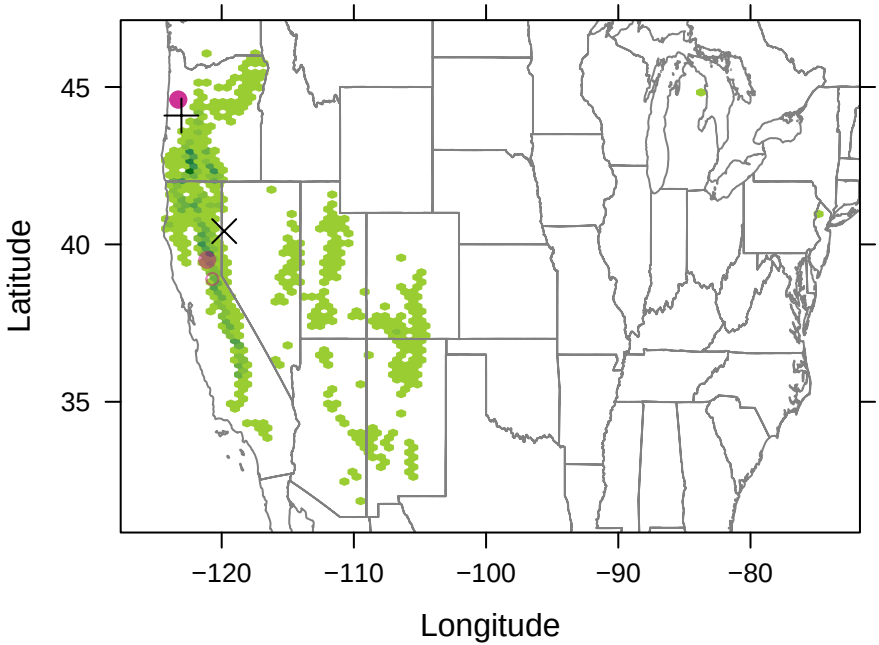
Water oak



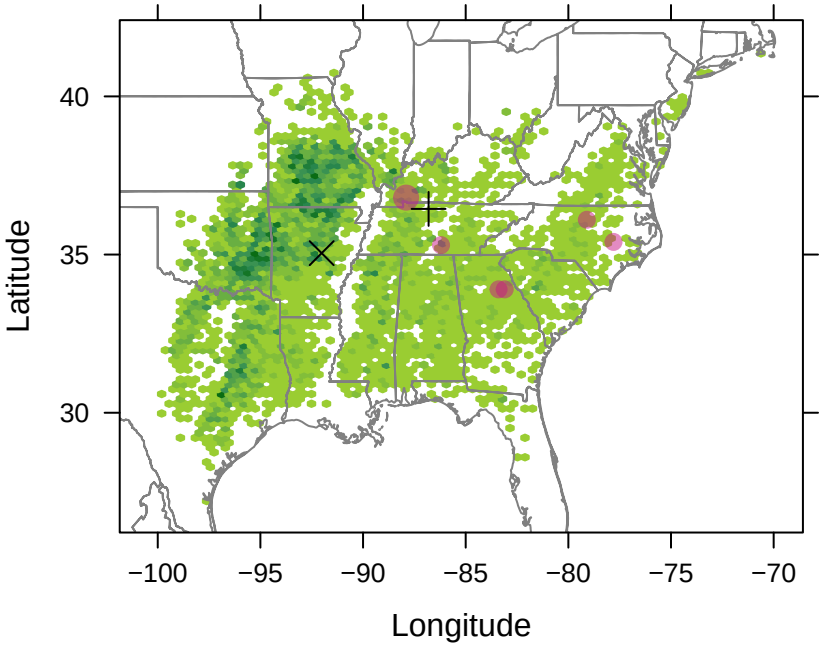
Slash pine



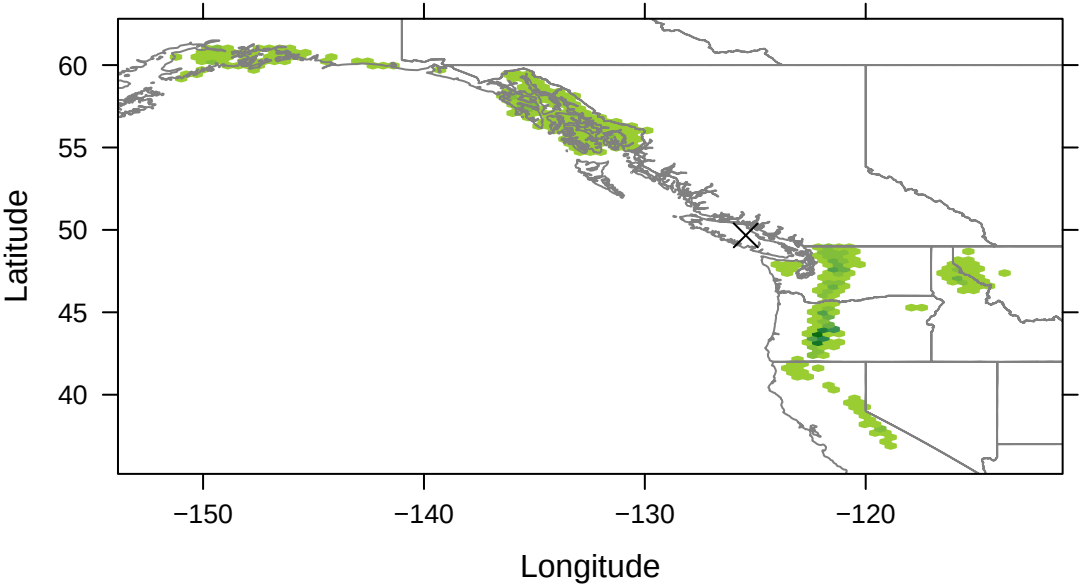
White fir



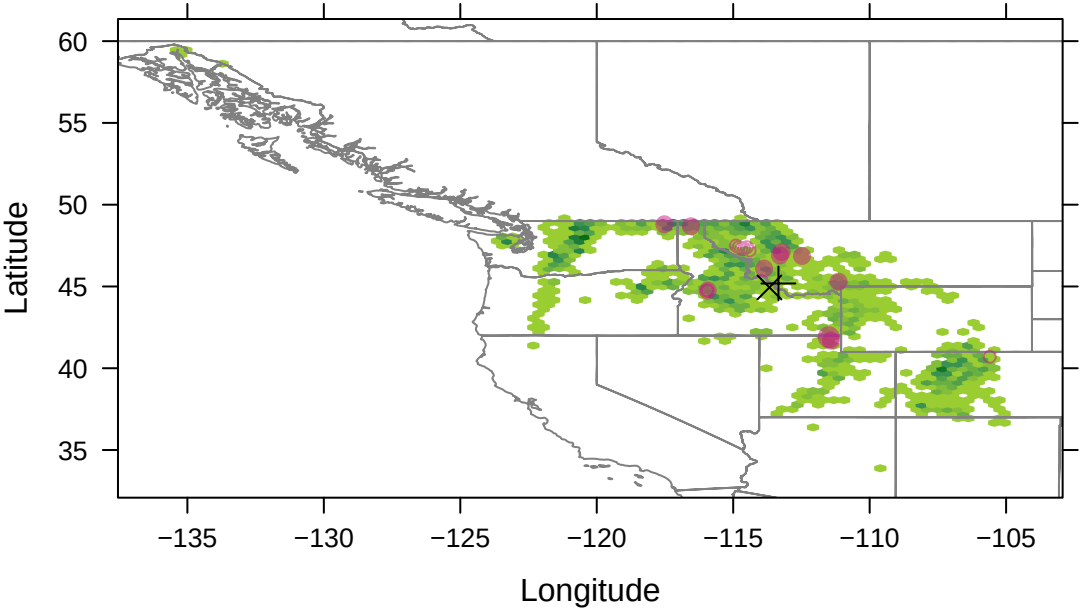
Post oak

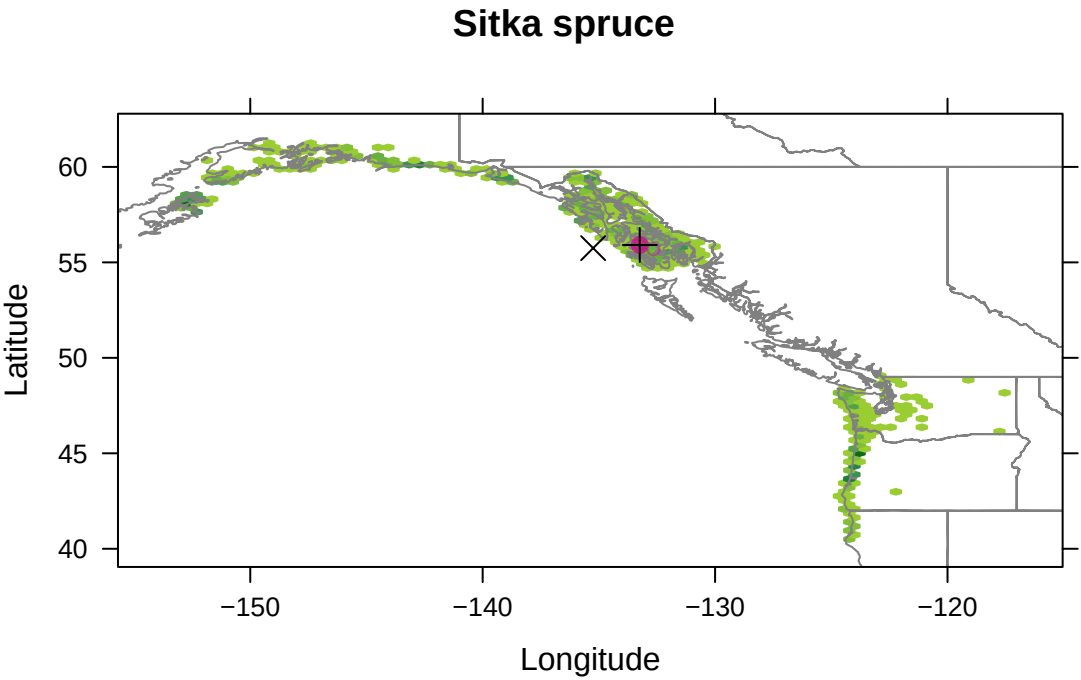


Mountain hemlock

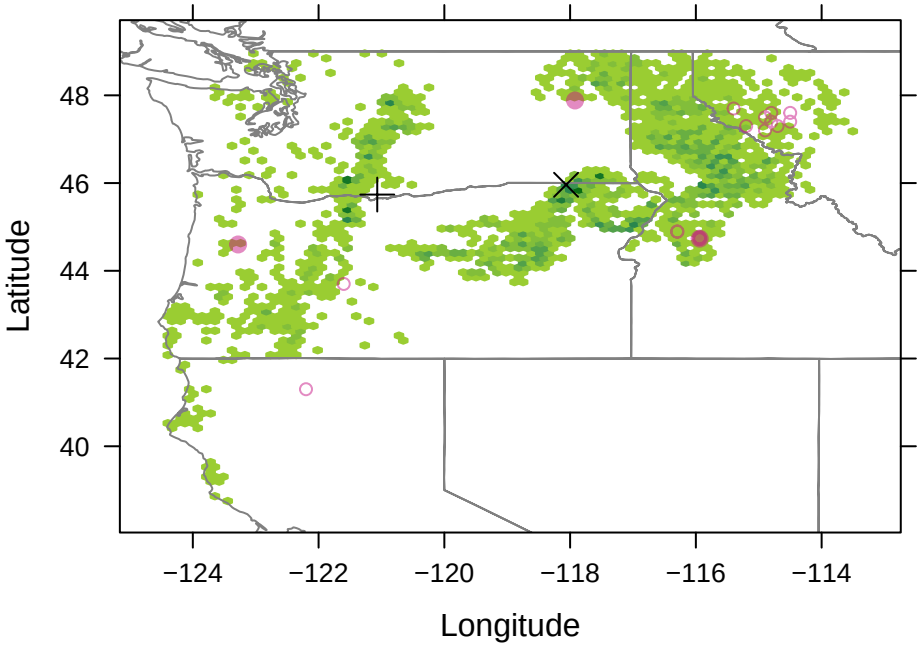


Subalpine fir

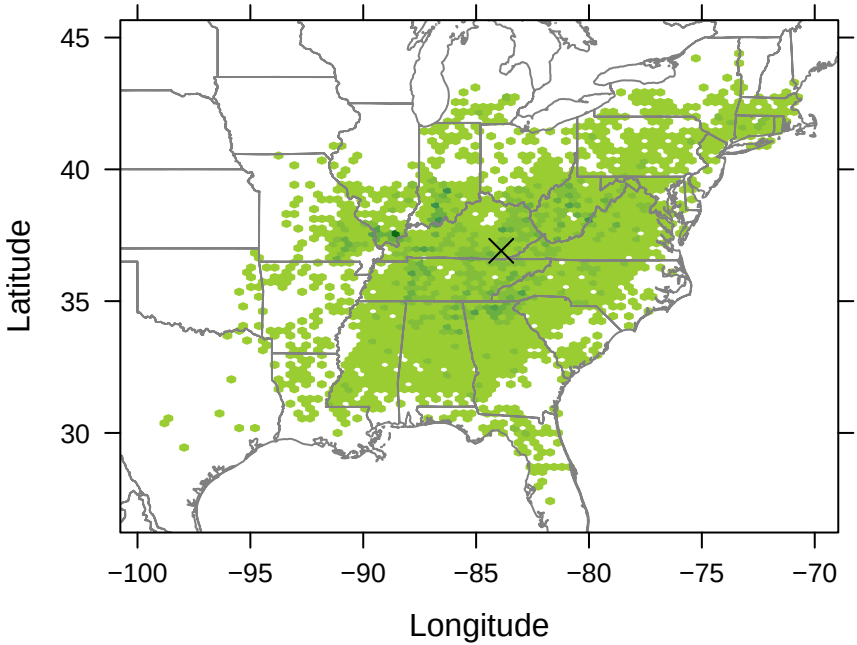



Sitka spruce
Latitude
60
55
50
45
40
−150
−140
−130
−120
Longitude

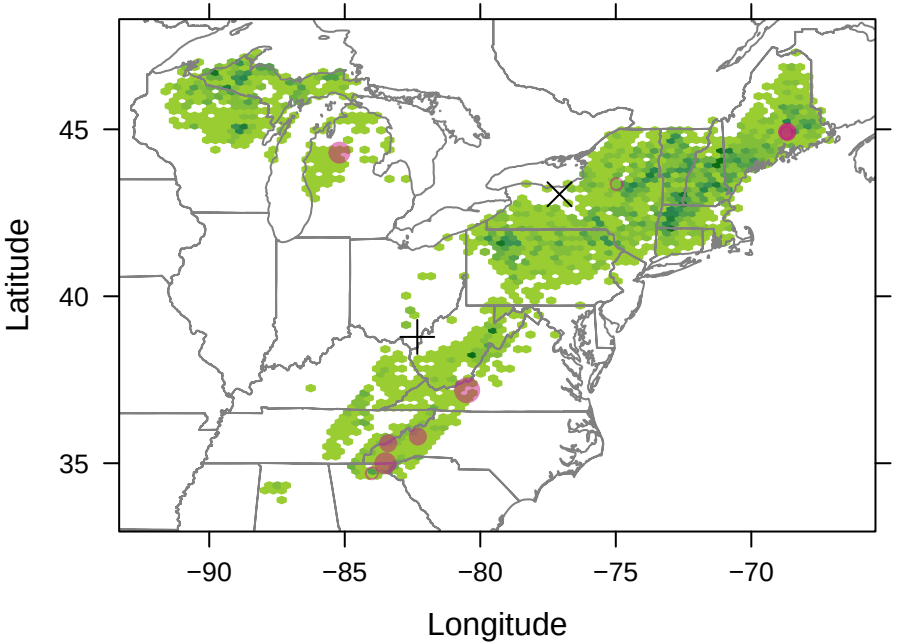
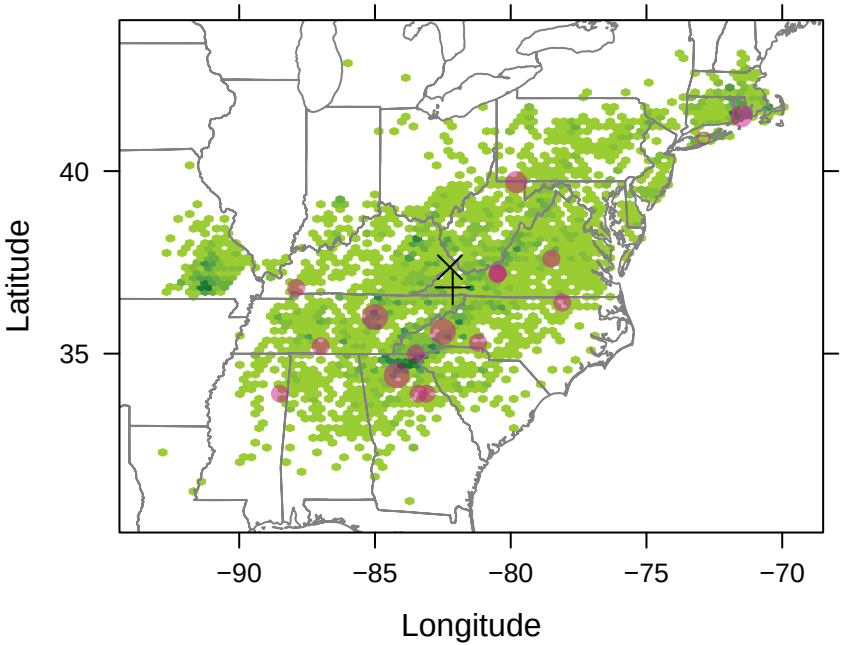
Grand fir



Pignut hickory



Eastern hemlock



Scarlet oak