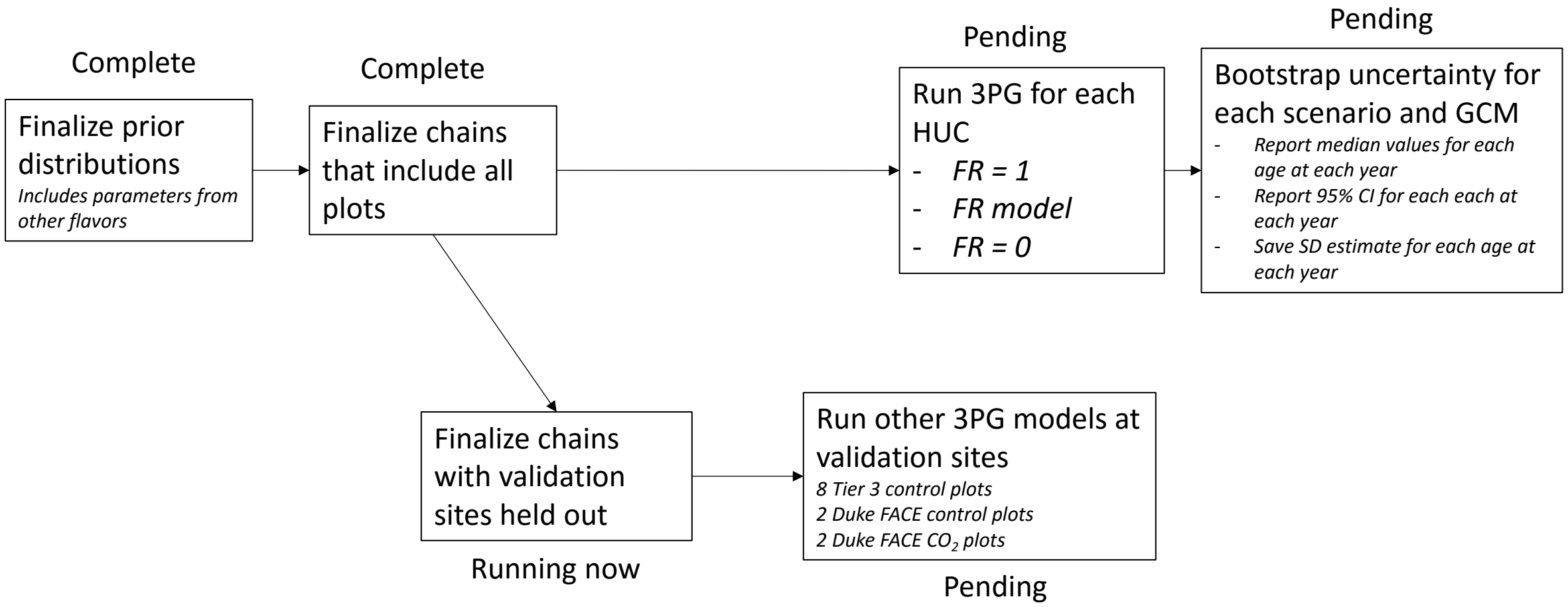

Complete
Finalize prior distributions
Includes parameters from other flavors
Complete
Finalize chains that include all plots
Pending
Run 3PG for each HUC
- FR = 1
- FR model
- FR = 0
Pending
Bootstrap uncertainty for each scenario and GCM
- Report median values for each age at each year
- Report 95% CI for each each at each year
- Save SD estimate for each age at each year
Finalize chains with validation sites held out
Running now
Run other 3PG models at validation sites
8 Tier 3 control plots
2 Duke FACE control plots
2 Duke FACE CO_2 plots
Pending

Parameters not used

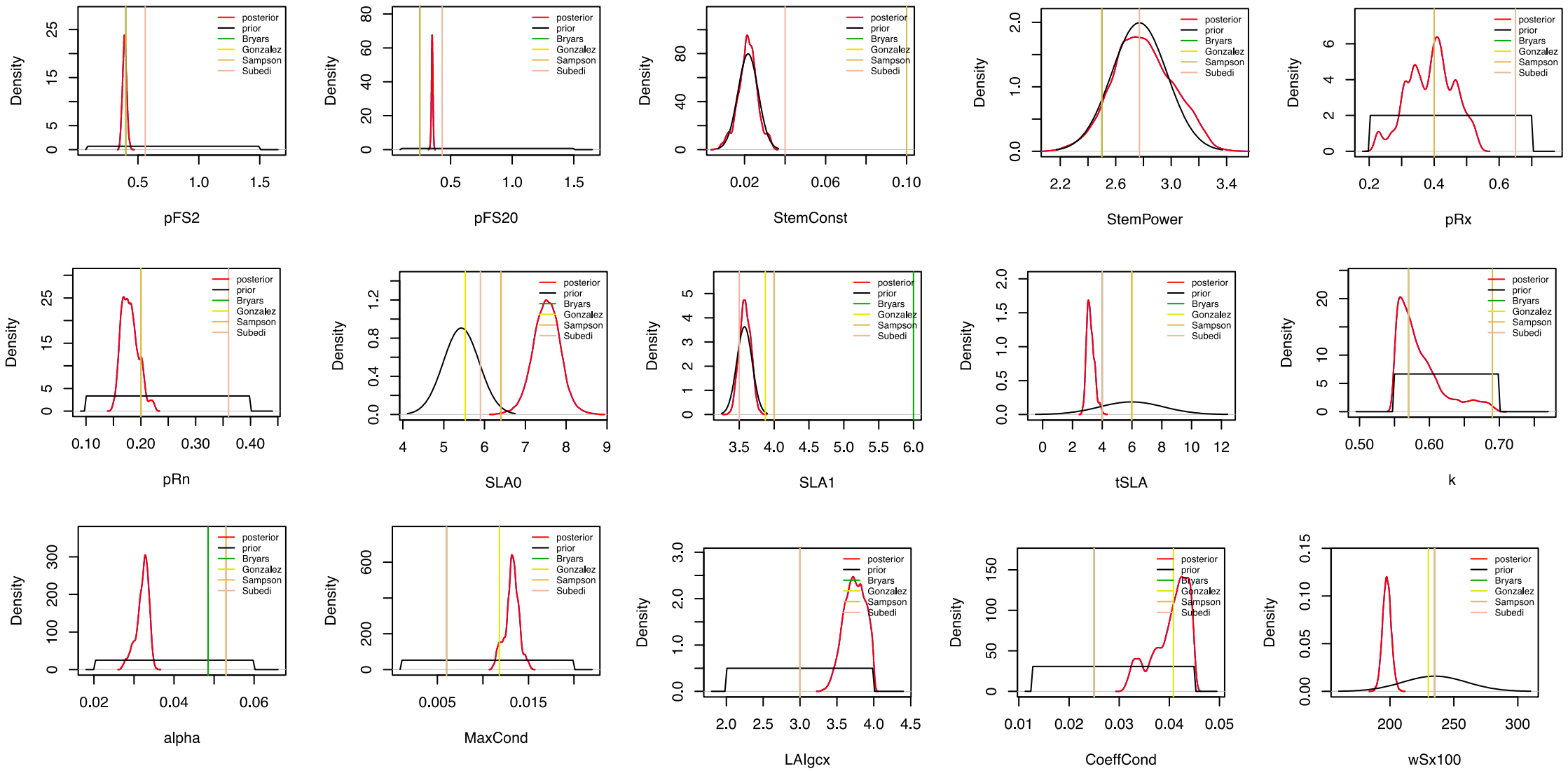
gammaFx (replaced with a two cohort model)
gammaF0 (replaced with a two cohort model)
tgammaF (replaced with a two cohort model)
Density
volRatio
fracBB0
fracBB1

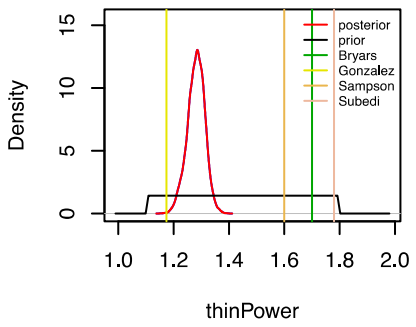
Fixed parameters

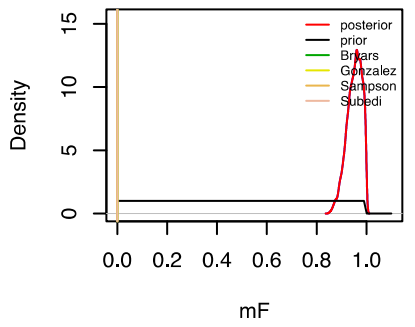
MaxIncptn = 0.2
LAImaxIntcptn = 5
fullCanAge = 3
Blcond = 0.1
mR = 0.3
rAge = 1.5 fCg700 = 1
Qa = -90
Qb = 0.8
gDM_mol = 24
molPAR_MJ = 2.3

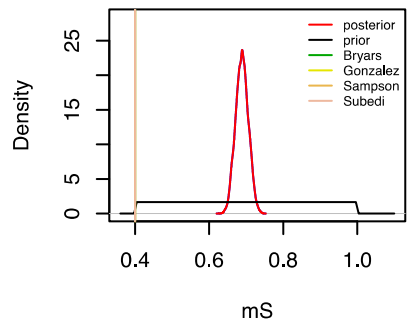
New parameters

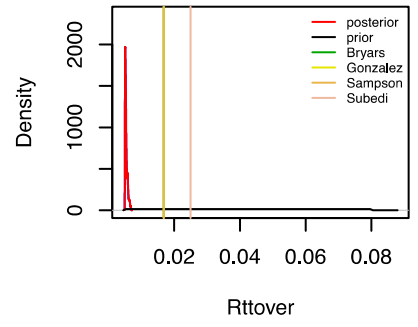
SWpower1
SWpower2
SWconst1
SWconst1
Mort_rate
Alpha_h
pFS_h
pR_h
Mort_rate_h
SLA_h

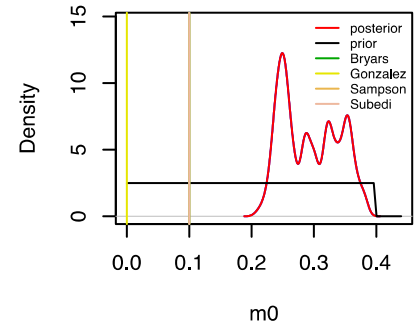

posterior
prior
Bryars
Gonzalez
Sampson
Subedi
Density
pFS2
pFS20
StemConst
StemPower
pRx
pRn
SLA0
SLA1
tSLA
k
alpha
MaxCond
LAIgcx
CoeffCond
wSx100

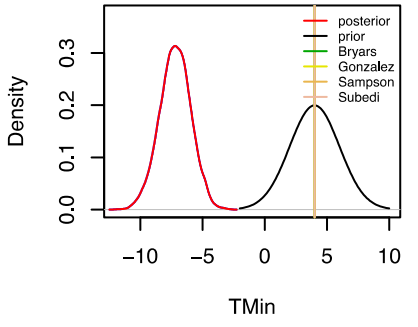

Density
thinPower
posterior
prior
Bryars
Gonzalez
Sampson
Subedi

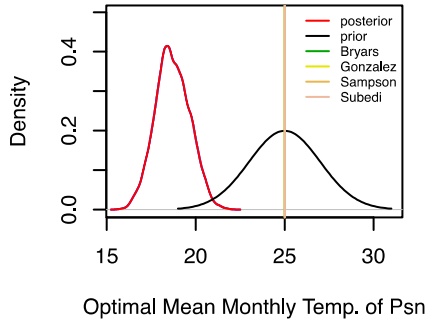

Density
mF
posterior
prior
Bryars
Gonzalez
Sampson
Subedi

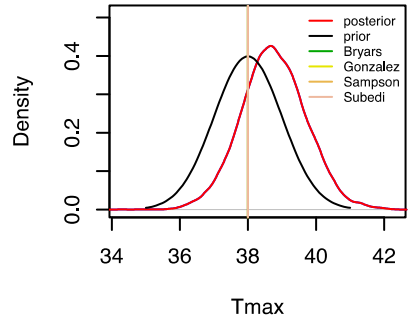

Density
mS
posterior
prior
Bryars
Gonzalez
Sampson
Subedi

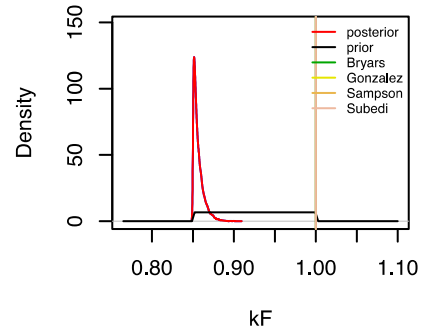

Density
Rttover
posterior
prior
Bryars
Gonzalez
Sampson
Subedi

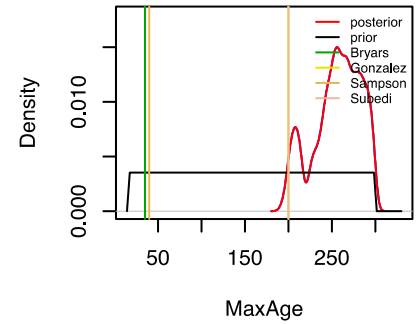

Density
m0
posterior
prior
Bryars
Gonzalez
Sampson
Subedi

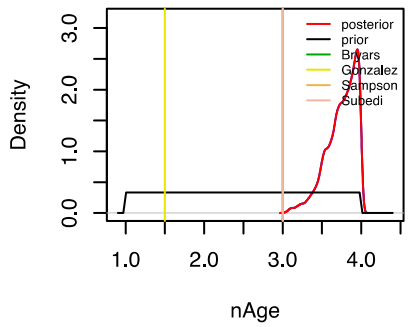

Density
TMin
posterior
prior
Bryars
Gonzalez
Sampson
Subedi

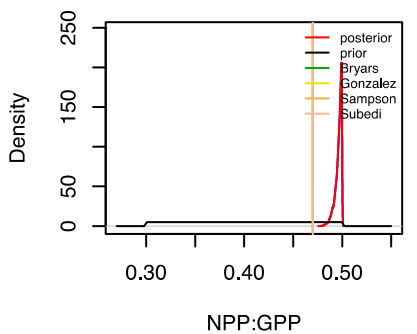

Density
Optimal Mean Monthly Temp. of Psn
posterior
prior
Bryars
Gonzalez
Sampson
Subedi

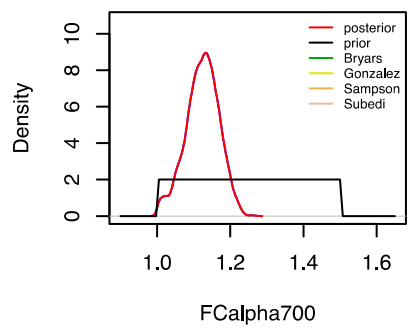

Density
Tmax
posterior
prior
Bryars
Gonzalez
Sampson
Subedi

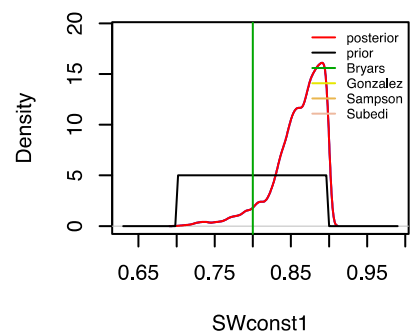

Density
kF
posterior
prior
Bryars
Gonzalez
Sampson
Subedi

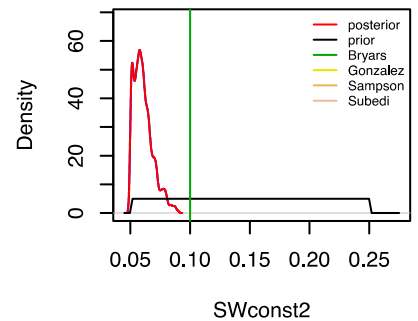

Density
MaxAge
posterior
prior
Bryars
Gonzalez
Sampson
Subedi

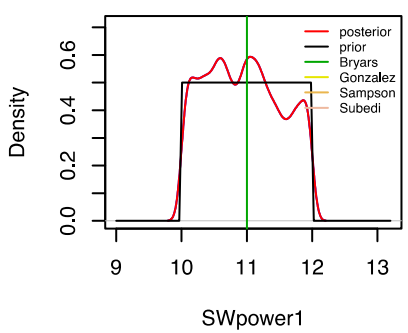

Density
nAge
posterior
prior
Bryars
Gonzalez
Sampson
Subedi

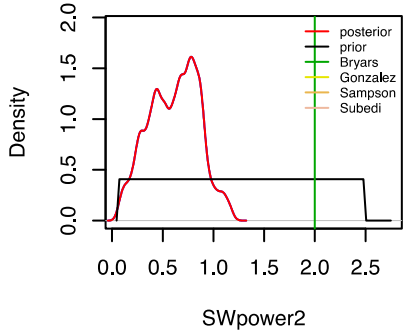

Density
NPP:GPP
posterior
prior
Bryars
Gonzalez
Sampson
Subedi

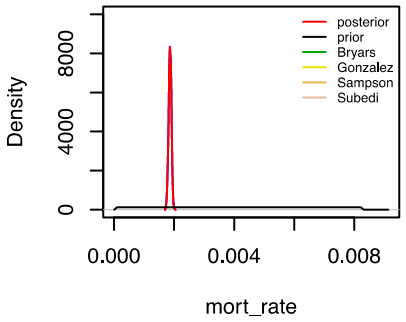

Density
FCalpha700
posterior
prior
Bryars
Gonzalez
Sampson
Subedi

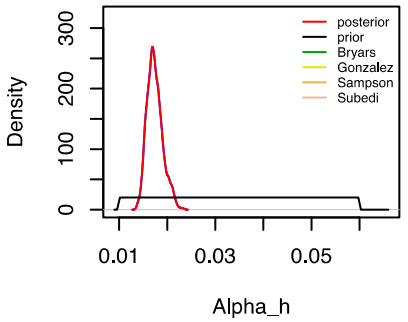

Density
SWconst1
posterior
prior
Bryars
Gonzalez
Sampson
Subedi

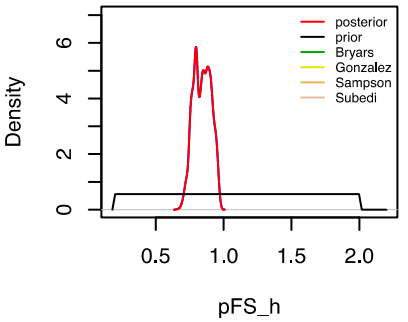

Density
SWconst2
posterior
prior
Bryars
Gonzalez
Sampson
Subedi

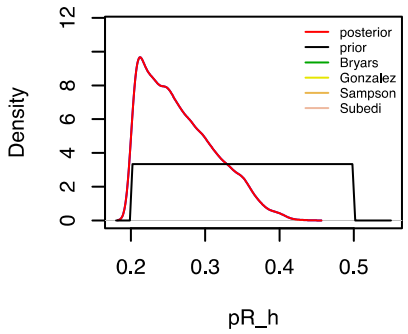

Density
0.0
0.2
0.4
0.6
9
10
11
12
13
SWpower1
posterior
prior
Bryars
Gonzalez
Sampson
Subedi

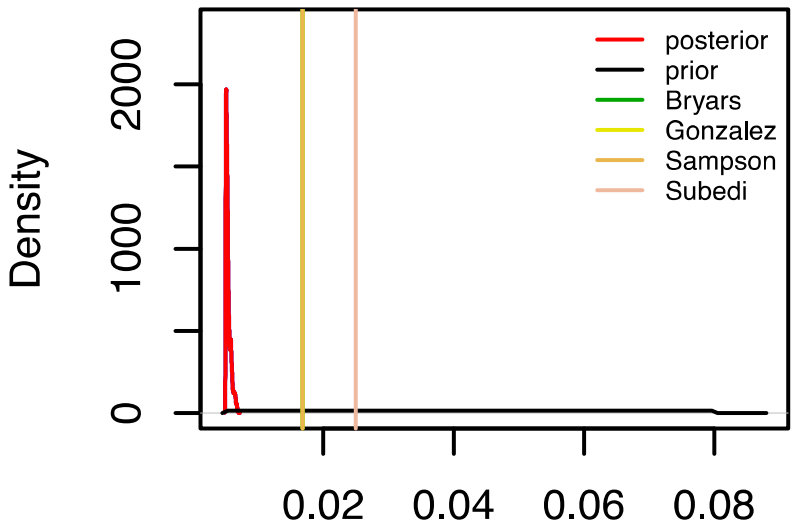

Density
0.0
0.5
1.0
1.5
2.0
0.0
0.5
1.0
1.5
2.0
2.5
SWpower2
posterior
prior
Bryars
Gonzalez
Sampson
Subedi


Density
0
4000
8000
0.000
0.004
0.008
mort_rate
posterior
prior
Bryars
Gonzalez
Sampson
Subedi


Density
0
100
200
300
0.01
0.03
0.05
Alpha_h
posterior
prior
Bryars
Gonzalez
Sampson
Subedi


Density
0
2
4
6
0.5
1.0
1.5
2.0
pFS_h
posterior
prior
Bryars
Gonzalez
Sampson
Subedi


Density
0
2
4
6
8
12
0.2
0.3
0.4
0.5
pR_h
posterior
prior
Bryars
Gonzalez
Sampson
Subedi

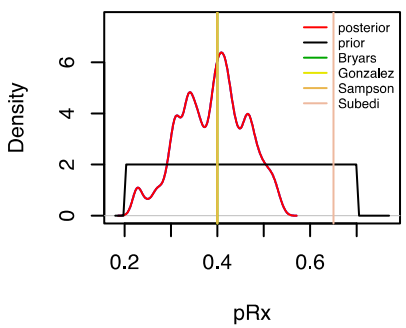


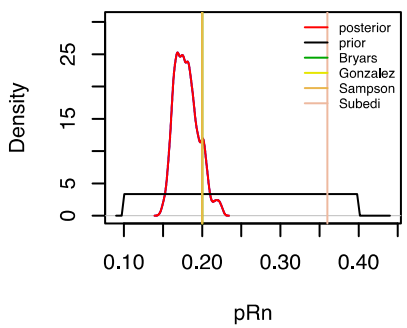
14 year turnover time

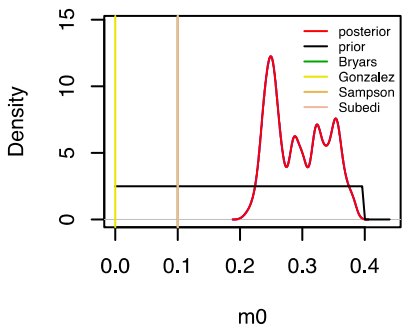
Question about the root turnover:

In 3PG the turnover is for all roots (coarse + fine)

What are reasonable priors for the combined (coarse + fine) turnover rate?

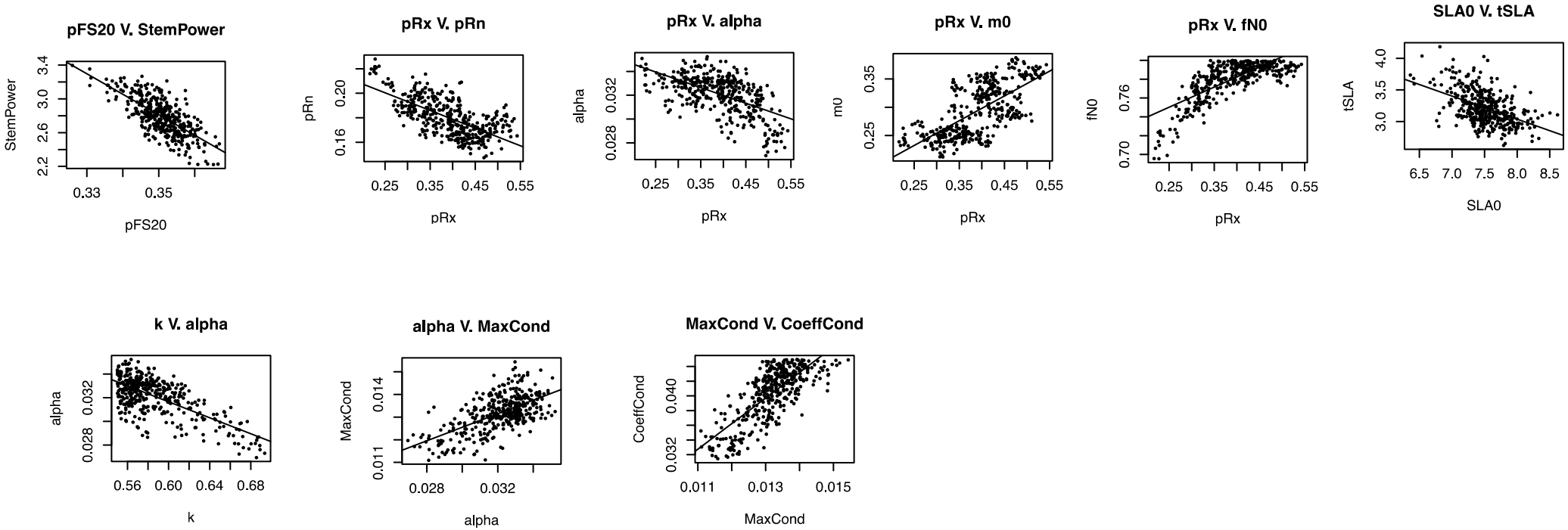




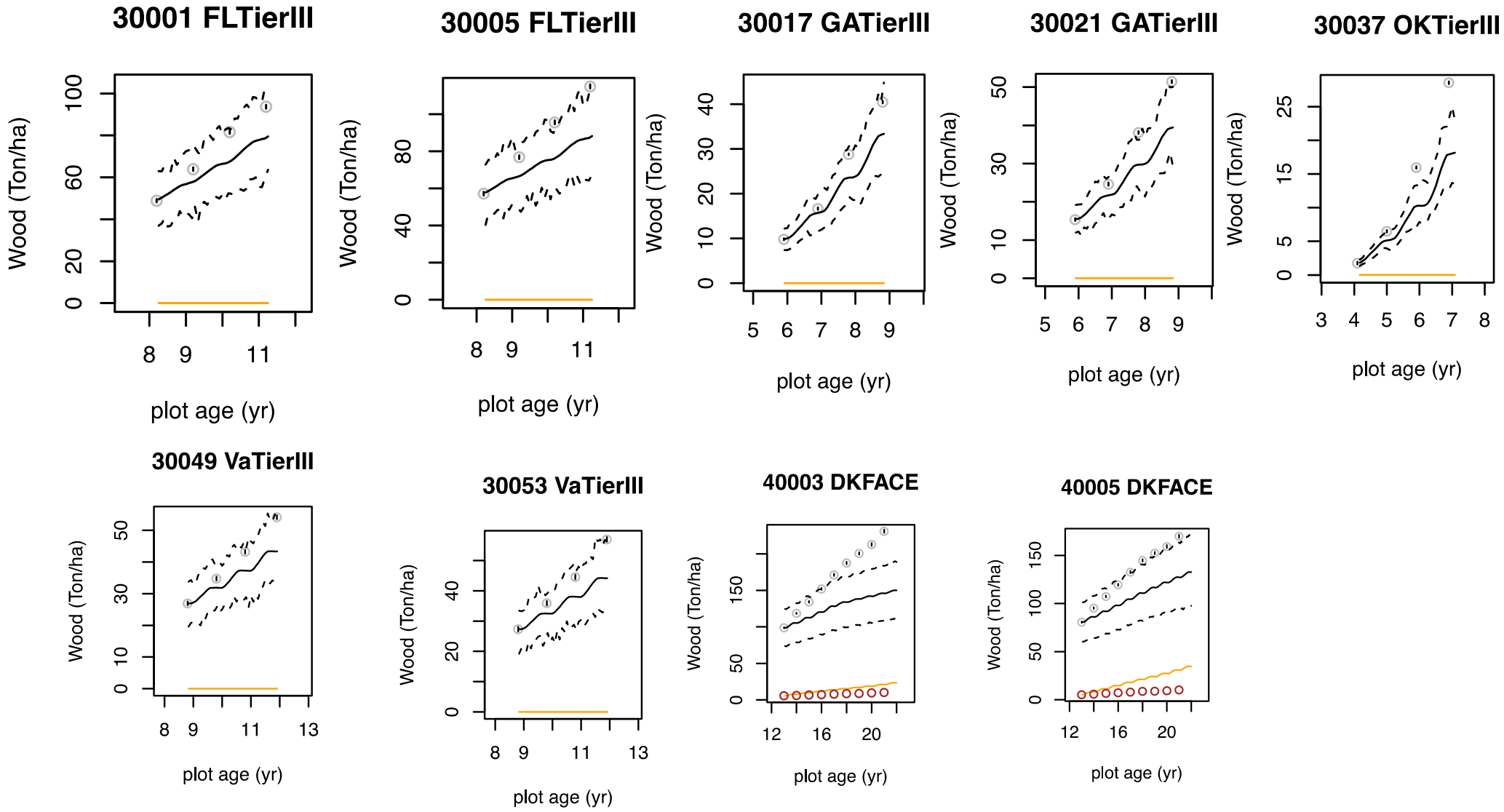


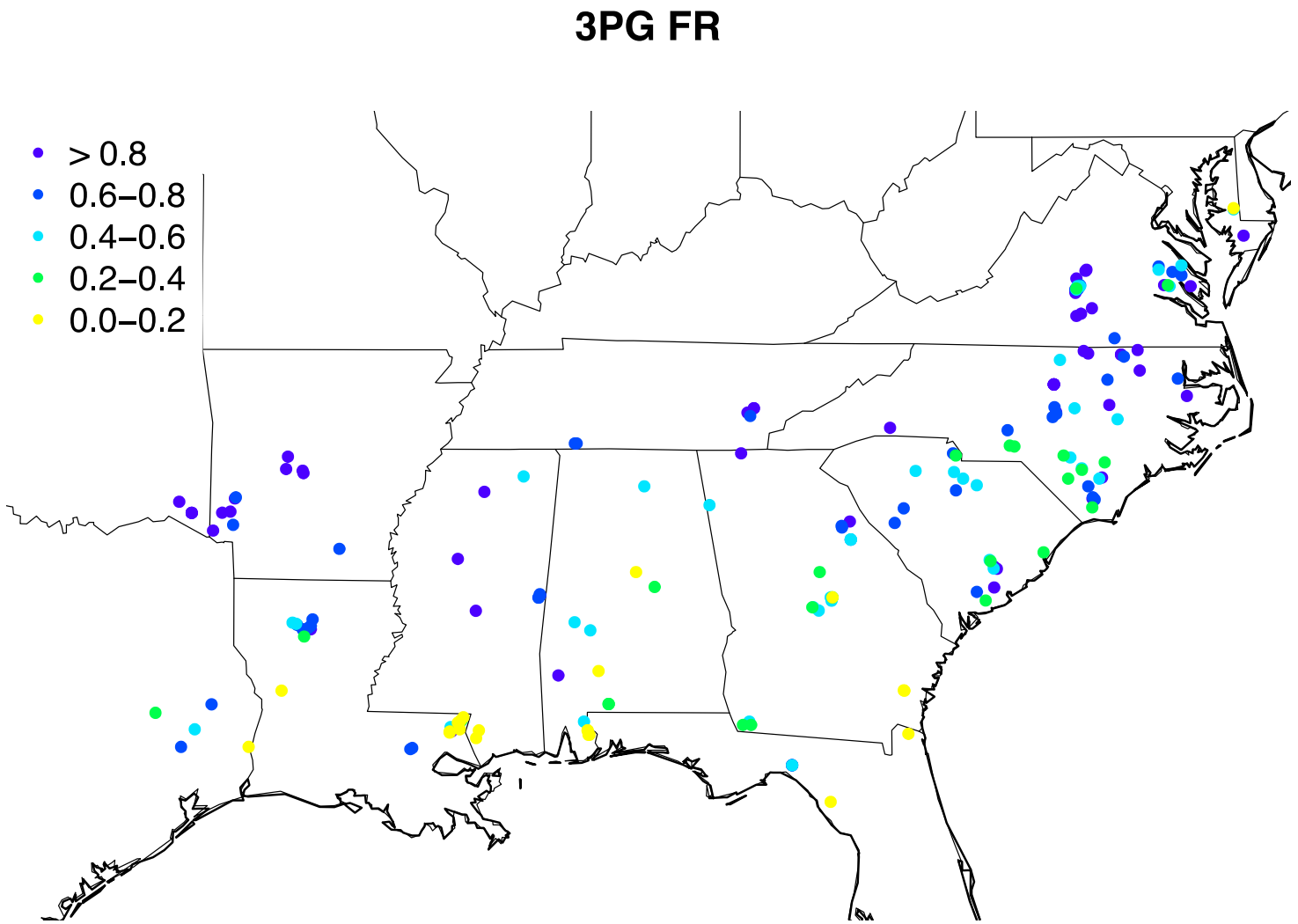
Challenging to constrain root parameters

Is the SETRES biomass and LAI data available to use in calibration?


pFS20 V. StemPower
StemPower
2.2
2.6
3.0
3.4
0.33
0.35
pFS20
pRx V. pRn
pRn
0.16
0.20
0.25
0.35
0.45
0.55
pRx
pRx V. alpha
alpha
0.028
0.032
0.25
0.35
0.45
0.55
pRx
pRx V. m0
m0
0.25
0.35
0.25
0.35
0.45
0.55
pRx
pRx V. fN0
fN0
0.70
0.76
0.25
0.35
0.45
0.55
pRx
SLA0 V. tSLA
tSLA
3.0
3.5
4.0
6.5
7.0
7.5
8.0
8.5
SLA0
k V. alpha
alpha
0.028
0.032
0.56
0.60
0.64
0.68
k
alpha V. MaxCond
MaxCond
0.011
0.014
0.028
0.032
alpha
MaxCond V. CoeffCond
CoeffCond
0.032
0.040
0.011
0.013
0.015
MaxCond

JUST AN EXAMPLE (ANALYSIS STILL RUNNING)





Control plots (204)

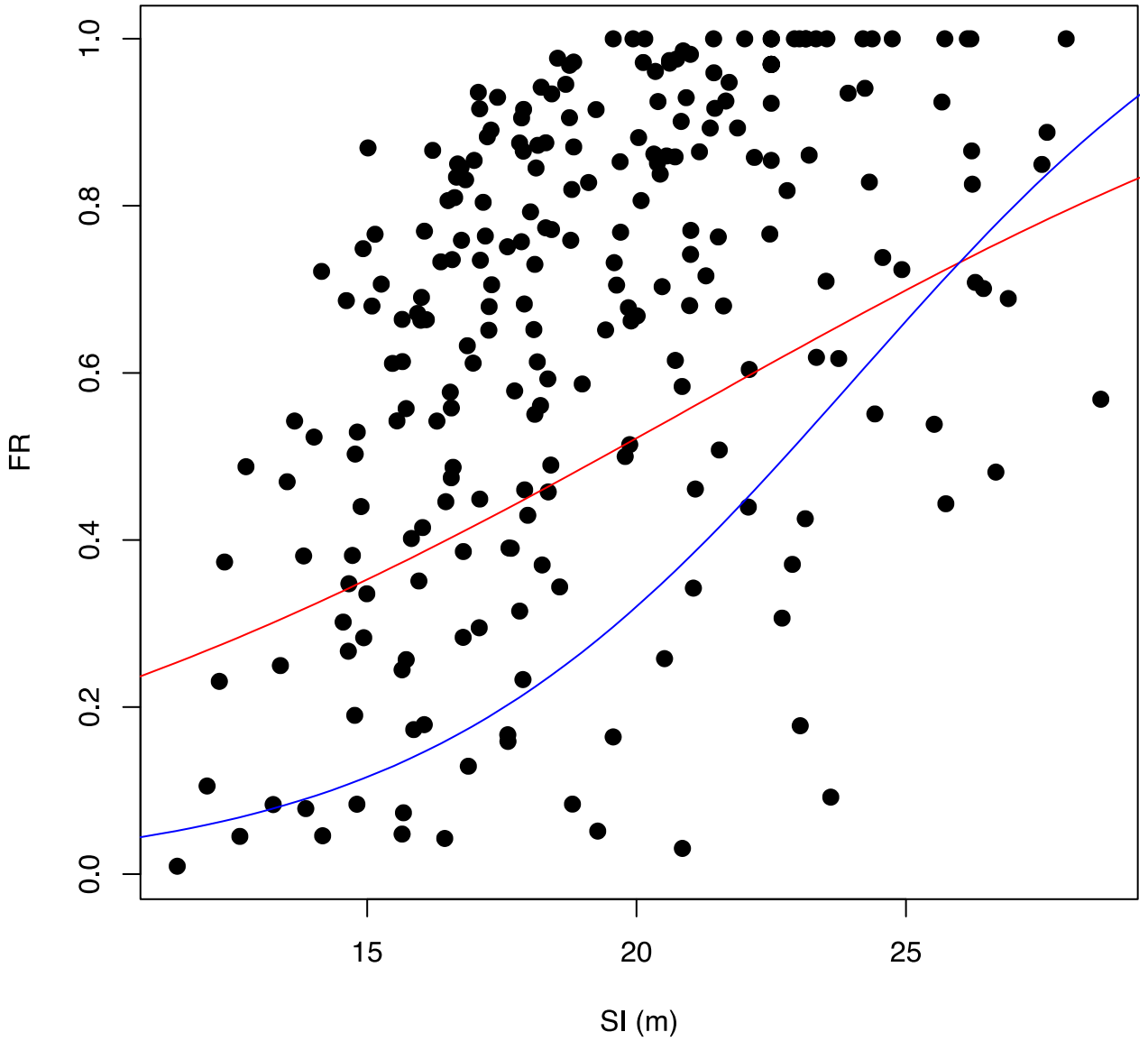
Tier 1: FMRC Thinning study (164)

Tier 2: FPC RW18 (18)

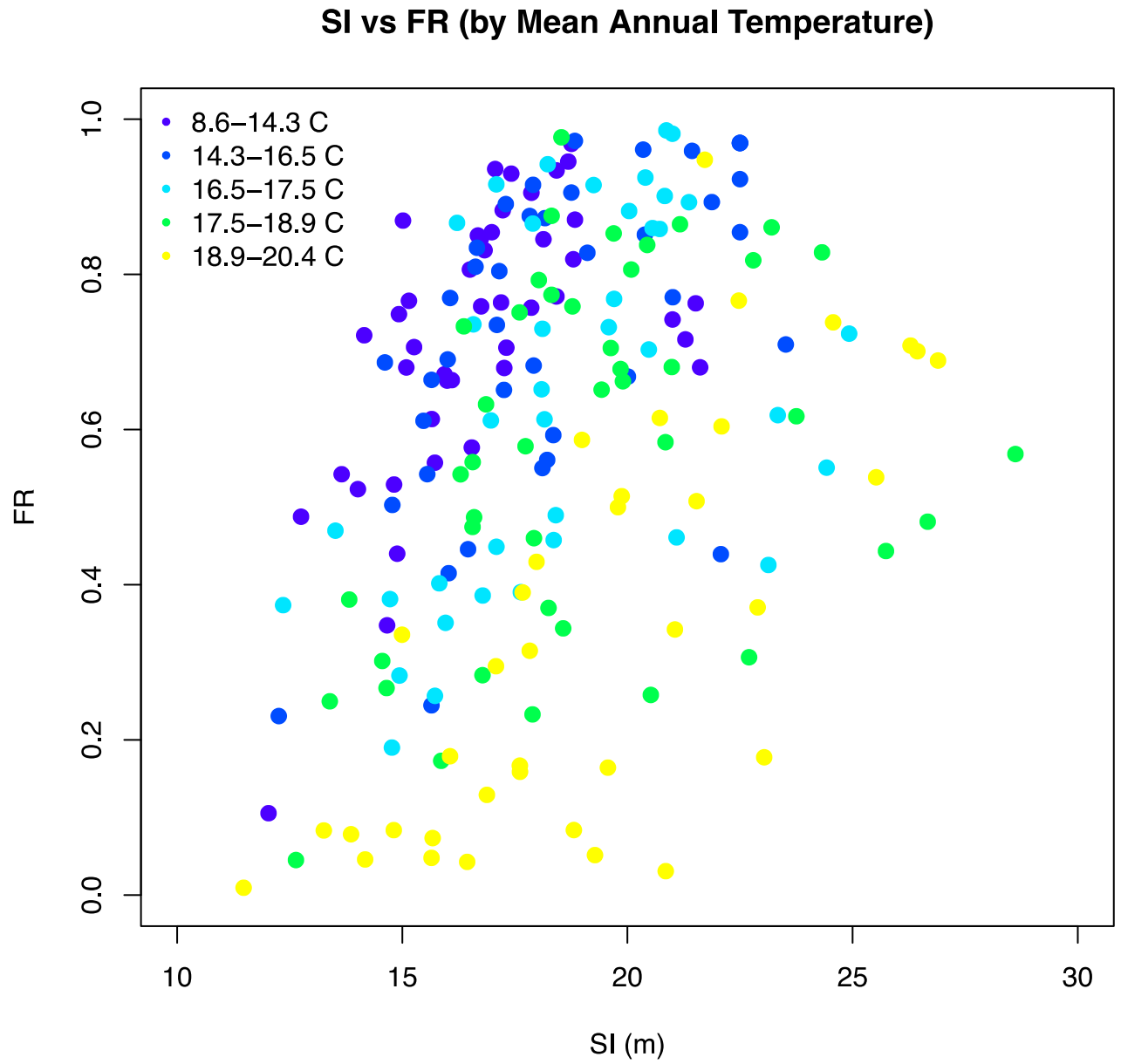
Tier 3 (16)

Duke FACE/Flux (5)

NC2 (1)



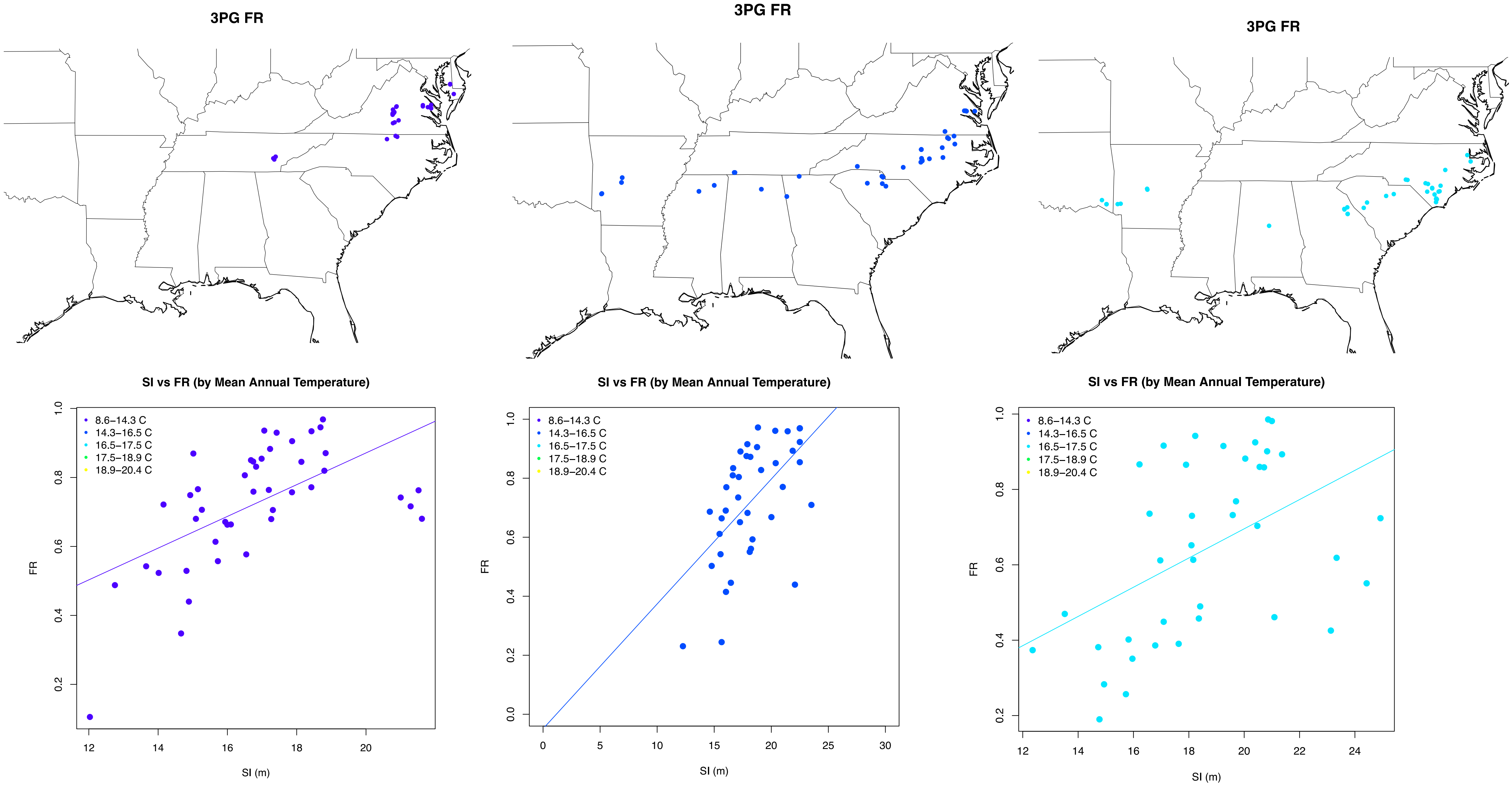
Red = Carlos
Blue = Santosh



$$FR = B_0 + B_1SI + B_2MAT$$

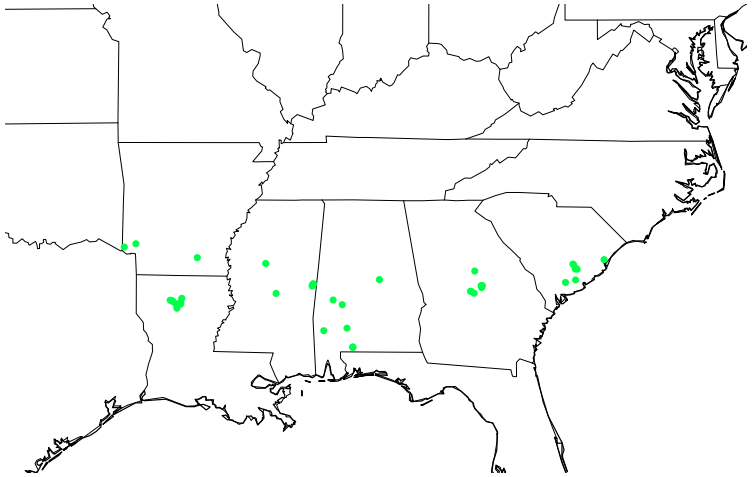
$$FR = 1.24 + 0.04*SI - 0.08*MAT$$

$$R2 = 0.49$$

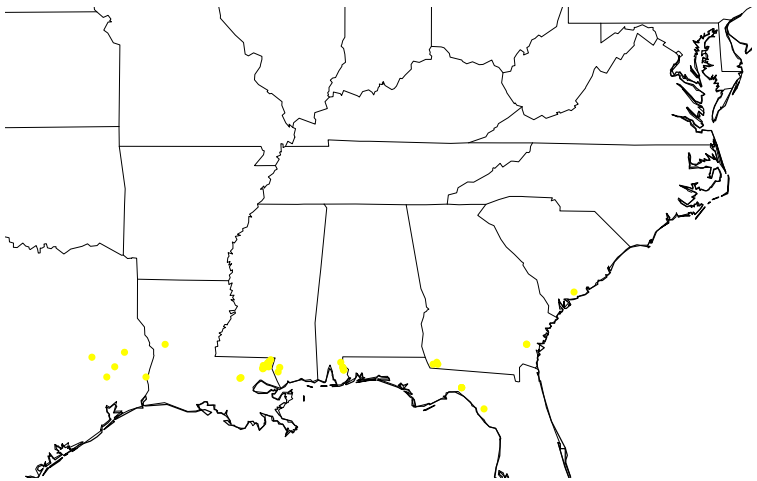


3PG FR
3PG FR
3PG FR
SI vs FR (by Mean Annual Temperature)
8.6–14.3 C
14.3–16.5 C
16.5–17.5 C
17.5–18.9 C
18.9–20.4 C
FR
SI (m)
0.2 0.4 0.6 0.8 1.0
12 14 16 18 20
SI vs FR (by Mean Annual Temperature)
8.6–14.3 C
14.3–16.5 C
16.5–17.5 C
17.5–18.9 C
18.9–20.4 C
FR
SI (m)
0.0 0.2 0.4 0.6 0.8 1.0
0 5 10 15 20 25 30
SI vs FR (by Mean Annual Temperature)
8.6–14.3 C
14.3–16.5 C
16.5–17.5 C
17.5–18.9 C
18.9–20.4 C
FR
SI (m)
0.2 0.4 0.6 0.8 1.0
12 14 16 18 20 22 24

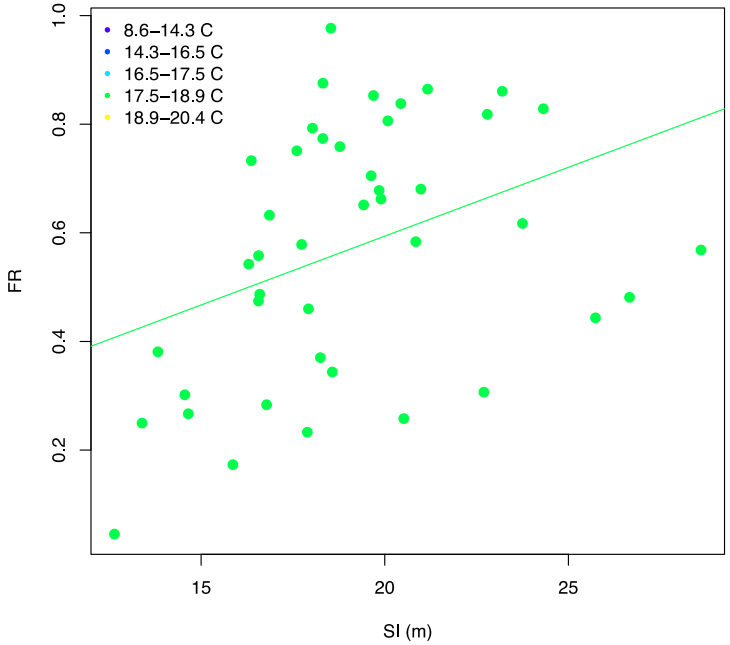
3PG FR



3PG FR



SI vs FR (by Mean Annual Temperature)



SI vs FR (by Mean Annual Temperature)