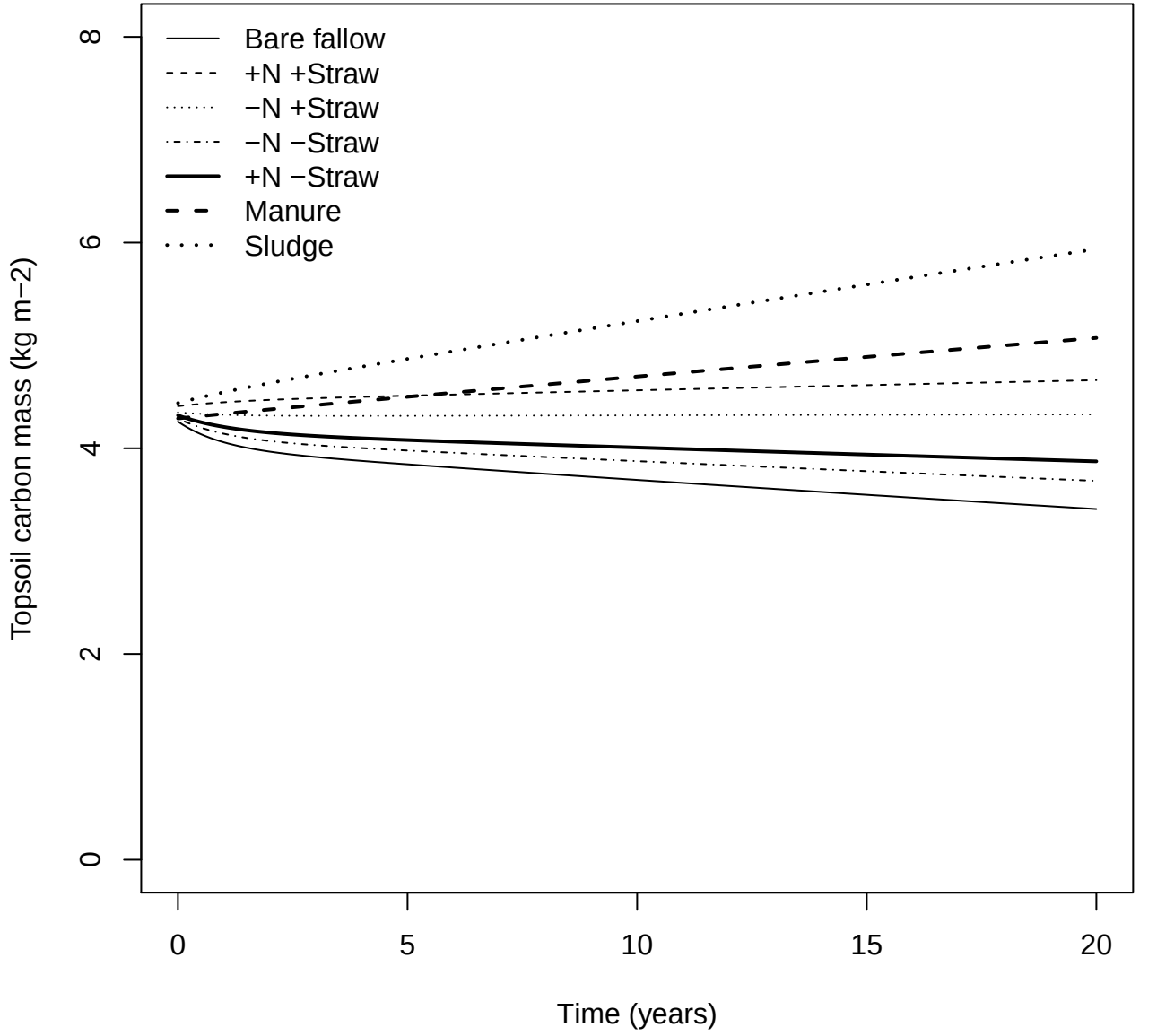
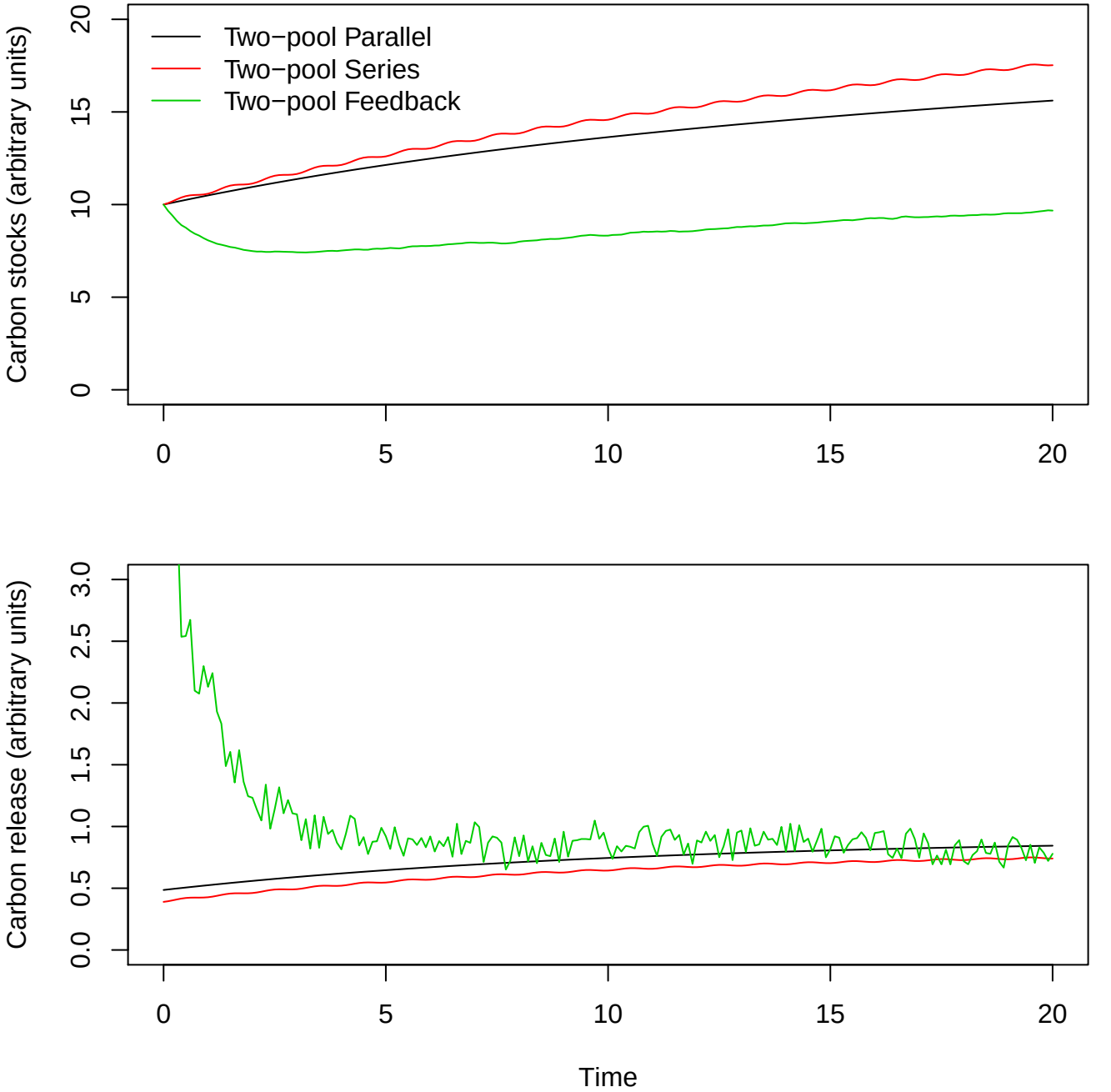
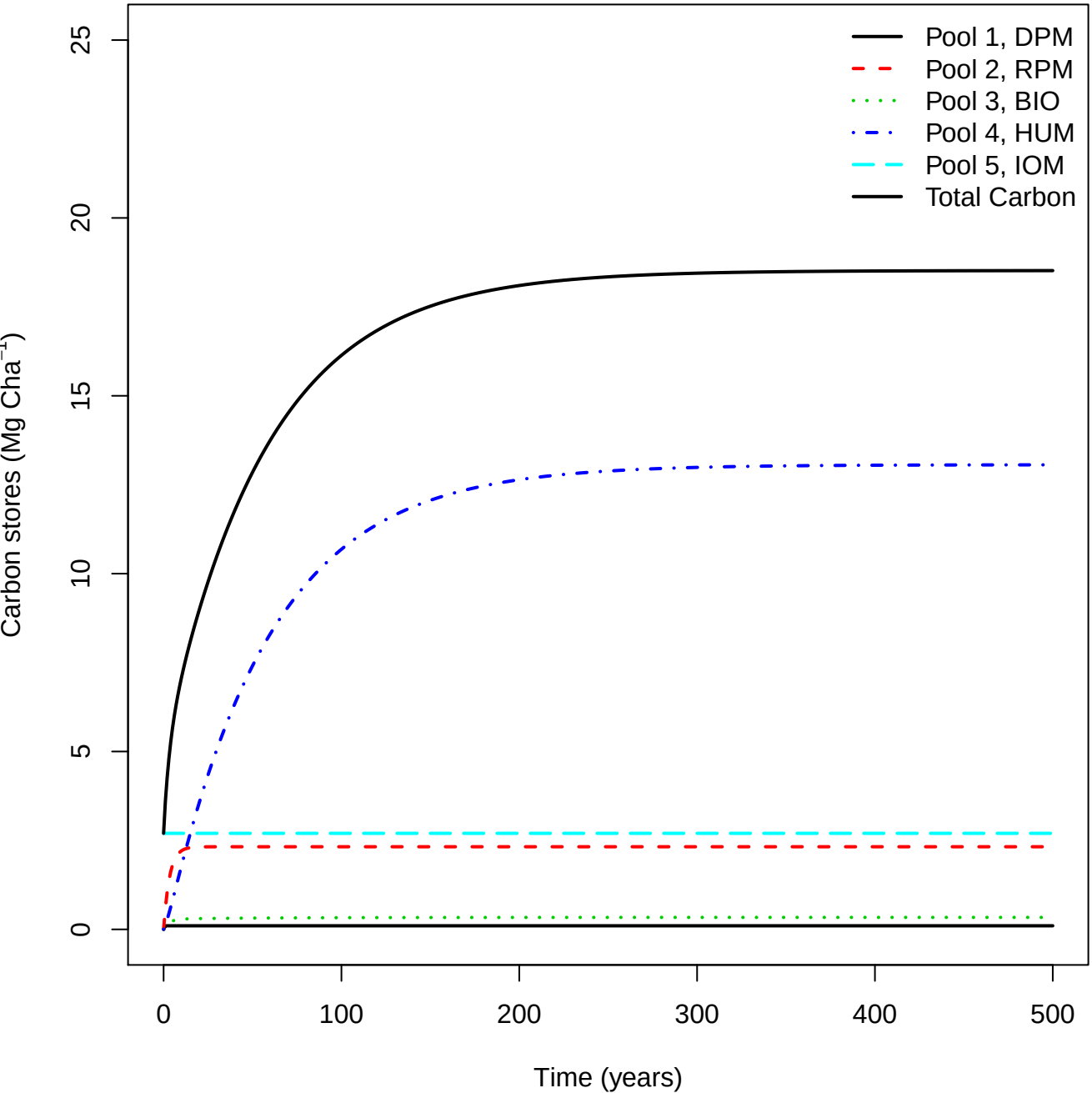
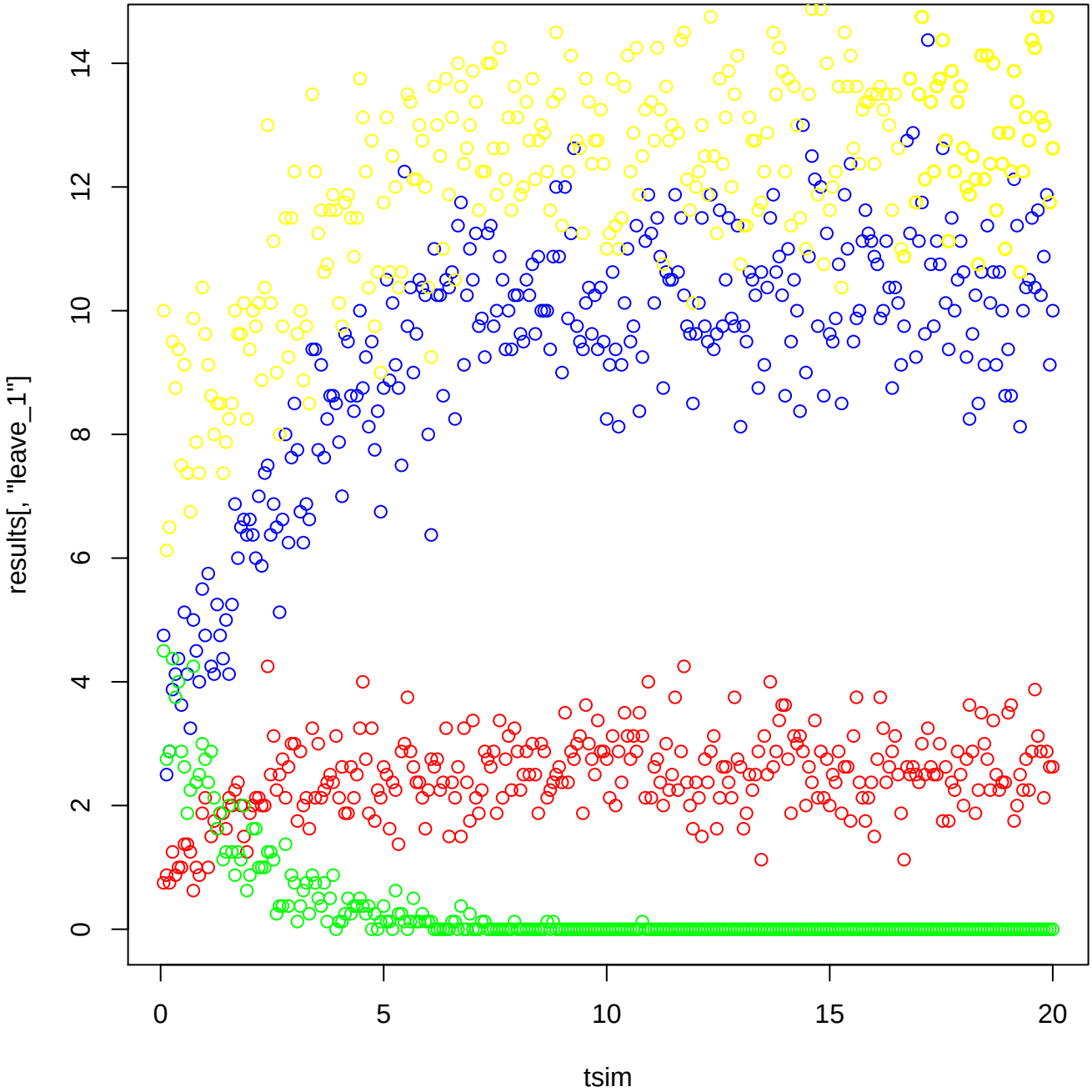
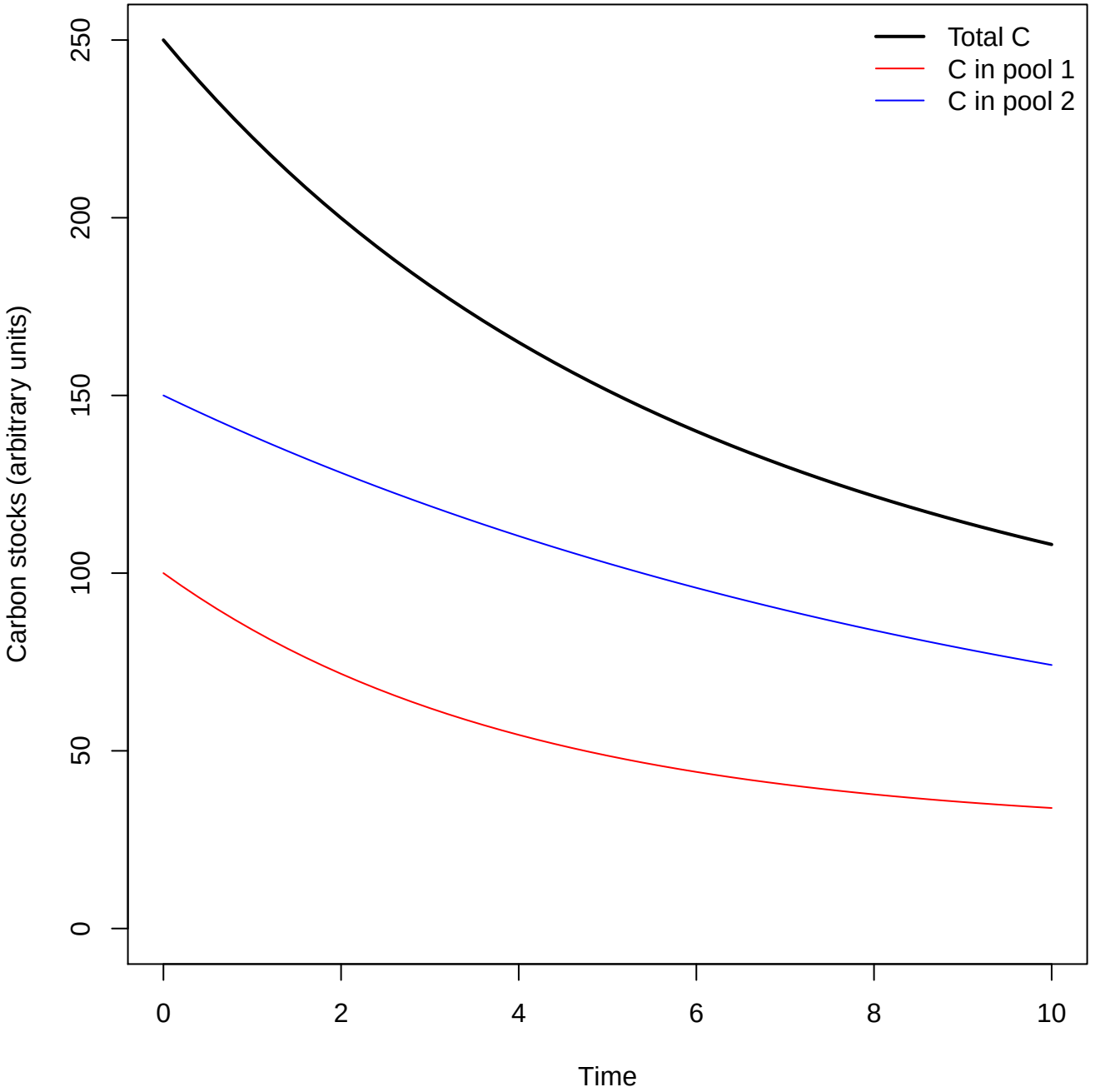
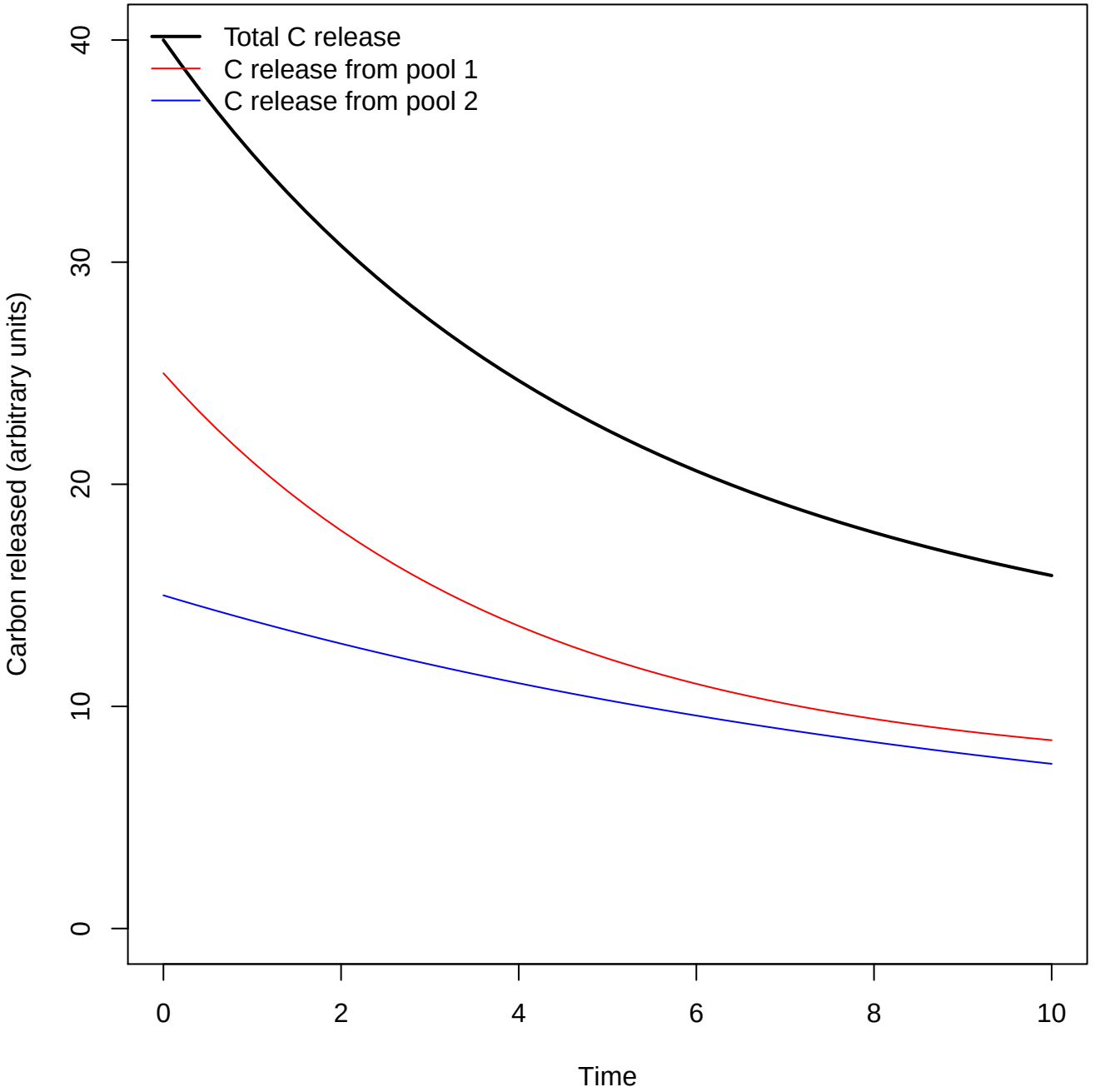

Bare fallow
+N +Straw
−N +Straw
−N −Straw
+N −Straw
Manure
Sludge
Topsoil carbon mass (kg m−2)
0
2
4
6
8
0
5
10
15
20
Time (years)

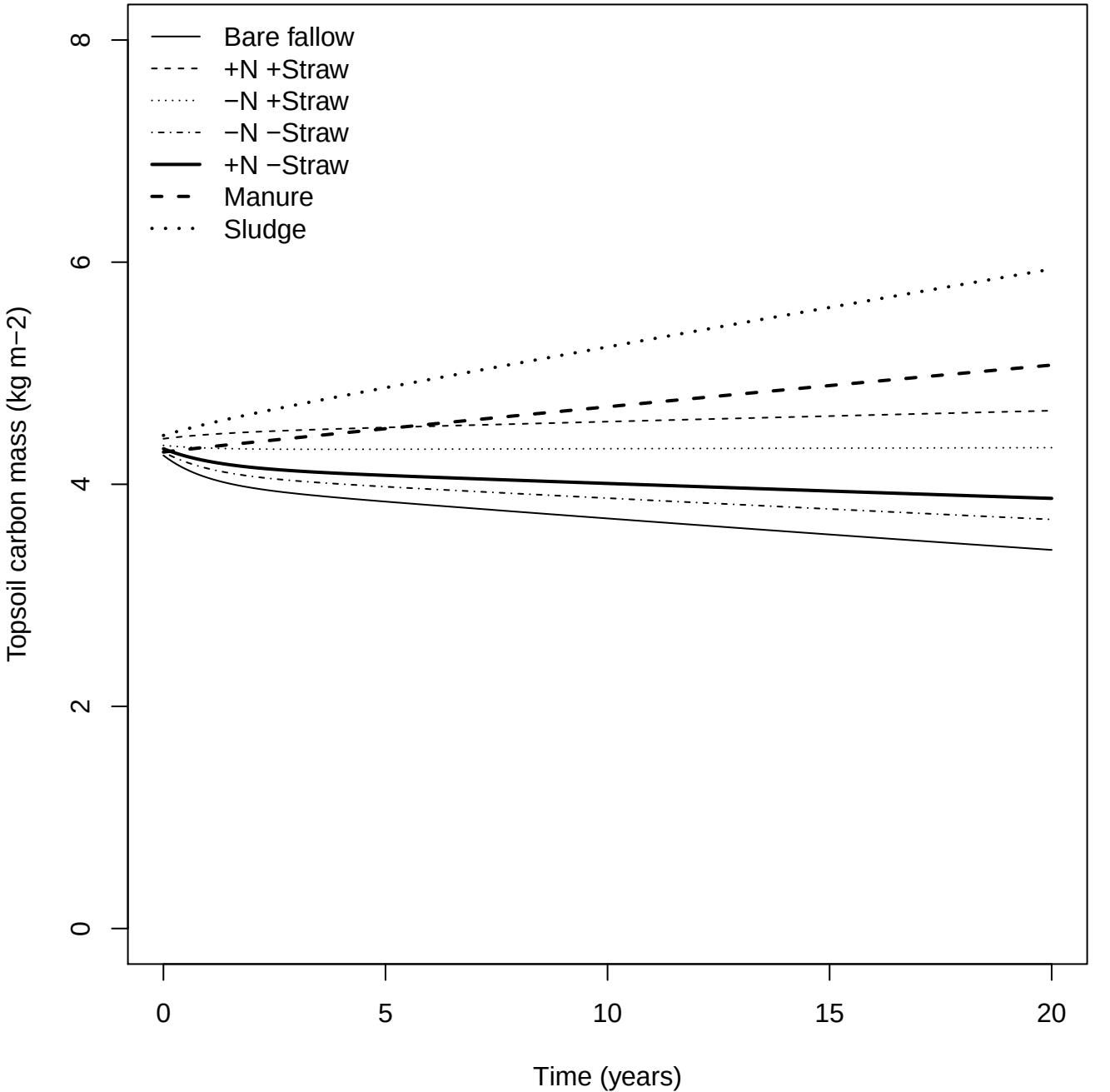

Two−pool Parallel
Two−pool Series
Two−pool Feedback
Carbon stocks (arbitrary units)
0
5
10
15
20
Carbon release (arbitrary units)
0.0
0.5
1.0
1.5
2.0
2.5
3.0
Time

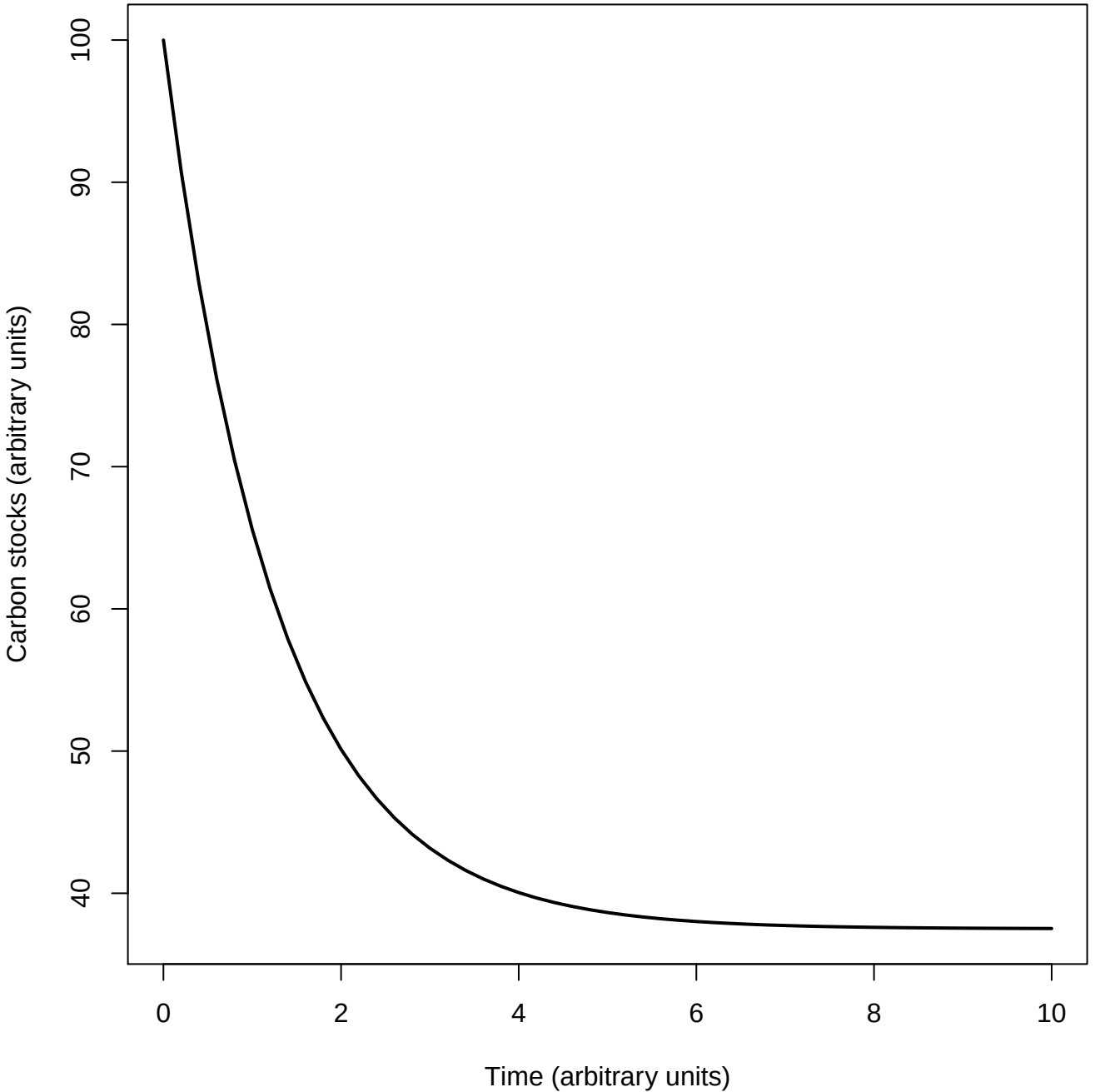

Pool 1, DPM
Pool 2, RPM
Pool 3, BIO
Pool 4, HUM
Pool 5, IOM
Total Carbon
Carbon stores (Mg Cha^{-1})
0
5
10
15
20
25
0
100
200
300
400
500
Time (years)

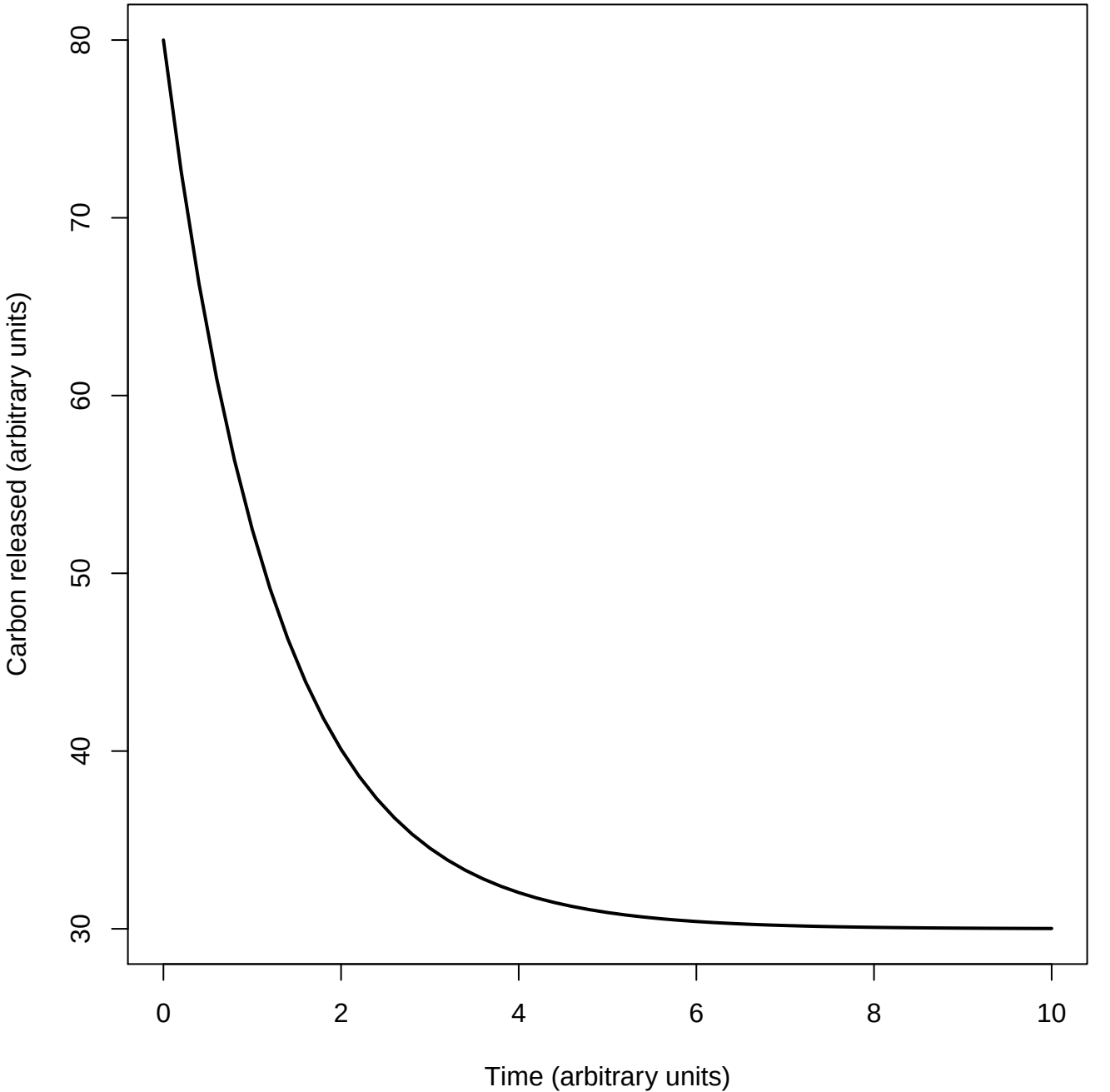

results[, "leave_1"]
0
2
4
6
8
10
12
14
0
5
10
15
20
tsim

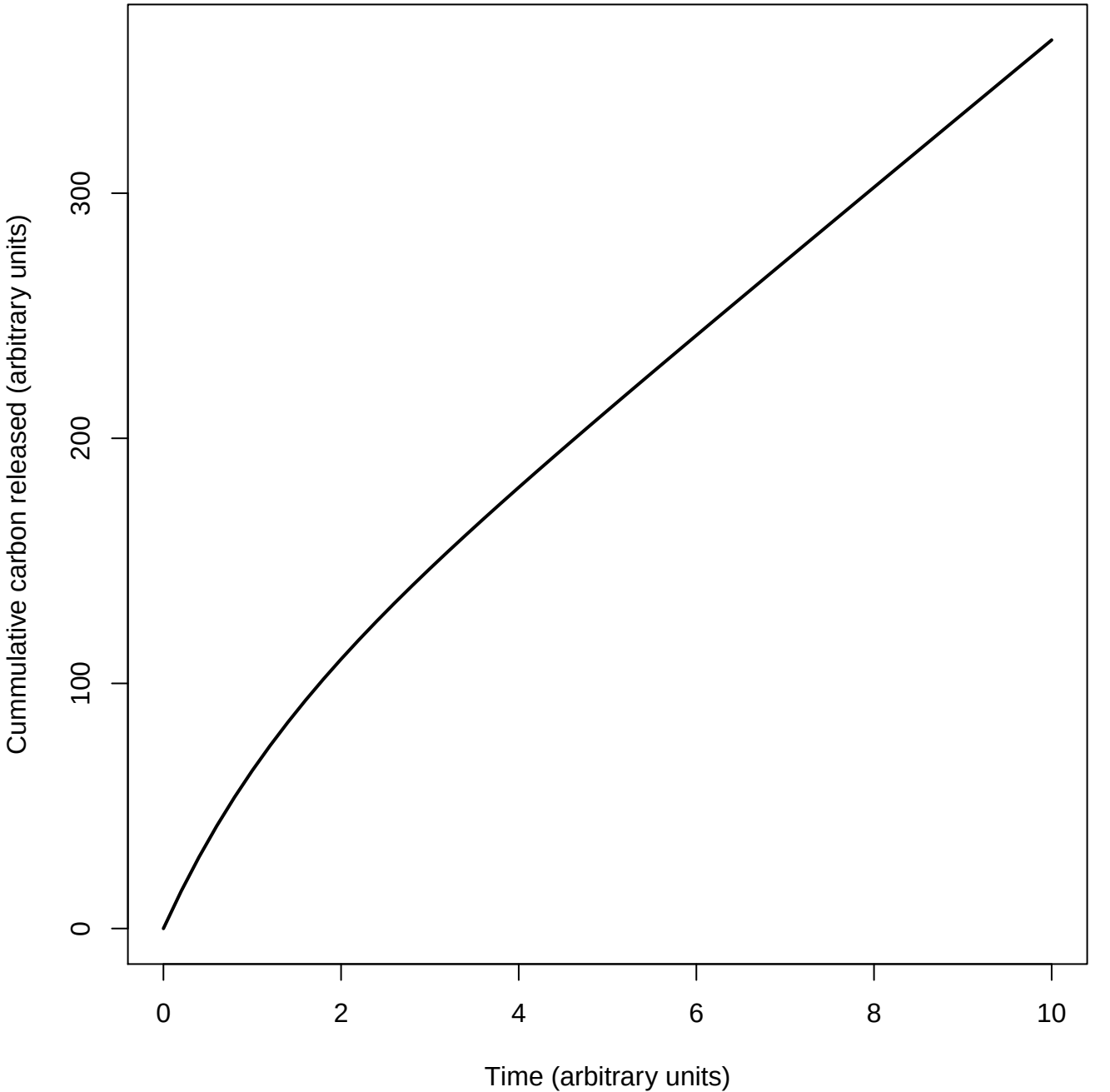

Total C
C in pool 1
C in pool 2
Carbon stocks (arbitrary units)
0
50
100
150
200
250
0
2
4
6
8
10
Time

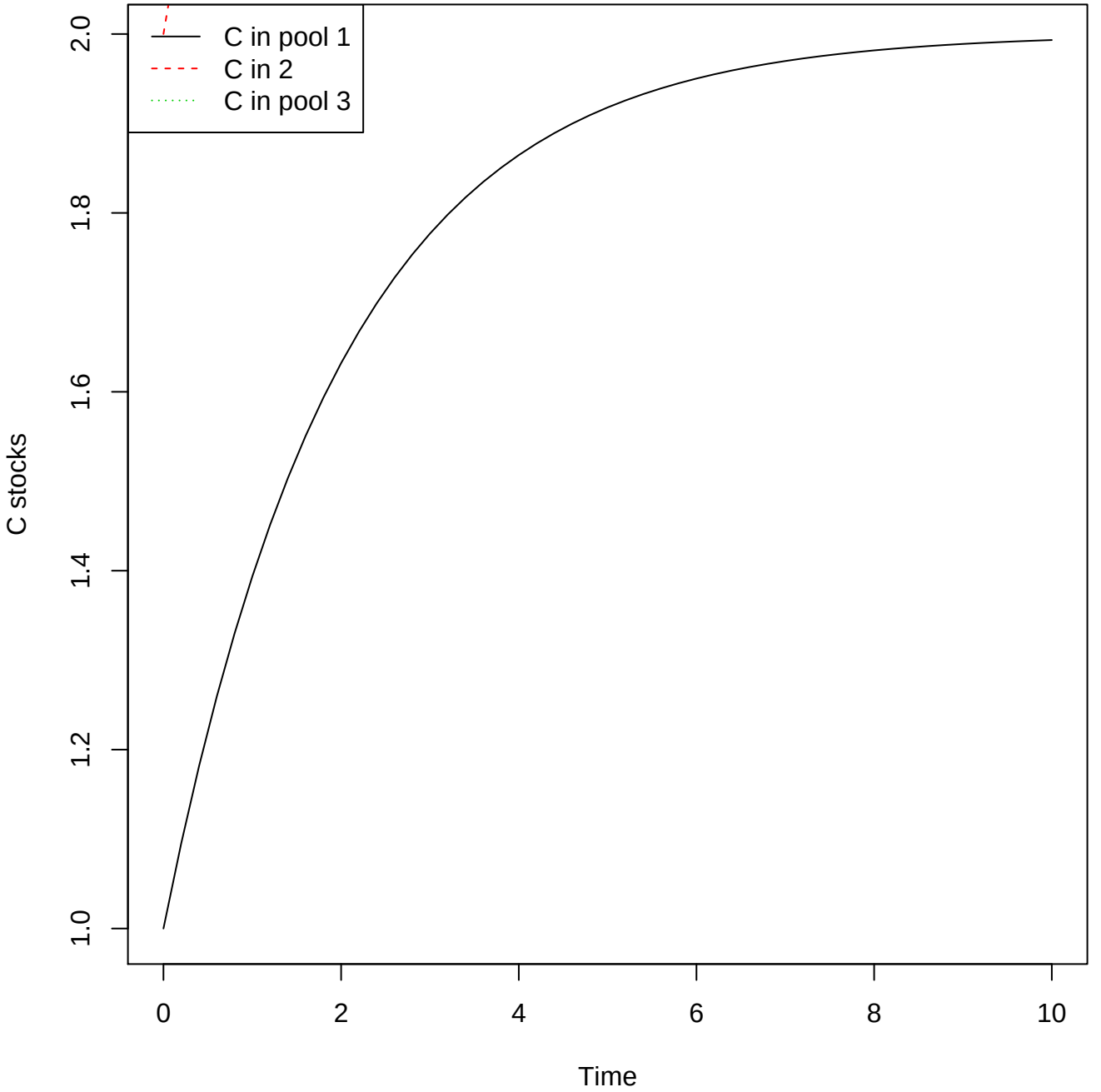

Total C release
C release from pool 1
C release from pool 2
Carbon released (arbitrary units)
0
10
20
30
40
0
2
4
6
8
10
Time

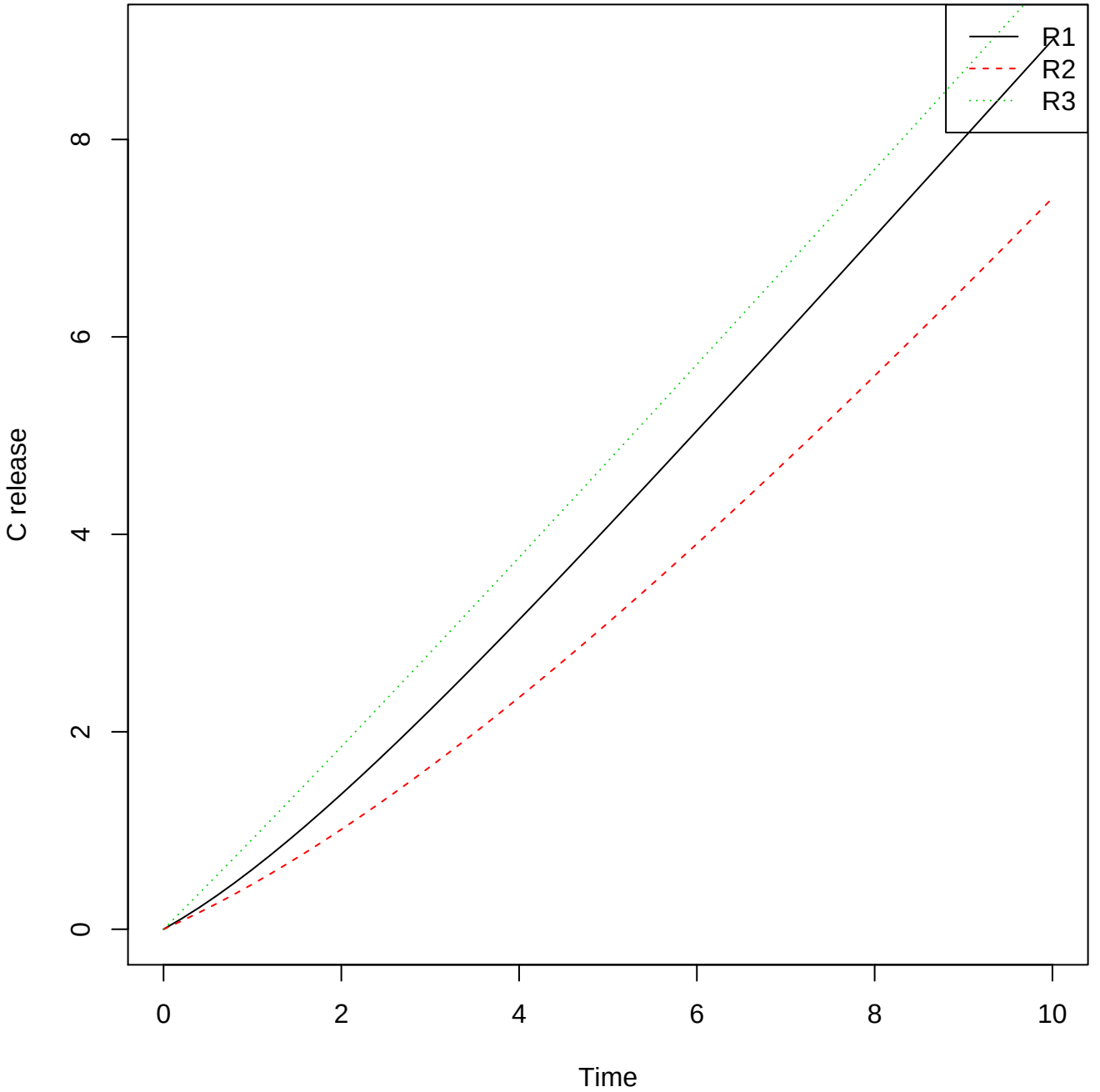

Bare fallow
+N +Straw
−N +Straw
−N −Straw
+N −Straw
Manure
Sludge
Topsoil carbon mass (kg m−2)
0
2
4
6
8
0
5
10
15
20
Time (years)

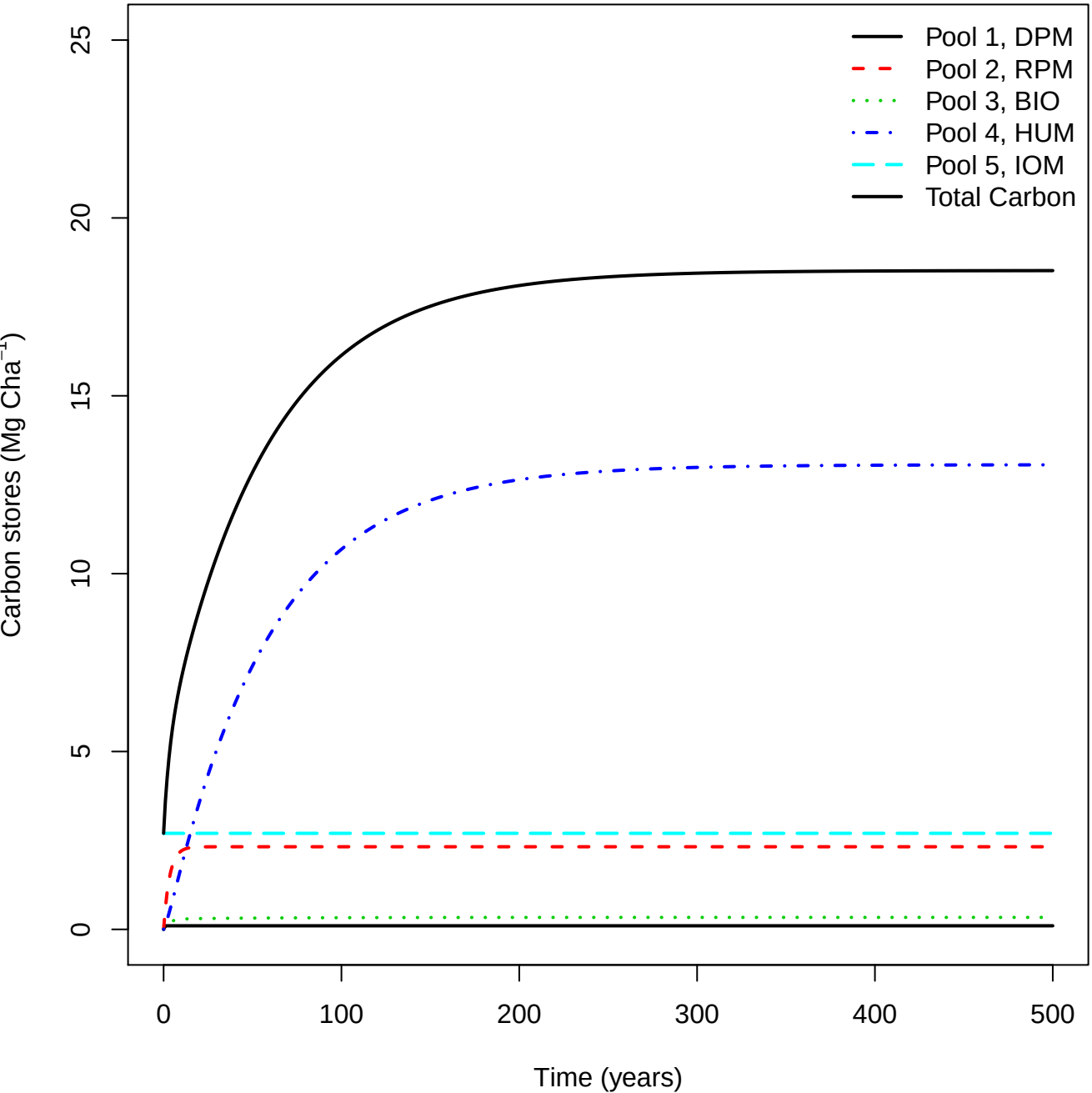

Carbon stocks (arbitrary units)
100
90
80
70
60
50
40
0
2
4
6
8
10
Time (arbitrary units)

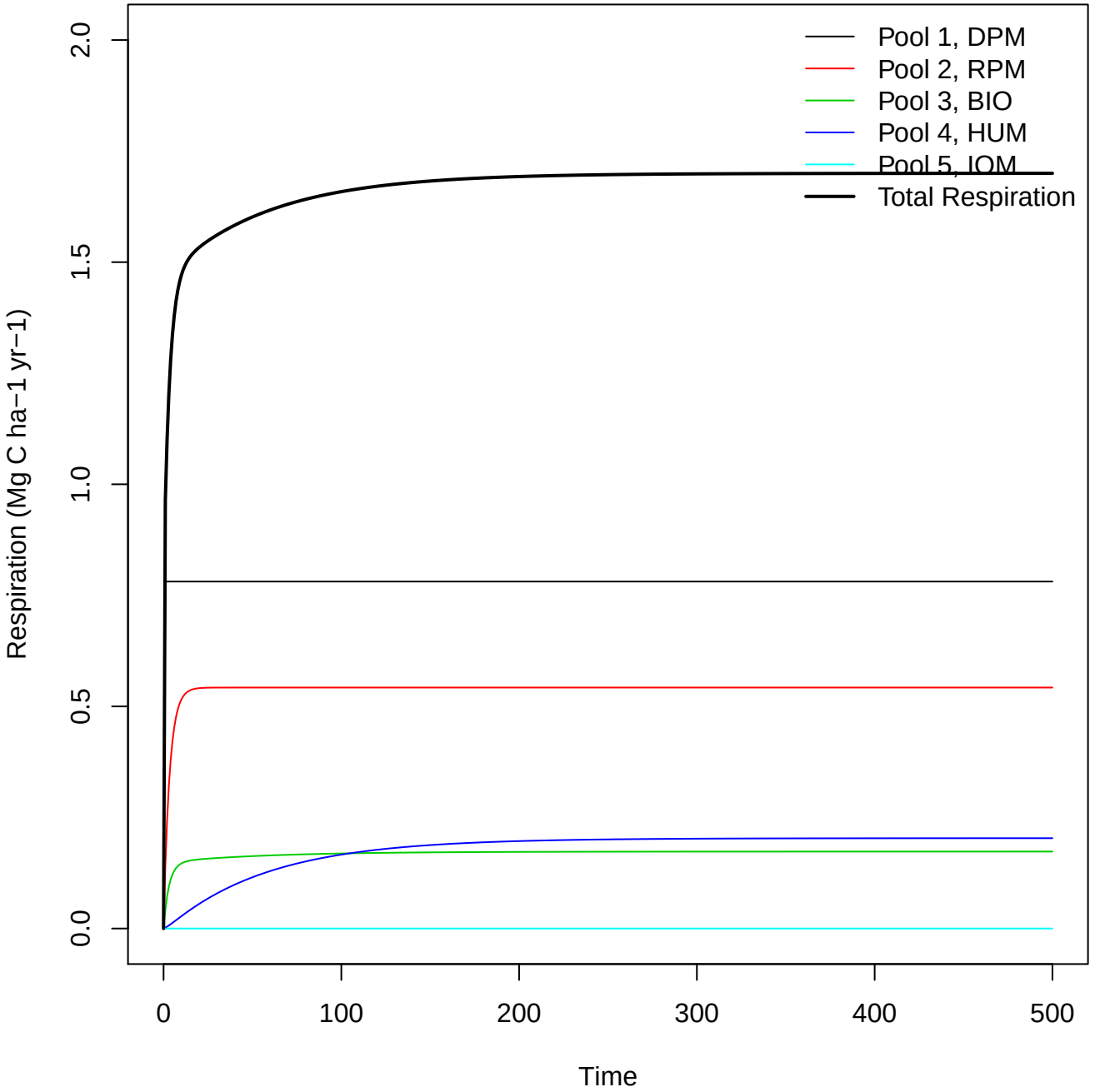

Carbon released (arbitrary units)
80
70
60
50
40
30
0
2
4
6
8
10
Time (arbitrary units)

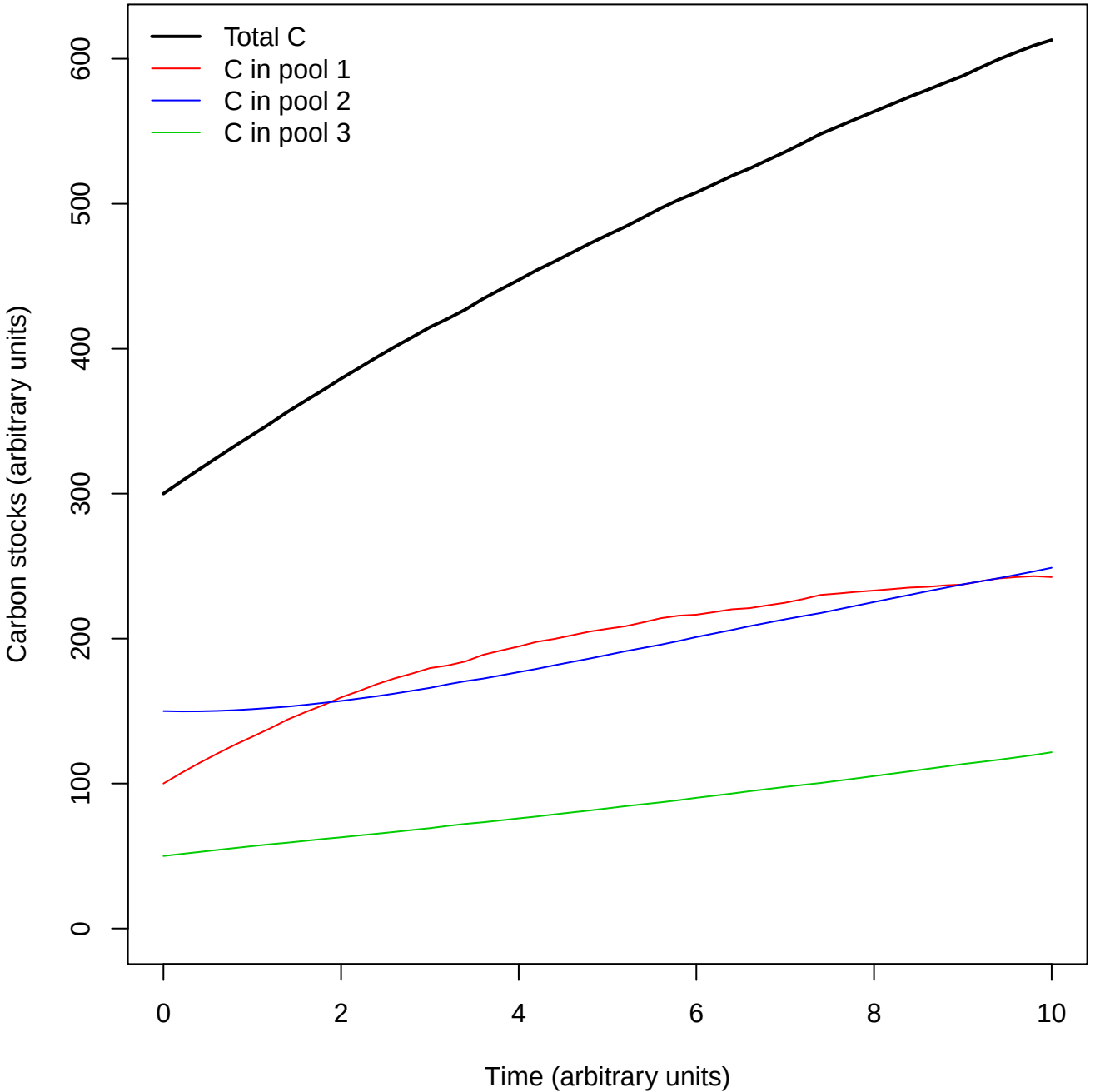

Cummulative carbon released (arbitrary units)
0
100
200
300
0
2
4
6
8
10
Time (arbitrary units)

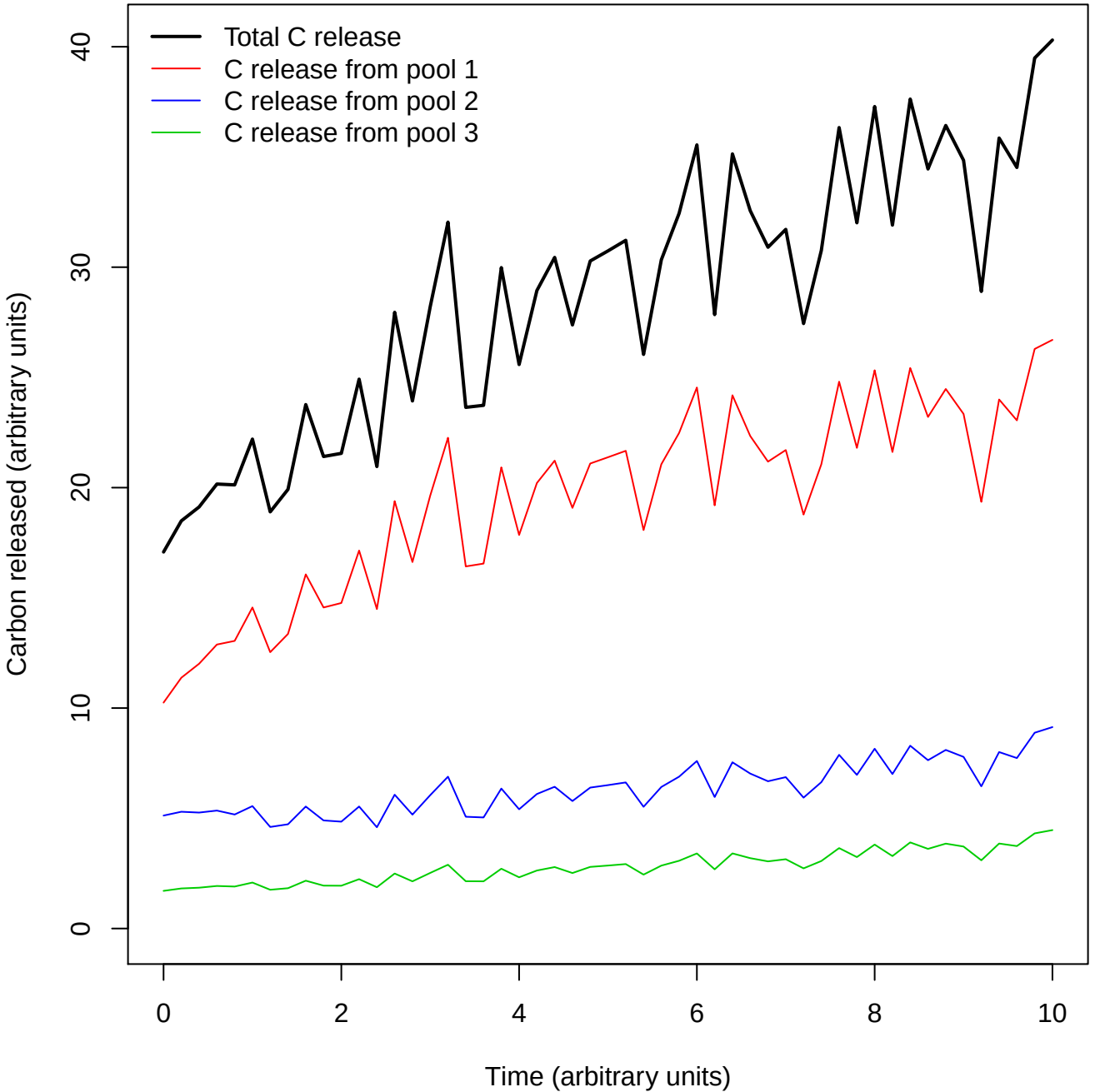

C in pool 1
C in 2
C in pool 3
C stocks
Time
1.0
1.2
1.4
1.6
1.8
2.0
0
2
4
6
8
10

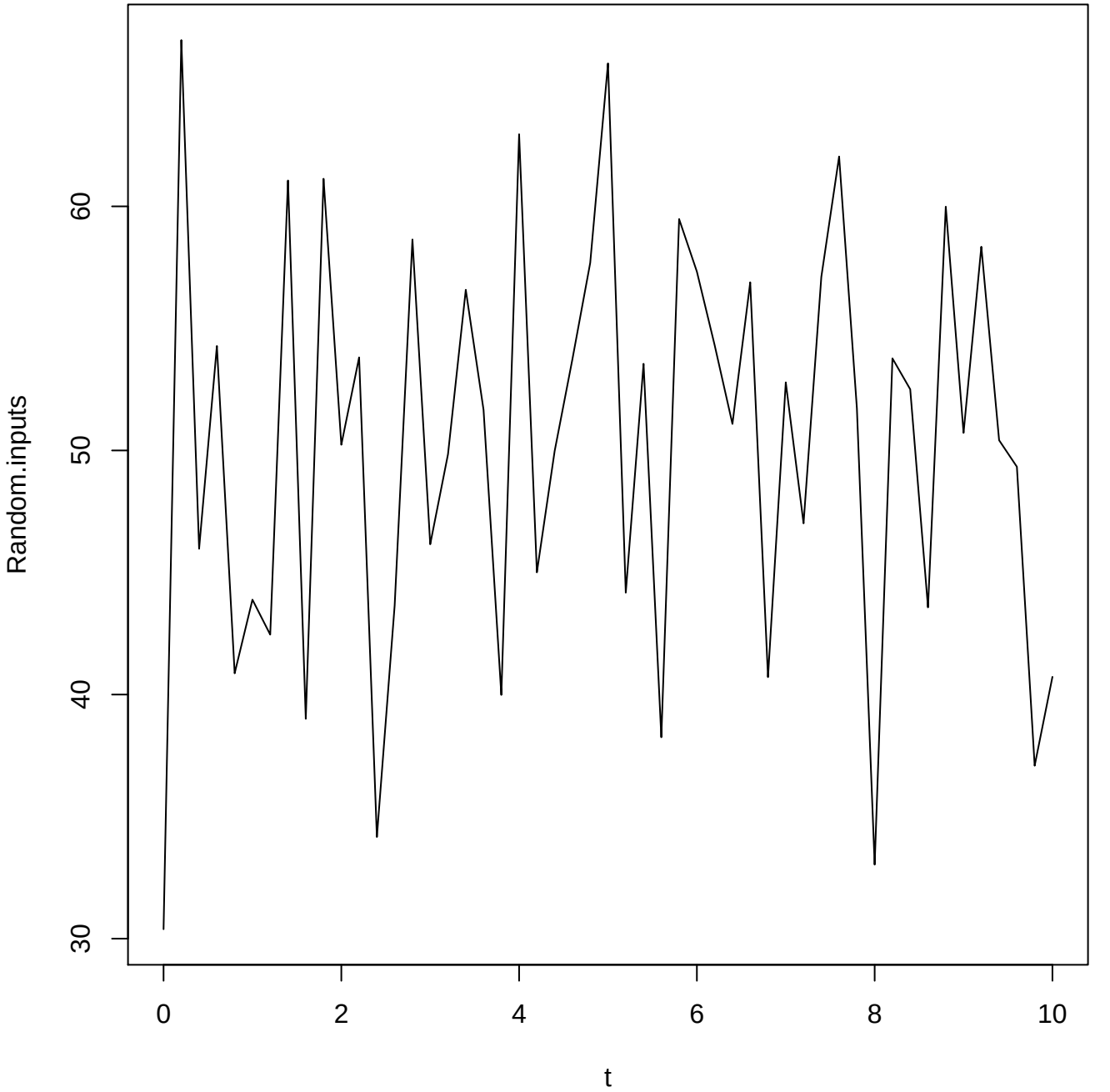

R1
R2
R3
C release
Time
0
2
4
6
8
10

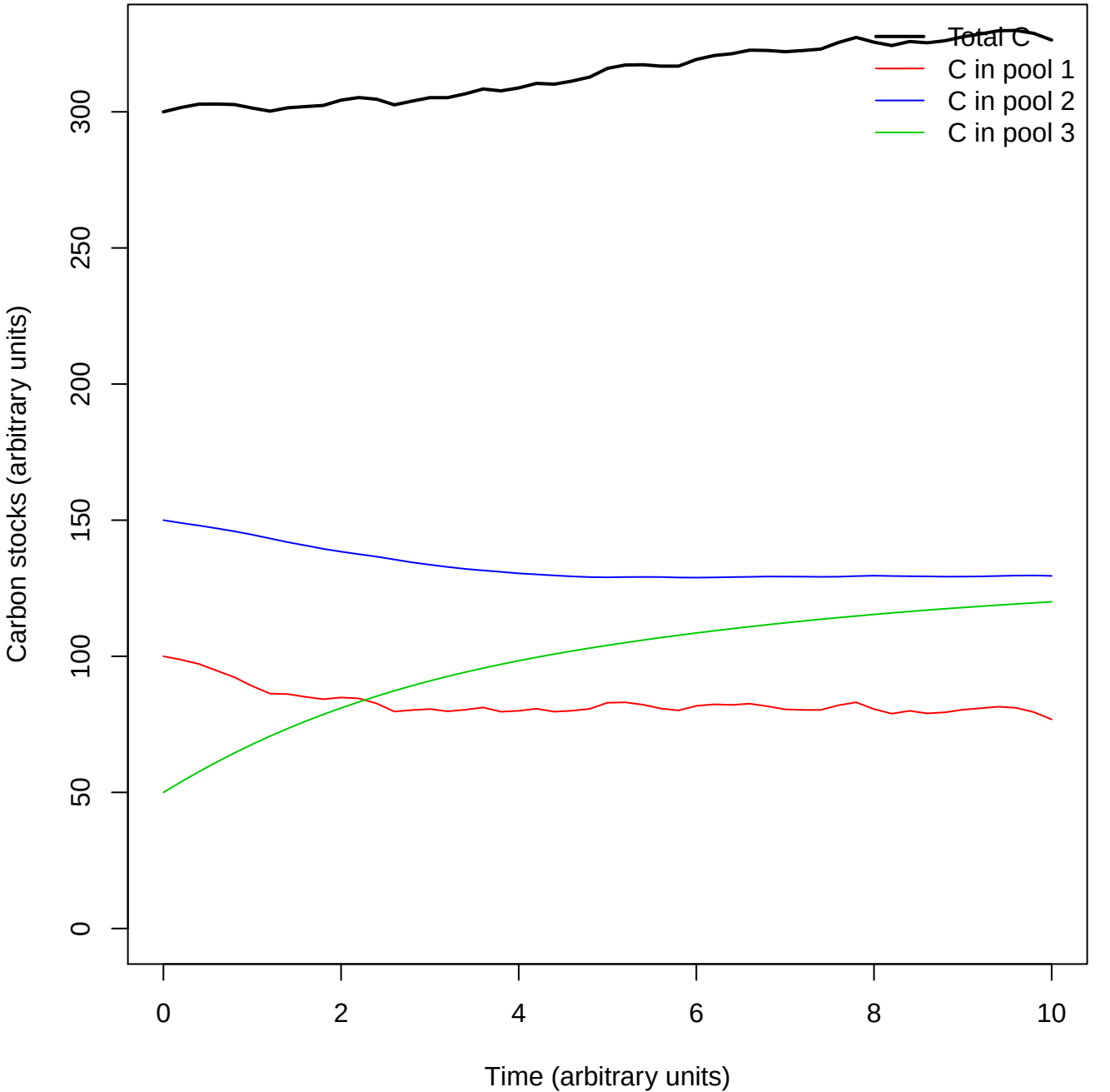

Pool 1, DPM
Pool 2, RPM
Pool 3, BIO
Pool 4, HUM
Pool 5, IOM
Total Carbon
Carbon stores (Mg Cha^{-1})
0
5
10
15
20
25
0
100
200
300
400
500
Time (years)

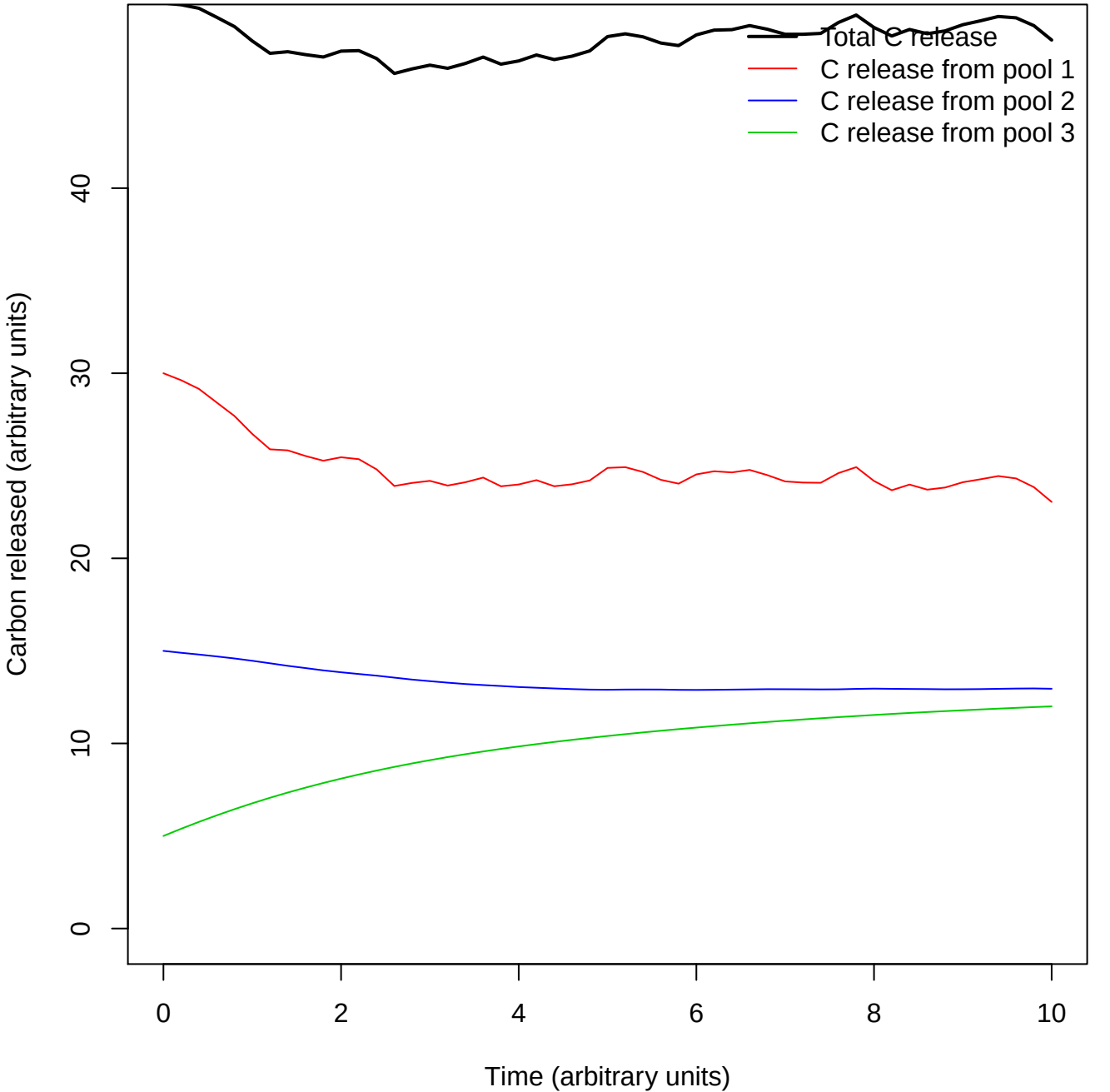

Pool 1, DPM
Pool 2, RPM
Pool 3, BIO
Pool 4, HUM
Pool 5, IOM
Total Respiration
Respiration (Mg C ha−1 yr−1)
0.0
0.5
1.0
1.5
2.0
0
100
200
300
400
500
Time

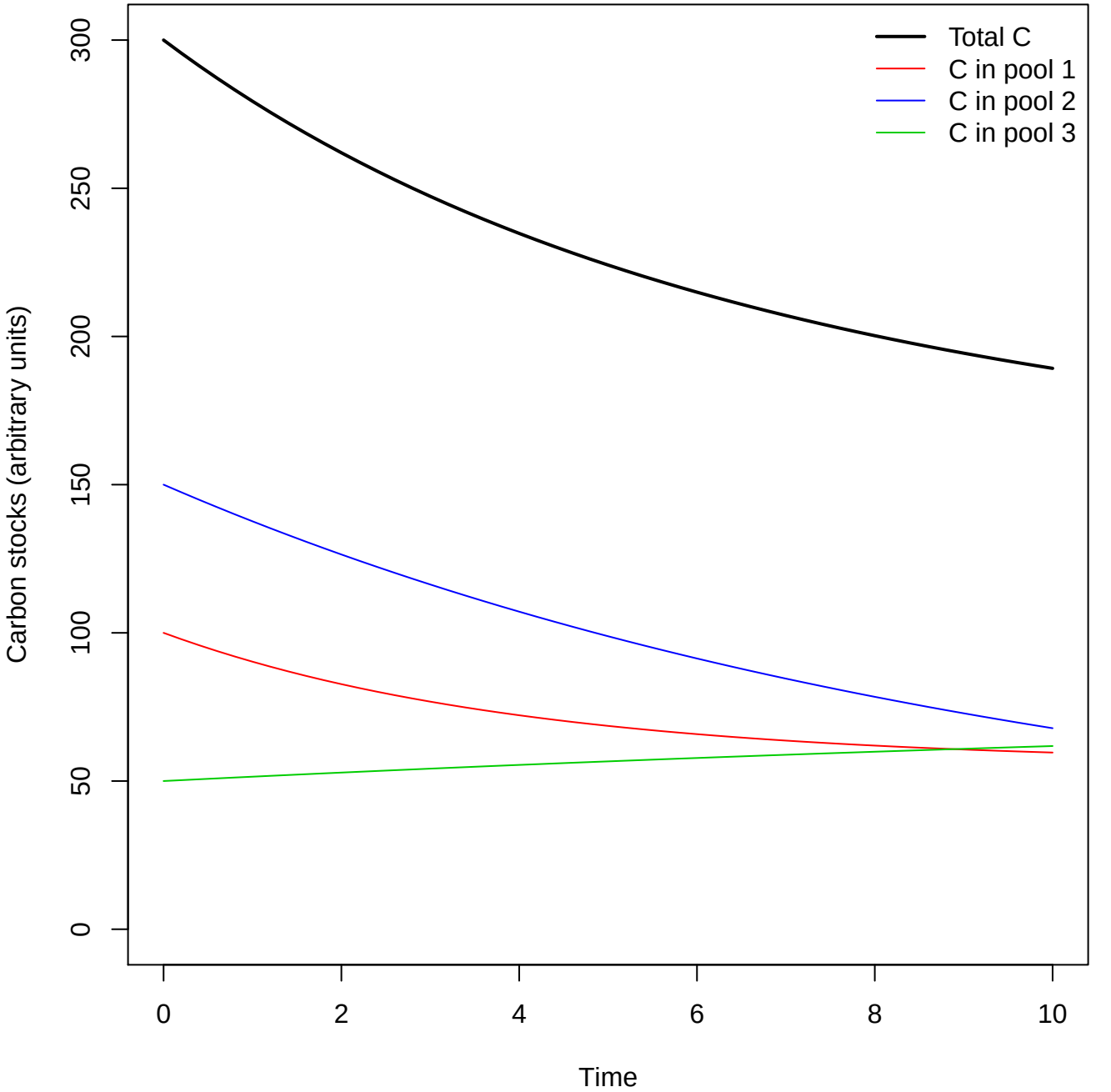

Total C
C in pool 1
C in pool 2
C in pool 3
Carbon stocks (arbitrary units)
0
100
200
300
400
500
600
0
2
4
6
8
10
Time (arbitrary units)

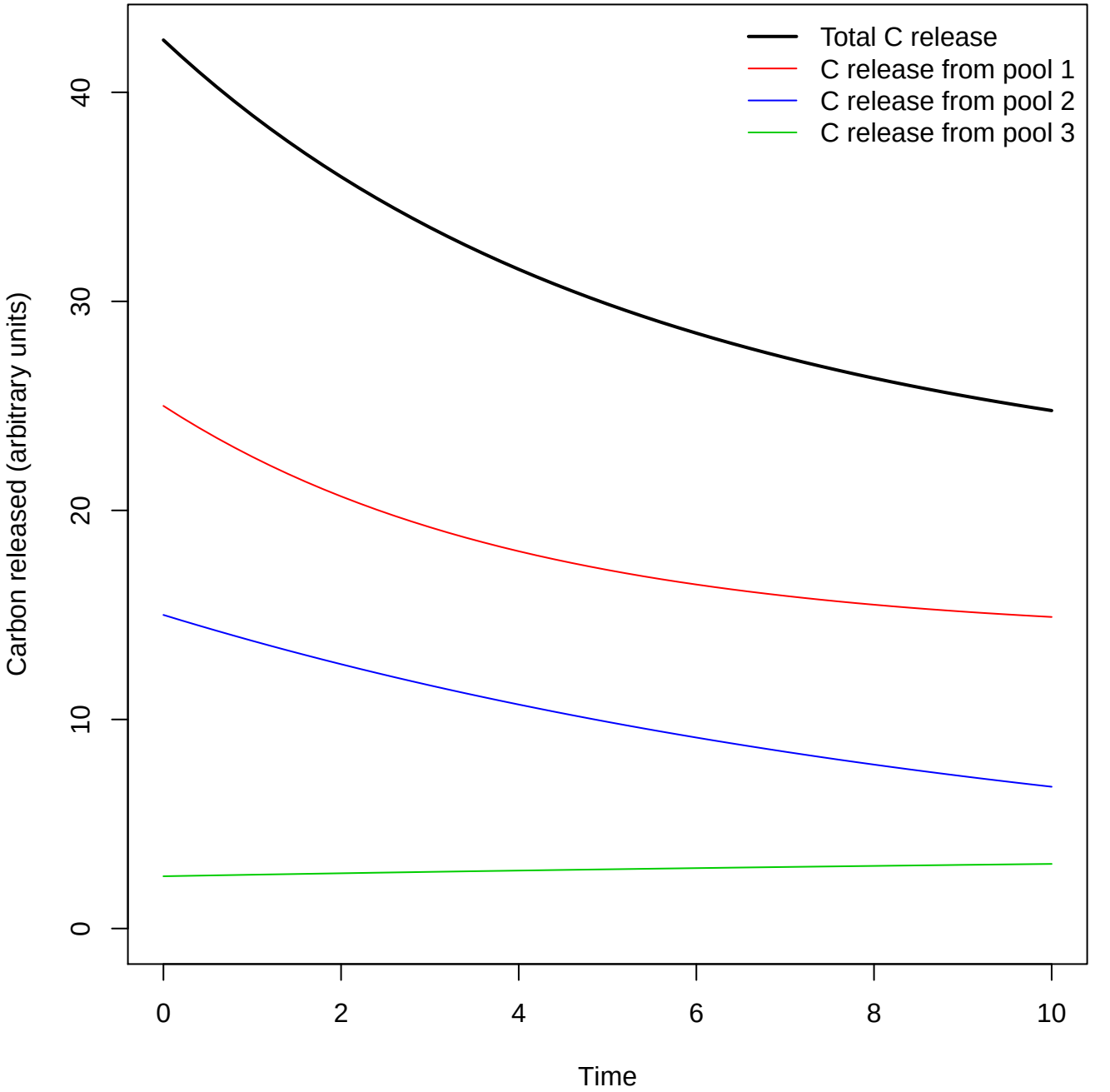

Total C release
C release from pool 1
C release from pool 2
C release from pool 3
Carbon released (arbitrary units)
0
10
20
30
40
0
2
4
6
8
10
Time (arbitrary units)

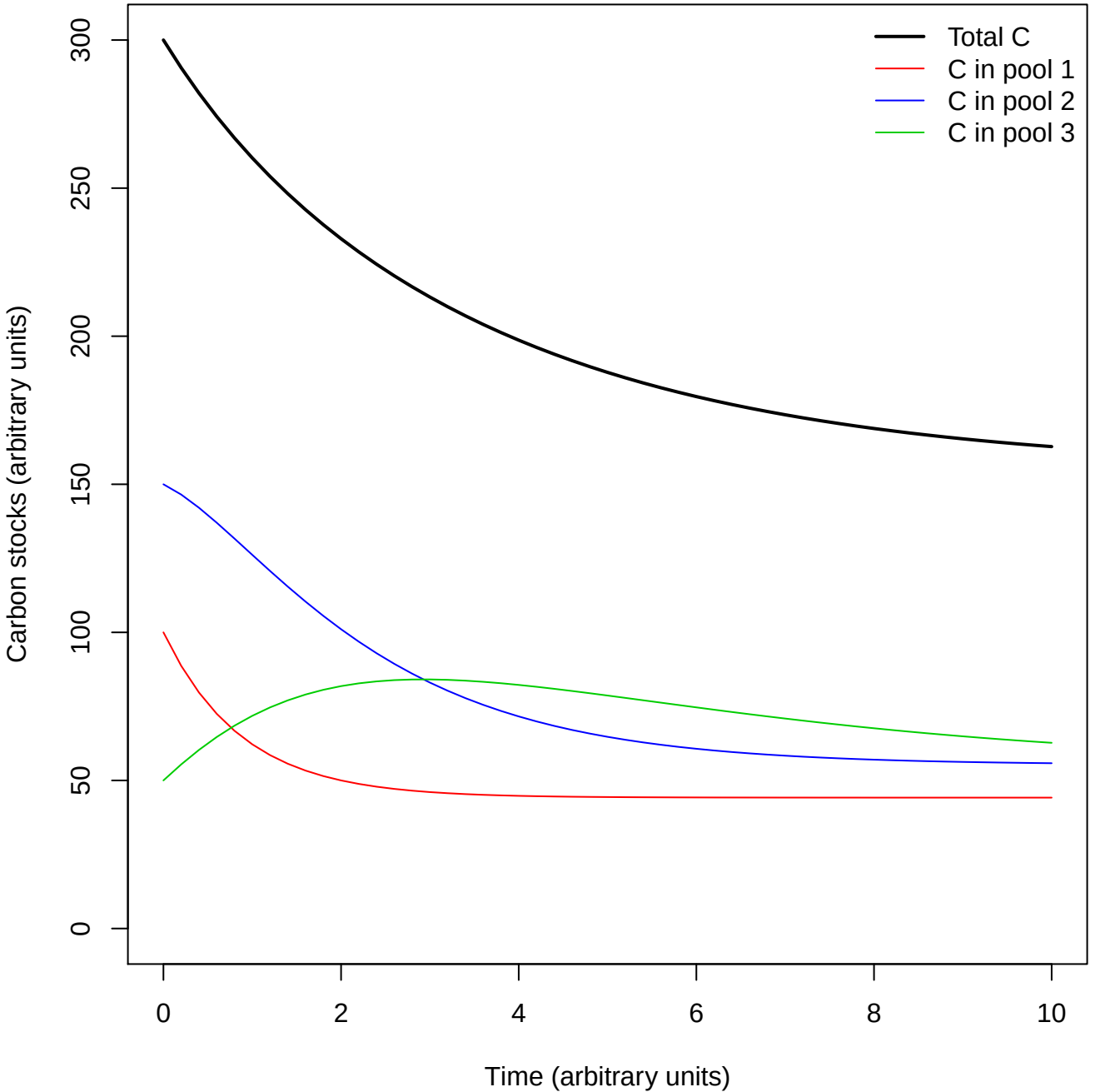

Random.inputs
30
40
50
60
0
2
4
6
8
10
t

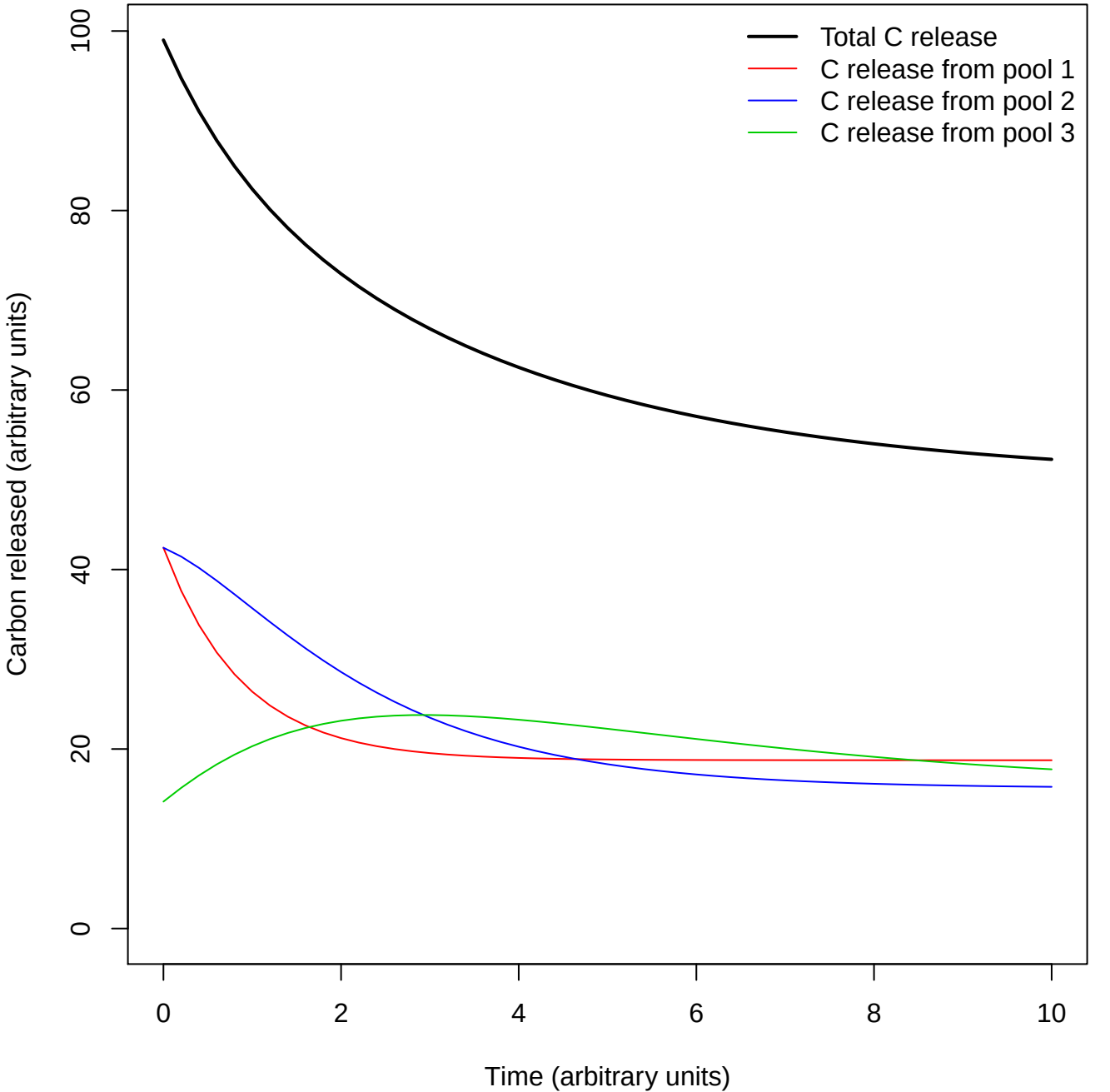

Total C
C in pool 1
C in pool 2
C in pool 3
Carbon stocks (arbitrary units)
0
50
100
150
200
250
300
0
2
4
6
8
10
Time (arbitrary units)

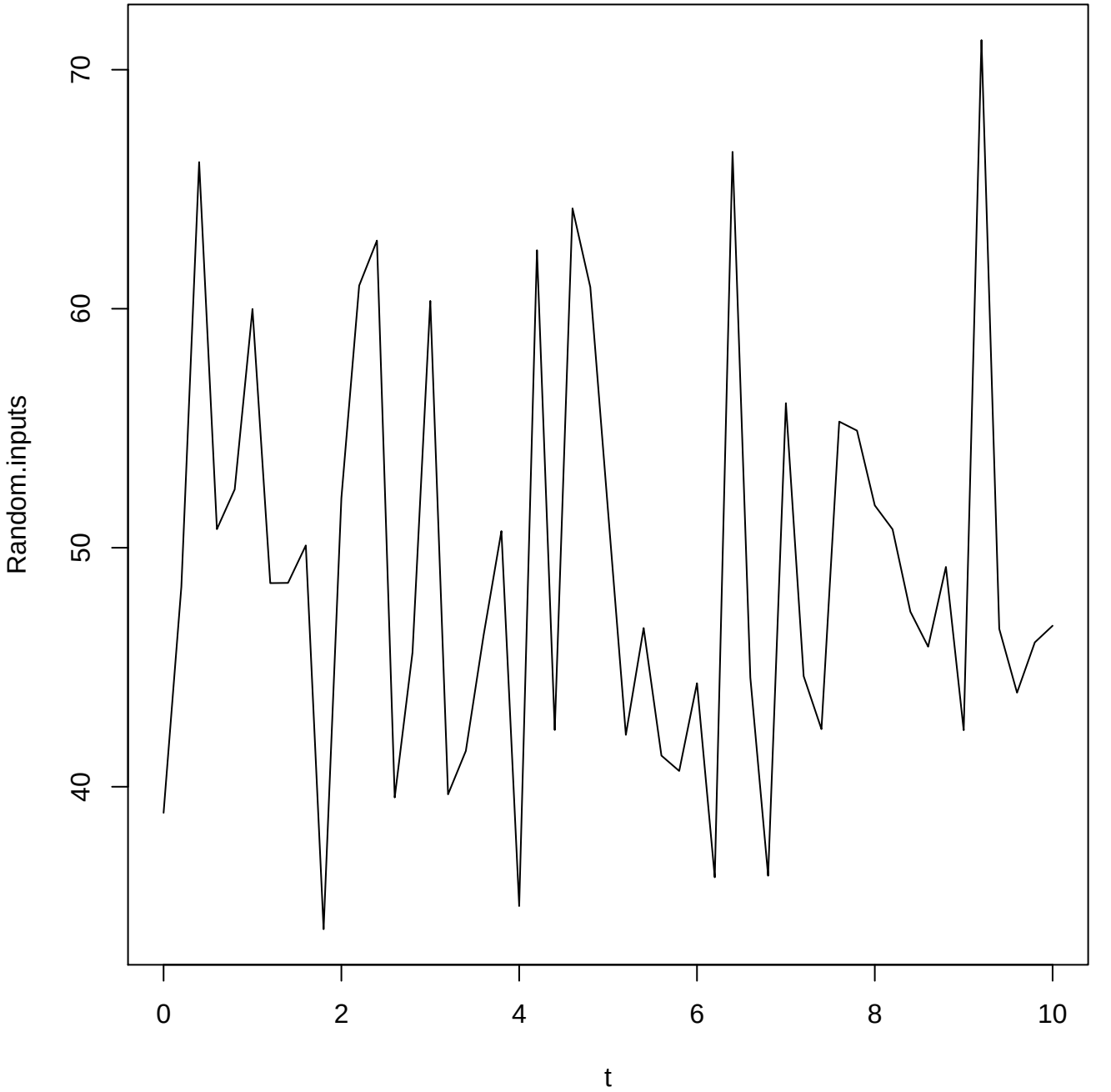

Total C release
C release from pool 1
C release from pool 2
C release from pool 3
Carbon released (arbitrary units)
0
10
20
30
40
0
2
4
6
8
10
Time (arbitrary units)

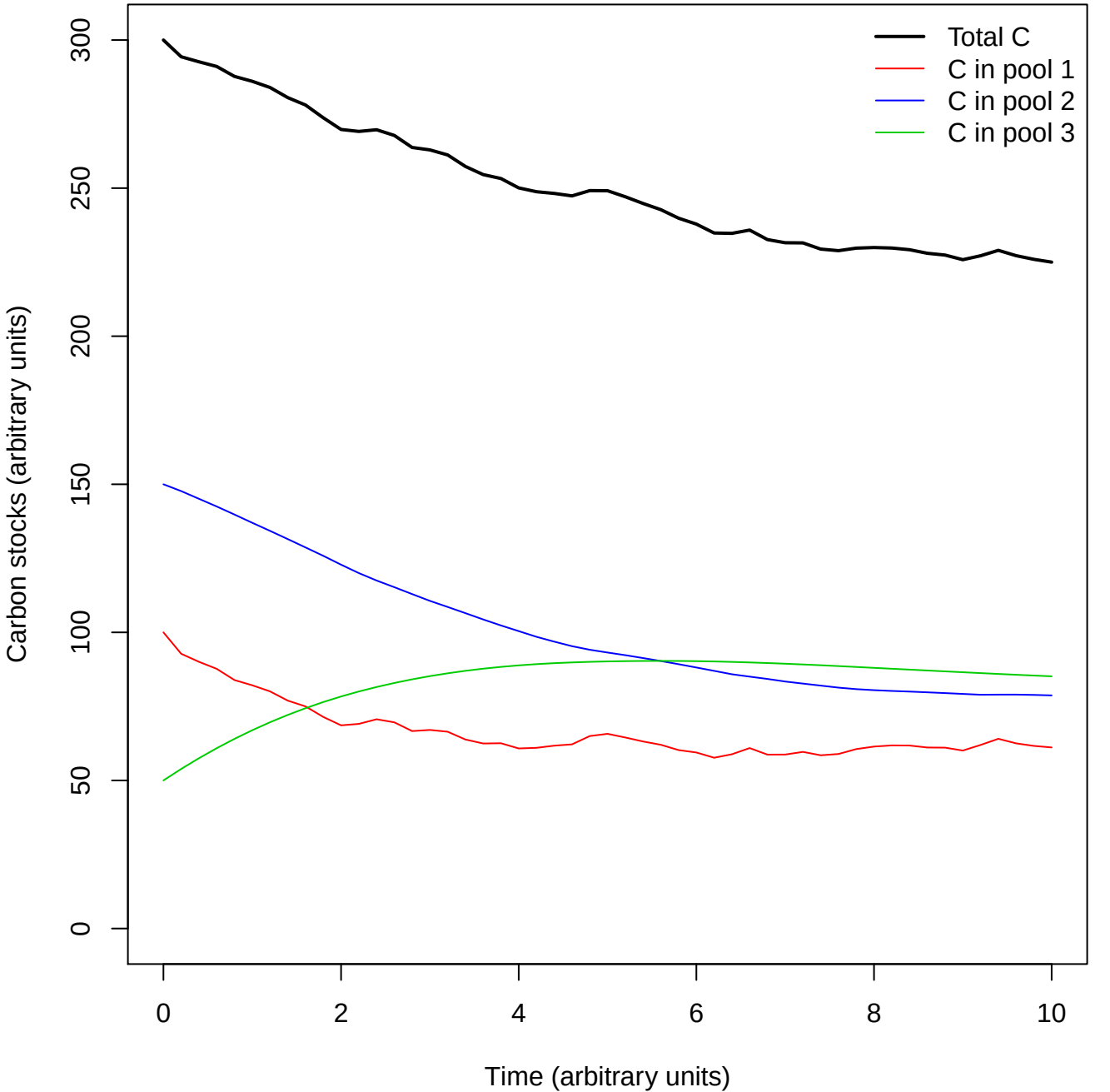

Total C
C in pool 1
C in pool 2
C in pool 3
Carbon stocks (arbitrary units)
0
50
100
150
200
250
300
0
2
4
6
8
10
Time

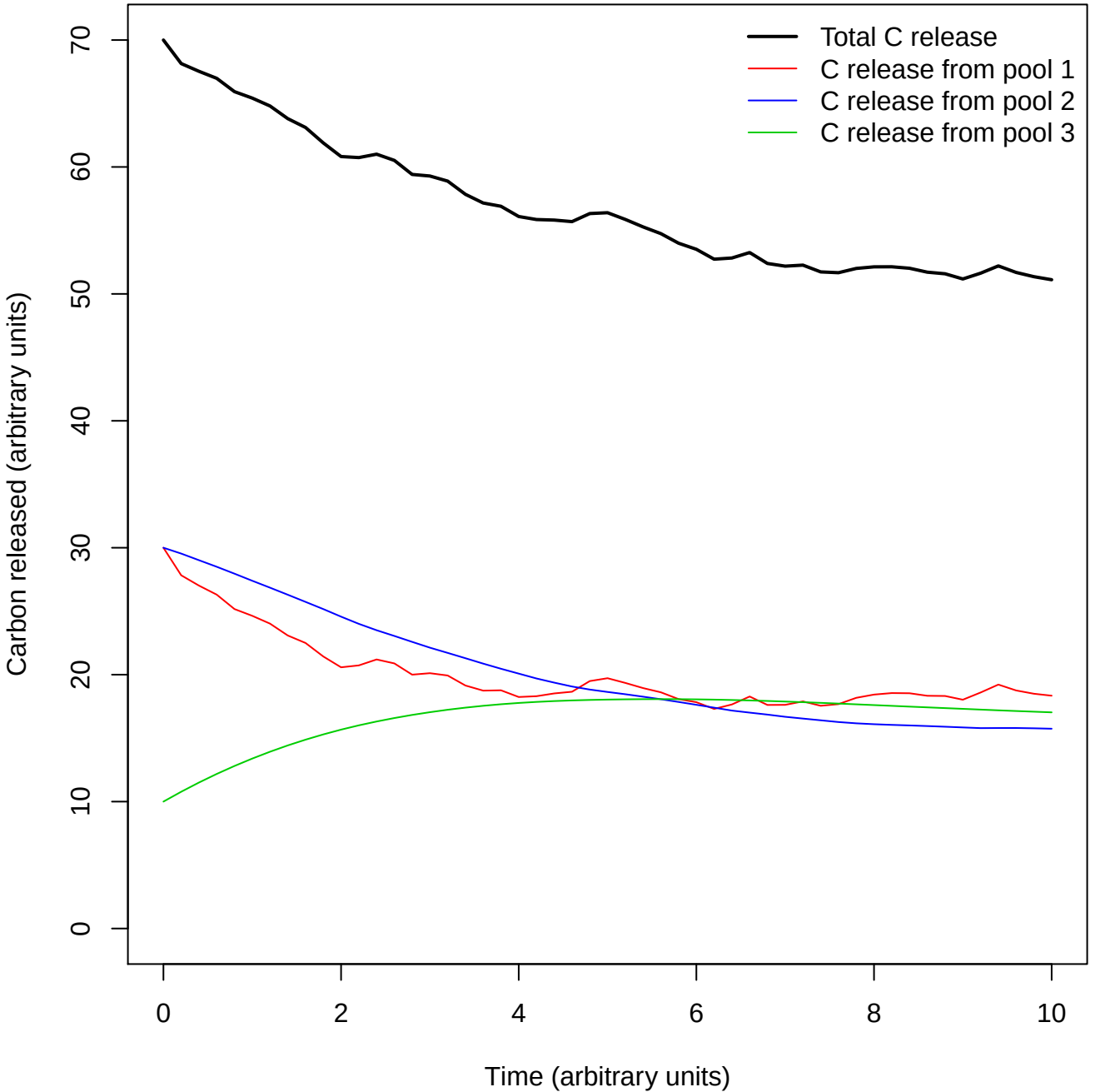

Total C release
C release from pool 1
C release from pool 2
C release from pool 3
Carbon released (arbitrary units)
0
10
20
30
40
0
2
4
6
8
10
Time

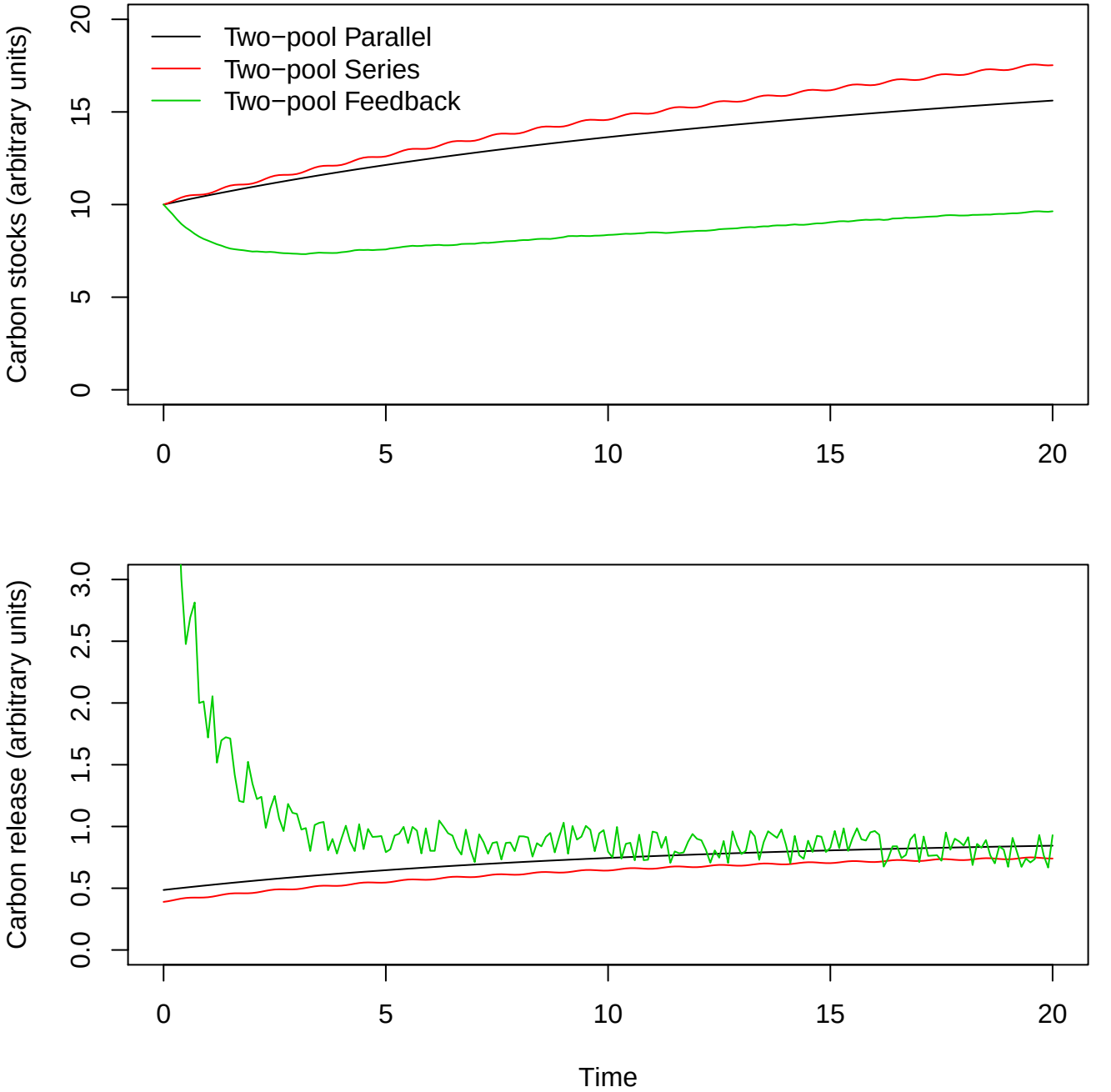

Total C
C in pool 1
C in pool 2
C in pool 3
Carbon stocks (arbitrary units)
0
50
100
150
200
250
300
0
2
4
6
8
10
Time (arbitrary units)

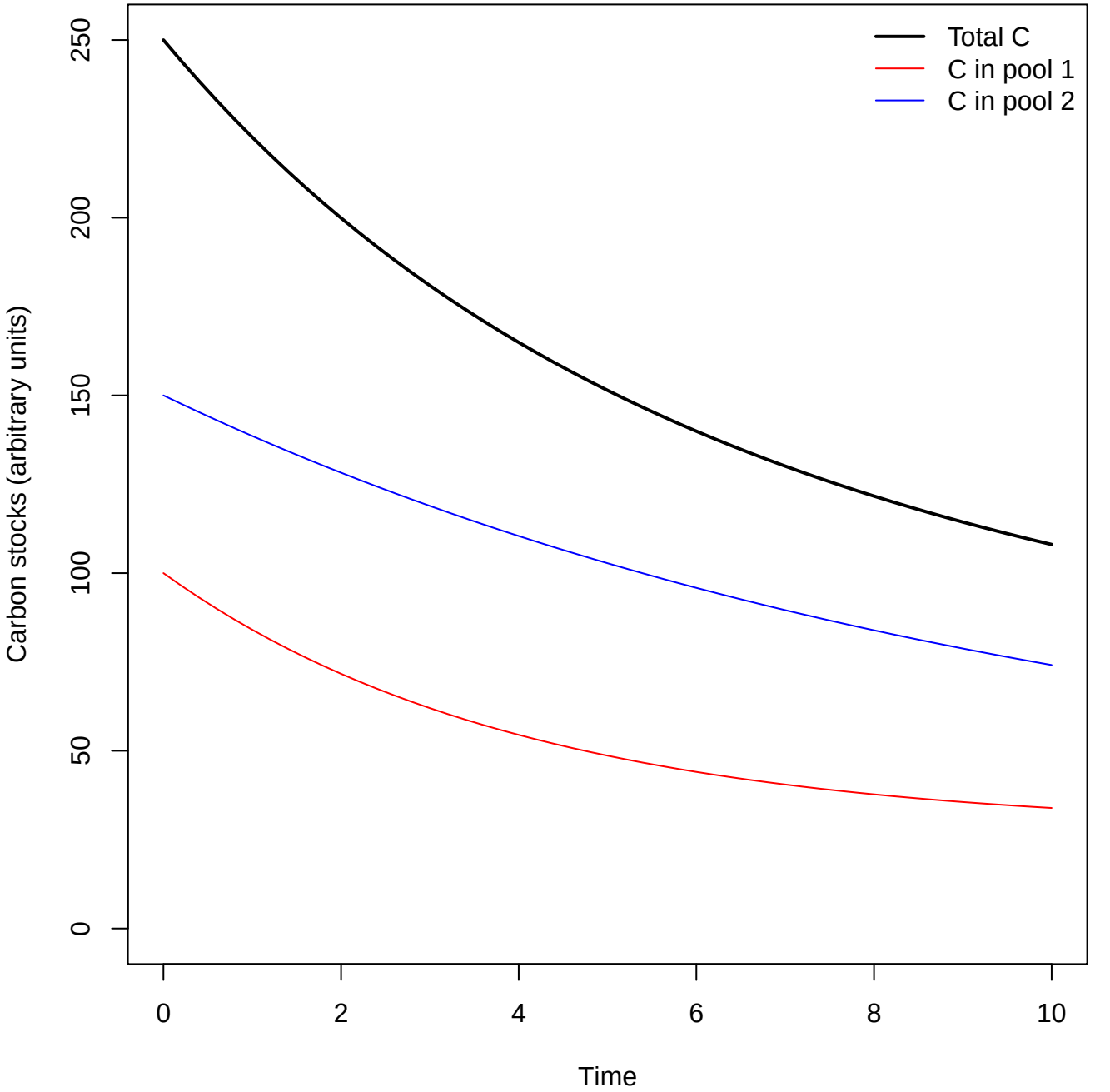

Total C release
C release from pool 1
C release from pool 2
C release from pool 3
Carbon released (arbitrary units)
Time (arbitrary units)
0
20
40
60
80
100
0
2
4
6
8
10

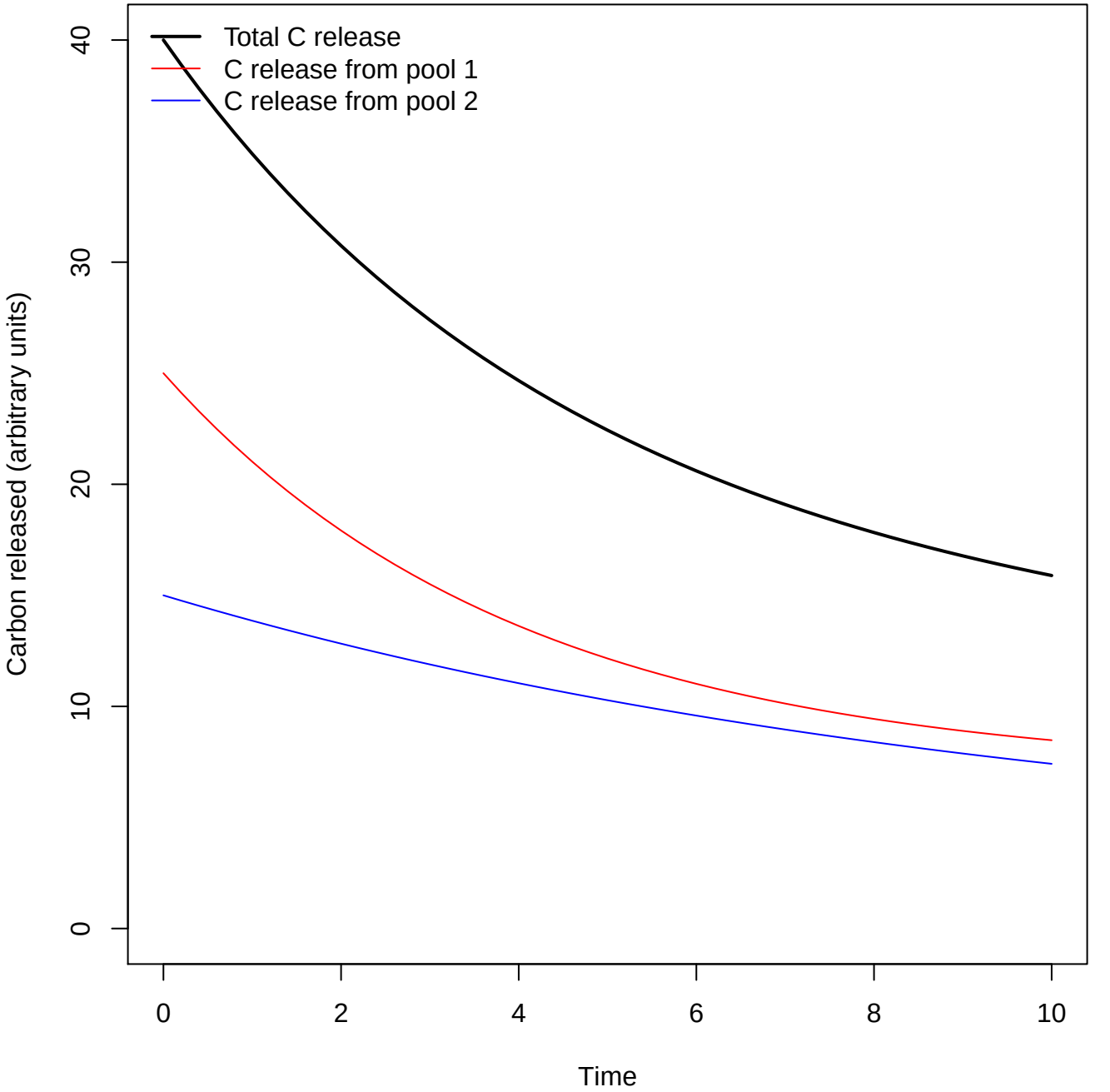

Random.inputs
70
60
50
40
0
2
4
6
8
10
t

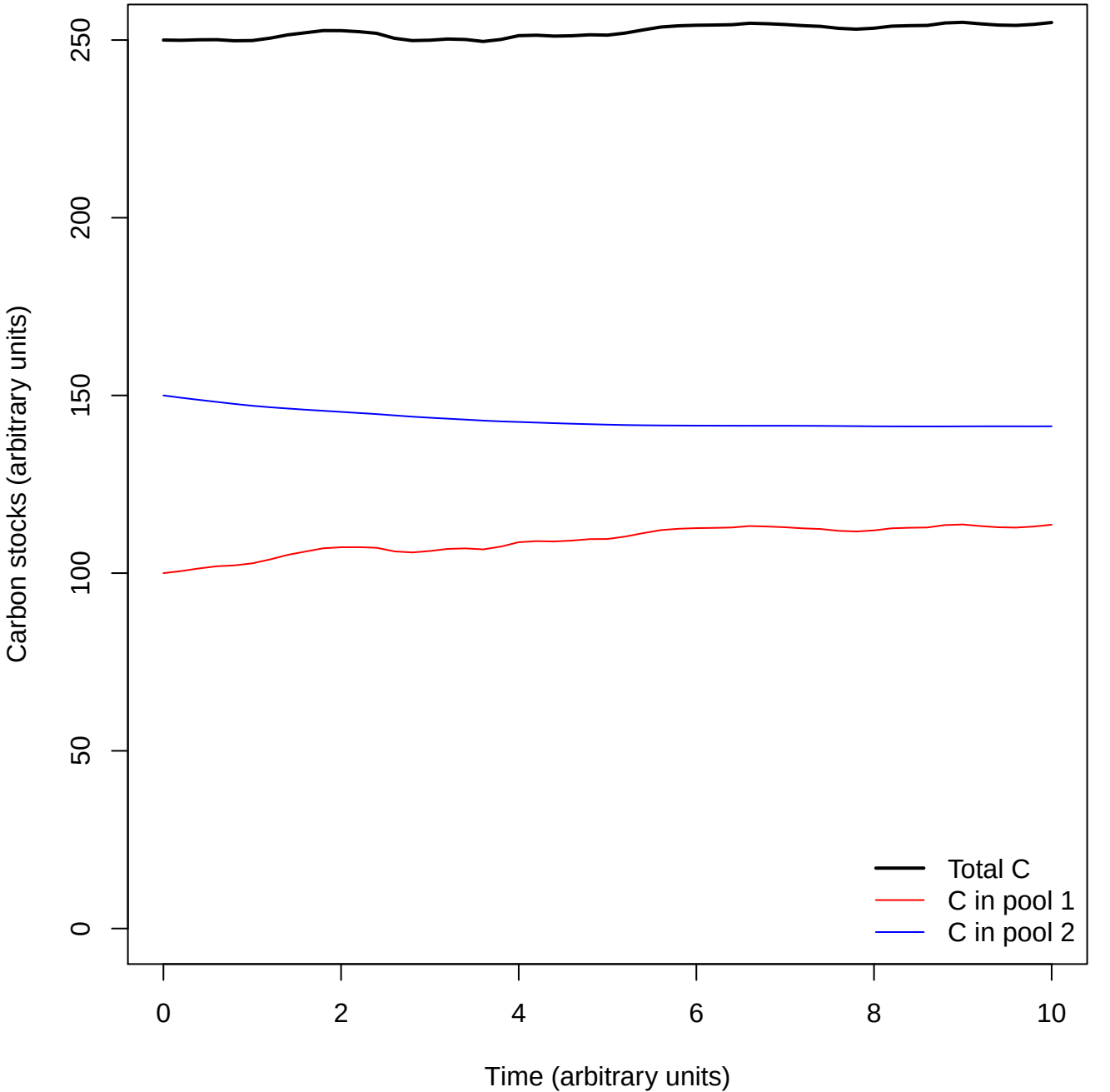

Total C
C in pool 1
C in pool 2
C in pool 3
Carbon stocks (arbitrary units)
0
50
100
150
200
250
300
0
2
4
6
8
10
Time (arbitrary units)

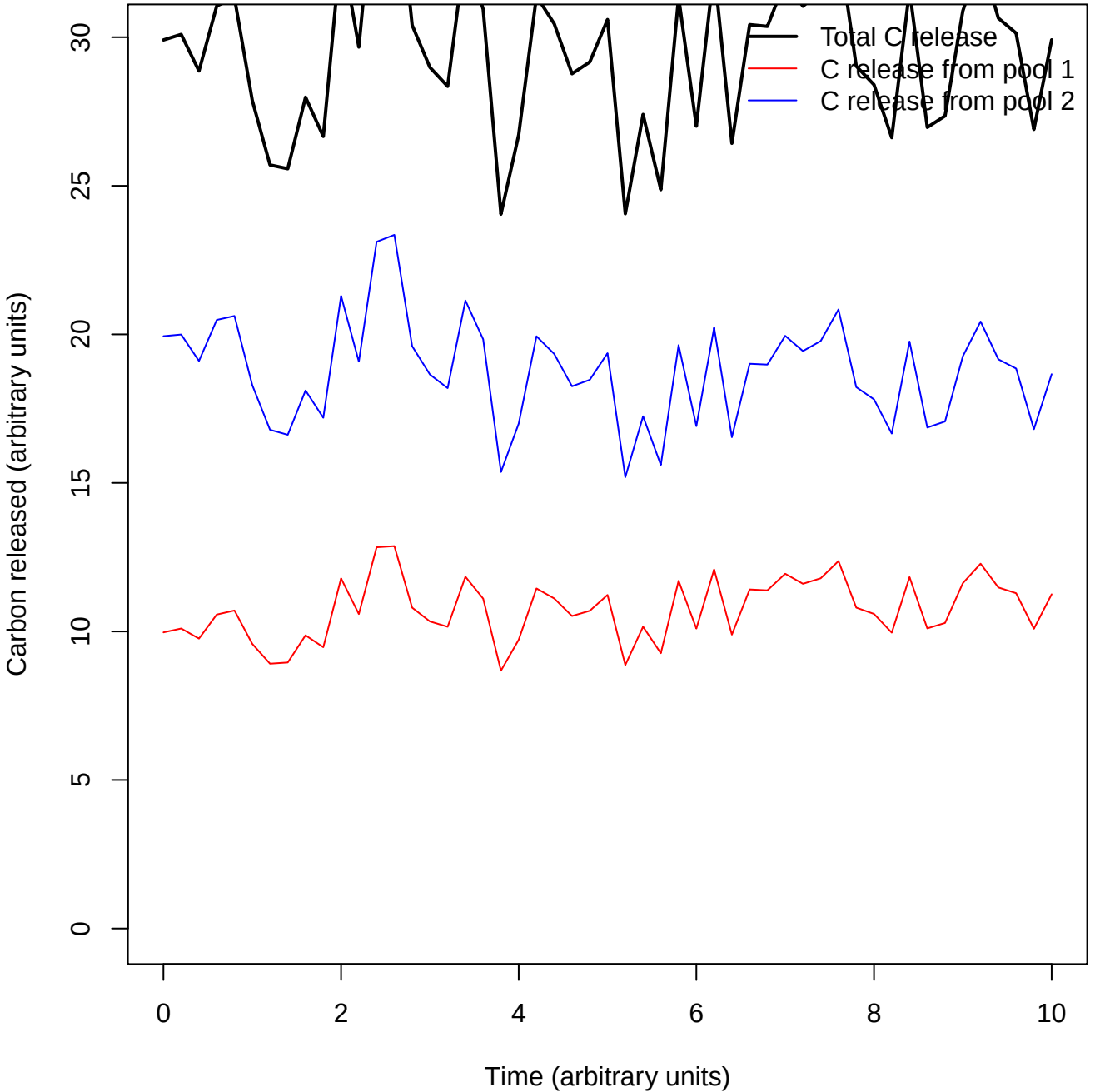

Total C release
C release from pool 1
C release from pool 2
C release from pool 3
Carbon released (arbitrary units)
Time (arbitrary units)
0
10
20
30
40
50
60
70
0
2
4
6
8
10

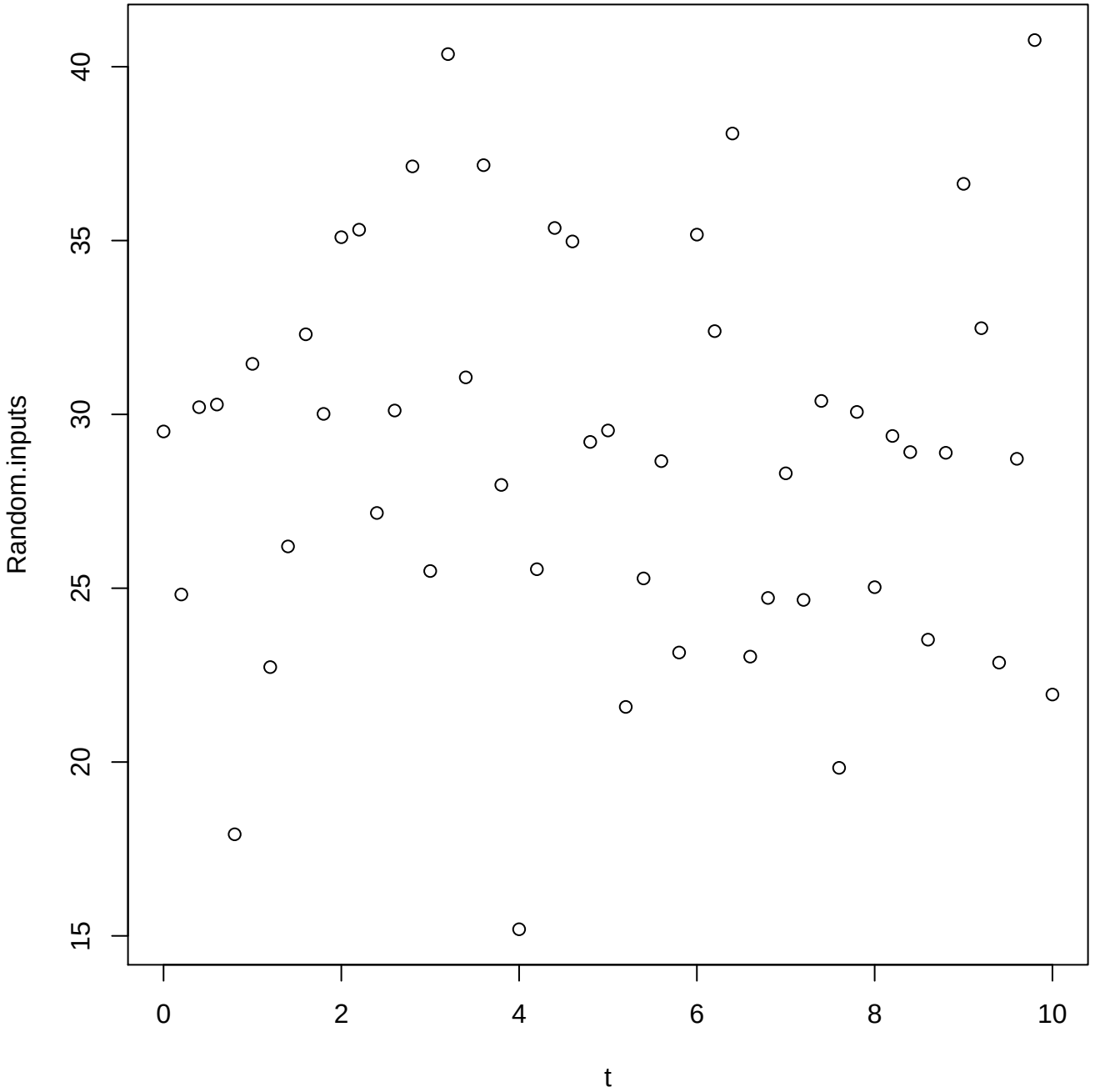

Two−pool Parallel
Two−pool Series
Two−pool Feedback
Carbon stocks (arbitrary units)
0
5
10
15
20
Carbon release (arbitrary units)
0.0
0.5
1.0
1.5
2.0
2.5
3.0
Time

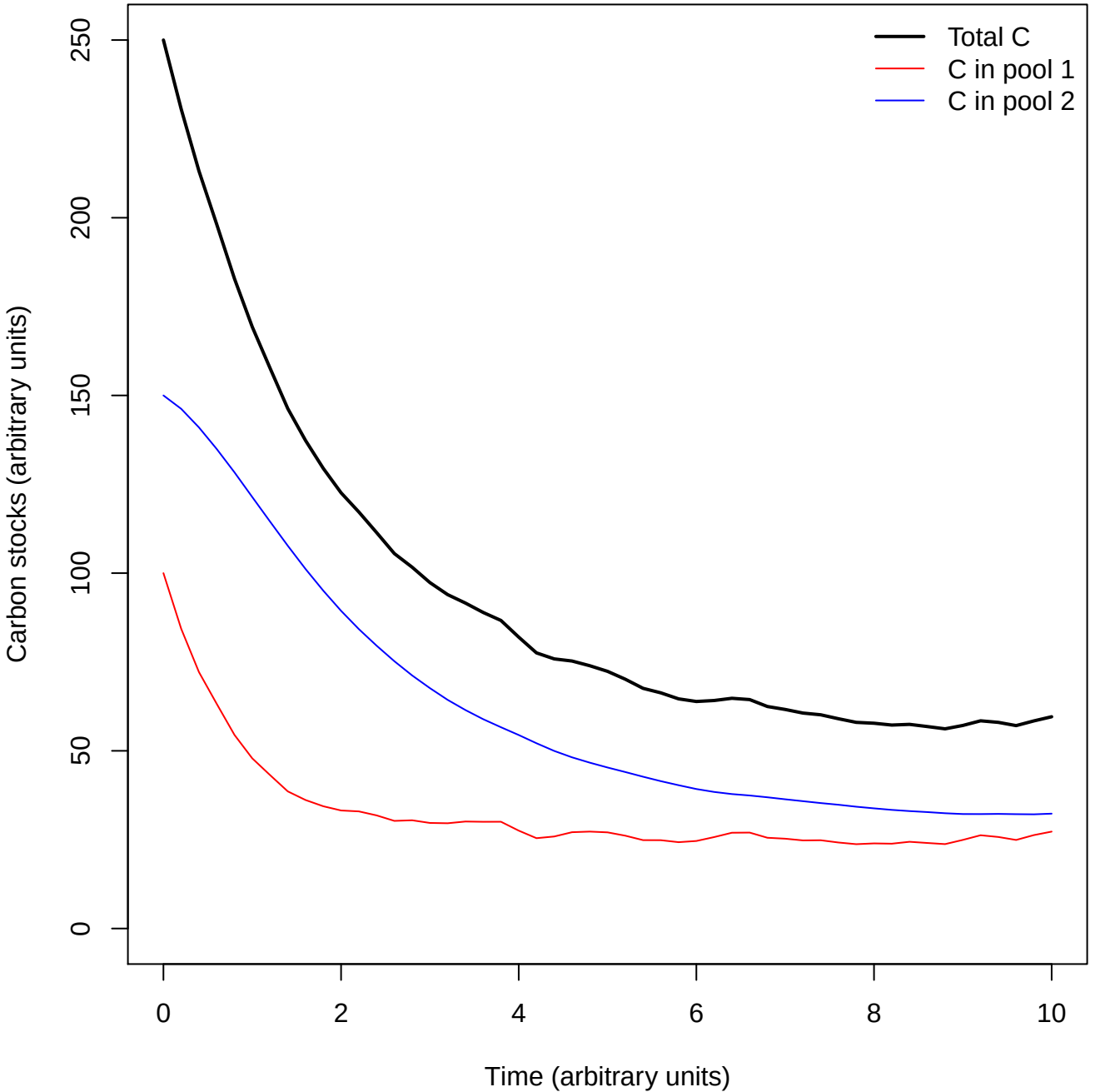

Total C
C in pool 1
C in pool 2
Carbon stocks (arbitrary units)
0
50
100
150
200
250
0
2
4
6
8
10
Time

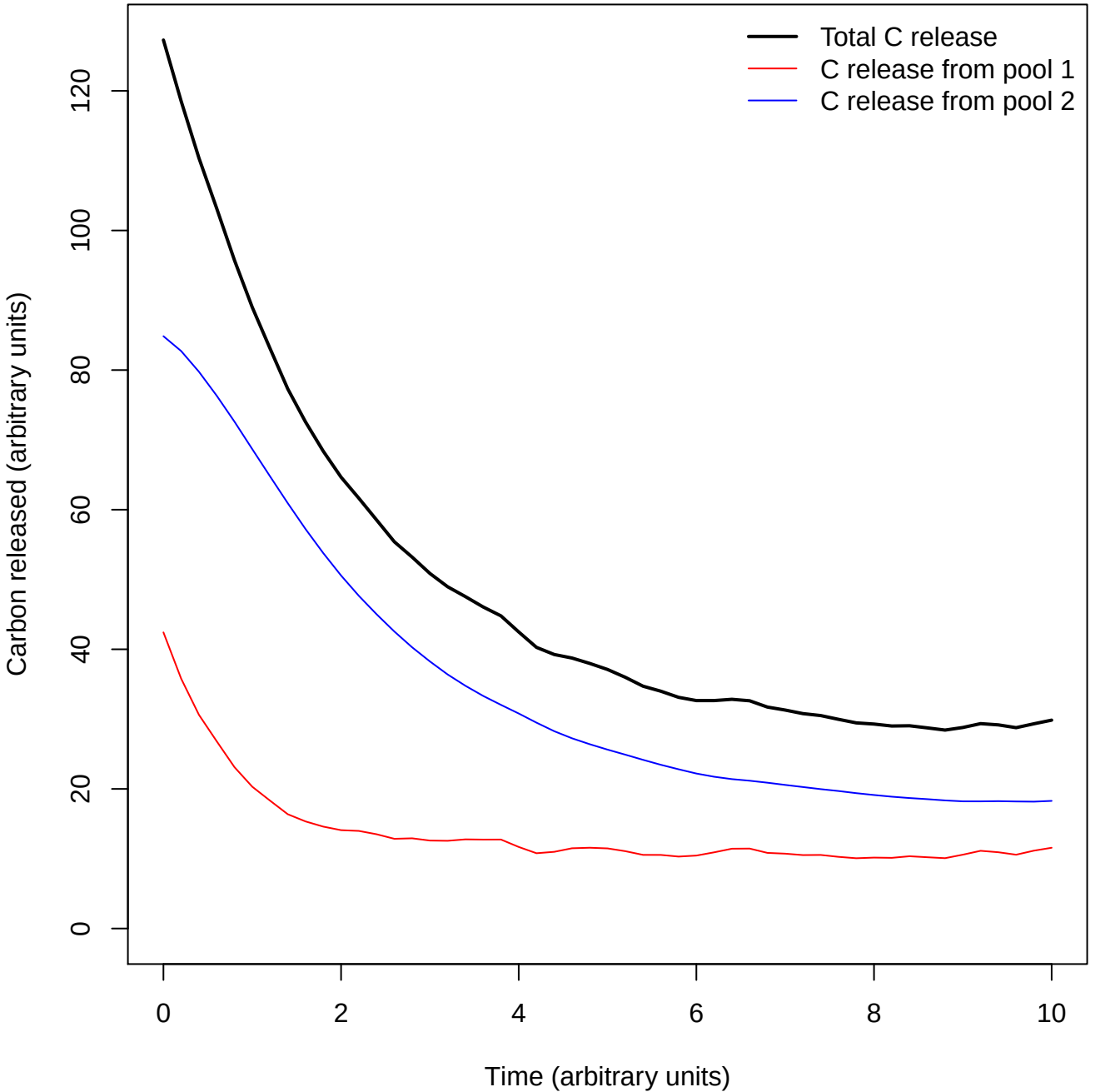

Total C release
C release from pool 1
C release from pool 2
Carbon released (arbitrary units)
0
10
20
30
40
0
2
4
6
8
10
Time

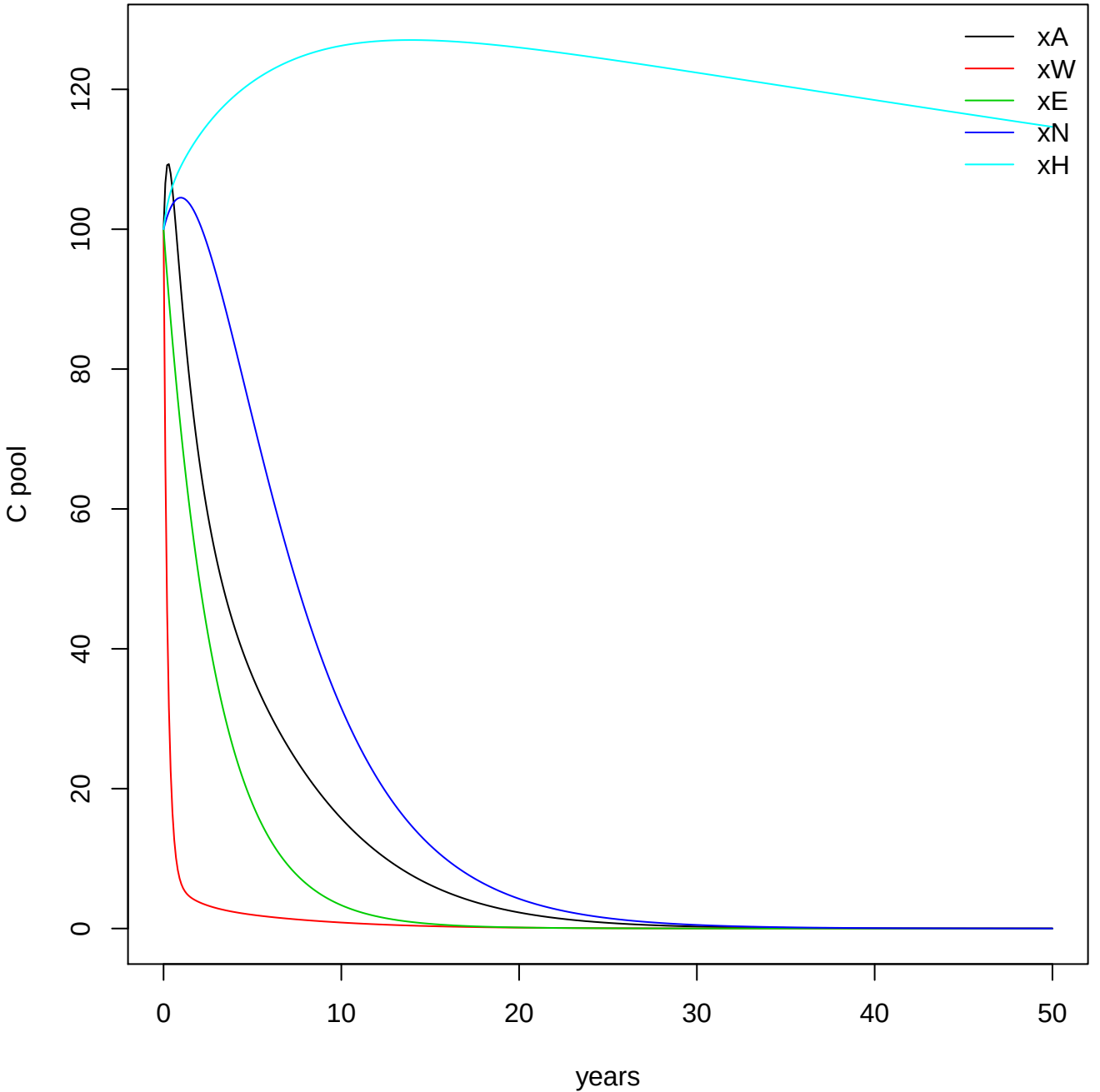

Carbon stocks (arbitrary units)
0
50
100
150
200
250
0
2
4
6
8
10
Time (arbitrary units)
Total C
C in pool 1
C in pool 2

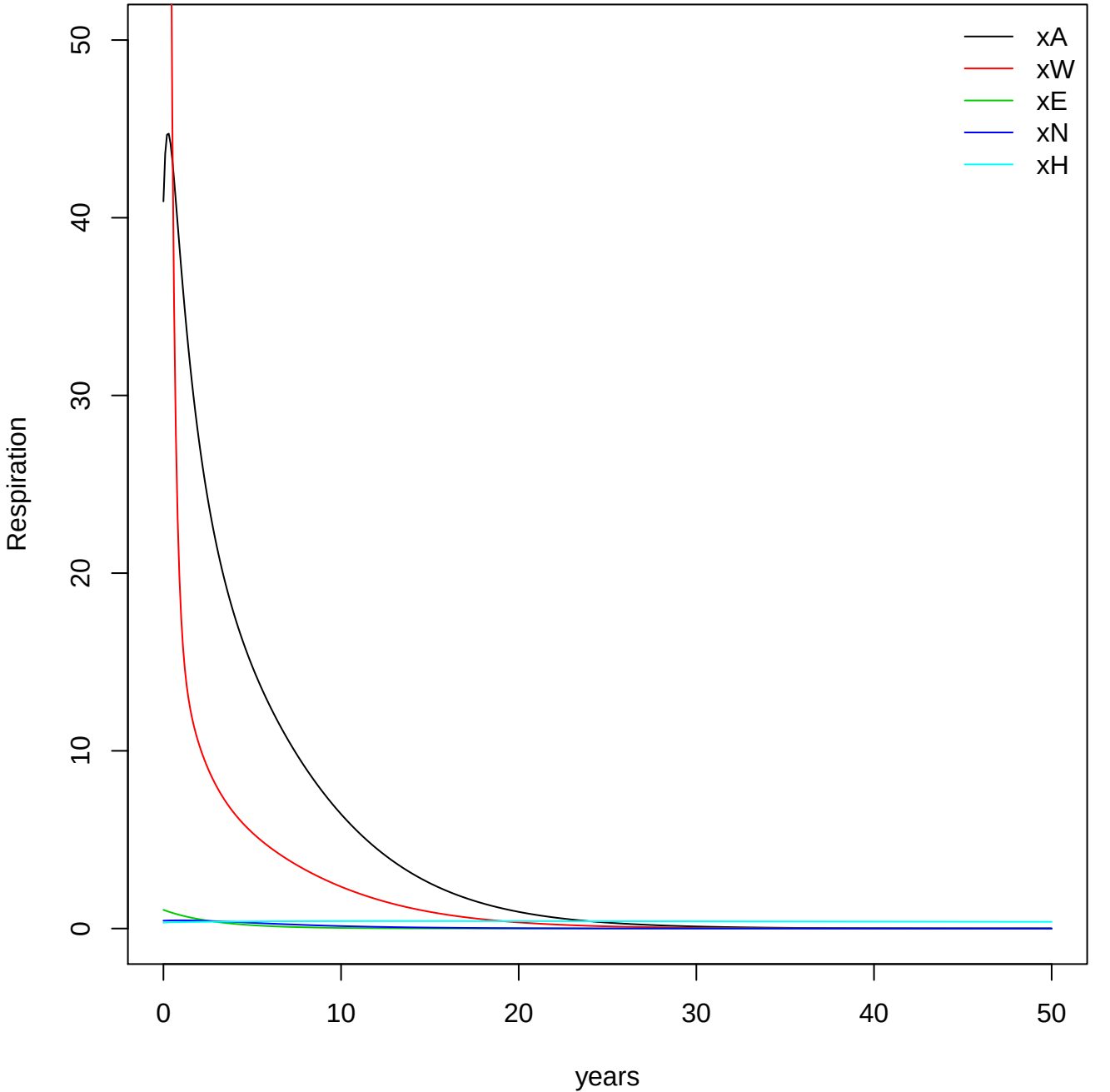

Total C release
C release from pool 1
C release from pool 2
Carbon released (arbitrary units)
Time (arbitrary units)
0
5
10
15
20
25
30
0
2
4
6
8
10

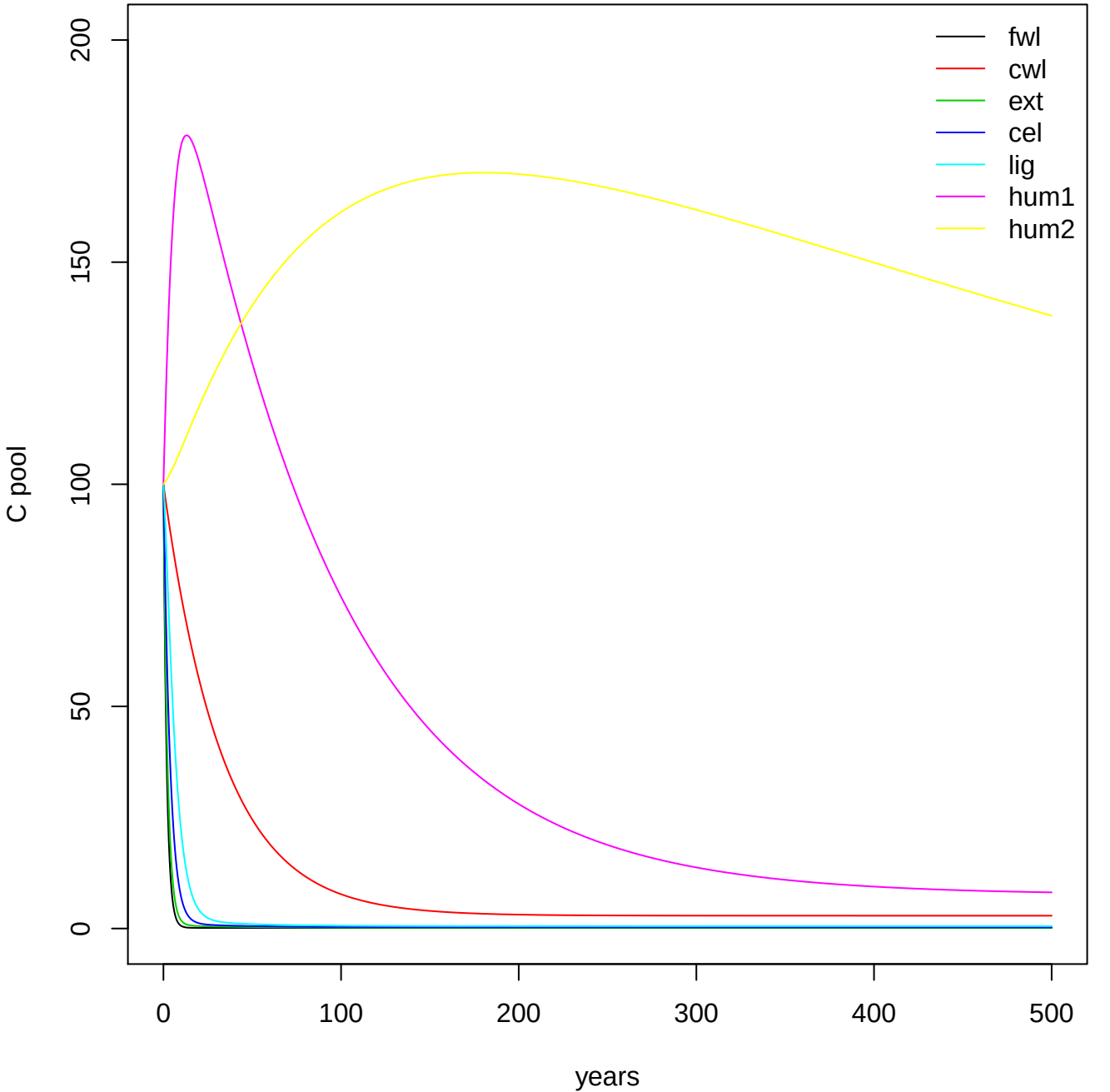

Random.inputs
t
15
20
25
30
35
40
0
2
4
6
8
10

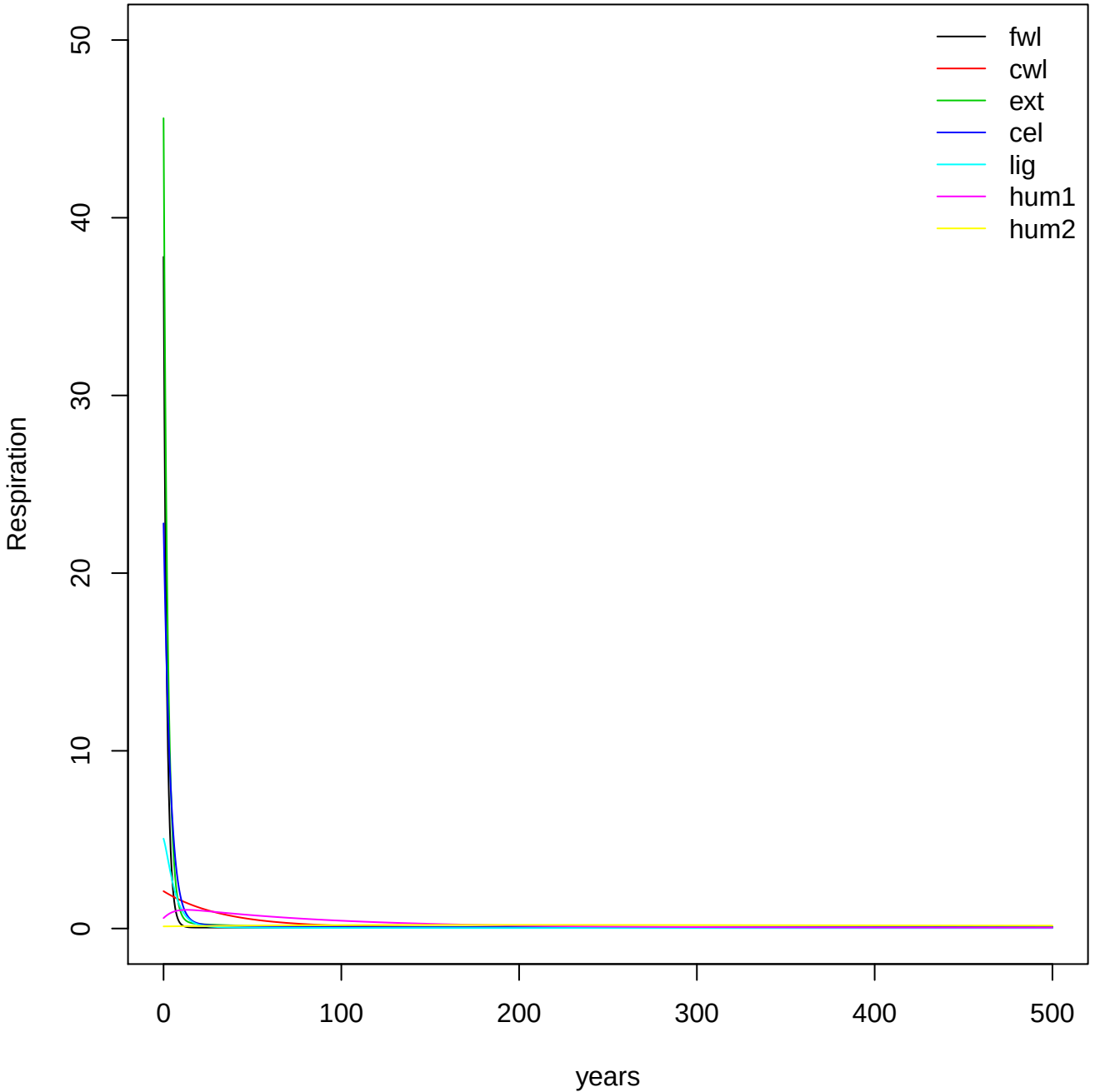

Total C
C in pool 1
C in pool 2
Carbon stocks (arbitrary units)
0
50
100
150
200
250
0
2
4
6
8
10
Time (arbitrary units)

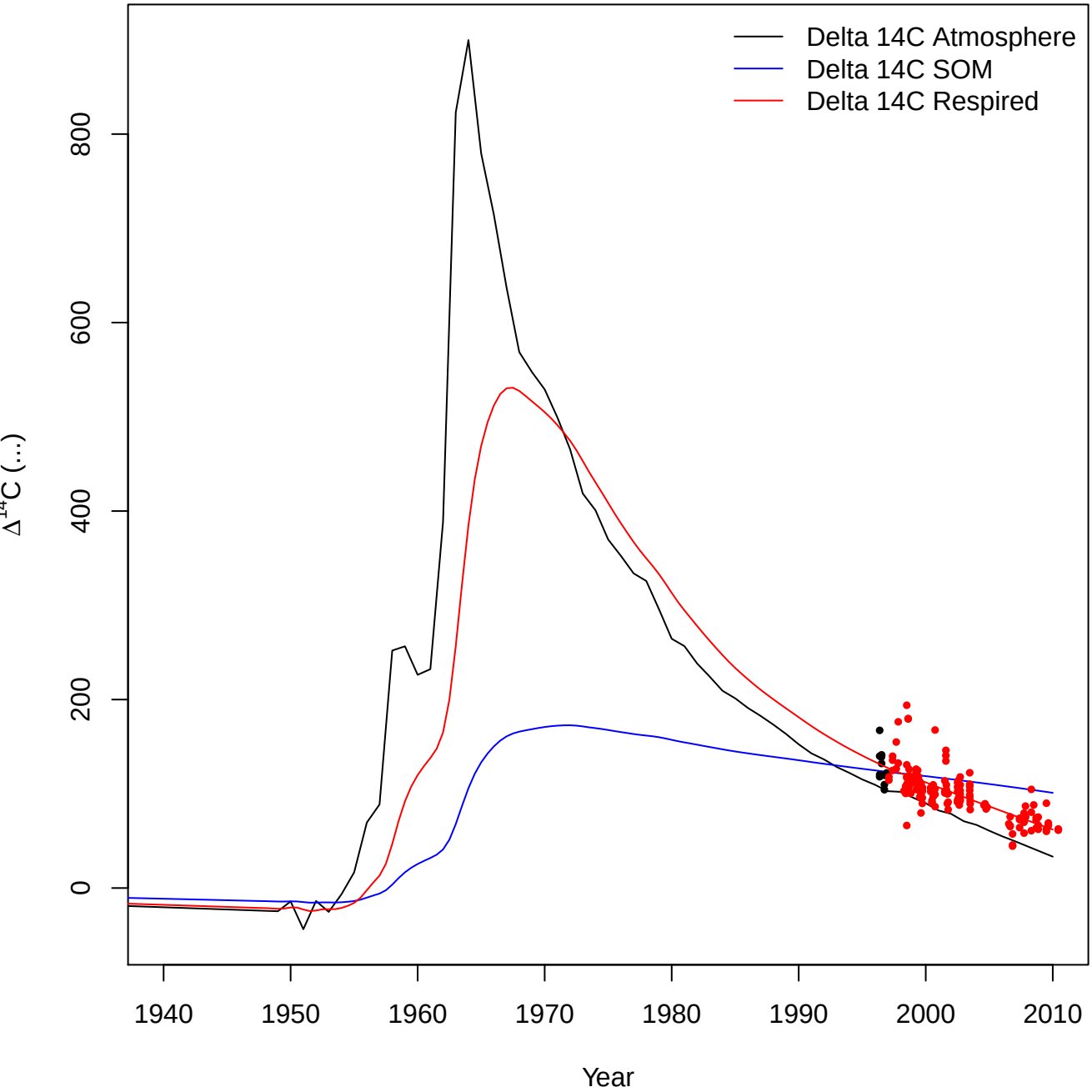

Total C release
C release from pool 1
C release from pool 2
Carbon released (arbitrary units)
0
20
40
60
80
100
120
0
2
4
6
8
10
Time (arbitrary units)

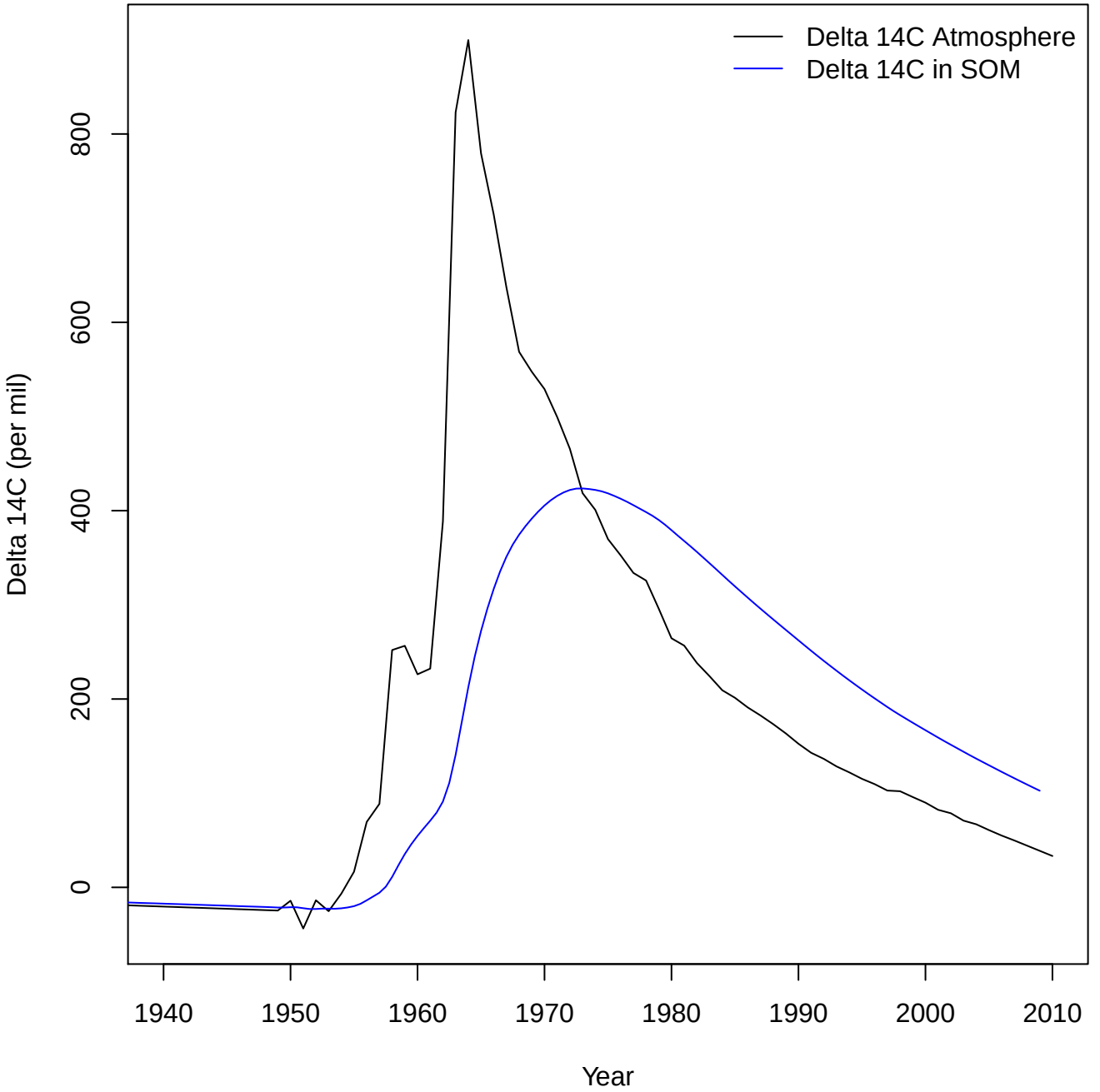

xA
xW
xE
xN
xH
C pool
0
20
40
60
80
100
120
0
10
20
30
40
50
years

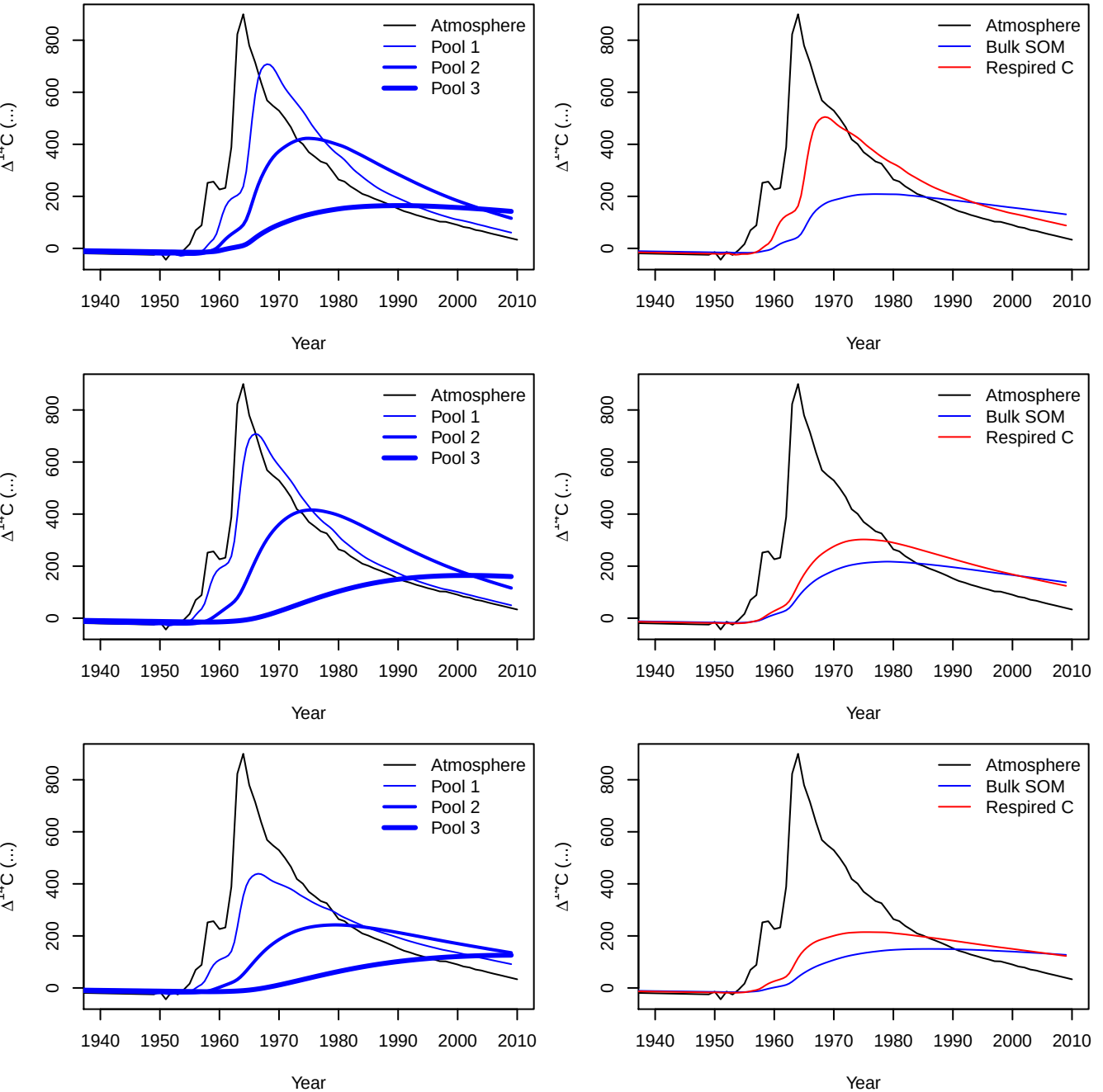

xA
xW
xE
xN
xH
Respiration
years
0
10
20
30
40
50
0
10
20
30
40
50

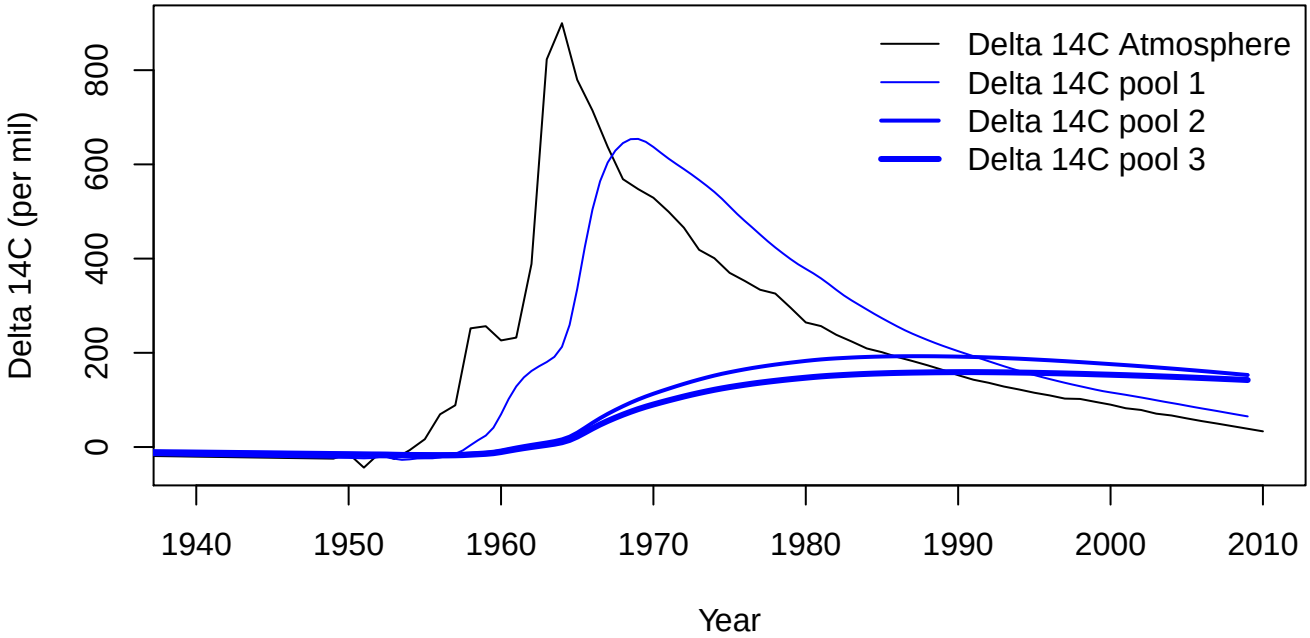

fwl
cwl
ext
cel
lig
hum1
hum2
C pool
0
50
100
150
200
0
100
200
300
400
500
years

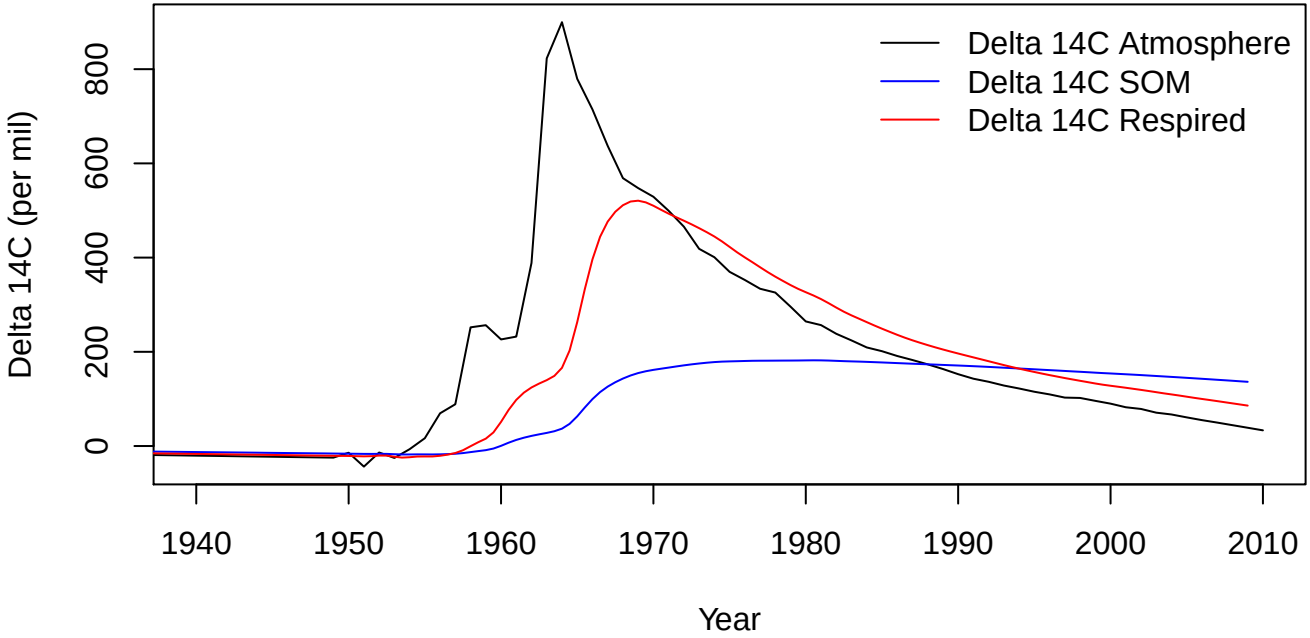

fwl
cwl
ext
cel
lig
hum1
hum2
Respiration
0
10
20
30
40
50
0
100
200
300
400
500
years

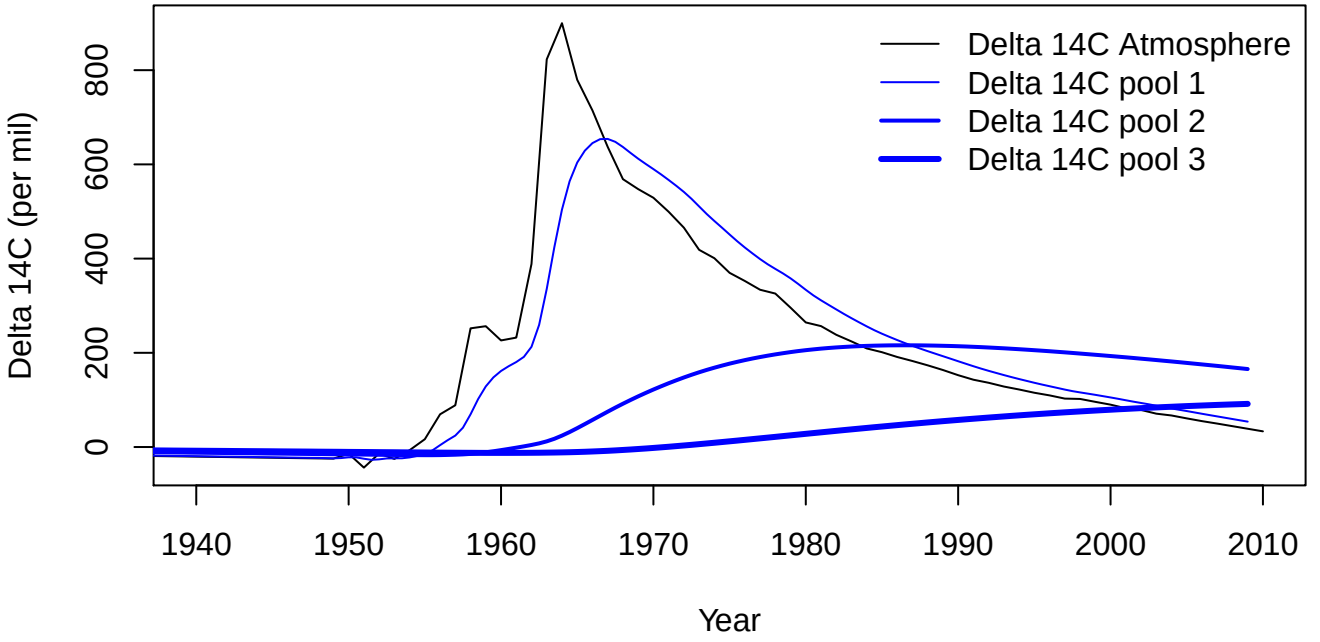

Delta 14C Atmosphere
Delta 14C SOM
Delta 14C Respired
800
600
400
200
0
Δ14C (...)
1940
1950
1960
1970
1980
1990
2000
2010
Year

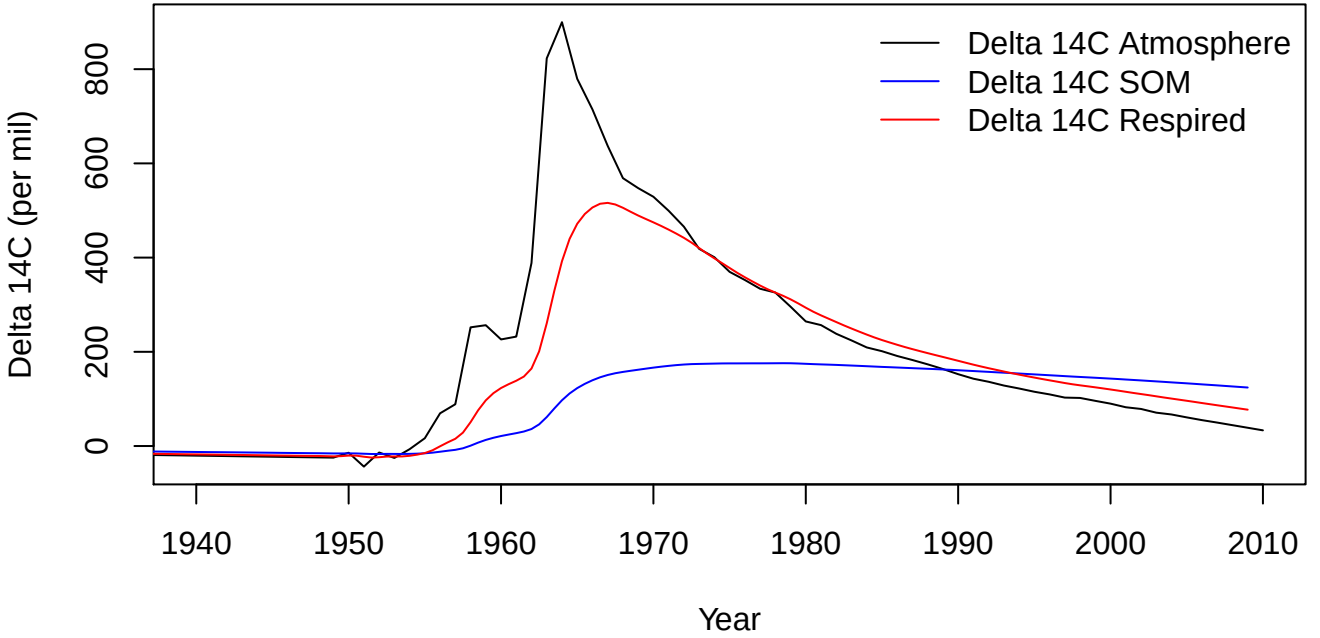

Delta 14C Atmosphere
Delta 14C in SOM
Delta 14C (per mil)
0
200
400
600
800
1940
1950
1960
1970
1980
1990
2000
2010
Year

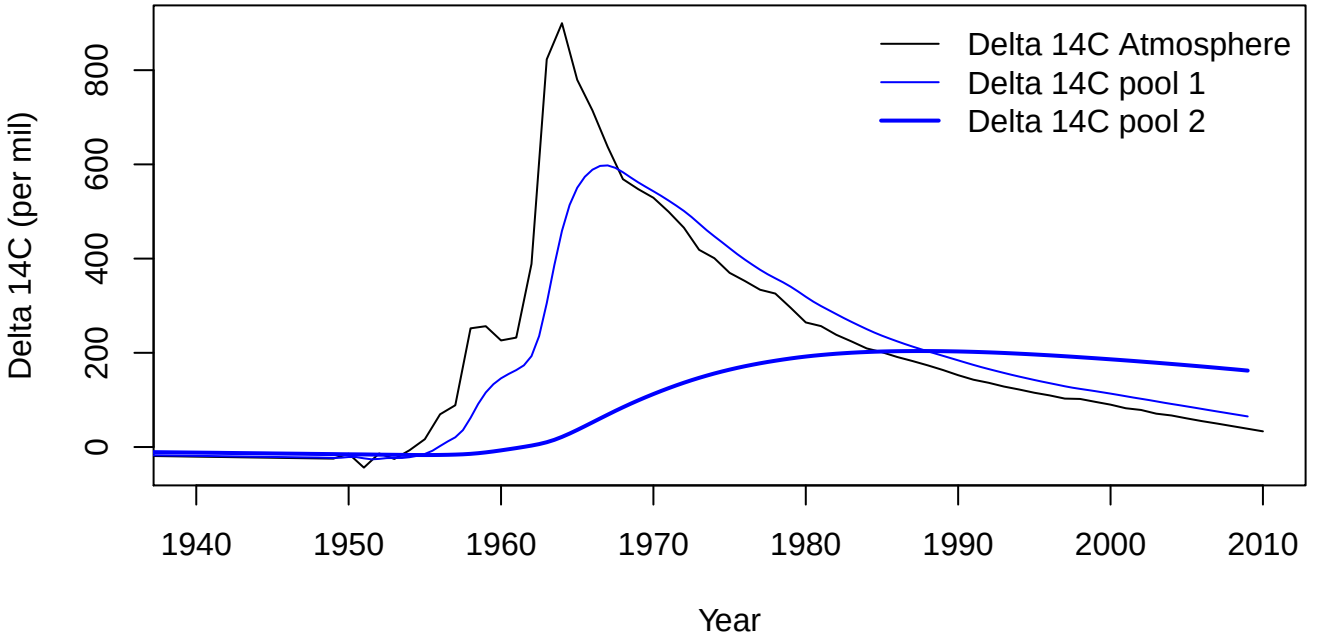

Atmosphere
Pool 1
Pool 2
Pool 3
Bulk SOM
Respired C
Δ14C (...)
Year
0
200
400
600
800
1940
1950
1960
1970
1980
1990
2000
2010

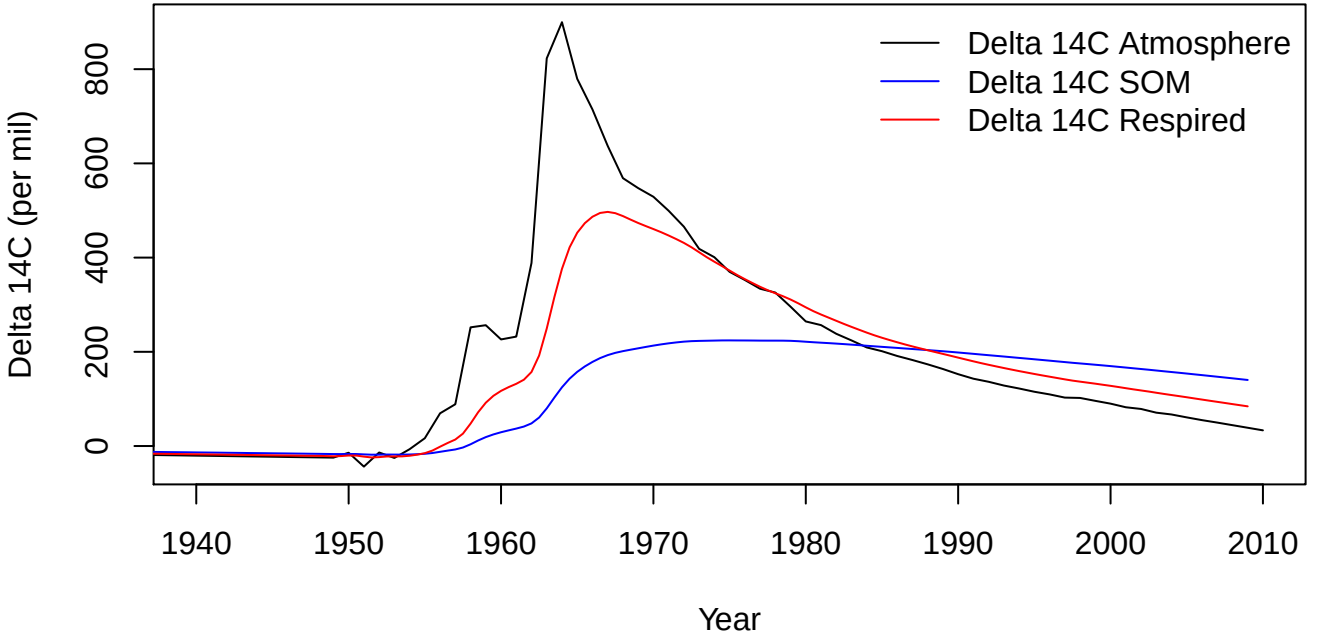

Delta 14C Atmosphere
Delta 14C pool 1
Delta 14C pool 2
Delta 14C pool 3
Delta 14C (per mil)
0
200
400
600
800
1940
1950
1960
1970
1980
1990
2000
2010
Year

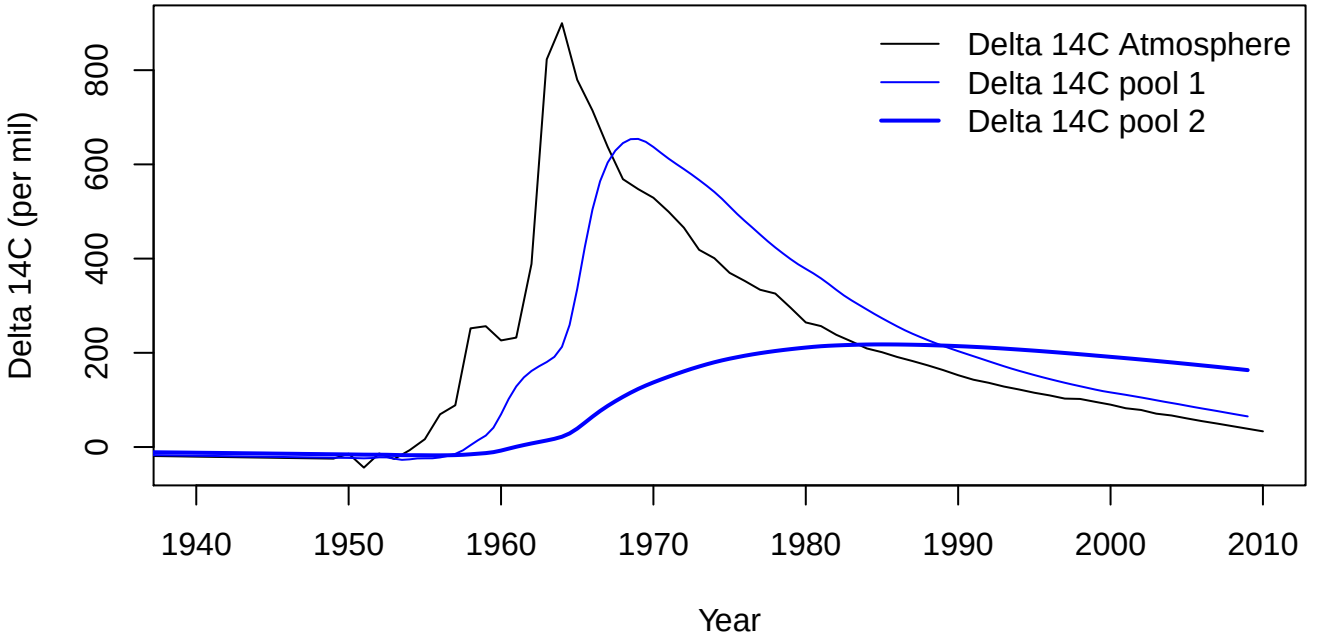

Delta 14C Atmosphere
Delta 14C SOM
Delta 14C Respired
Delta 14C (per mil)
0
200
400
600
800
1940
1950
1960
1970
1980
1990
2000
2010
Year

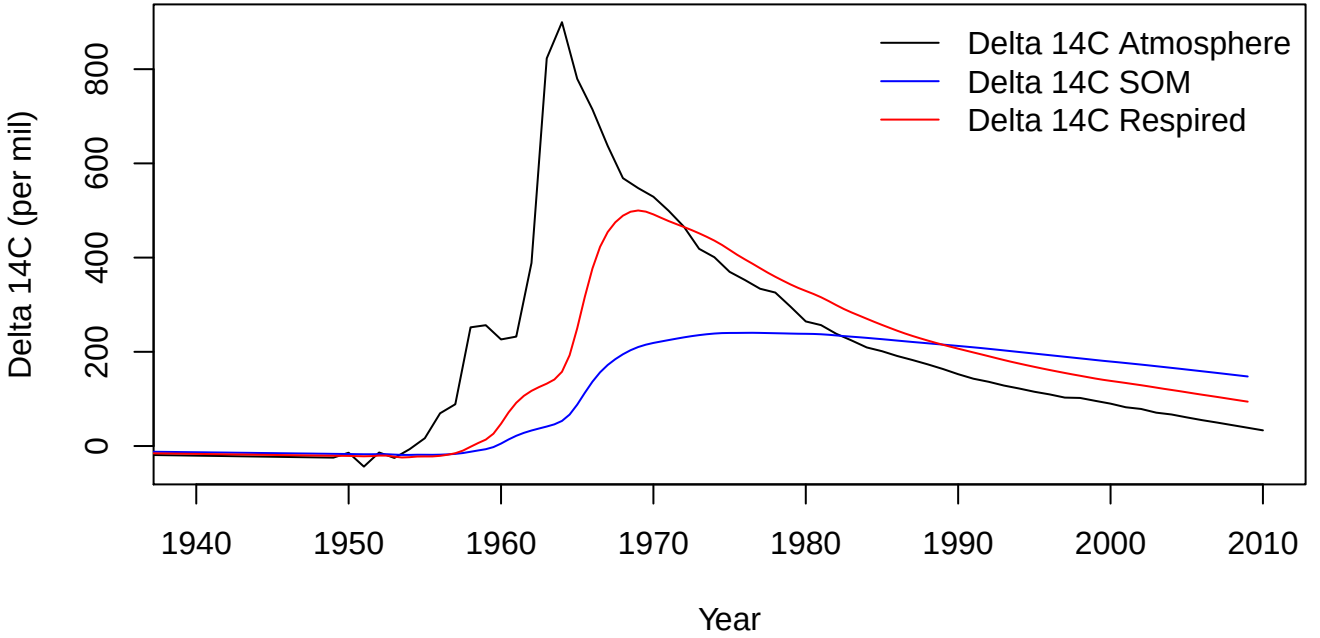

Delta 14C Atmosphere
Delta 14C pool 1
Delta 14C pool 2
Delta 14C pool 3
Delta 14C (per mil)
0
200
400
600
800
1940
1950
1960
1970
1980
1990
2000
2010
Year

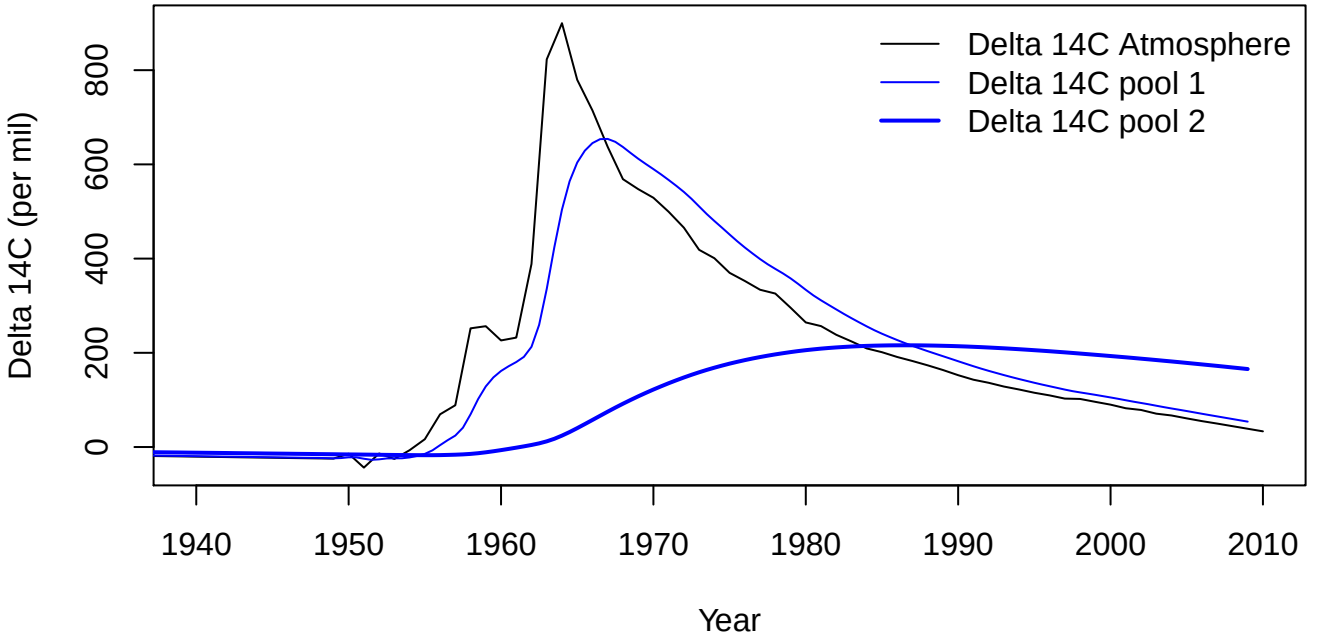

Delta 14C Atmosphere
Delta 14C SOM
Delta 14C Respired
Delta 14C (per mil)
0
200
400
600
800
1940
1950
1960
1970
1980
1990
2000
2010
Year

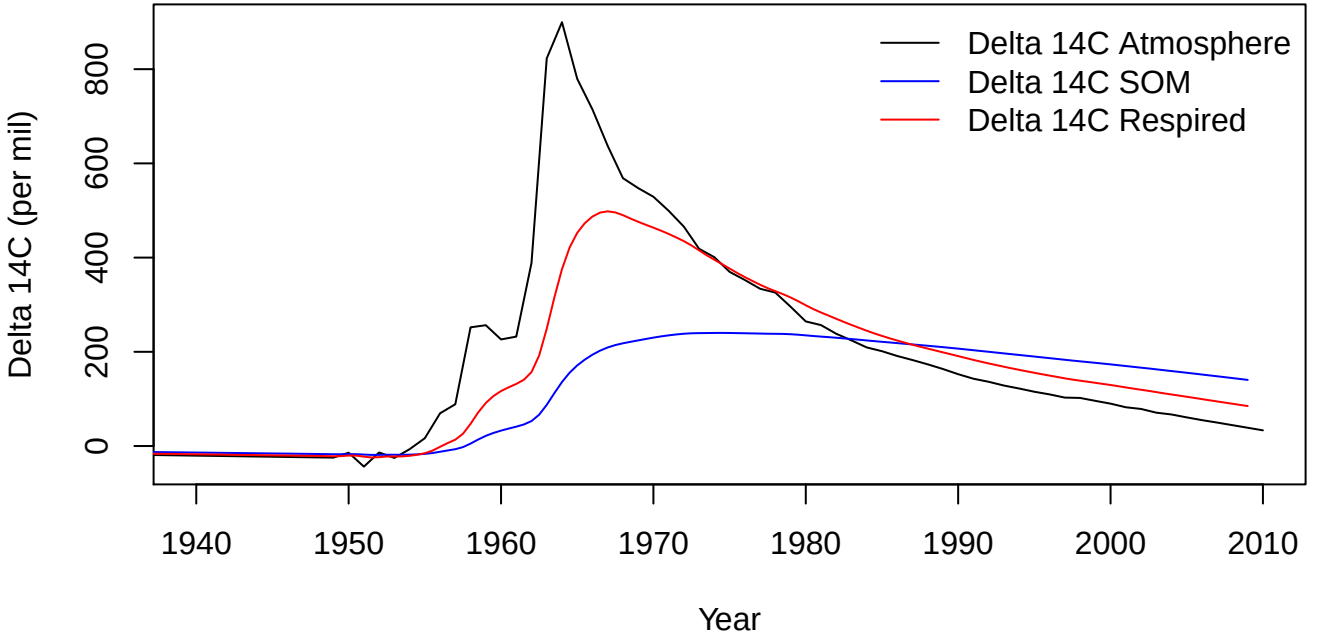

Delta 14C Atmosphere
Delta 14C pool 1
Delta 14C pool 2
Delta 14C (per mil)
0
200
400
600
800
1940
1950
1960
1970
1980
1990
2000
2010
Year

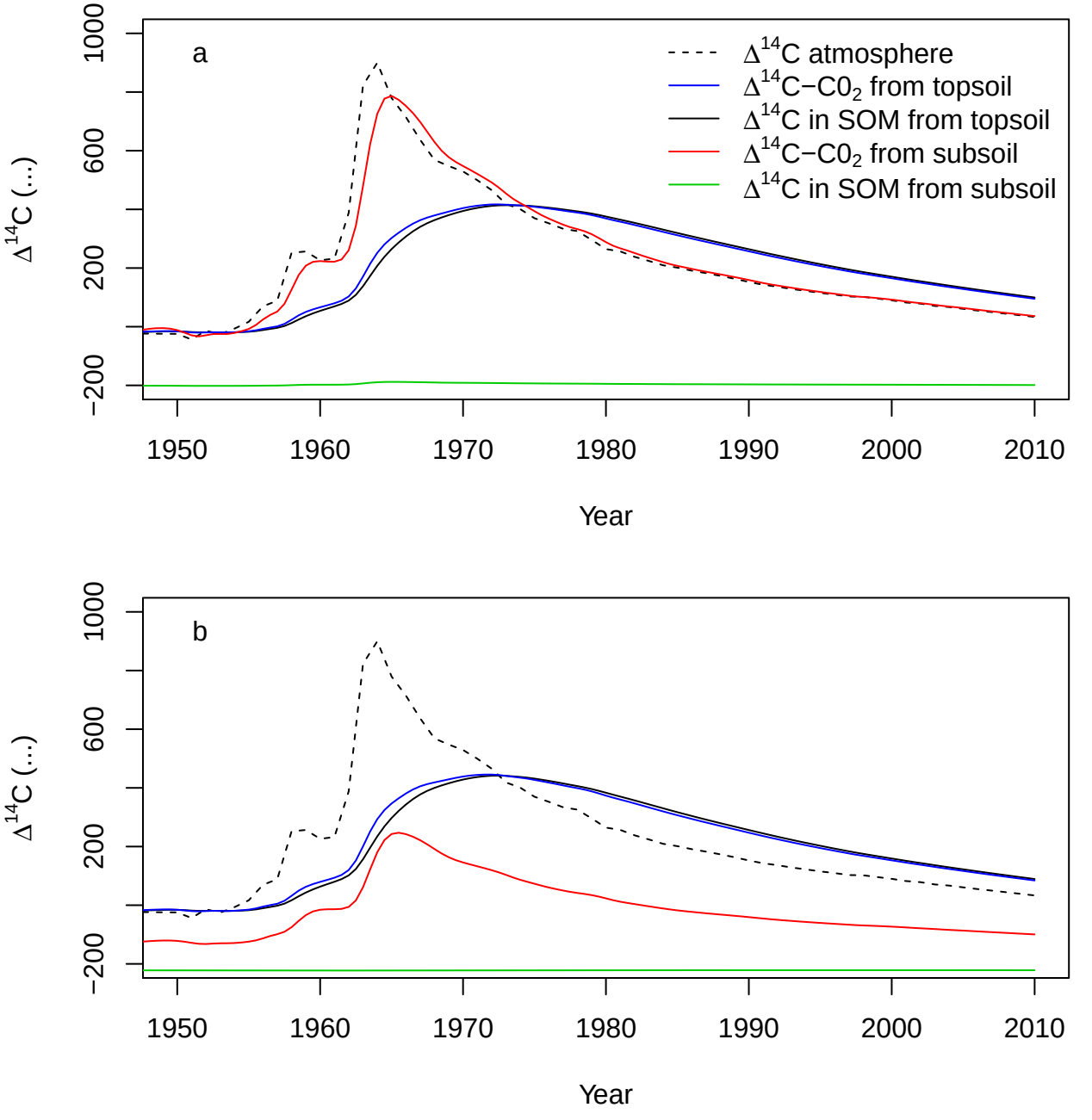

Delta 14C Atmosphere
Delta 14C SOM
Delta 14C Respired
Delta 14C (per mil)
0
200
400
600
800
1940
1950
1960
1970
1980
1990
2000
2010
Year

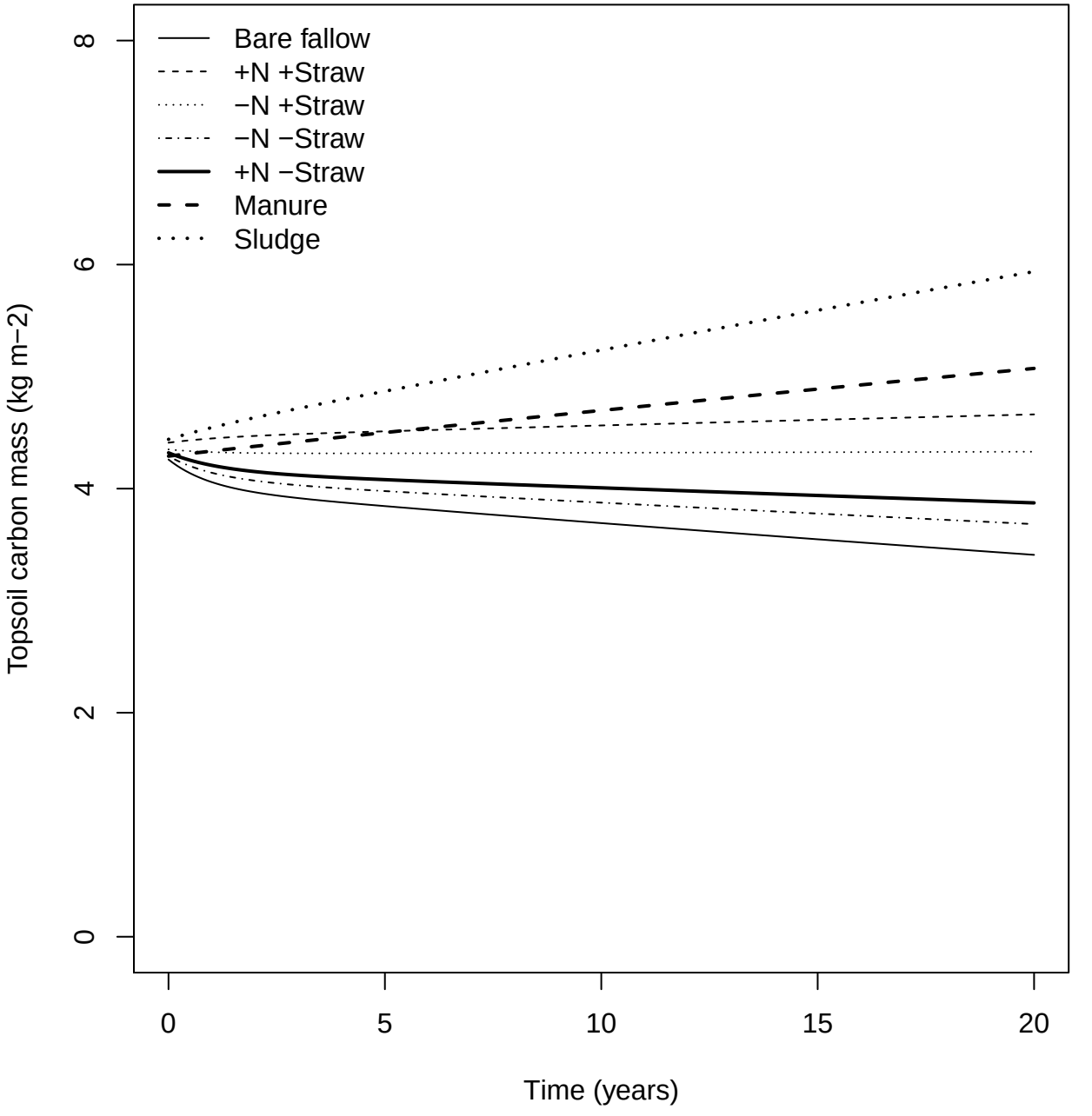

Delta 14C Atmosphere
Delta 14C pool 1
Delta 14C pool 2
Delta 14C (per mil)
0
200
400
600
800
1940
1950
1960
1970
1980
1990
2000
2010
Year

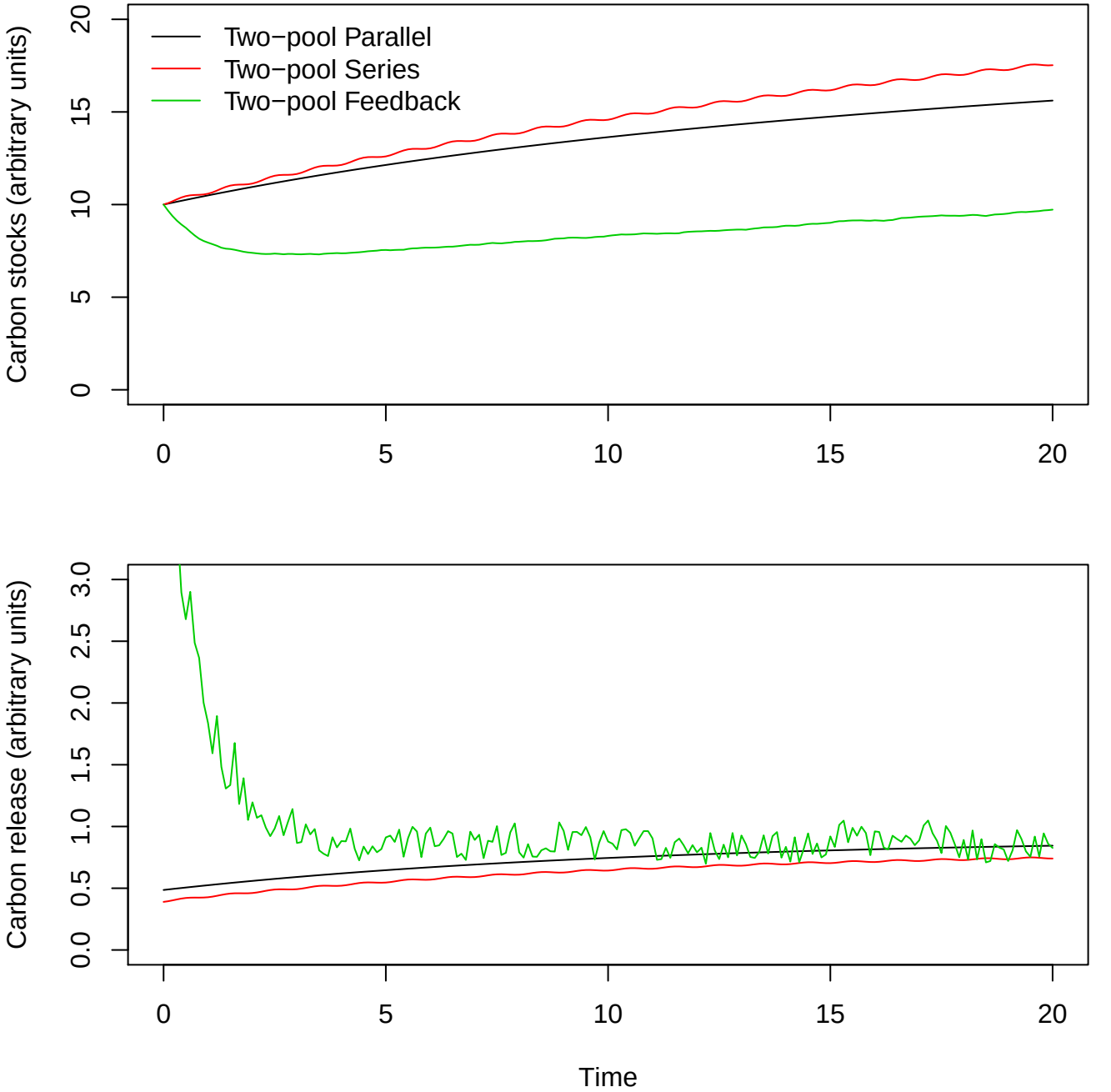

Delta 14C Atmosphere
Delta 14C SOM
Delta 14C Respired
Delta 14C (per mil)
0
200
400
600
800
1940
1950
1960
1970
1980
1990
2000
2010
Year

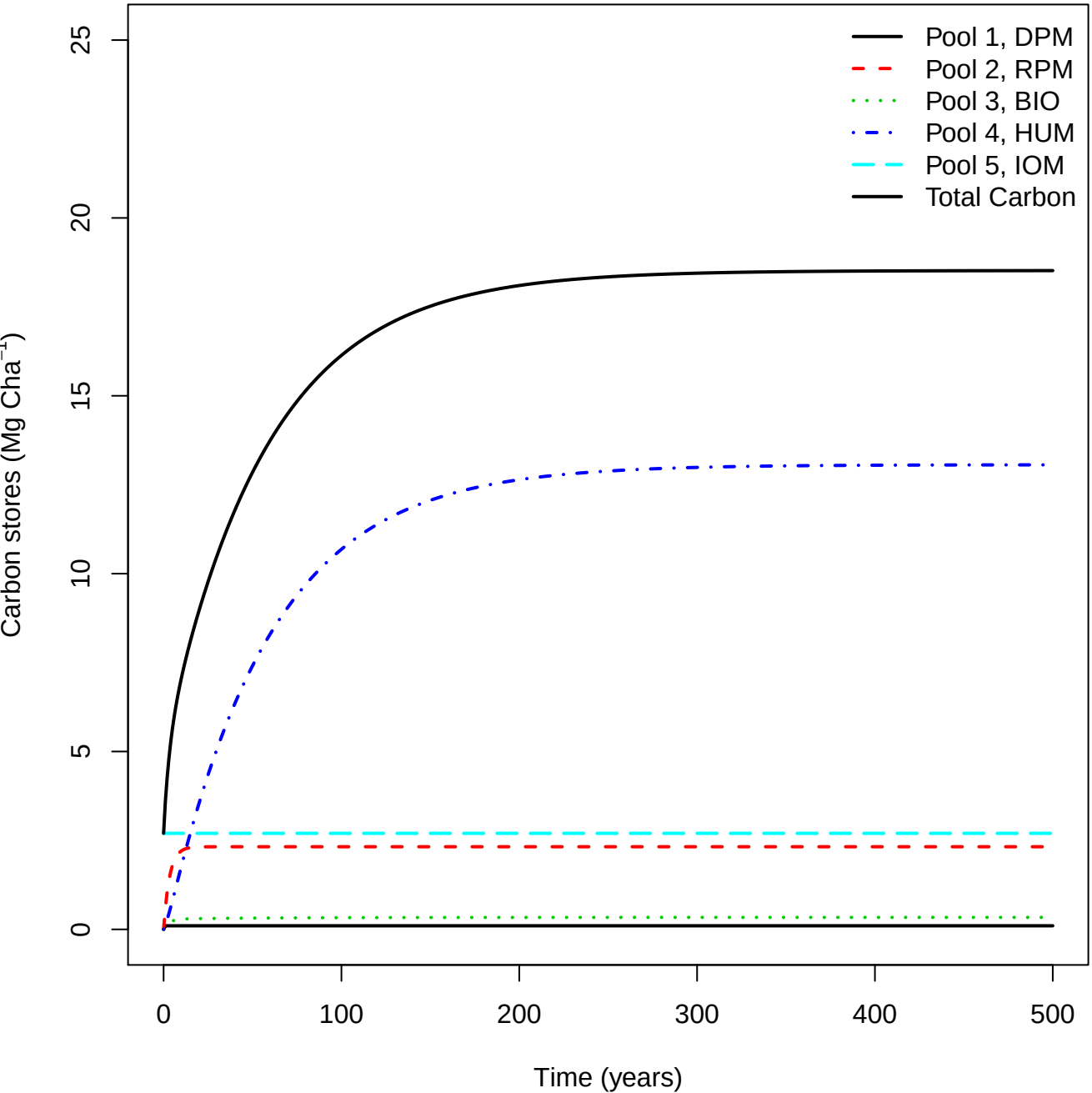

Delta 14C Atmosphere
Delta 14C pool 1
Delta 14C pool 2
Delta 14C (per mil)
0
200
400
600
800
1940
1950
1960
1970
1980
1990
2000
2010
Year

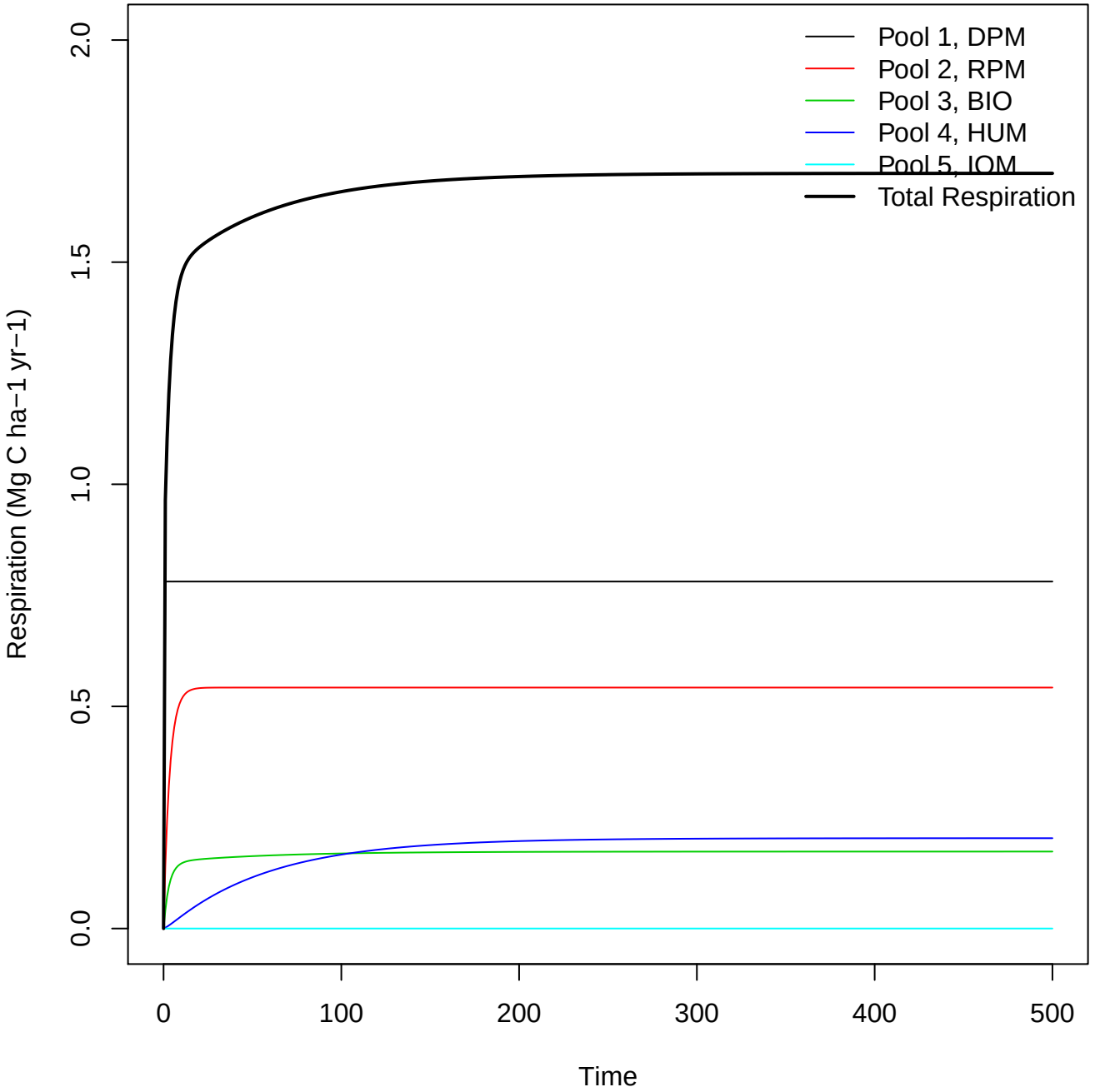

Delta 14C Atmosphere
Delta 14C SOM
Delta 14C Respired
Delta 14C (per mil)
0
200
400
600
800
1940
1950
1960
1970
1980
1990
2000
2010
Year


a
b
Δ14C atmosphere
Δ14C−C02 from topsoil
Δ14C in SOM from topsoil
Δ14C−C02 from subsoil
Δ14C in SOM from subsoil
Δ14C (...)
1000
600
200
−200
1950
1960
1970
1980
1990
2000
2010
Year


Bare fallow
+N +Straw
−N +Straw
−N −Straw
+N −Straw
Manure
Sludge
Topsoil carbon mass (kg m−2)
0
2
4
6
8
0
5
10
15
20
Time (years)


Two−pool Parallel
Two−pool Series
Two−pool Feedback
Carbon stocks (arbitrary units)
0
5
10
15
20
Carbon release (arbitrary units)
0.0
0.5
1.0
1.5
2.0
2.5
3.0
Time


Pool 1, DPM
Pool 2, RPM
Pool 3, BIO
Pool 4, HUM
Pool 5, IOM
Total Carbon
Carbon stores (Mg Cha^{-1})
0
5
10
15
20
25
0
100
200
300
400
500
Time (years)


Pool 1, DPM
Pool 2, RPM
Pool 3, BIO
Pool 4, HUM
Pool 5, IOM
Total Respiration
Respiration (Mg C ha−1 yr−1)
0.0
0.5
1.0
1.5
2.0
0
100
200
300
400
500
Time