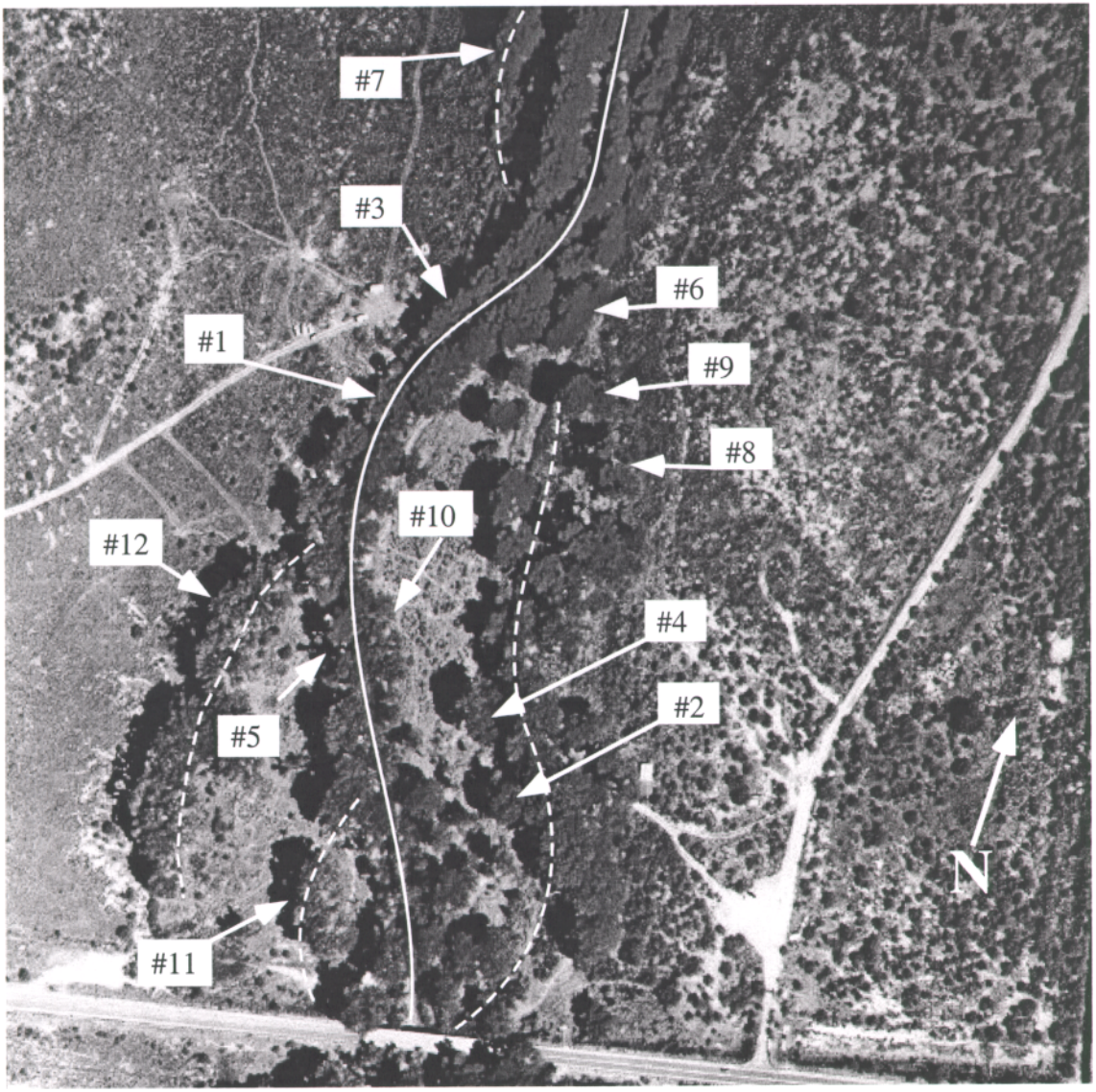


Figure 1

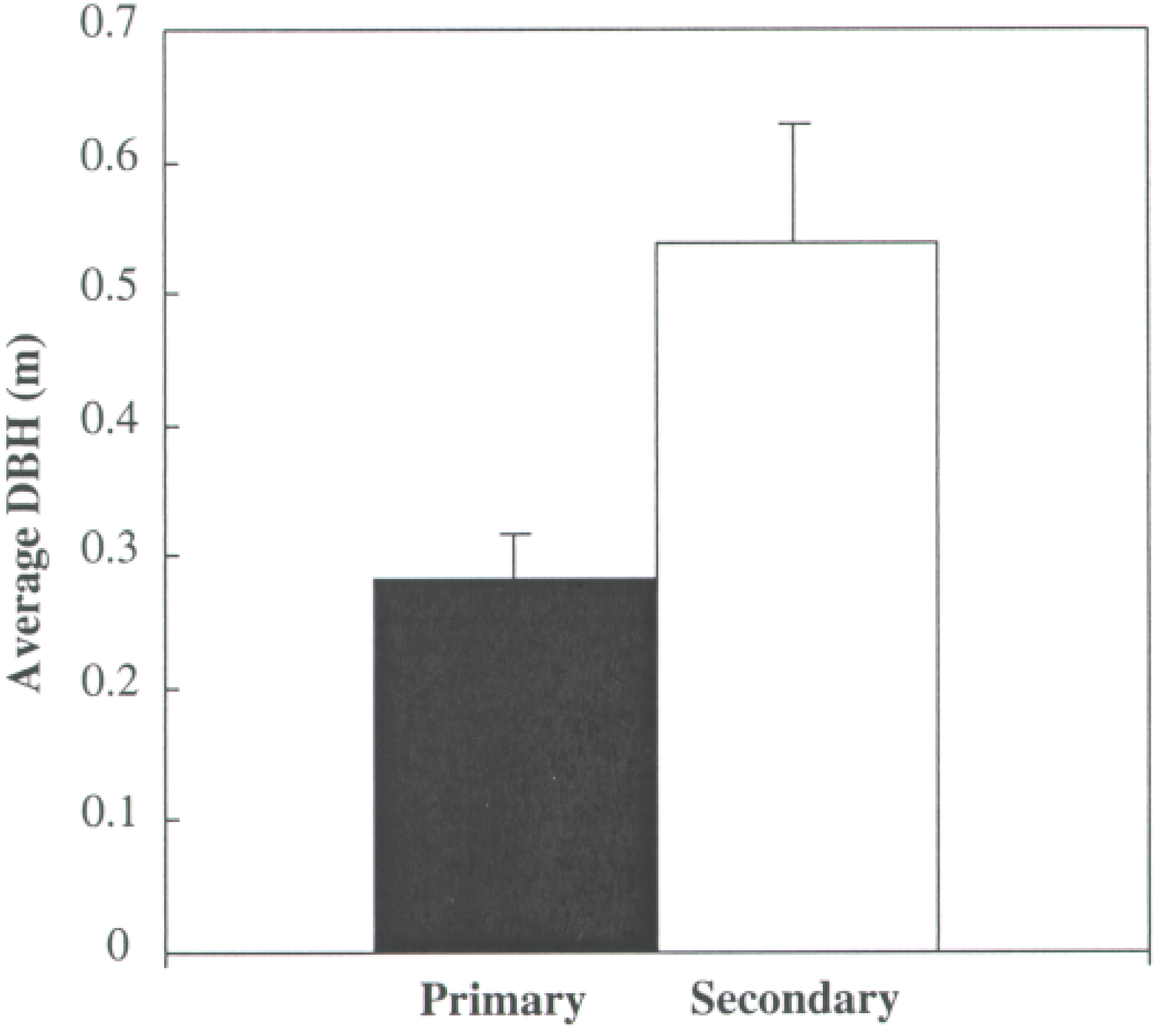


Figure 2

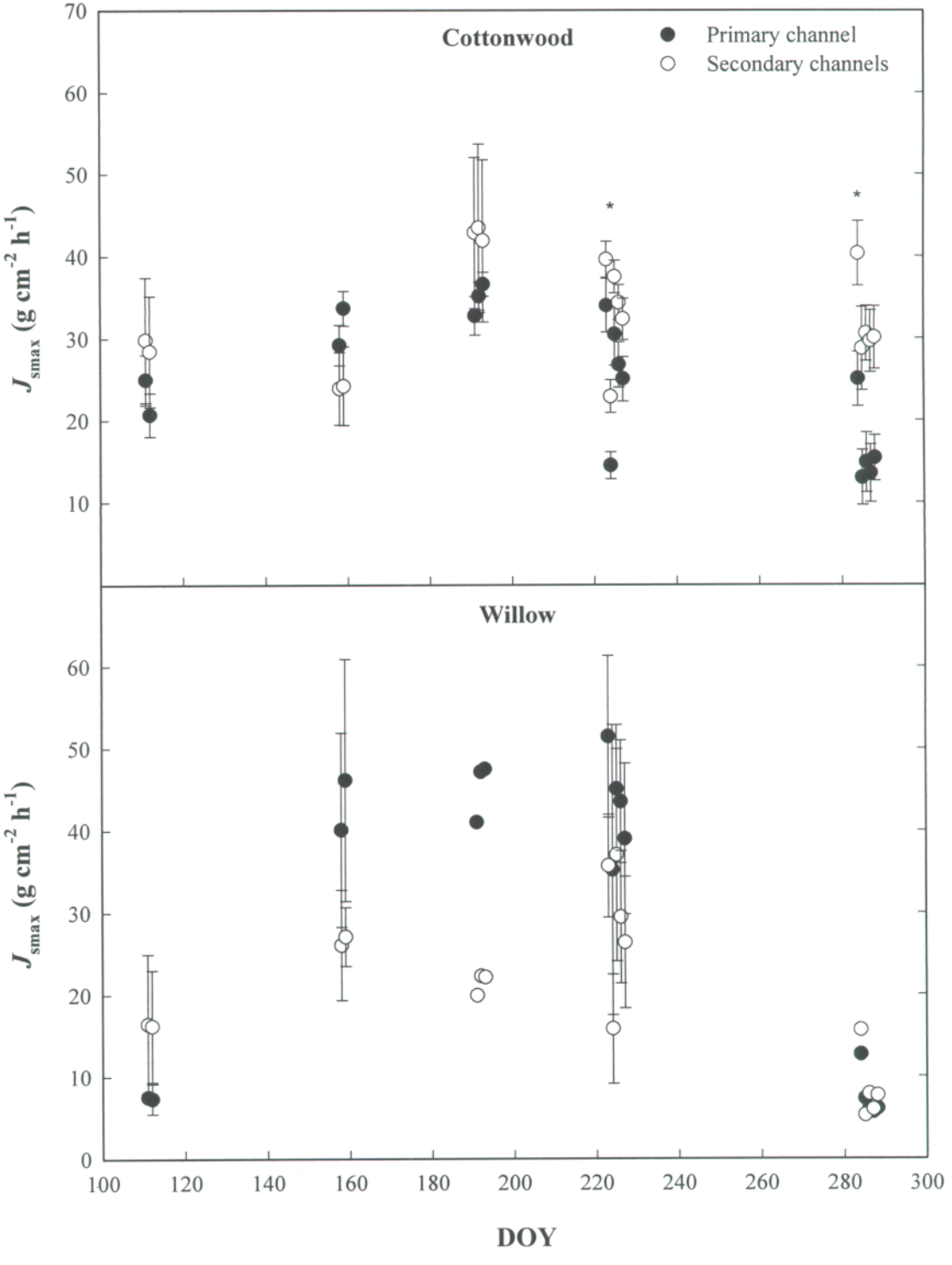

Cottonwood
Primary channel
Secondary channels
Willow
J_{smax} (g cm^{-2} h^{-1})
DOY
70
60
50
40
30
20
10
0
100
120
140
160
180
200
220
240
260
280
300
*
*

Figure 3

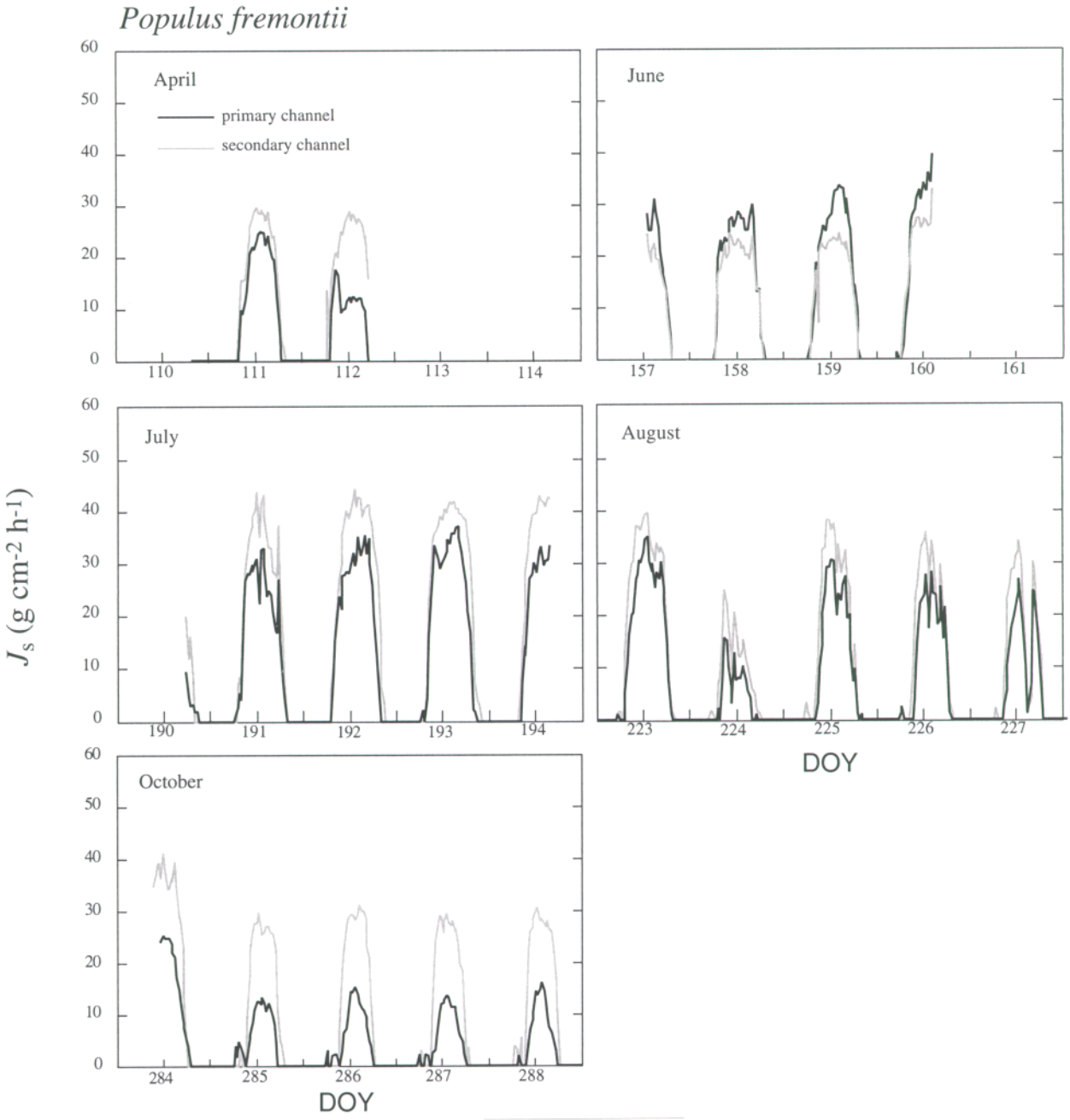

Populus fremontii
April
primary channel
secondary channel
June
July
August
October
J_s (g cm^{-2} h^{-1})
DOY
DOY

Figure 4

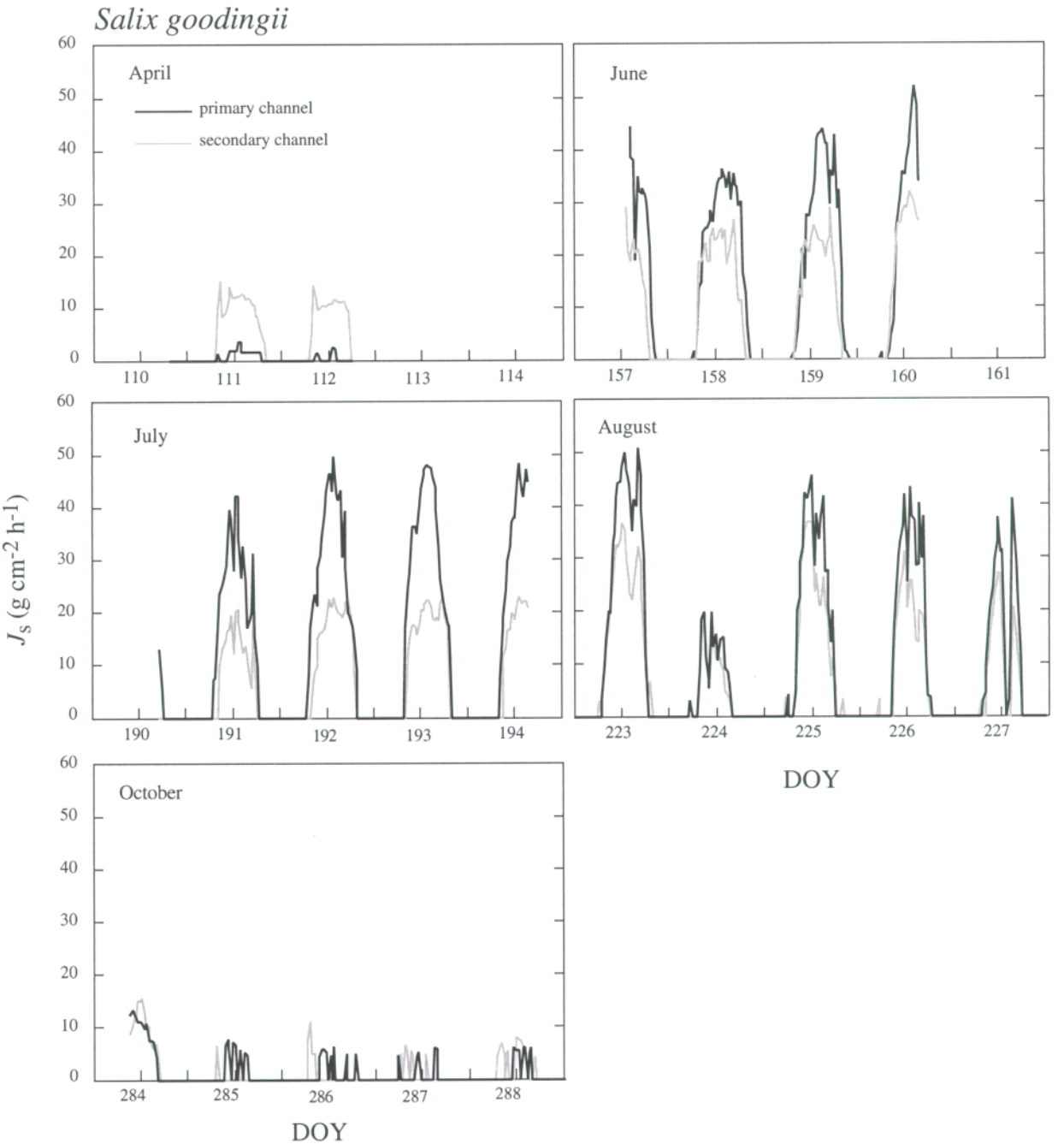

Salix goodingii
April
primary channel
secondary channel
June
July
August
October
J_S (g cm^{-2} h^{-1})
DOY
DOY

Figure 5

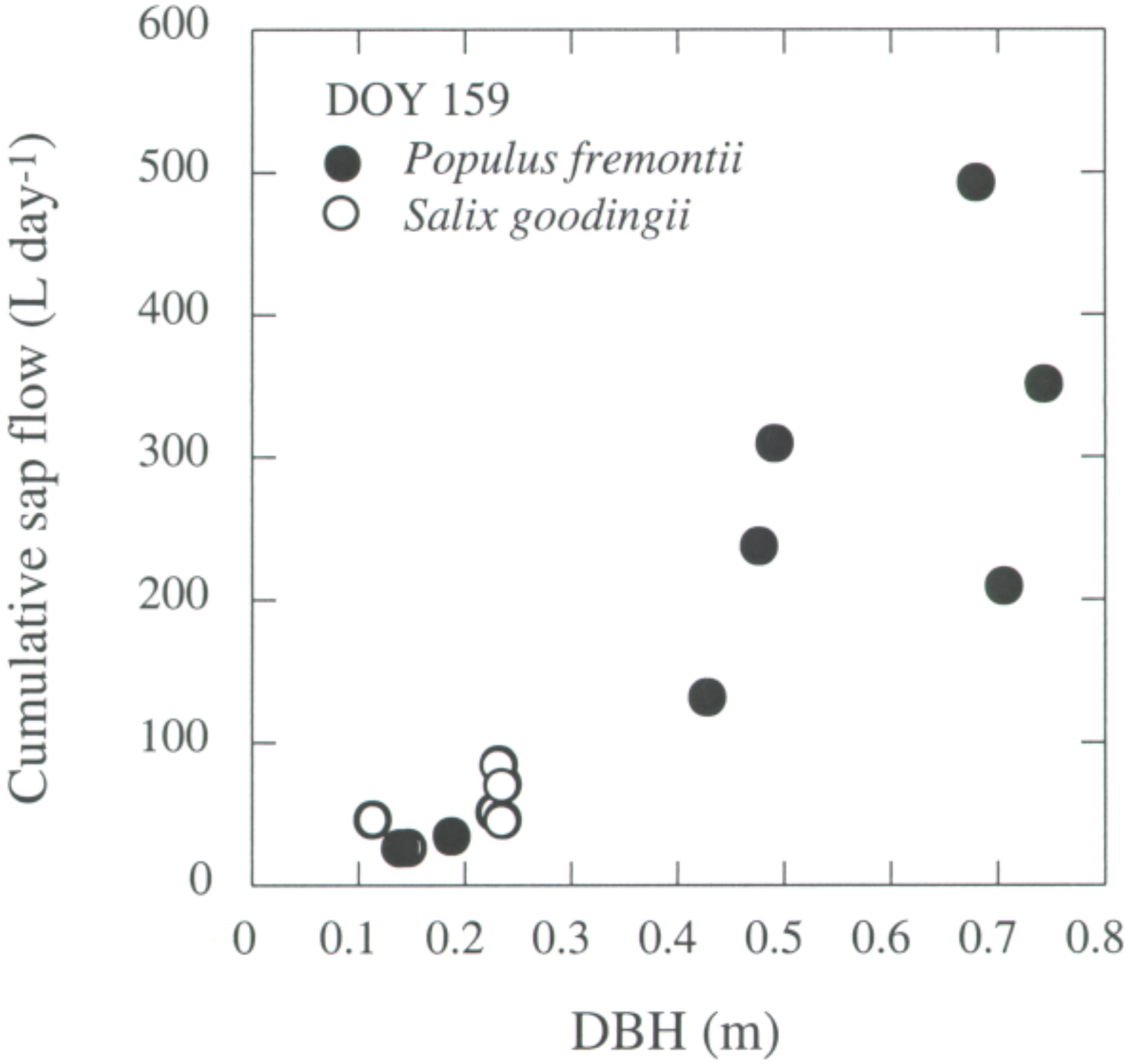

DOY 159
Populus fremontii
Salix goodingii
Cumulative sap flow (L day-1)
DBH (m)
0
100
200
300
400
500
600
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8

Figure 6

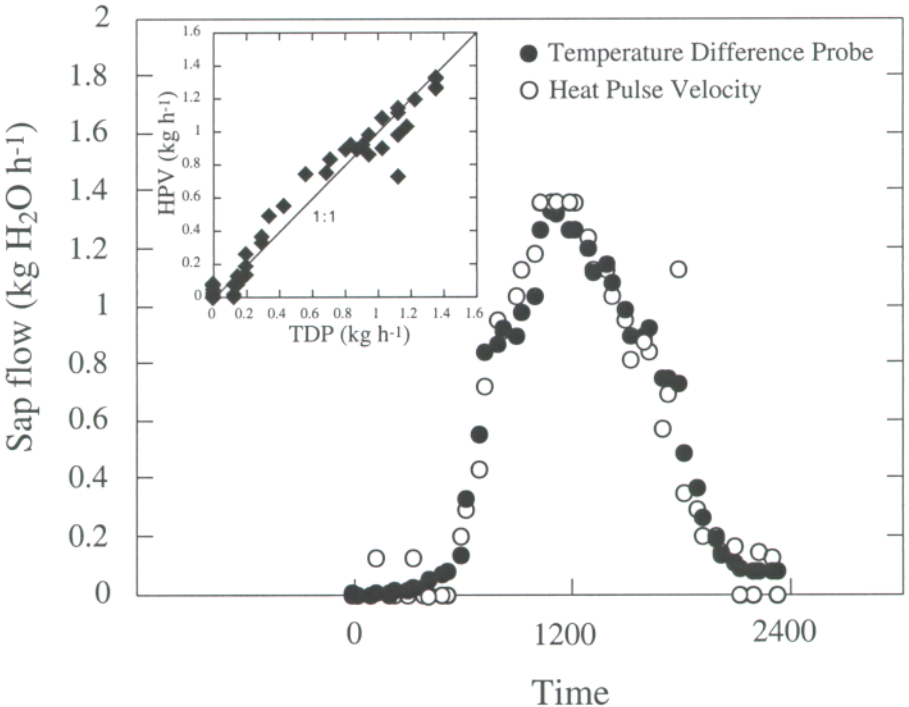
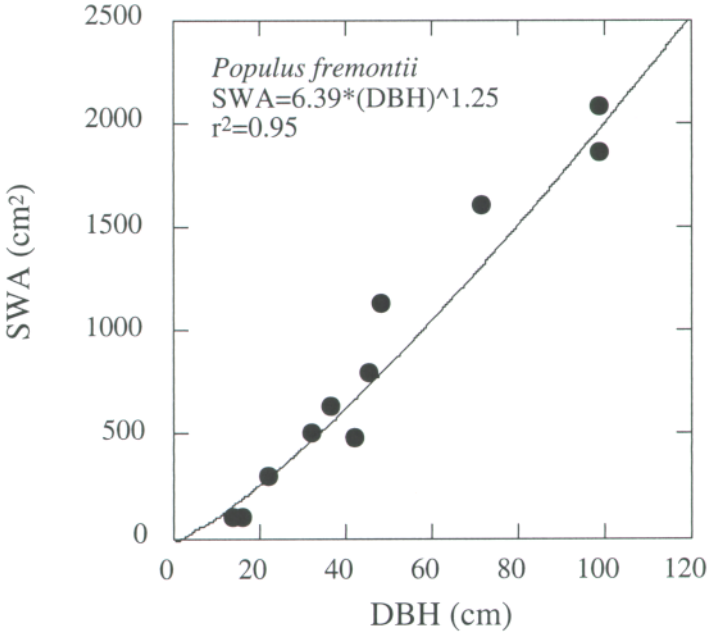

Sap flow (kg H2O h-1)
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
0
1200
2400
Time
Temperature Difference Probe
Heat Pulse Velocity
HPV (kg h-1)
TDP (kg h-1)
1:1
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6

Figure 7


Populus fremontii
SWA=6.39*(DBH)^1.25
r2=0.95
SWA (cm2)
DBH (cm)
0
500
1000
1500
2000
2500
0
20
40
60
80
100
120

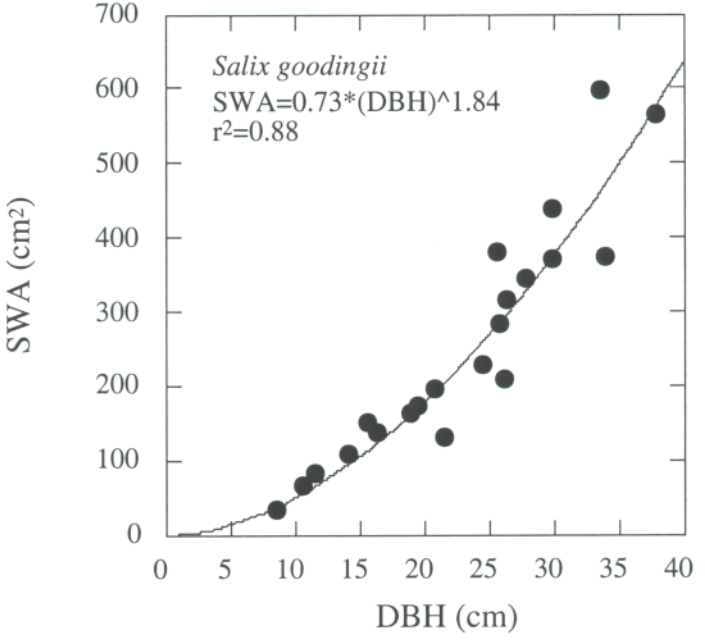

Salix goodingii
SWA=0.73*(DBH)^1.84
r2=0.88
SWA (cm2)
DBH (cm)
0
100
200
300
400
500
600
700
0
5
10
15
20
25
30
35
40

Figure 8

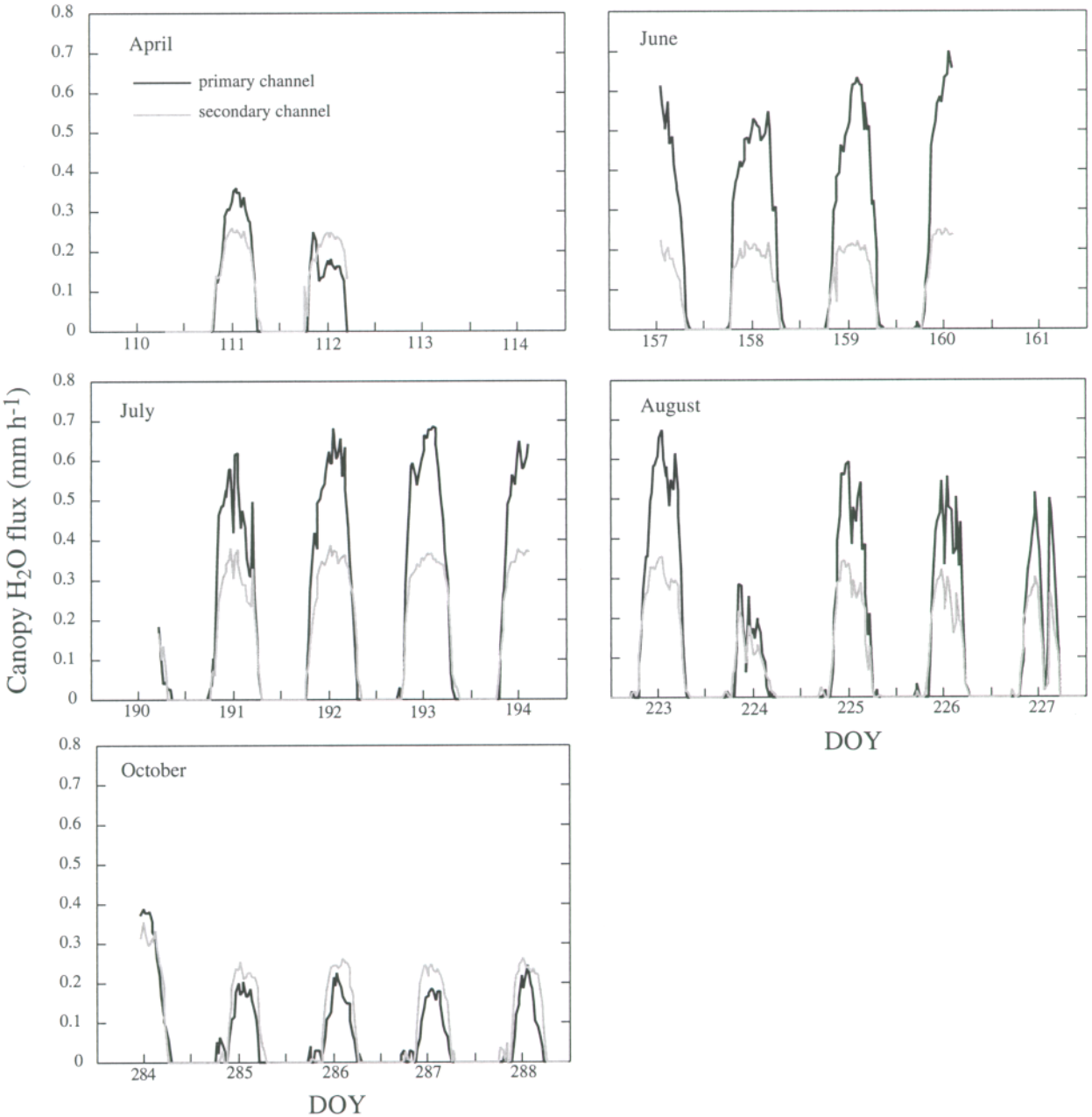

April
primary channel
secondary channel
June
July
August
October
Canopy H_2O flux (mm h^{-1})
DOY
DOY

Figure 9

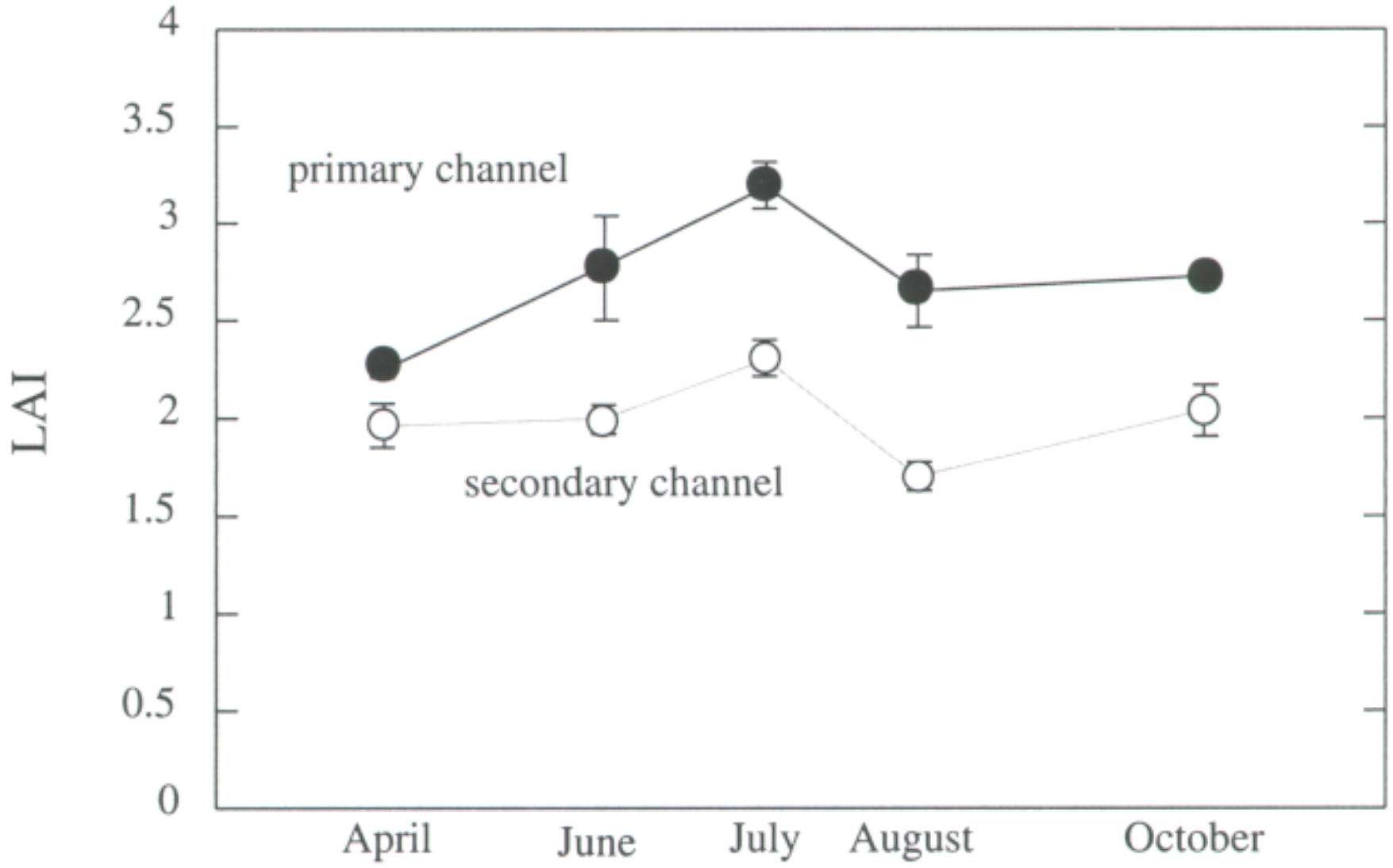

4
3.5
3
2.5
2
1.5
1
0.5
0
LAI
primary channel
secondary channel
April
June
July
August
October

Figure 10

Table 1. Stand structural characteristics for twelve patches of riparian forest vegetation at the Lewis Springs study site on the San Pedro River in southeastern Arizona. Canopy area, number of stems, and sapwood area/canopy area ratio are given for patches located along the primary and secondary stream channels. Canopy area (m^2) refers to the planar projected area of the canopy as seen from aerial photography. Percent (%) willow refers to the percentage of the total sapwood area that willow contributes to a given patch. Mean values (and SE of mean in parenthesis) are shown for the structural characteristics of all patches on either primary or secondary stream channels.

Position	Patch Number	Canopy area (m^2)	Stems		Sapwood area/Canopy area ($cm^2\ m^{-2}$)		
			Cottonwood	Willow	Cottonwood	Willow	% Willow
Primary	1	444	8	14	13.8	7.1	34
	3	643	31	25	15.8	3.9	20
	5	756	4	13	5.0	4.8	49
	6	800	33	43	18.1	2.9	14
	10	1028	58	13	16.4	1.3	7
mean		734(95)	26.8(9.7)	21.6(5.8)	13.8(2.3)	4.0(1.0)	25(8)
Secondary	2	462	2	5	3.9	1.3	25
	4	664	9	20	9.1	2.2	20
	7	814	4	0	6.1	0.0	0
	8	828	12	5	9.7	0.1	1
	9	997	2	8	4.6	0.3	5
	11	1421	13	7	9.8	0.9	8
	12	1985	41	1	17.9	0.2	1
mean		1021(196)	11.9(5.2)	6.6(2.5)	8.7(1.8)	0.7(0.3)	9(4)