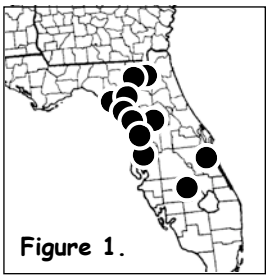
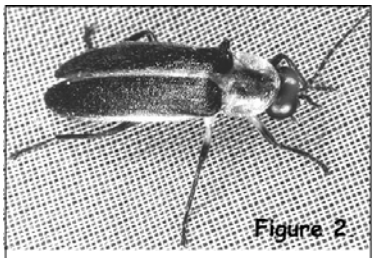
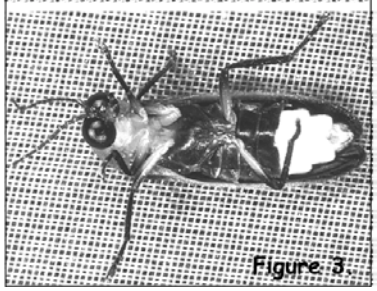
Chapter 25

Photuris congener LeConte 1852

Of Florida's many firefly species this is the one most likely to be noticed, even by non-entomologists, though its adult season is brief, confined to a span of a few weeks—actual dates shift with latitude, the peak in central Florida just north of Lake Okeechobee occurring in March and in north-central Florida at Gainesville, in mid-April (**Figs. 9, 11**). When *congener* appears great pressure for "signal space" must be put on communication in other species in its habitat which becomes totally dominated by *congener's* (noisy/nuisance) flashes—some species may have shifted their adult season accordingly? *Congener's* flash pattern is a train of very short (60-80 mSec) flashes emitted at short intervals (0.5-1 sec), depending upon temperature (**Figs. 7, 8, 10**). The combination of repetitious spikes at short periods, large numbers of individuals, low flight (**Fig. 6**), and occasional/rarely, precise, flash synchrony make healthy populations at their peak remarkable, their silent choruses not-to-be-forgotten displays. The map in **Figure 1** is incomplete; *congener* certainly occurs in several additional counties. Below the southern end of *congener's* range there is a similar species, *Photuris floridana*, recognized by Barber as *Ph. brunnipennis*, with, seemingly, an identical FP; this firefly may have once been isolated on pine-islands and other elevated sites in the southern-most everglades. To the north, among FP-voucher samples were three that were identified as *congener* at the time, but flashed at much longer intervals as shown in **Figures 8** and **10**—apparently *frontalis*? Whether intergrades occur at their contiguity, along the FL/GA line (?) is unknown. Specimens of the two except at the frontier are easily distinguished (**Figs. 2, 4**). LeConte had second thoughts after naming both. Note in **FigTable 5** that the two differ in the color of their luminescence. See *frontalis* map and compare FP regressions in Chapter 36.







Species	Date	Locality	n	Peak	Half Max		Wid/HMx
congener	2 V 67	nc FL	5	554	528.0	602.0	74.0
congener	22 IV 68	nc FL	10	551	527.0	602.0	75.0
congener	31 III 78	c FL	6	558	530.0	602.0	72.0
frontalis	11 VI 67	nw GA	5	568	539.0	611.0	72.0
frontalis	26 VI 78	e MD	4	571	540.0	619.0	79.0
frontalis	30 VI 81	e MD	4	571	540.0	616.0	76.0

FigTable 5. Color of luminescence compared.

Morphology. **Figures 2, 3, 12-14** give measurements, colors, ratios; or illustrate elements for identification.

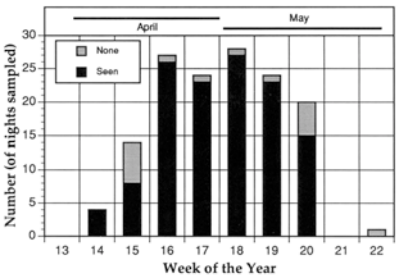


Figure 9. SESOBS for Alachua Co. (north central FL).

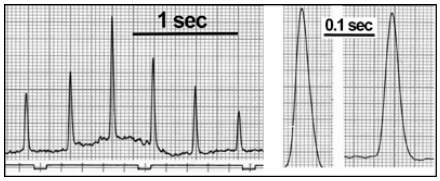
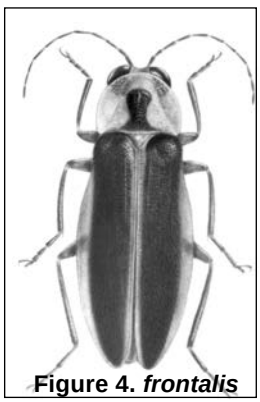


Figure 7. High. Ham. S. P., 21.8°/71.2° (AX: rel. int./time).



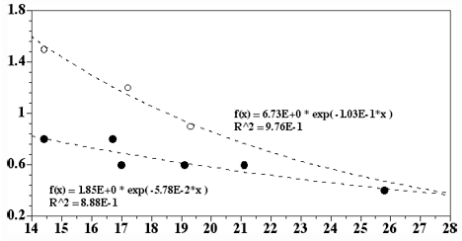


Figure 8. FP period (AX:sec/temp)..

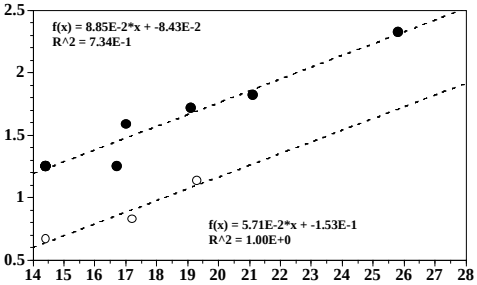
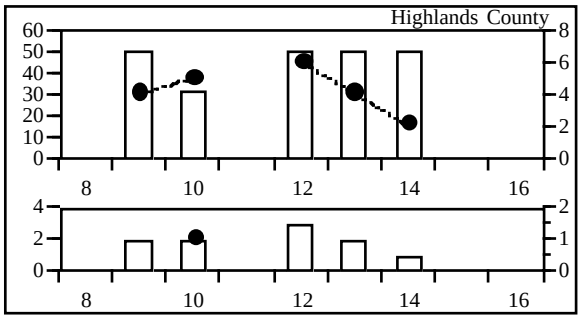
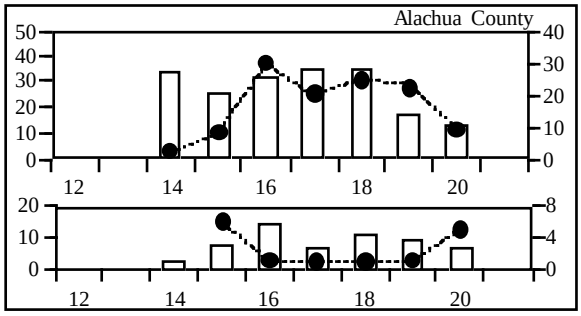
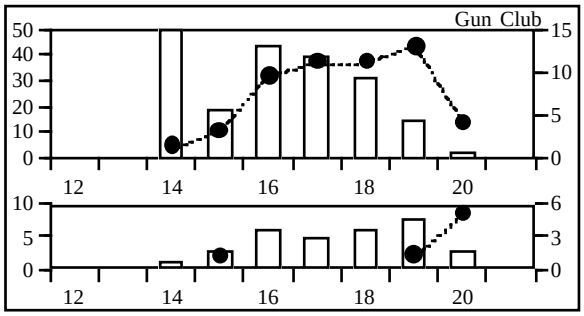
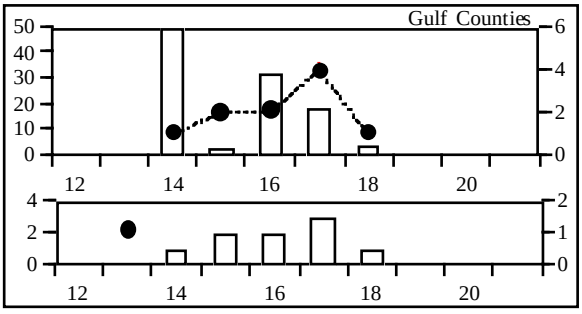


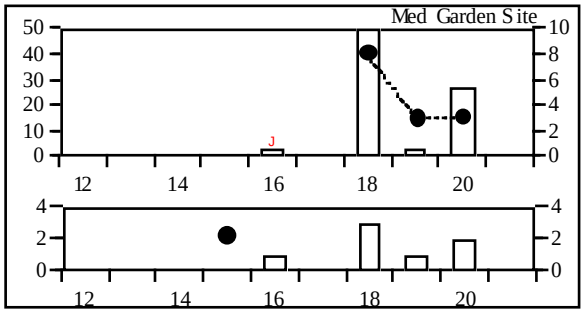
Figure 10. FP flash rate (1/per; AX: Hz/temp)..











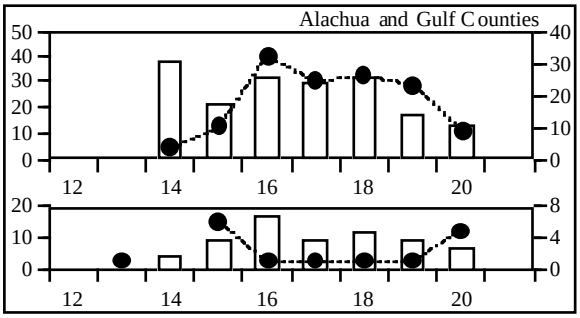


Figure 11. SESOBS from various sites and combinations.

congener HH

	PNLen	ELLen	PNWid	EWhum	EWmid	ELVit	TOTLen	PNrat	ELWrat	ELVTrat
$\bar{x}$	2.273	8.633	2.873	1.707	2.040	0.000	10.893	.791	1.207	0.000
sd	.240	.412	.139	.122	.106	0.000	.597	.065	.063	0.000
se	.062	.106	.036	.032	.027	0.000	.154	.017	.016	0.000
n	15	15	15	15	15	15	15	15	15	15
min	1.600	7.900	2.600	1.500	1.900	0.000	9.800	.590	1.070	0.000
max	2.500	9.400	3.100	1.900	2.300	0.000	11.900	.860	1.310	0.000
Vc%	10.6	4.8	4.8	7.2	5.2	0	5.5	8.2	5.2	0

congener HH

	5	6	7	Py	Cx	1	2	3	4
$\bar{x}$	2.800	2.067	1.200	1.000	1.467	2.267	2.800	3.000	1.267
sd	.414	.594	.414	0	.516	.458	.414	0	1.033
se	.107	.153	.107	0	.133	.118	.107	0	.267
n	15	15	15	15	15	15	15	15	15
min	2.000	1.000	1.000	1.000	1.000	2.000	2.000	3.000	0
max	3.000	3.000	2.000	1.000	2.000	3.000	3.000	3.000	3.000
Vc%	14.8	28.7	34.5	0	35.2	20.2	14.8	0	81.5

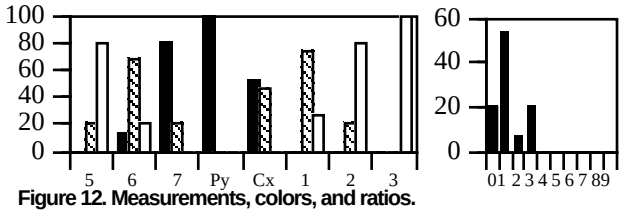


Figure 12. Measurements, colors, and ratios.

Figure 14. The filaments are missing/broken in this very old, stained preparation. The bracket indicates an area of the lateral lobe that is useful for distinguishing the two Divisions: In Division I, as shown here in *congener*, this area is usually simple, without elaboration.

FLORIDA: (various sites)

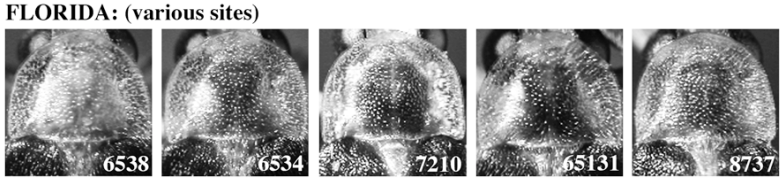


Figure 13.

Chapter 37

Photuris frontalis LeConte 1852

Flashing of this firefly appears similar to that *Ph. congener*, with two notable differences: males are seen higher into the foliage of trees, especially later in the evening; and they apparently synchronize their flashes more commonly/readily than *congener*. David Lee described synchronizing (1990). LeConte named both fireflies but later considered them under one name; Barber correctly recognized both. Distributions of the two are contiguous along/near the Florida-Georgia border and perhaps they hybridize there (**Fig. 1**); but FP periods are different with those of *frontalis* being longer (**Fig. 2**). Rates are compared in **Figure 3**. Note in **Figure 5** that the exponential model fits the *frontalis* data slightly better than the linear model as would be expected from experience with other species. Field notes are few but data are several and the following deals almost exclusively with these data and their figures. Seasonal distribution of *frontalis* is shown in **Figures 4**, and shown with that of *congener* in **Figure 6.** **Figure 7** shows a *frontalis* flash train and variation among individual flashes of the train. For **Figures 9-12** see legends.

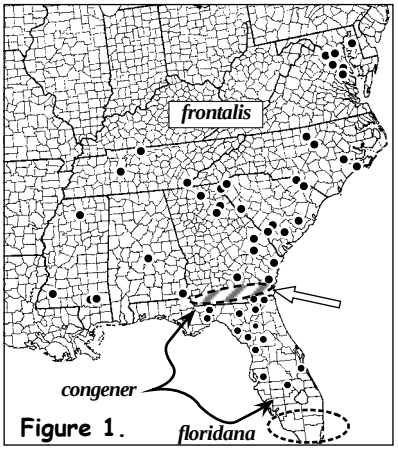


Figure 1.


Carbon dust by Laura Line.

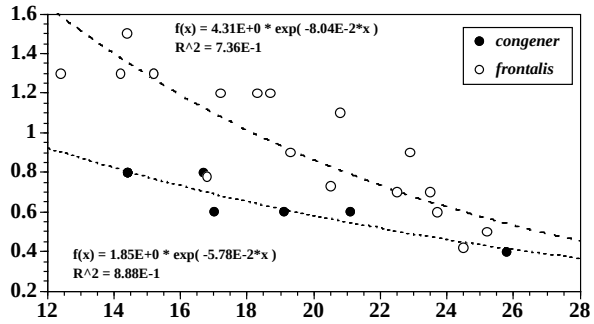


Figure 2. FP periods compared (AX: sec/temp).

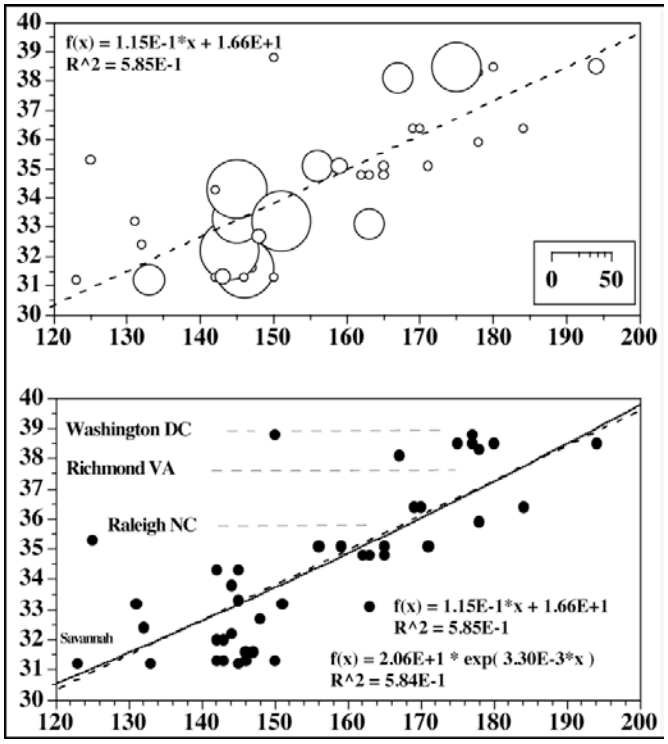


Figure 4. Seasonal distribution, G'SOBS, GESEDIS (AX: Lat/DOY).

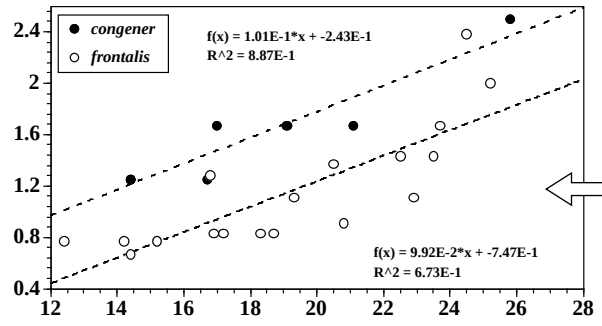
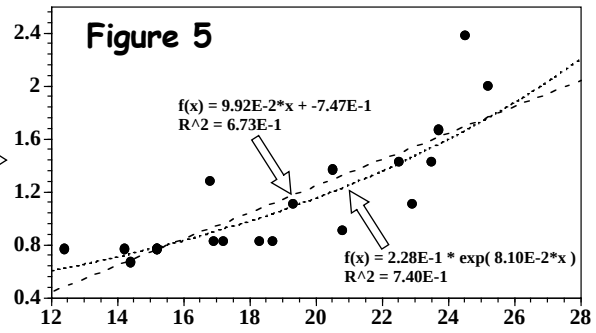


Figure 3. FP rates compared (AX: Hz/temp).



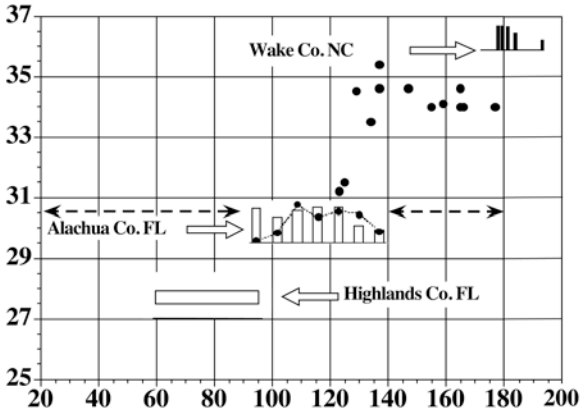


Figure 6. Three-way combination: SESOBS and GESEDIS: *frontalis* above dashed arrows (FL/GA border), *congener* below. NC SESOBS from David Lee (AX: Lat/DOY).

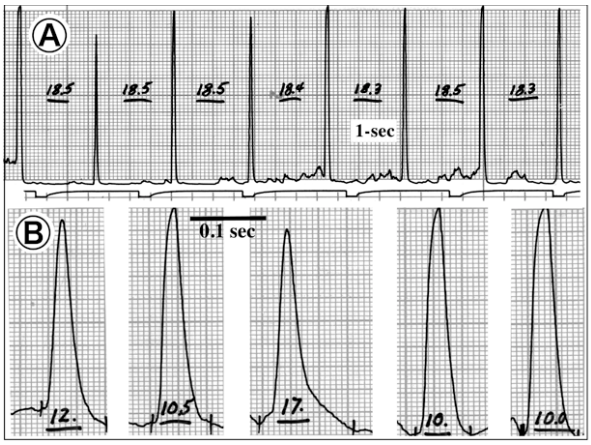


Figure 7. PM, (A) train, (B) variation among flashes in train, 19.4°/ 67° (AX: rel. int./time).

	$\bar{x}$	@ half max's	n
angustata	552	529-601	3/14*
ecostata	558	533-602	1/6*
eureka	555	521-598	1/6*
other *Pyrac.*	573.8	546-613	8/13/69**
most *Photur.*	554.6	528.4-597.1	±29/55/318**
Ph. frontalis	570	539-619	3/13*

Figure 8 .Comparison of bioluminescence spectra.

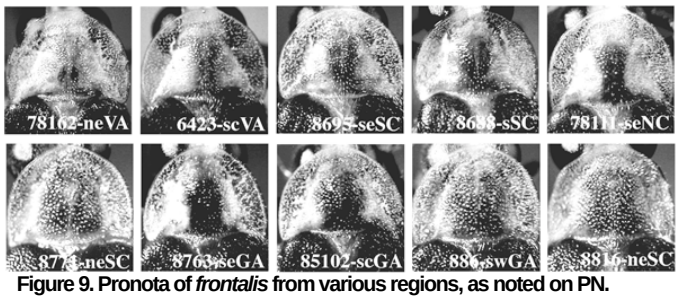
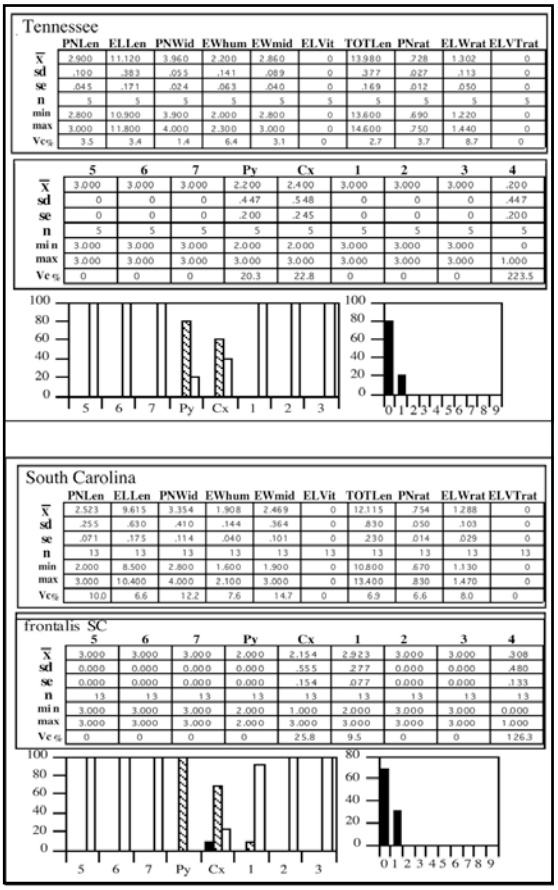


Figure 9. Pronota of *frontalis* from various regions, as noted on PN.

Figure 10. *Ph. frontalis* flashes in NC woodland; B&W conversion from color by David Lee (1990).

Figure 11. LeConte "type"; Barber's 2X voucher.



FigTable 12 . Comparative measurements: SC, Berkeley, Dillon, Pickens; TN, Dixson, Polk, Sumner.