RESULTS

Calling behavior

Female *Nephopterix* exhibited a sterotyped calling posture. During this time, a female arched the abdomen upward between the wings and extruded the normally hidden eighth and ninth abdominal segments. The arch of the abdomen and the extrusion of the terminal abdominal segments became more apparent as the calling period progressed. The female periodically contracted the terminal abdominal segments.

Calling pattern

Most female commenced calling late ca.7-8 hr after light-off. Each day the calling gradually increased and peaked at the end of the darkness. Some females continued calling till 1 to 2 hr after light-on. The calling percentage varied with age (Fig.1). It was minimal in 1-day-old moths and rose drastically with age. The calling attained a maximum (45%) in 4-day-old females and thereafter declined in the older moths. The mean onset of calling was significantly influenced by a quadratic effect of age (Table 1). On average, 5-day-old females initiated calling at 7.8 hr after light-off which was 6 to 18 min earlier than the younger and the older (Fig.2A). For mean time spent calling there was a quadratic age effect (Table 1). The calling time initially increased with age, peaking at 75 min for 5-day-old females, and thereafter declined in older moths (Fig.2B).

Mating behavior

A male responded to a calling female by exhibiting vigorous wing fanning and antennal waving. When a calling female was located, the male anteriorly approached the female. While fanning, the male probed along the female body with exposed genitalia and arched the abdomen toward

Table 1. The effects of age on onset of calling and time spent calling by female *Nephopterix*. Summary of ANOVA. Variances were homogenous (Cochran's C = 0.25 and 0.27, P > 0.05).

		Onset of calling		Time spent calling	
Source of variance	df	MS	P	MS	P
Age	6	0.94	-	1773	-
Linear trend	1	2.58	0.00	4670	0.01
Quadratic trend	1	2.33	0.00	4904	0.01
Cubic trend	1	0.07	0.59	28	0.85
Error	95	0.23		749	

Fig.1. Distribution of calling times for the first seven scotophase after eclosion in *Nephopterix* females. The line over the top histogram represents the duration of the scotophase. For ages 1 to 7 N=21, 22, 19, 20, 17, 14, 15.

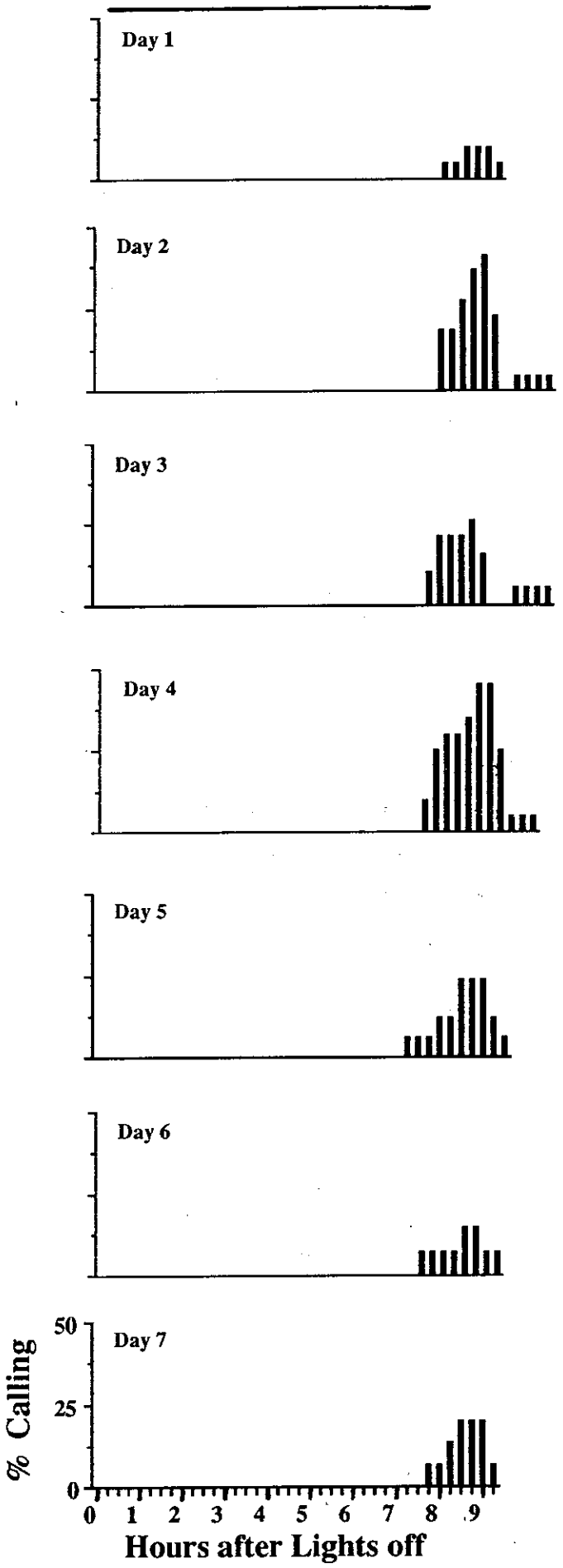
Day 1
Day 2
Day 3
Day 4
Day 5
Day 6
Day 7
% Calling
50
25
0
0 1 2 3 4 5 6 7 8 9
Hours after Lights off

Fig. 1

Fig.2. Effects of age on (A) onset of calling and (B) time spent calling for *Nephopterix* females. Vertical bars represent ± SE. For ages 1 to 7, N=8, 21, 19, 19, 14, 10, 11.

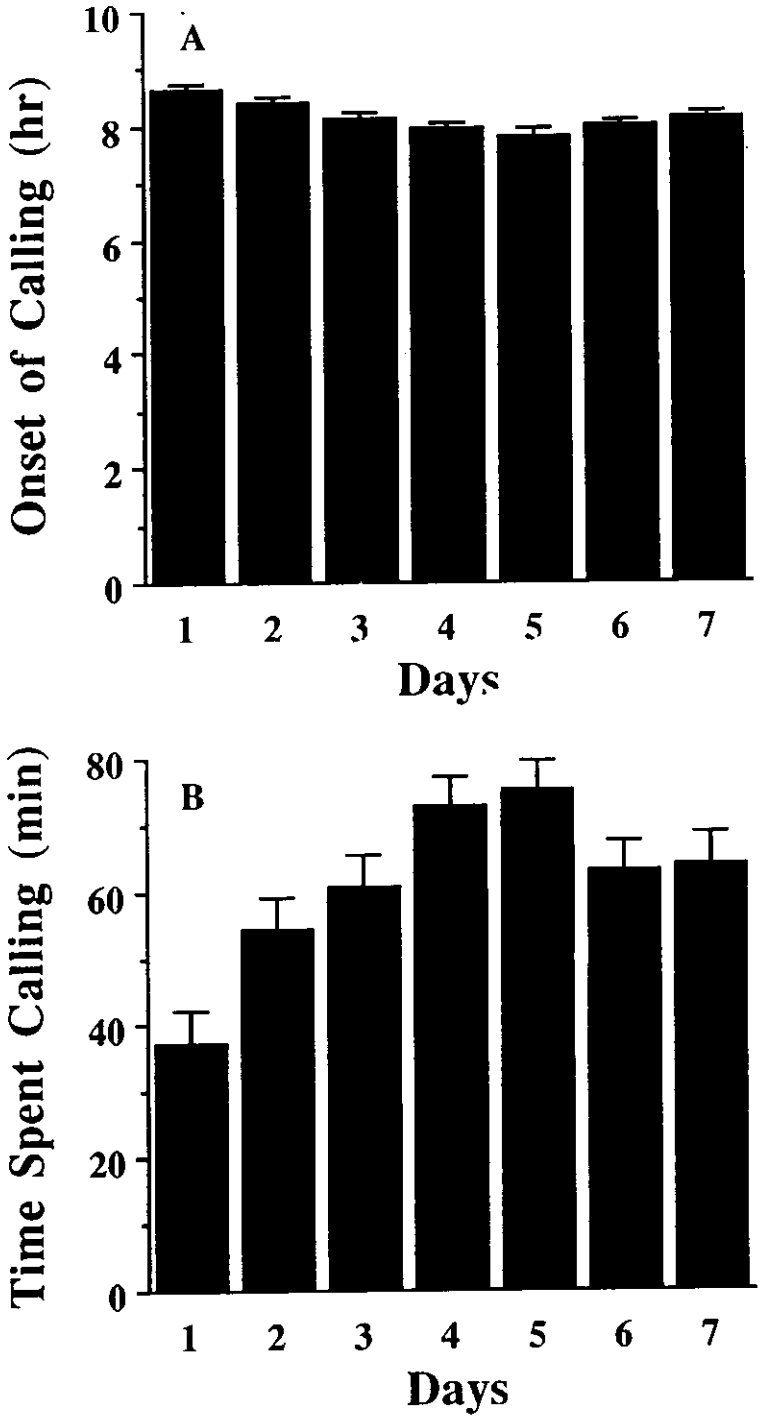
A
Onset of Calling (hr)
10
8
6
4
2
0
1
2
3
4
5
6
7
Days
B
Time Spent Calling (min)
80
60
40
20
0
1
2
3
4
5
6
7
Days

Fig. 2

the female to promote the genital contact. If the female was receptive, the male immediately turned itself around, and copulation took place with the insects tail to tail. During mating the pair remained immobile.

Mating pattern

Mating occurred late ca.7-8 hr after light-off during which the calling was frequently observed. The percentage of moths mating clearly varied with age (Fig.3). It was low in 1-day-old moths and increased abruptly when they became older. The mating reached the maximal percentage (48.9%) in 4-day-old moths and gradually declined. There was a quadratic trend in the mean onset of mating (Table 2). The onset of mating of 4-day-old moths averaged 7.6 hours after light-off which shifted, by 12 to 78 min, earlier than that of the younger and the older (Fig.4A). The mean time spent mating was linearly decreased with age (Table 2, Fig.4B).