

A LIFE HISTORY STUDY OF *SCIURUS CAROLINENSIS* WITH NOTES ON THE SEASONAL INCIDENCE OF INFESTATION WITH WARBLE FLY LARVAE (*CUTEREBRA SP*)

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The object of this study is to determine the optimum period for the open season on gray squirrels in this State. The study, begun as a personal research problem, was incorporated as a segment of Pittman-Robertson Project 26-F, July 1, 1948.

METHODS

The data were secured from specimens taken by live trapping, steel trapping, and shooting. Additional data were obtained from questionnaires sent to sportsmen and bag checks made by game protectors and project personnel. The major factors given consideration were:

1. The breeding season peaks.
2. The geographical and seasonal distribution of the squirrel bot (*Cuterebra sp.*).
3. The season preferred by sportsmen.

RESULTS

The data collected so far are insufficient for definitely establishing the breeding peaks. To date, 124 females of all ages have been examined, 68 of which were of breeding age. Of the 68, 2 were in heat, 4 were pregnant, and 35 were lactating, making a total of 41 in breeding condition (Table 1).

At the close of each season covered by this report a questionnaire was distributed to a sample of sportsmen. Each was requested to state the number of squirrels killed and the number infested with bot fly larvae. During the 1947 - 1948 season (September 15 - January 1) a total kill of 2,105 squirrels were reported. Of these 624 (29.6%) were infested with larvae. During the 1948 - 1949 open season (October 15 - January 10) a total of 9,103 animals were reported. Of these 91 (10%) were infested. By delaying the period of open season one month, an additional 19.6% of the total number of animals killed were saved for food (assuming the time and degree of infestation was similar during the two years) (Fig. 1).

An effort was made to obtain records on gray squirrels killed each month of the year in each of the three physiographic regions of the State. These data were secured by game protectors and project personnel, bag checks and specimens collected by the segment leader. These data are shown in Fig. 2, 3, and 4.

Information on the open season preferred by sportsmen was obtained from a questionnaire distributed to a random sample of sportsmen taken from the hunting license stubs. These data are shown in Fig. 5 and 6.

Table 1. Breeding season in female gray squirrels in North Carolina.

Month	Total		Oestrous	Pregnant	Lactating	Non-Breeding	Monthly		Monthly Percentage of Total Adults Breeding
	Females	Adults					Percentage Non-Breeding	Percentage Breeding	
January	11	4	0	0	0	4	100	0	0.00
February	10	4	2	0	0	2	100	0	2.94
March	2	2	0	0	2	0	0	100	2.94
April	3	3	0	0	3	0	0	100	4.43
May	5	5	0	0	5	0	0	100	7.35
June	5	4	0	0	4	0	0	100	5.88
July	5	4	0	3	0	1	25	75	4.43
August	4	2	0	1	0	1	50	50	1.47
September	11	10	0	0	10	0	0	100	14.70
October	41	17	0	0	8	9	53	47	11.77
November	22	13	0	0	1	12	92	8	1.47
December	26	8	0	0	2	6	75	25	2.94

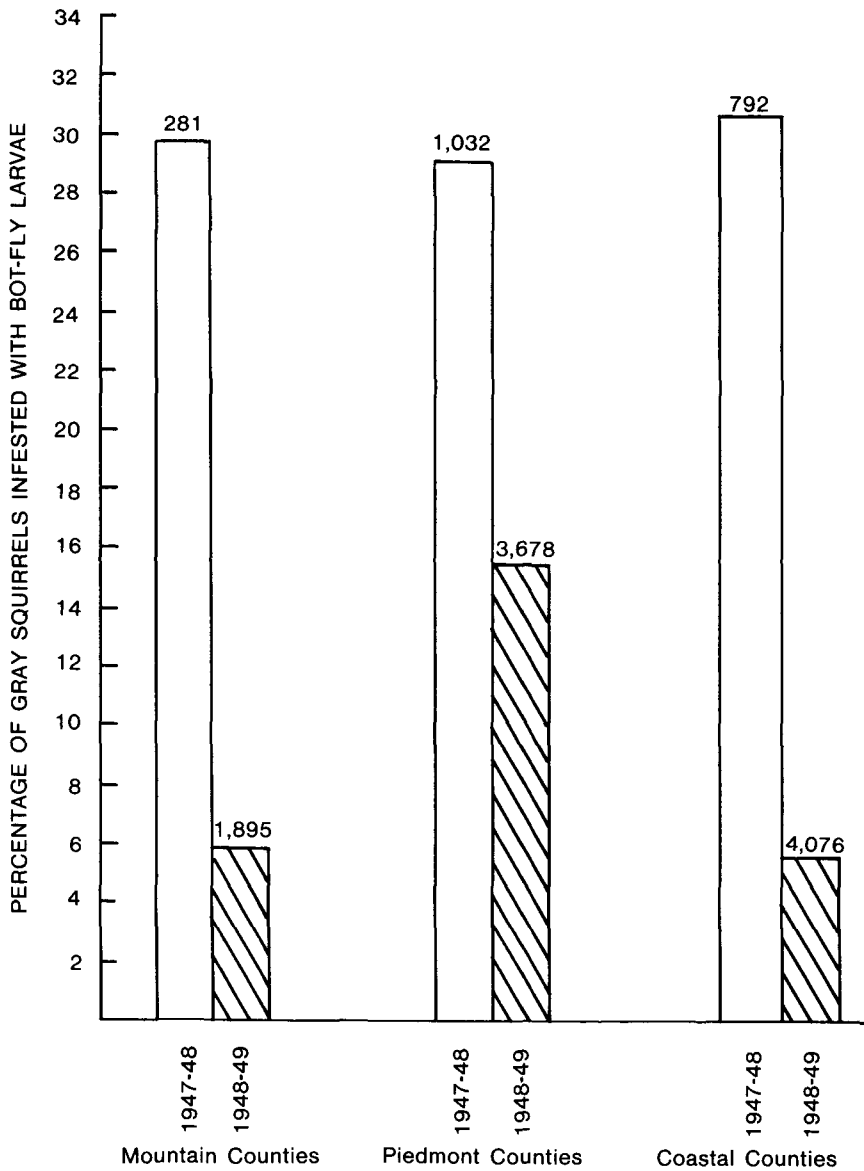


Fig. 1. Bot-fly infestation in the gray squirrel, 1948 - 49 season compared with the 1947 - 48 season.

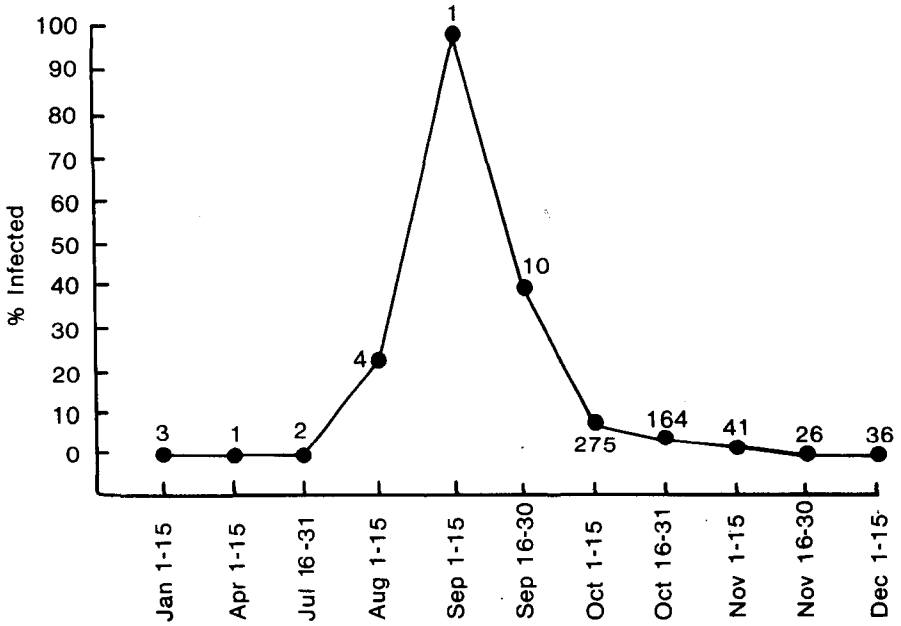


Fig. 2. Seasonal variation in bot fly larvae infestation of gray squirrels from the Mountain Region.

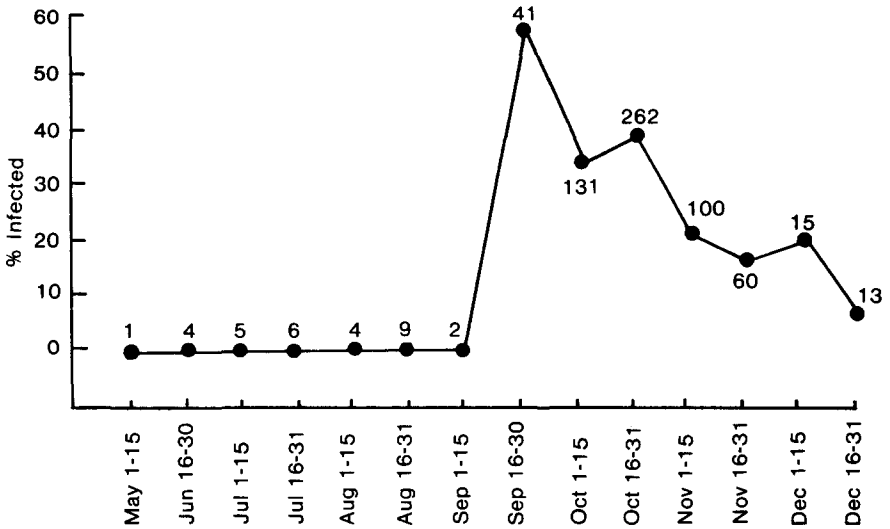


Fig. 3. Seasonal variation in bot fly larvae infestation of gray squirrels from the Piedmont Region.

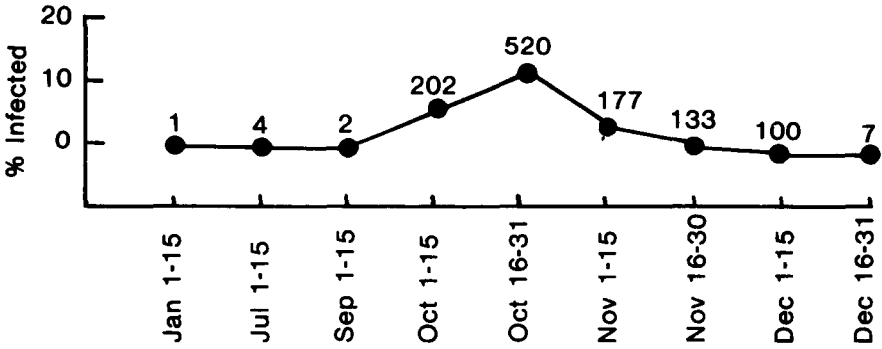


Fig. 4. Seasonal variation in Bot fly larvae infestation of gray squirrels from the Coastal Region.

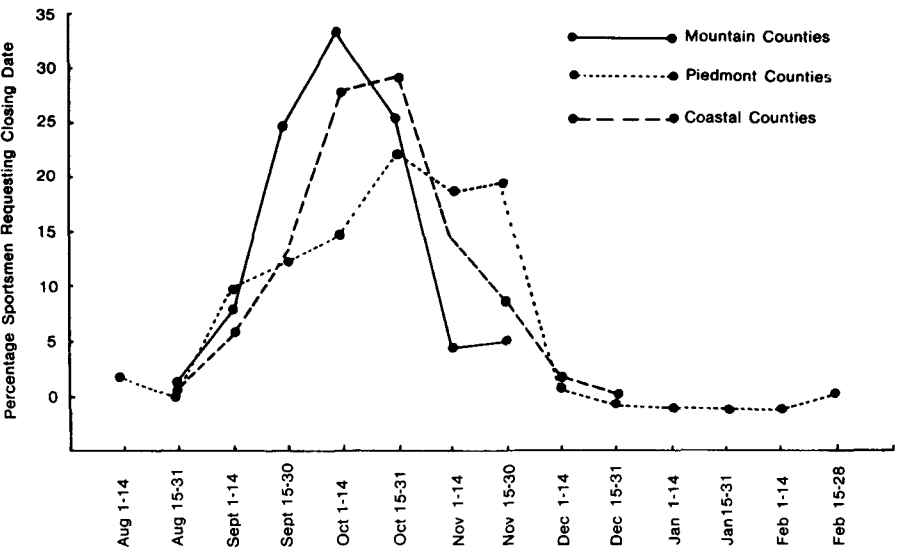


Fig. 5. Desired dates for opening the gray squirrel season.

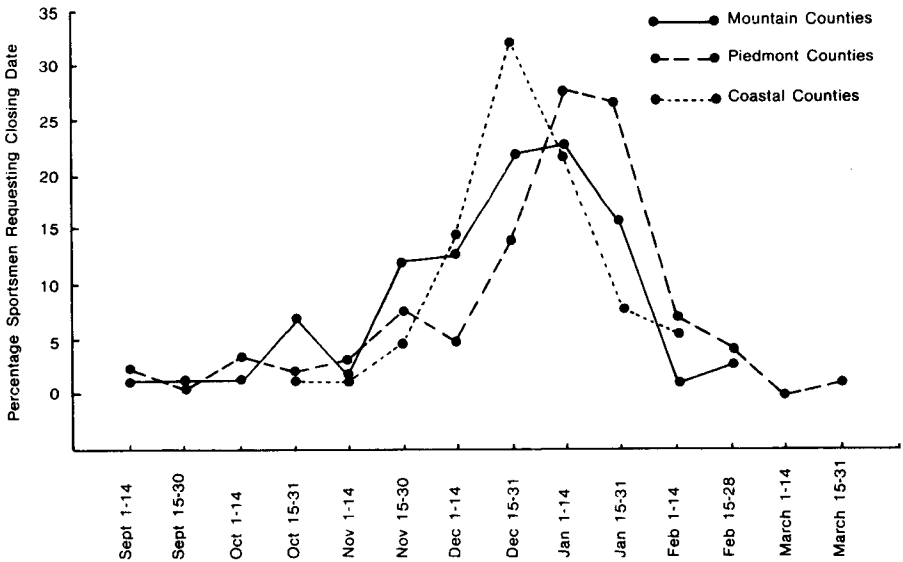


Fig. 6. Desired dates for closing the gray squirrel season.

SUMMARY

The data collected during this investigation indicates that early shooting seasons are biologically unsound. The detrimental effects are listed in the order of their importance.

1. Many animals killed in September and early October are infested with bot larvae.
2. A large number of pregnant and lactating females are killed which leaves many animals not capable of caring for themselves to die of starvation.
3. The kill during the early season is made up primarily of spring yearling young, the potential breeding stock for the following year.

In some areas there is considerable sentiment for a late summer open season because of gray squirrel damage to corn in the "milk." Our data are not sufficient to evaluate the extent of such sentiment in areas less than county size. From the data now on hand it appears that the gray squirrel season in the Mountain Counties should open October 1 and close January 1. The hunting season in the remainder of the state should not be opened until October 15 and close January 15.