BACULUM DEVELOPMENT IN MINK

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ABSTRACT. — Data are presented on baculum growth in mink. Difficulties associated with determining age by baculum morphology are indicated.

Wright (1947, 1951) and Deanesly (1935) have shown the changes in the size and shape of the baculum in the long-tailed weasel (*Mustela frenata*) and ermine (*Mustela erminea*) are related to increased levels of the male sex hormone. Mature baculum form is attained during the first breeding season (January through March, depending on local weather conditions, Trippensee, 1953), shortly before the males are one year old. Since differences in baculum conformation are reportedly reliable for separating young of year from adult males (Elder, 1951; and Lechleitner, 1954), the present report concerns difficulties associated with determining age during the critical period of the first breeding season.

In this study, bacula from a series of 68 wild-trapped mink, *Mustela vision mink*, taken during November through February 1961, 1962 and 1963 in Wake and Forsyth counties, North Carolina, all showed a similar growth pattern. All bacula were cleaned by dermestid beetles, weighed, and measured (total length). An attempt was made to distinguish young-of-year from individuals older than one year using established techniques. Length and width measurements of testis were recorded.

Testis size averages (Table 1) indicated a rapid testicular enlargement in November and December and little if any further enlargement from that time through the end of February. This would indicate the males are probably ready to breed by early January. Average weight of the bacula collected increased beginning in mid to late December and continued until mid-February (Table 1). This corresponds to the baculum growth cited above by Wright and Deanesly for the long-tailed weasel and ermine.

Of 41 bacula removed from specimens trapped in November and December, 14 could be classified as adult types and 27 as young-of-year types. The remaining 27 bacula taken in January, February, and March were morphologically adult but several were smaller in length and lighter in weight than adult bacula in the November and December series. Both Elder (1951) and Lechleitner (1954) indicated baculum weights were

TABLE 1.—Seasonal differences in average testis size (length plus width in mm) and average baculum weight (mg) of North Carolina mink.

Date	Nov.	Dec. 1-15	Dec. 16-31	Jan. 1-15	Jan. 16-31	Feb.
Number of Specimens	16	14	11	9	7	11
Testis	20	32	39	40	39	38
Baculum	190	210	250	290	340	350

not suitable for separating young-of-year from adults at the 95 per cent level, yet both indicated baculum weight probably could distinguish these age groups with 80 to 90 per cent accuracy. These smaller adult-type bacula from the present study are believed to be those of young-of-year animals that had only recently reached reproductive maturity. Attainment of the adult bacular conformation thus seems to precede attainment of full adult bacular length and weight, and apparently occurs when the male mink is approximately 10 months old. These smaller bacula (from January and February) compared with bacula taken in November and December, would be classified as intermediate between young-of-year and adult type based on weights.

Close examination of the finds of Elder, 1951, Lechleitner, 1954, and Greer, 1957, reveals that their age criteria determinations were largely based on studies of known-age (pen-raised) mink ½, 1½, 2½, etc., years of age. The reliability of baculum morphology in distinguishing young-of-year from adult animals in the age groups indicated above is very high. All three studies failed to reveal the potential difficulty if the method is used during the period when the young are ten to twelve months of age and their bacula are enlarging. Thus, during the late December to March period, the peak of the trapping season in some areas, ageing mink by means of bacular conformation should be done with care. The proportion of young of the year detected by baculum conformation at this time would probably be an under-estimate of that in the population. Other criteria (such as development of supra-sesamoid tubercles on the femur, closure or lack of closure of the jugal-squamosal suture, etc., Greer, 1957) should be used. Since age ratios of young-of-year to adult individuals are important data in population analyses and in game management considerations, accuracy in their determination is essential.

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