

FAWNING DATES OF KNOWN-AGE WHITE-TAILED DEER AND THEIR MANAGEMENT IMPLICATIONS

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Abstract: Fawning dates of penned, known-age, Texas white-tailed deer (*Odocoileus virginianus texanus*) were recorded over a 3-year period. The peak 14-day fawning period for 27 3-year-old-plus females was 10 June-23 June with a mean fawning date (MFD) of 19 June. Peak fawning period for 26 2-year-old females was 24 June-7 July with a MFD of 8 July. The fawning peak for 36 1-year-olds included 2 14-day periods between 8 July-4 August with a MFD of 3 August. The MFD was significantly different ($P < 0.01$) between all age-classes and between individual age-classes ($P < 0.05$).

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Peak conception dates, fawning dates and reproductive potential of the female white-tailed deer have been investigated in Texas and in most of the deer's range in North America. Teer et al. (1965) reported that breeding and conception occurred from early September into January with a peak in late November-early December in the Llano Basin of central Texas. They reported that only 16% of the doe fawns eventually ovulated and that adults average 1.08 fawns per doe and yearlings 0.75 fawns per doe. Illige (1951) reported that female deer in south Texas were capable of conception between mid-November and early February, approximately one month later than central Texas. His data were supported by later studies (White 1966, Barron and Harwell 1973, White 1973, Harwell and Barron 1975). Early studies by Morton and Cheatum (1946), O'Roke and Hamerstrom (1948), Severinghaus (1951) and Hesselton and Jackson (1974) reported similar findings of deer productivity in New York and Michigan and related years of low productivity to heavy competition for available food and malnutrition. The positive effects of good nutrition on deer reproduction and survival have been documented (Cheatum and Severinghaus 1950, Verme 1962, 1965, 1967, 1969). McGinnes and Downing (1973, 1977) related variation in peak fawning dates primarily to doe condition at conception in Virginia. Ransom (1967) pointed out that the significantly lower ovulation rate of yearling female deer compared to adults required separation of these data by age-class. He also reported that only a few fawns from two study areas of Manitoba were able to develop sexually before weather condition retarded growth and development. In penned deer breeding trials, Verme (1969) found no difference in the average breeding dates of yearling female white-tailed deer and prime-age females (2.5-6.5 years old) on low and high nutritional levels. Hesselton and Jackson (1974) noted the importance of separating reproductive data of yearling and adult females. Wilson and Sealander (1972) reported the mean fawning date for females bred as fawns was 2 to 4 weeks later than that for adult females.

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MATERIALS AND METHODS

This study was conducted by the Texas Parks and Wildlife Department on the Kerr Wildlife Management Area (KWMA), a 2,630 ha research facility in Kerr County of the Edwards Plateau Region of central Texas.

Data were collected from a group of Texas white-tailed deer that were involved in a penned deer research study of genetics and nutrition on antler development on the KWMA.

During 1975, 1976 and 1977 fawning dates were recorded for 36 1-year-old does, 26 2-year-old does and 27 3-year-old-plus females. The deer were enclosed in 6 high-fenced breeding pens, 0.27 ha each. A 16% crude protein pelletized ration, water, and salt were provided ad libitum. One adult buck and a group of females, varying in age, were enclosed in each pen.

During the fawning period each doe was checked daily for newborn fawns and to determine expected fawning dates. The mothers of newborn fawns were positively identified and fawns were eartagged, tattooed, weighed and freeze-branded soon after birth. The female fawns remained in the pen of their birth and became part of that breeding herd. The male fawns were removed from the pens annually after weaning by a one-way analysis of variance.

RESULTS

The peak fawning period (most number of females fawning during a 14-day period) for 3-year-old-plus females was 10 June-23 June with a mean fawning date (MFD) of 19 June (Fig. 1). Fawning peak for 2-year-old females was 24 June-7 July with a MFD of 8 July. The fawning peak for 1-year-old females was between 8 July-4 August. This included 2 14-day periods with the same number of females fawning during each period. The MFD for 1-year-old females was 3 August. The MFD for 1-year-olds was significantly later ($P < 0.01$) than the other 2 groups. The MFD for the 2-year-old females was significantly later ($P < 0.05$) than the 3-year-old-plus females.

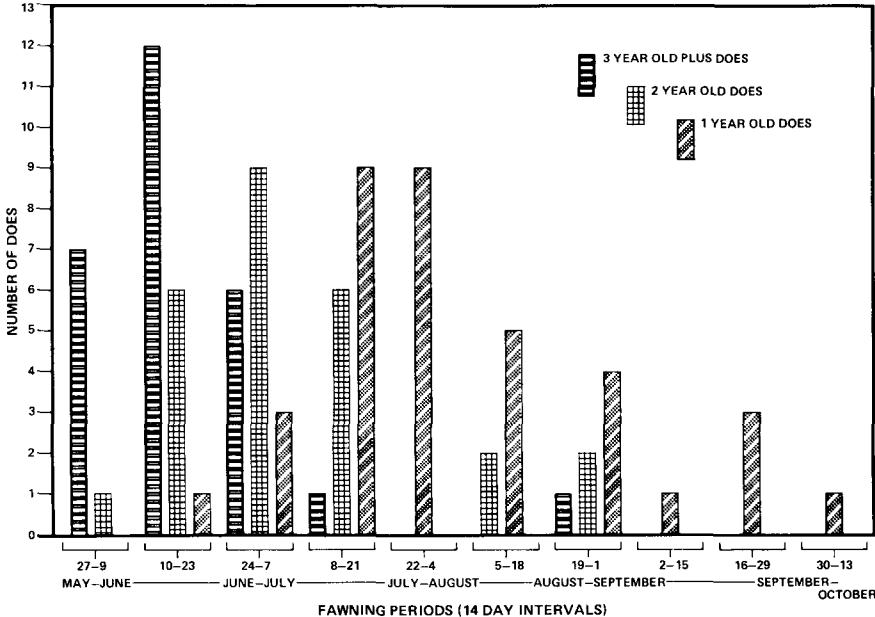


Fig. 1. Fawning periods of known-age white-tailed deer 1975-1977.

In addition to younger females fawning later, their fawning period was extended over a longer period of time. Twenty-five of 27 3-year-old-plus females (92.6%) fawned during a 6-week period with the remaining two females fawning later. Twenty-one of 26 2-year-old females (80.8%) fawned during a 6-week period with 4 of the remaining 5 females fawning after this period. Twenty-three of 36 1-year-old females (63.9%) fawned during a 6-week period and 9 of the remaining 13 females fawned later. These 6-week periods included the peak 2-week fawning period and 2 weeks on either side.

This study showed that the peak fawning period for 2-year-old females was approximately 2 weeks later than that for 3-year-old-plus female deer. The peak fawning period for 1-year-old female deer was approximately 4-6 weeks later than that for 3-year-old-plus females. One-year-old white-tailed females fawned over a longer period of time after the peak of their fawning period than did the older females.

DISCUSSION

Herd productivity and rate of increase of white-tailed deer may be reduced because young females (1 and 2-year-olds) give birth to their fawns later in the year than adult females (3-years-old and older). The age structure of the deer herd may be reduced by hunting or by other decimating factors. In Texas, this later fawning date coincides with the extremely hot, dry summer period in which heavy die-offs of females and fawns due to malnutrition can be expected (Taylor and Hahn 1947, Marburger and Thomas 1965). Late fawns have less time to mature and develop physically and sexually prior to the onset of winter and the normal date of conception.

Game managers must consider the implications of these data in view of often repeated recommendations to reduce populations of antlerless deer. Heavy hunting pressure on this segment of the deer herd would reduce the number and percentage of adult females in the herd and, thereby, reduce reproductive potential. Cook (1974) reported that new fawn production and herd increment was reduced by heavy hunting pressure on the KWMA. The authors believe this was a result of the younger age-class females giving birth to fewer and later fawns than the previous herd of older females. The rate of increase and productivity in white-tailed deer are affected by the age of the mother as related to the fawning date as well as the number of embryos produced.

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