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Can White-tailed Deer be Aged by their Teeth?
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A generation of wildlife biologists has been taught a method of aging white-tailed deer using teeth wear and eruption patterns from the lower jaw. This method was first described in 1949 and is widely used by many state agencies, private deer managers, and deer researchers. Unfortunately, the technique was developed from a very small sample size of pen-reared deer in one locale, and never thoroughly tested on free ranging deer.

We designed a study to evaluate the accuracy of this technique using free ranging deer on the 2,947-acre Noble Foundation Wildlife Unit (NFWU). We began capturing, eartagging, and releasing deer in 1983 to establish a known-age population of deer. The initial focus was on fawns, but in 1992 we began constructing dental casts of all deer captured. Throughout the study, jawbones from hunter harvested deer were removed at the check station. In December 1996, a group of 88 known-age jawbones and dental casts were selected and used to construct a test. We administered the test to 34 practicing, established, well respected deer biologists from the southeastern U.S. that commonly use the technique.

The percentage of jawbones and dental casts that were correctly aged by age-class is depicted in Figure 1. Eighty-five percent of the jaws and casts in the 1-2 year age class and 73 percent in the 2-3 year age class were aged correctly. Accuracy dropped dramatically in the older age classes.
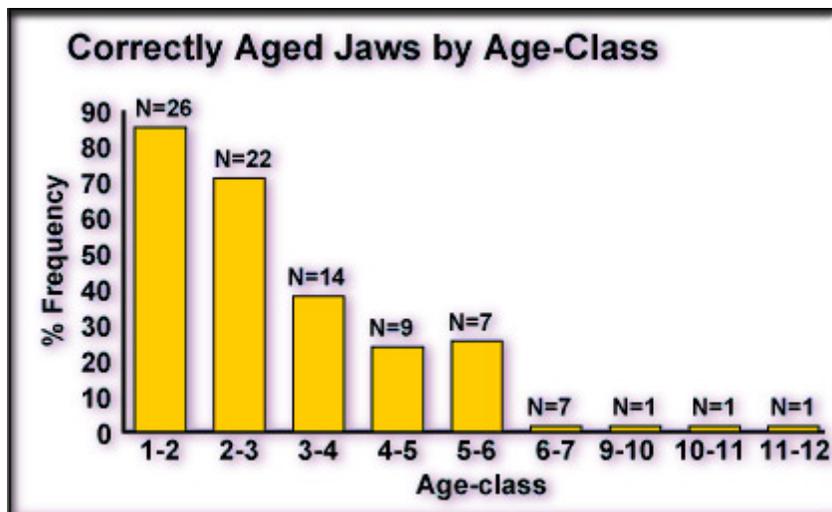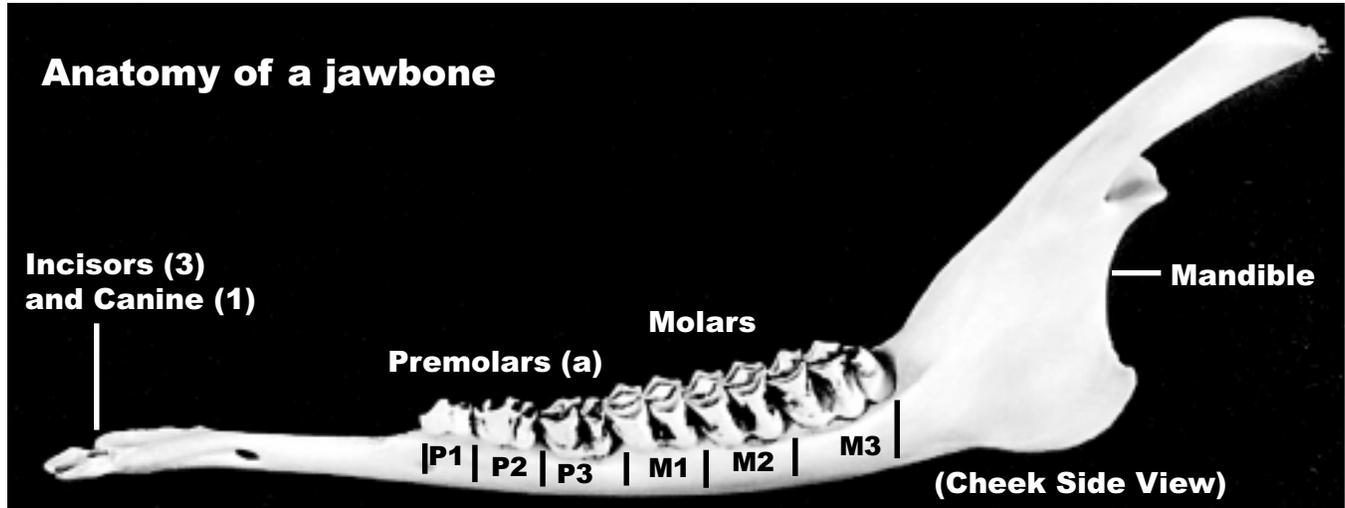

Fig. 1. Correctly aged jaws by age-class

There was a tendency for biologists to underestimate the ages of older age-class deer, and none of the jaws or casts older than 9-10 years were aged correctly. We could not establish a consistent pattern that might enable us to recommend a correction factor, though there was a tendency to underestimate the age of NFWU deer.

These results indicate that this widely used technique is very inaccurate for classifying adult deer into specific year age-classes on the NFWU. This method only allows us to confidently place deer into three age-classes: fawn, yearling, and adult (Figure 4 - Below). Management or research programs requiring accurate and precise age determination of adult white-tailed deer should document the tooth wear/replacement aging technique's validity in an area before employing it.

Figure 4.

**Aging white-tailed deer by tooth eruption and replacement.**

Anatomy of a jawbone

Incisors (3) and Canine (1)

Premolars (a)

Molars

Mandible

P1 | P2 | P3 | M1 | M2 | M3

(Cheek Side View)

1) P3 is a 3-cusped temporary tooth. (b)

2) M1 and/or M2 are at some stage of eruption.

3) M3 has not yet begun to erupt.

Approximately 6 months old (fawn)

P1 | P2 | P3 | M1 | M2
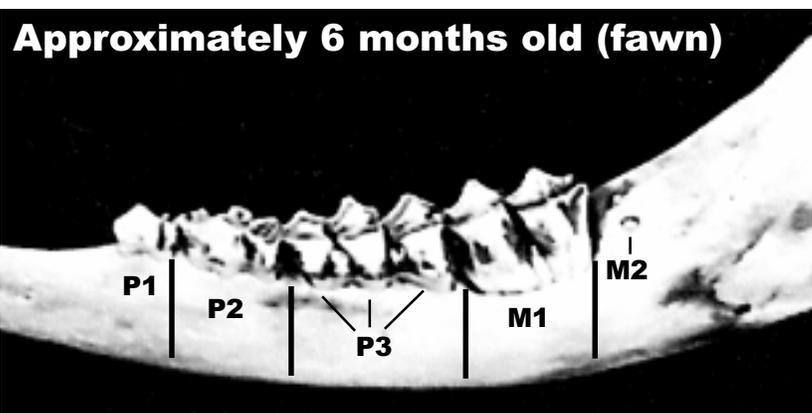
1) P3 is usually a 3-cusped temporary tooth (can be a 2-cusped permanent tooth in older yearlings).

2) M3 is usually not fully erupted (gum line is usually high on the rear cusp).

Approximately 1.5 years old (yearling)

P1 | P2 | P3 | M1 | M2 | M3
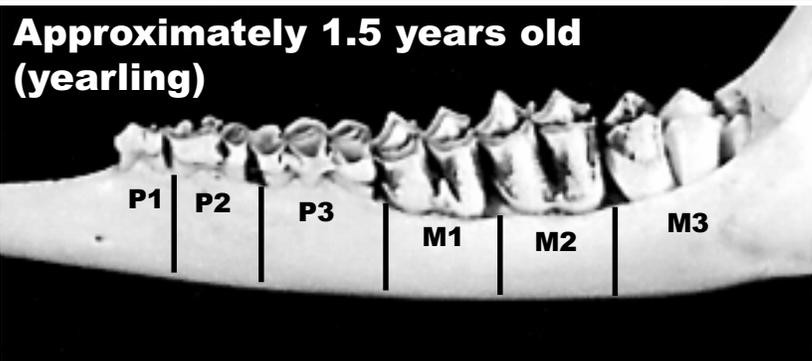
1) All permanent premolars and molars are fully erupted and showing varying degrees of wear. (c)

2) P3 is 2-cusped.

At least 2.5 years old

P1 | P2 | P3 | M1 | M2 | M3
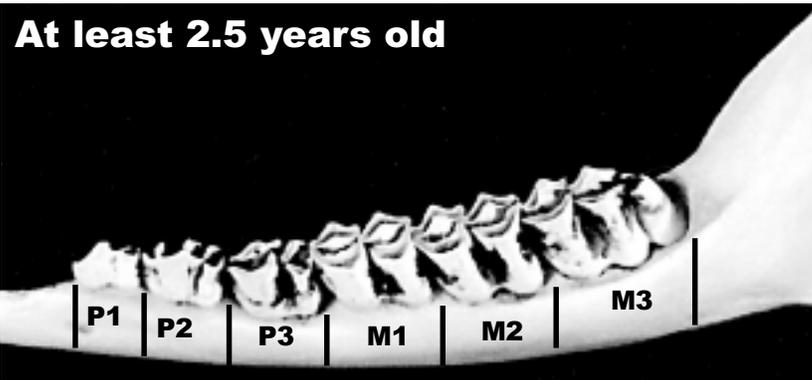
(a) Most scientific sources refer to the premolars as P2, P3 and P4 due to the evolutionary loss of the first premolar.

(b) Young white-tailed deer have a set of temporary premolars which are replaced with permanent premolars. Molars are always permanent.

(c) Specific age class estimations for 2.5 years old and beyond are usually based on molar and premolar wear.