

DEER NECROPSY MANUAL

As used here, a "necropsy" is a postmortem examination performed on a deer. The purpose of performing a necropsy is to determine such factors as: sex, age, total length, weight, girth, health status, and location and cause of death.

How to Perform a Necropsy:

- 1) Move the deer to a location that presents no danger to the person conducting the necropsy (away from traffic).
- 2) Determine the sex of the deer.
- 3) Measure the length (inches) from the tip of the nose to the last vertebrae.
- 4) Take the weight (pounds) of the deer using the scale. If the deer is too heavy or awkward to handle, estimate the weight.
- 5) Measure the girth (circumference behind front legs in inches).
- 6) Determine the health status of the deer:
(To do this the bone marrow must be viewed).
Cut into the hind-leg with the saw or use the jawbone shears to break open the leg.
After exposing the bone marrow, determine whether it is:
 - White/Pink = Healthy
 - Pink = Moderately Healthy
 - Red = Moderately Unhealthy
 - Red Gelatinous = Unhealthy
 - Red & Runny = Extremely Unhealthy
- 7) Determine the age of the deer using the attached "Aging A Deer" sheet.
- 8) Determine the cause of death (motor vehicle, dog, disease, starvation, hunting, etc.).
- 9) Record all of the data on the "Deer Necropsy Data Sheet", a sample of which has been included with this manual.
- 10) Also record the location at which the carcass was found.

NOTE: It is best to perform the necropsy as soon after death as possible.

** ALL OF THE COLLECTED DATA SHOULD BE ENTERED ON THE DATA BASE III+
"DEERMORT" DISK.

There are three (3) deer necropsy kits in use in the Park, each of which contains:

- a hanging spring scale
- a suspension chain
- a pair of jawbone shears
- a jawbone extractor
- a measuring tape
- a pair of gloves
- a saw
- a knife

Several different techniques have been used to age white-tailed deer. As a field technique, evaluation of tooth eruption, replacement and wear is unsurpassed. This technique was developed many years ago to age domestic livestock and was then modified for use with deer. The technique has been refined to the point where it is possible to estimate the age of young animals down to months and sometimes even weeks. A very important factor in determining the age of a deer is the presence or absence of the deciduous teeth (similar to 'baby' teeth in humans), and the degree to which they have been replaced.

For the purposes of deer herd management it is sufficient to estimate just the age-class of a deer rather than it's actual age. Deer harvested during a November - December deer hunt are typically separated into several different age-classes. These are 1/2, 1 1/2, 2 1/2, 3 1/2 and 4 1/2+ year olds. Of these age-classes the three most important are fawns (6 months old), yearlings (1 1/2 years old) and adult or older (2 1/2 years or older) deer. When aging deer for management purposes it is very important not to confuse these groups.

To break deer down into these three important categories is really quite simple. The most important characteristics to look at are the total number of premolars and molars ('back teeth') in each half of the deer's lower jaw or ramus and the condition of the third premolar. Disregard the incisors, the small teeth found in the front of the jaw as they are quite variable and are not dependable for aging deer.

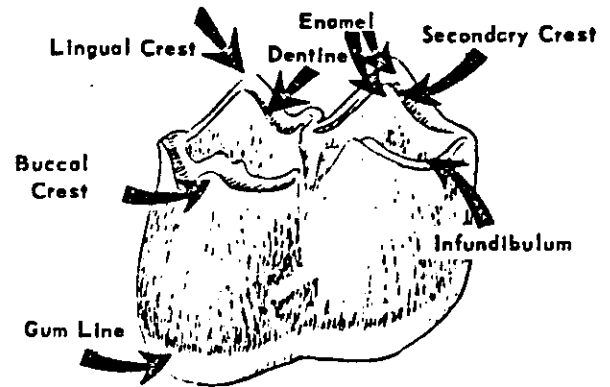
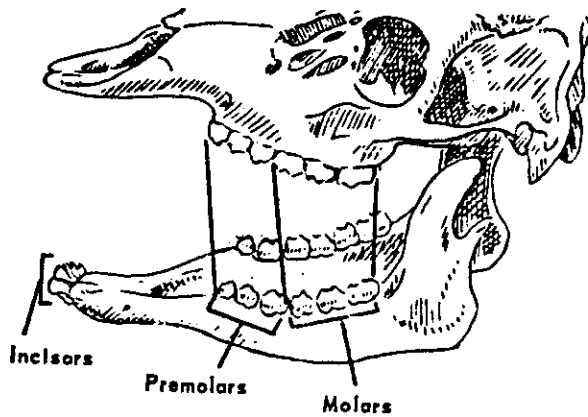
If the total number of back teeth (the premolars and molars) in one half of the lower jaw (the ramus) is less than 6 then the deer is a fawn and belongs in the 6 month or 1/2 year age-class.

If the total number of back teeth in the ramus is 6 and the third premolar is either 3-cusped and very worn or 2-cusped and sharp on top then the deer belongs in the 1 1/2 year age-class. The 3-cusped third premolar is deciduous and is shed at about 1 1/2 years of age while the 2-cusped third premolar is a permanent tooth.

If the total number of back teeth in the ramus is 6 and the third premolar is 2-cusped and worn then the deer is 2 1/2 years old or older and belongs in one of the older age-classes.

WARNING: If you are calling a deer 2 1/2 years old or older make sure that the third premolar is 2-cusped.

TOOTH AND JAW ANATOMY



LOWER JAW ERUPTION, REPLACEMENT AND WEAR

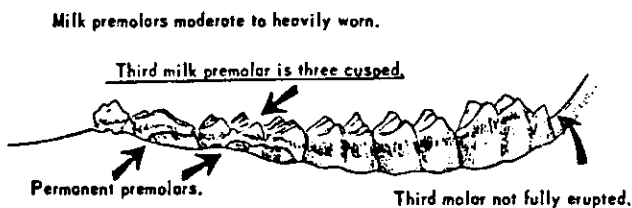
PAWNS



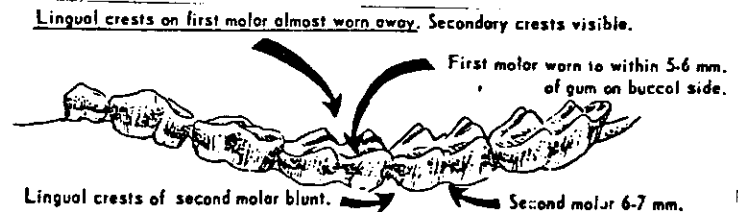
2 1/2 YEARS:



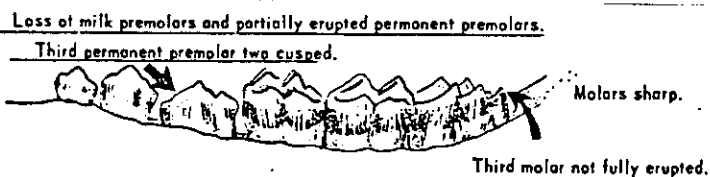
1 Yr. 6 Mos.



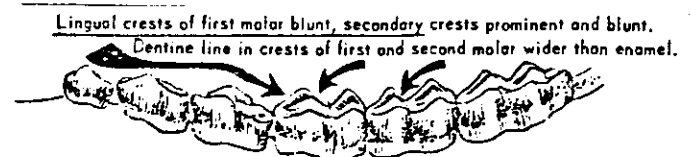
3 1/2 YEARS:



OR



4 1/2 YEARS:



Aging A Deer

Not only is the means of accurately judging the age of a deer of interest to the hunter, but it is also a valuable tool for the Game Manager. By use of such a tool, data may be obtained which shows the age composition of the deer population. Such data — most of it now being obtained through hunter cooperation at checking stations, will indicate the degree of annual replenishment of young stock, as well as the average life span and the rate of decline of various age groups over a period of years. Such information is essential to good deer management.

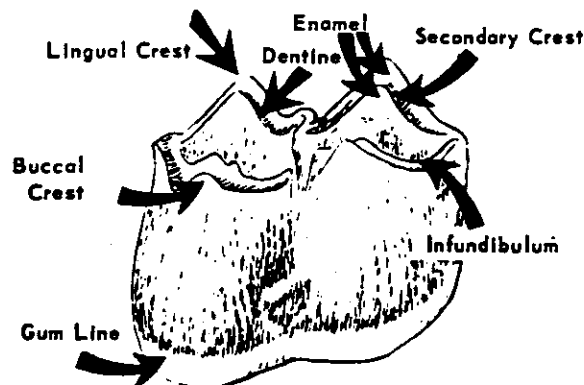
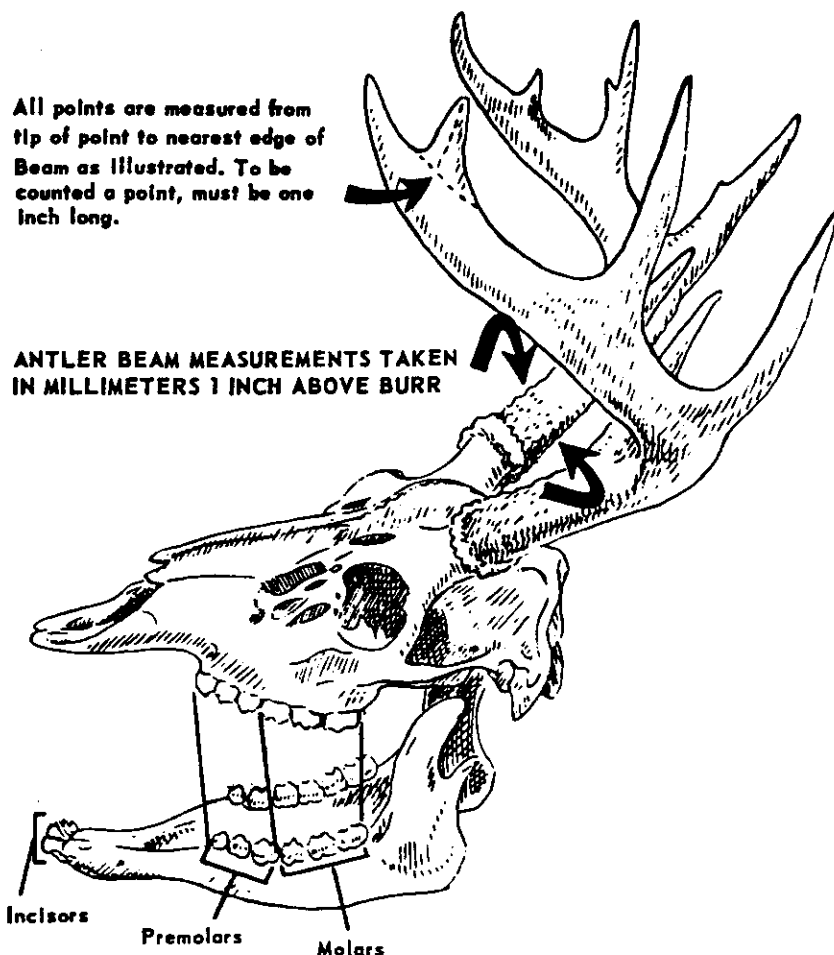
For decades man has known how to judge the age of domestic livestock by the replacement and wear of their teeth. Why shouldn't the same principle hold for deer? It does — as a study carried out by the Department's Bureau of Fish and Wildlife Investigations has now shown.

In general, the study indicated that, for the purpose of judging age, deer may be divided into two major groups: those under two years of age, and those above that age. The decisive factor here is the presence or absence of the deciduous teeth (similar to "baby" teeth in humans), and the degree to which these teeth have been replaced by permanent ones. Age determination of older deer is more complicated, and is explained in detail below.

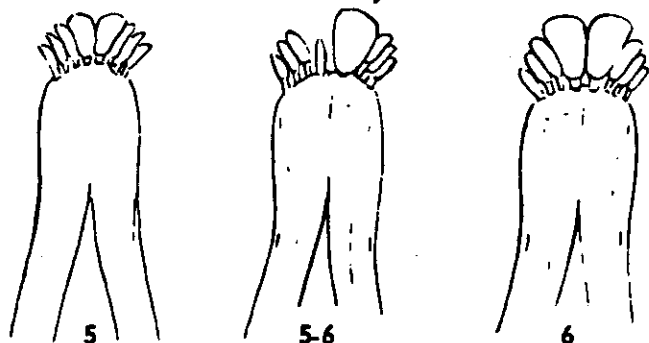
It has been estimated that the average life expectancy of a deer unmolested by hunters is between eight and nine years. But in New York, due to hunting kill, the average for a male deer in the western counties is about 1.2 years; in the Catskills, about 1.6; in the Adirondacks, about 2.0 years.

All points are measured from tip of point to nearest edge of Beam as illustrated. To be counted a point, must be one inch long.

ANTLER BEAM MEASUREMENTS TAKEN IN MILLIMETERS 1 INCH ABOVE BURR



Lateral View of Lower Molar



FAWNS

5 Months. All incisors are milk teeth.

5 to 6 Months. Milk pincers (two middle teeth) are lost during fifth month and are replaced by permanent pincers.

6 Months. Permanent pincers fully erupted. Lateral and corner incisors are still milk teeth and are replaced during 10th and 11th month.

Summary of Tooth Eruption and Replacement Described at Certain Ages.

<u>Tooth Condition</u>	<u>Approximate Age</u>
Milk Incisors present	At birth, 2 mm. above gum
Incisors fully erupted	10 days to 2 weeks
2nd and 3rd Premolar eruption	During 1st week
1st Premolar Eruption	10 days to 4 weeks
1st, 2nd, 3rd Premolars fully erupted	By the 10th week
1st Molar eruption	During 3rd and 4th month
1st Milk incisors (Pincers) lost	During 5th month
1st adult incisors (Pincers) fully erupted	Later half of 5th month and during 6th month.
2nd Molar eruption	During 7th and 8th month
1st Molar fully erupted	During 7th month
1st and 2nd lateral Milk incisors lost	During 9th and 10th month
Milk Incisor Corners lost	During 9th and 10th month
1st and 2nd lateral Incisors fully erupted	During 10th and 11th month
Incisor Corners fully erupted	During 10th and 11th month
2nd Molar fully erupted	During 12th and 13th month
3rd Molar eruption	During 11th and 12th month
Milk Premolars lost	During 17th and 18th month
Adult Premolars fully erupted	During 18th and 19th month
3rd Lower Molar fully erupted	During 20th to 22nd month
3rd Upper Molar fully erupted	During 22nd to 24th month
Complete permanent Dentition	During 22nd to 24th month

<u>Code #</u>	<u>Fawn Age Classes</u>	<u>Tooth Condition</u>
05	Fawn - 5 mos. or less	All milk incisors present
06	Fawn - 5 to 6 mos.	1st milk incisors missing
07	Fawn - 6 mos.	Adult 1st incisors erupted
	Fawn - 7 mos.	Adult 1st incisors erupted plus 1/4 to 1/3 eruption of 2nd molar.

Preparation of Deer Jaws and Skulls

Flesh jaws as clean as possible as soon as collected, and wrap in wet newspapers and store in a refrigerator until ready to cook off. Do not leave exposed as the dried flesh will stain the jaws and make it very difficult to cook off properly.

To 6 gal. of water add:
1 cup of Sal soda
1 cup of soap powder
 $\frac{1}{2}$ cup of vinegar or ammonia

Bring to a boil in a covered container. Separate jaws by Age Class and tie to a stout twine so as to be able to raise from water to test the flesh.

<u>Age Class</u>	<u>Approx. Cooking Time</u>
Fawns to 4 wks.	- 1 to 2 min.
Fawns 4 wks. to 4 mos.	- 5 to 10 min.
Fawns 4 to 6 mos.	- 10 to 20 min.
Fawns 6 mos. to 1 yr.	- 20 to 30 min.
1 yr. to 1 yr. 4 to 5 mos.	- 30 to 45 min.
1 yr. 5 mos.	- 45 min. to 1 hr.-if milk premolars are loose-wrap cheese cloth around so they won't be lost.
1 yr. 6-8 mos.	- 45 min. to 1 hr.
Adults to 4 $\frac{1}{2}$ yrs.	- 1 to 1 $\frac{1}{2}$ hrs.
4 $\frac{1}{2}$ yrs. to 10 $\frac{1}{2}$	- 1 $\frac{1}{2}$ hrs. or more

At intervals raise jaws from water and test flesh by pinching, if soft or done, remove immediately and place in cold water and let stand several hours or over night. Flesh off jaws and place teeth downward so as to drain properly. Leave some flesh around the incisors on fawns, when dry it will hold them in place. In cooking off upper part of skull, cook back half first until nearly done then fore part. Test often, if overcooked the cartilage will fall apart. Skim off excess grease and scum often. When jaws and skulls are dry, spray with two coats of a clear spray coating such as used on wood, paper, leather. Above all do not overcook; if so, the teeth and jaws will crack and chip off.

Prepared by: J. E. Tanck
Conservation Biology Technician

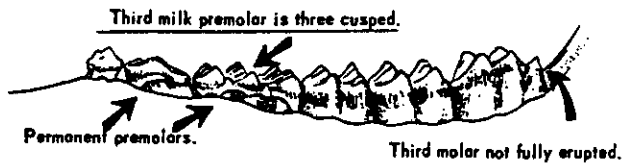
9/13/65

mm SCALE



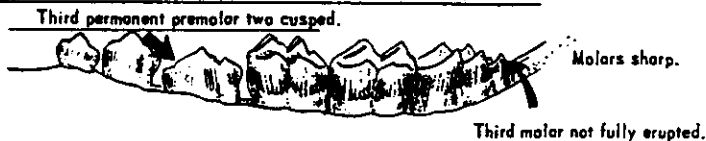
YEARLINGS: 1 Yr. 4-5 Mos.

Milk premolars moderate to heavily worn.



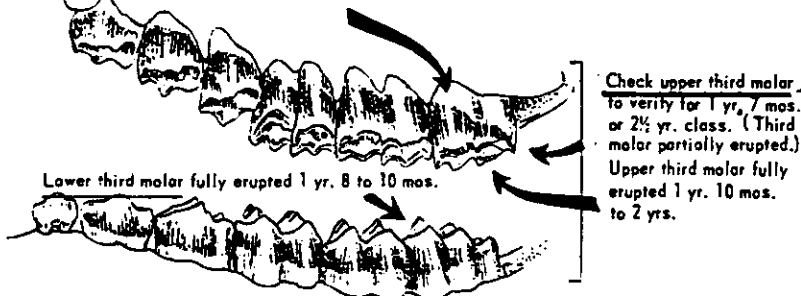
YEARLINGS: 1 Yr. 6 Mos.

Loss of milk premolars and partially erupted permanent premolars.

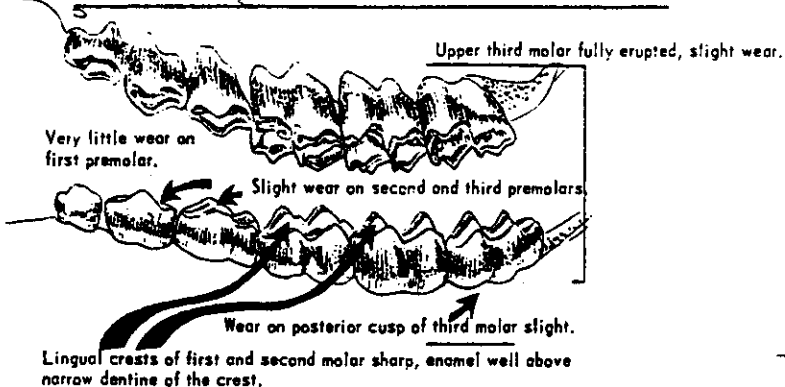


YEARLINGS: 1 Yr. 7 Mos.

Permanent premolars usually fully erupted slight wear occasionally showing on grinding surfaces. Slight wear but no dentine line showing on crests of last (third molar).

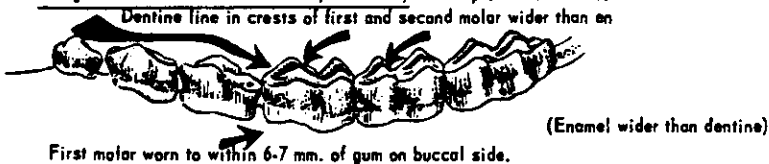


2 1/2 YEARS: Permanent Premolars and Molars



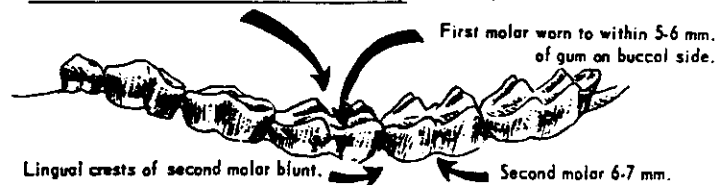
3 1/2 YEARS: Molars

Lingual crests of first molar blunt, secondary crests prominent and blunt.



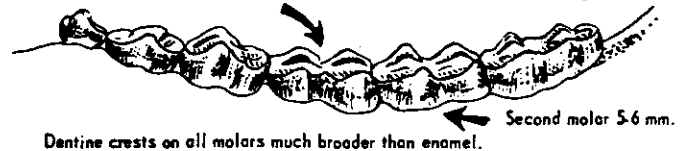
4 1/2 YEARS: Molars

Lingual crests on first molar almost worn away. Secondary crests visible.



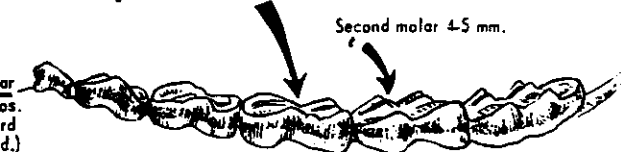
5 1/2 YEARS: Molars

Original lingual crests of first molar worn away, simulated lingual crests appear. Secondary crests worn away. First molar worn to within 4-5 mm. of gum on buccal side.



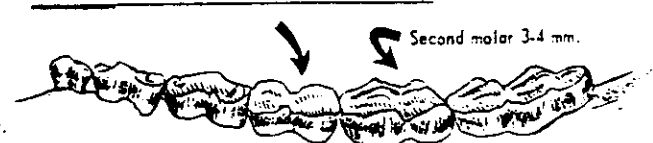
6 1/2 YEARS: Molars

No lingual crests on first molar and worn to within 3-4 mm. of gum on buccal side.



7 1/2 YEARS: Molars

First molar worn to within 2-3 mm. on buccal side.



8 1/2 - 9 1/2 YEARS: Molars

All molars worn to within 2-3 mm. of gum on buccal side.



10 1/2 YEARS AND OLDER: Molars

First molar at or below gum line.

