

Some notes on identification of bite-marks on WaxTags
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Possum Dentition

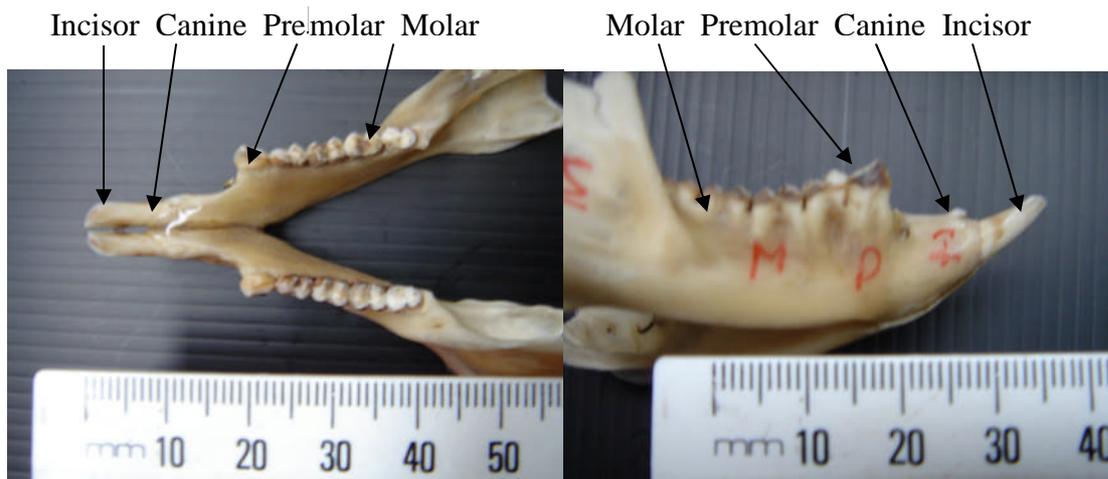
The possum has four tooth types that can leave bite-marks on WaxTags:

- 1. Incisors**
- 2. Canines**
- 3. Premolars**
- 4. Molars**

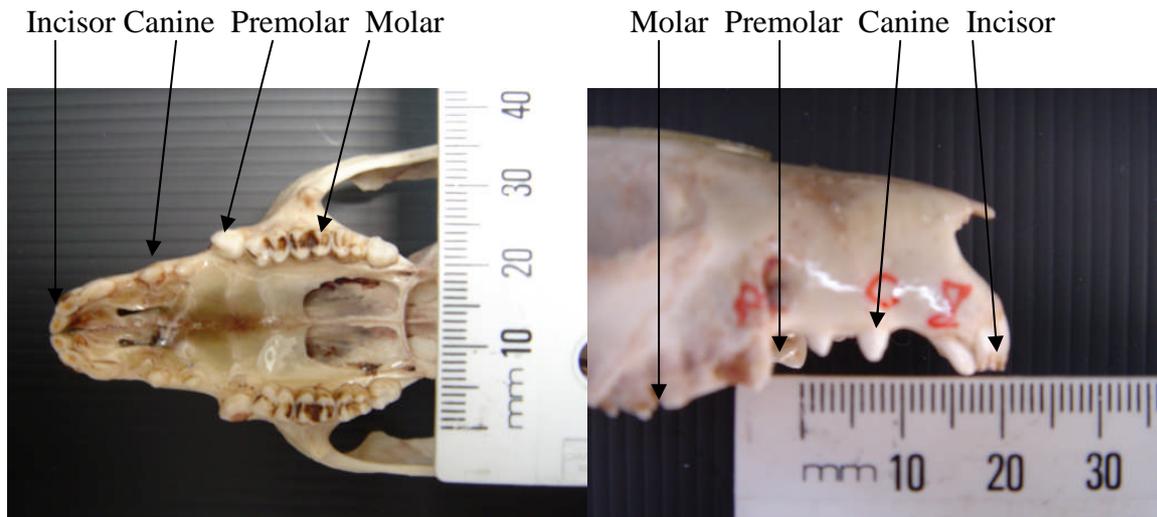
Bite-marks left by possums are most commonly from the incisors and to a lesser extent canines and premolars. Marks left by molars are rare but can occur.

The following figures show possum dentition.

Lower Jaw



Upper Jaw/Skull



Dentition of other animals

Several other animals can bite WaxTags these are listed in order of the likelihood that they will bite WaxTags.

1. Rats (both Ship rat and Norway rat).
2. Mice (marks left by mice are often very hard to observe unless many marks are left).
3. Hedgehogs (these may not occur if tags are not within their reach i.e. > 25 cm above the ground).
4. Birds
5. Rabbits and hares (unlikely to occur).

The following photos show the dentition of some of these animals.

Possum and Rat Incisors



Possum and Hedgehog Skulls



Rabbit and hare incisor bite-marks can be easily identified because they have an indentation down the centre of each incisor. This leaves a wavelike bite-mark consisting of 4 waves per bite. The following photograph illustrates the bite-mark left a hare.

Hare bite-marks on a WaxTag



Possum Incisor bite-marks

Incisor bite-marks are made by the possum directly facing and biting the WaxTag. The upper incisors create a bite-mark that forms a radius that is characteristic of possums only. The bottom incisors form a bite-mark made up of 2 V-shaped grooves. The following photographs show possum upper and lower incisors and the bite-marks they commonly leave.

Possum Incisors and Incisor Marks



Canine bite-marks and premolar bite-marks

Canine and premolar bite-marks are left by possums when they bite WaxTags with their heads side on rather than directly facing the WaxTag. Because canines and premolars are pointed they leave a single deep groove in the WaxTag. An example of a premolar bite-mark left by a possum premolar is shown in the following photograph.

Possum premolar bite-mark



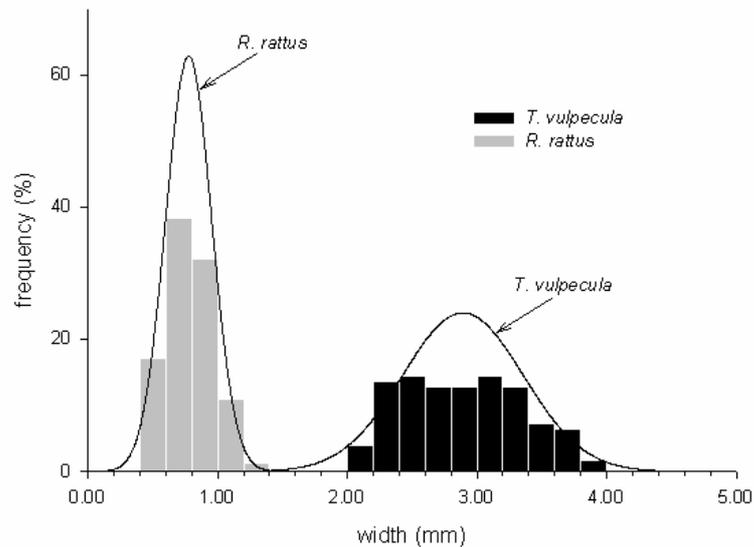
Differentiating between Possum and Rat bite-marks

Most bite-mark identification problems will involve differentiation between possum and rat bite marks. Two main differences exist between possum and rat bite-marks. These are:

1. Bite-mark size.
2. Bite-mark shape.

Bite-mark size

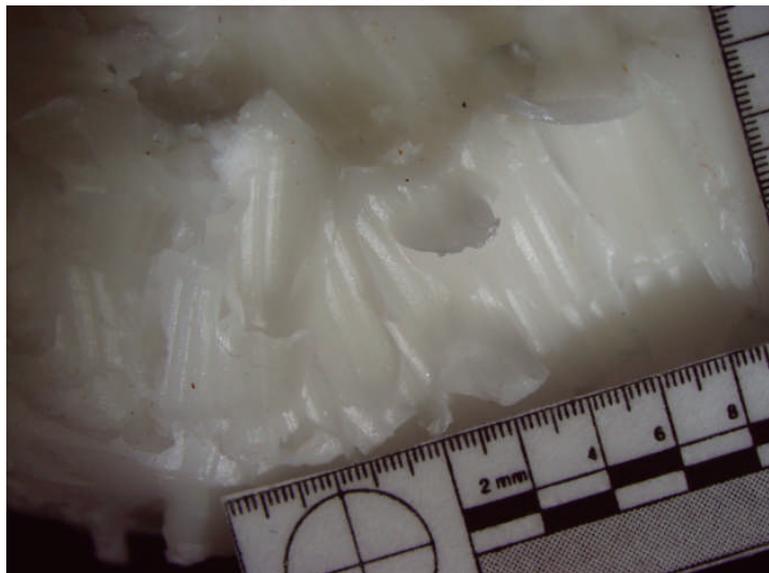
Because possums are larger animals they leave larger bite-marks. The following graph, created from preliminary data collected by Kay Sakatak (PhD student, Lincoln University), illustrates the size difference of bite-marks left by possums and rats. The graph indicates that a good separation exists between possum and ship rat incisor bite-mark widths (N.B. measurement of the bite-marks widths are of marks left by individual teeth).



Bite mark shape.

Rats only leave upper and lower incisor bite-marks, they do not leave canine or molar bite-marks. Unlike possum upper incisor bite-marks, rat incisor bite-marks (both upper and lower) are straight, like a mark left by a chisel. The following photographs show examples of bite-marks left by possums and rats.

Rat incisor bite-marks



Possum incisor bite-marks

