
THE FOOD AND BREEDING HABITS OF THE RACCOON

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The awakening interest in fur-bearing animals shown by conservation circles is in keeping with the importance of this group. Attempts to increase the supply and give better protection to those which are becoming less abundant are laudable and deserving of praise. Unfortunately, the sporadic interest exhibited by various game commissions, and their often ill-advised efforts to increase the natural supply, result in dismal failure. This may be attributed, in large measure, to the lack of information available on the habits of the animal in question. Furthermore, conscientious efforts to restore a waning population of any fur-bearer is met with opposition by many hunters, who make the biased, and often unfounded claim that all mammals are detrimental to the well-being of game birds.

With federal attention being directed to the economics of sub-marginal lands, and policies being drawn for future management of the wild life of these areas, attention might well be given to the importance of increasing the fur supply. The intent of this paper is to introduce certain aspects of the life history of the raccoon, *Procyon lotor lotor*, which have hitherto been neglected. More investigations into the habits of our fur-bearers are urgently needed. Such information should be placed at the disposal of the various game commissions, so they might utilize these data in constructing wise and efficient laws.

FOOD OF THE RACCOON

General works of natural history list the raccoon as being omnivorous; fish, frogs, crayfish, insects, small mammals, fruits and berries, nuts and grains, being the more staple foods.

Dearborn (1932) has reported on about 500 raccoon feces examined from Michigan. The most important item, crayfish,

constituted 58.99 per cent of the food, while the remainder was distributed among the following items in the order of their volume: grain, 20.20; fruits, 12.22; insects, 5.34; mammals, 1.11; molluscs, .91; fish, .70; birds, .43; eggs, .05; reptiles, .04; and amphibians, .01. This, ostensibly, represents in large part the summer food of the raccoon and is not a fair index to the average diet throughout the year.

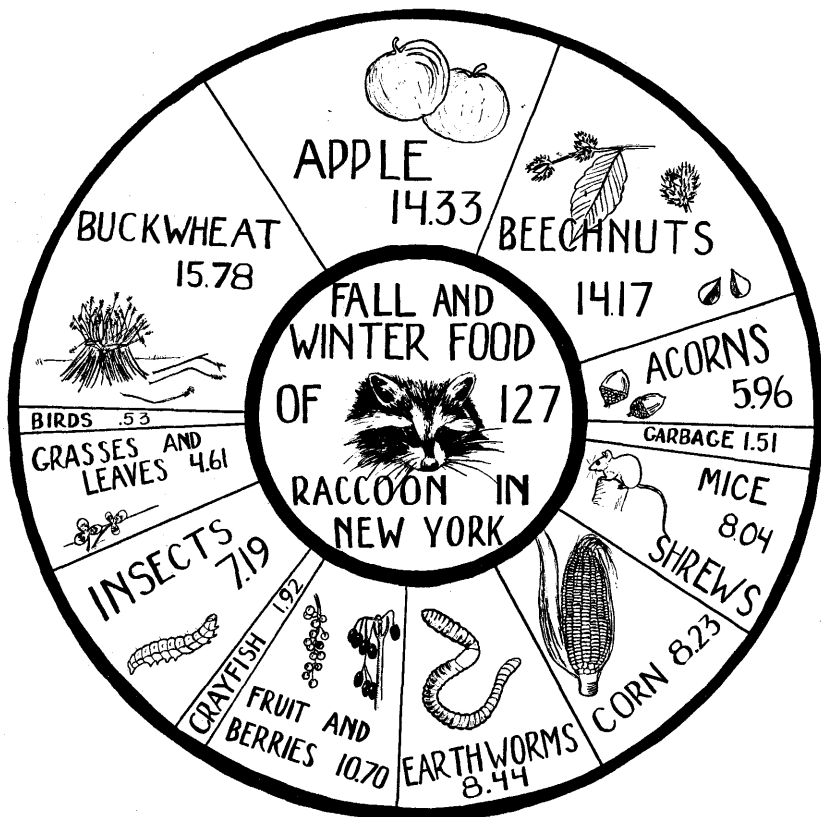


CHART I.

Whitney (1931) has examined large numbers of Connecticut raccoons during the hunting season (October 21 to December 31). Corn, oats, nuts, wild cherries, apples, pears, grapes, crickets, white grubs and trout are the only items he found, with a few exceptions.

From 1927 to 1934 the writer has collected the visceral tracts of 130 raccoons from hunters. These were shot in widely

separated areas of New York. The specimens were collected from November 16th to January 22nd. Distribution by months was as follows: November, 55; December, 51; and January, 24. Of those examined, three were empty.

In the region from which the specimens were collected zero weather is not uncommon during December and January. The occasional thaws and rains of these months, with temperatures of 38 degrees Fahr. to 40 degrees Fahr. may extend over a two or three day period. Raccoon take advantage of these mild spells to venture from the den tree and seek food. Few are hunted at this season. Probably 90 per cent of all the raccoons taken in the state are caught during the first four weeks of the season, which extends, in Western New York, from November 10th to January 20th.

Reference to the diagram will give an index to the types of food eaten by these animals during the late fall and winter. The food is computed as percentage by bulk.

In a study of a wild animal's food, one must remember that the bulkiest food is not necessarily the most important. Often a single item will contribute relatively little to the actual amount eaten, but may, because of its abundance, prove a mainstay to the animal when other food is scarce. An illustration of such is reflected in the following: In the winter food of the raccoon, grasses and leaves form but 4.61 per cent of the bulk eaten, yet were found in 26 stomachs, constituting 20 per cent of all those examined. A discussion of the various foods is in order.

Buckwheat—Buckwheat was found in 20 percent of the animals examined. The grain is gathered from scattered stalks which have escaped the reaper, and the infrequent stacks that are left in the field by the farmer. This waste grain is a boon to the upland game bird and, at the same time, furnishes an important item of food for Ringtail. As much as a quart has been taken from the stomach of an eleven pound raccoon.

Apple—Frequently eaten, being found in 17.4 percent of the stomachs examined. The apples are often eaten in the frozen state and are an important food item in times of general food scarcity. Apple culls are inexpensive and might profitably supplement other food rations on fur farms.

Beechnuts—Beechnuts are the most important food of the raccoon during the fall and early winter, as they are with so many of our mammals, such as mice, squirrels, foxes, bears and even deer. Merriam (1886) has pointed out the importance of the beechnut crop in regulating the cycle of many mammals in the Adirondacks of New York. Quite

probably the crop influences the abundance of birds and mammals wherever extensive stands of beech occur. Beechnuts were found in 21.3 per cent of the animals examined.

Fruits and Berries—Occurring in 20 per cent of the stomachs, berries and fruit play an important part in the dietary predilections of the raccoon. The most important of these are wild grapes, but rum cherries, *Prunus serotina*; Virginia creeper, *Pseodera* sp.; nanny berries, *Viburnum lentago*; ground cherry, *Physalis*; and partridge berries, *Mitchella*, are avidly eaten. As these are likewise important foods of game and other birds, plus a host of fur-bearers, including such valuable ones as the red fox and skunk, it would be wisdom to pay close heed to this crop in any program for wild life restoration.

Earthworms—The writer has found no mention in the literature of worms being eaten by these animals. It is truly surprising how important a part annelids play in the menu of the coon. Some stomachs contain remains of a dozen or more nightcrawlers (*Lumbricus terrestris*). What is even more amazing is that the raccoon will find them in large numbers in January. As Whitney has pointed out, the raccoon will emerge from hibernation during warm spells of December and January. After a day or two of warm weather, accompanied by considerable thawing, worms apparently move about and are easy prey for the raccoon. They were found in 19.9 per cent of the raccoons examined.

Corn—Every farmer knows the fondness of the raccoon for corn "in the milk." After it is in the shock, the animal is still partial to maize and feeds on it to a considerable extent. This fondness is reflected in its having been eaten by 12.5 per cent of the animals examined. Hunters know that a good place to start a coon is in the corn field. Corn might profitably be added to the table of captive animals.

Mice and Shrew—Small mammals are eaten as occasion affords. Remains of the meadow mouse, *Microtus p. pennsylvanicus*; deer mouse, *Peromyscus leucopus noveboraceusis*, and the short-tailed shrew, *Blarina brevicauda talpoides*, were found in 17.4 per cent of the animals examined.

Insects—The most important insect taken during the winter months is tipulid larvae. These occur in shallow streams or in the damp leaves bordering such water-courses. Eight animals had feasted upon these, while cutworms, beetle borers, crickets and adult hemiptera were taken less frequently. Insects were found in 18.9 per cent of the stomachs.

Acorns—Apparently the mast of oak is eaten more frequently than my records would indicate, for only 12.7 per cent of the animals had eaten acorns. Coon hunters are generally agreed on the importance of this food which, with beechnuts, forms one of the fattening items which induce hibernation.

Grasses and Leaves—Winter wheat, mosses, small green leaves of *Fragaria*, green hemlock needles and miscellaneous grasses, while not a bulky item, were found in 20 per cent of the animals studied. Like the red fox, green grass forms an important contribution to the winter

dietary of the raccoon. It may act as a tonic, as it apparently does among canines.

Crustacea—Crayfish are eaten as opportunity presents, while an occasional sowbug is consumed. Less than two per cent of the food during the winter, crayfish forms more than half of the food during the summer, according to the observations of Dearborn in Michigan.

Garbage—An occasional raccoon will risk the haunts of civilization to avail itself of the garbage pail and feast on offal and table wastes. Being more timid than the skunk, it does not resort as frequently to this ever ready and usually well spread table. But two animals had eaten garbage.

Birds—Two raccoons had eaten birds and both were woodpeckers (*Dryobates*). It is interesting to conjecture on the method of capture. The most likely is that Ringtail simply reaches in any chance hole it encounters and removes the sleeping bird.

From these observations, it can be seen that certain available foods might profitably be added to the feed of captive ranch-raised animals. Apples, buckwheat, various berries, corn and acorns can be had at a minimum of expense and might lower the cost of maintenance. Furthermore, such natural foods may well add to the lustre and color of the pelts. It would be well worth trying on a small experimental scale to determine the worth of such foods.

REPRODUCTION

In New York mating normally occurs during late January or during the first half of February. The normal gestation period is 63 days. Fur breeders assure me that pregnancy is seldom prolonged as in the mink. After mating occurs, the animals return to their winter sleep. Occasionally, the female fails to mate during the late winter. Such animals may breed during early summer and the young are born in August, according to Whitney (1931). This writer has taken young animals in New England during the fall weighing less than three pounds.

Strangely enough, the early stages of the raccoon have never been described. This is in keeping with the paucity of knowledge on the breeding habits of all our fur-bearing mammals. Careful observations on the early postnatal daily growth of such common species as the muskrat, opossum, fox, and a number of the mustelids, have still to be recorded. It is a virgin field for the young naturalist endowed with patience and enthusiasm.

The following notes, far from exhaustive, are based upon weekly observations of captive animals owned by Dorman Purdy, of Ithaca, N. Y.

AT BIRTH

The new born raccoon is well furred, the fur being particularly long (5 to 10 mm.) over the back and shoulders. The fur is yellow mixed with gray. The skin is black. The external black conch is well developed but unopened and devoid of hair. A small, short, black-haired area in front of the eyes foreshadows the mask which becomes pronounced when 10 or 12 days old. The limbs are well developed, the feet black while claws are light colored, bordering on pink. Facial vibrissae are well developed. The young average 75 grams (2.5 oz.) which is about one per cent of the weight of the mother.

The new born animals keep up an incessant chattering noise when disturbed. The adult carries one, sometimes two, as she runs from the nest box. At times they are grasped about the middle, sometimes by the neck.

ONE WEEK

Face with short fur, mystacial area with strong warty-like protuberances indicating the later appearance of vibrissae. The belly and fore limbs are rather scant haired, while the rest of the body is well furred. No teeth have appeared, eyes still tightly closed. The chattering notes continue and are heard much of the time. Average weight of two, one male and one female, 196 grams (6.5 ozs.).

NINETEEN DAYS

Two of the four young have opened their eyes; all have the external auditory meatus open. The animals average a pound. The leathery soles are jet black. Mask over eye very prominent. A light buffy line running over the eyes back to the ears. Back of the ears black, excepting the buffy tips. The tail has acquired the characteristic annulations, but is still scant haired. Fur heaviest over the nape and shoulders, being a uniform dirty buff tipped with lighter shade. Canines in both jaws erupted. Upper incisors just appearing as knobs while lower are through. With the opening of the eyes the young animals give a muffled bark, like a small dog. They are very active.

THIRTY DAYS

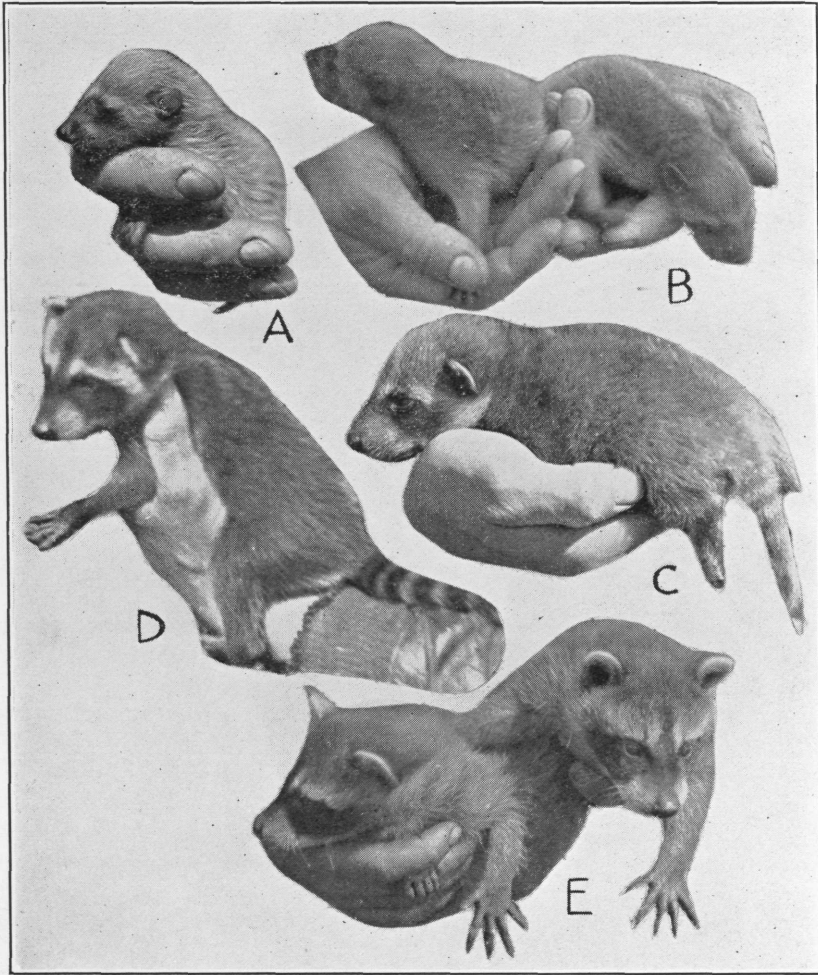
The young average 20 ounces each. Belly well furred, incisors completely erupted, while head remains proportionately larger than the rest of the animal. The youngsters crawl about readily and climb fairly well on a rough surface. They growl and bark with much spirit.

FORTY DAYS

The small coons are being weaned; now weigh 1.5 pounds apiece. Solid food is eaten and the rate of growth is rapidly accelerated.

The young animals at fifty days have apparently not left the nest box of their own accord. They now weigh two pounds, and spit and scratch with much energy.

The young continue with the parent well into the fall, and there is much evidence that, upon occasion, remain with the mother until the mating season approaches. Young animals taken during early November weighed 6, 6.5, 7, 7, 9, 11, 11.5, 12, 12.3, 13, and 14 pounds.



- A. Day old raccoon. Note well furred condition. Fingers give index to relative size of the animal.
- B. Week old raccoons.
- C. Nineteen days old, when eyes first open.
- D. One month old.
- E. Six weeks old. Average weight two pounds.

IMPORTANCE AS A FUR-BEARER AND GAME ANIMAL

A few abortive attempts have been made by various states to determine the annual numbers of fur-bearers taken within their confines. Numerous difficulties are encountered in any such census. A large percentage of hunters and trappers fail to make a report, or where the census is determined by returns of licensed fur dealers, no account is made of the enormous numbers shipped to dealers outside the state.

Seton (1929) has estimated a primitive raccoon population in North America of 2,500,000. This author further suggests there might possibly have been 5,000,000 over the range; this figure being based on fur trade reports which show that for forty years prior to 1891 about half a million skins were marketed annually from North America.

The writer has carefully studied the fur reports of the various game commissions of a number of states. Where information has been lacking, some of the commissioners have furnished such information not available in the annual reports. When attention is directed to the manner of securing figures on the number of animals taken, it is readily seen that these figures are notoriously inaccurate, and *always too low*.

Based on reports from 1927 to 1934, I have estimated that there are taken each year by hunters and trappers half a million raccoons in fourteen states (California, Indiana, Iowa, Louisiana, Maine, Minnesota, Mississippi, North Carolina, New Hampshire, New York, Oregon, Pennsylvania, Texas and Virginia). These states cover but half of the animal's range in the United States. Furthermore, the area for which I have available figures, does not include such important coon producing states as Ohio, Michigan, Illinois, Oklahoma, Arkansas, and the great southeastern area, which alone encompasses 200,000 square miles of extremely productive raccoon territory. The most important fur-bearer in South Carolina and Florida is the raccoon.

It may readily be seen, then, that the number of ringtails taken annually in the United States may well exceed the million mark. Aside from the pelt value, which probably averaged a \$2,500,000 annuity to the hunter over the past decade, the animal furnishes incomparable sport to many thousands each fall.

FUTURE STATUS OF THE RACCOON

The popularity and widespread use of raccoon pelts in the fur trade has increased the demand enormously during the past fifteen years. Drastic reduction of suitable cover, largely due to lumbering operations, has been instrumental in further reducing the habitat of this once plentiful fur-bearer. The most potent agency in depleting their ranks, however, has been the lack of sensible, short seasons, or the entire lack of any closed season for the animal.

One state gives no protection to the raccoon; two give complete protection. Of the remaining states, we find thirty different seasons. These vary in length from the wise November 1-December 15 season, to laws permitting the taking of raccoon over a five and a half month period.

It has been shown that the breeding season of the raccoon in the northern part of its range occurs during late January or early February. Three-quarters of our states permit the taking of ringtails during the breeding season. Fortunately, few animals are taken during mid-winter. The greatest loss occurs during the fall months, and is particularly severe when the season opens before November. At this period the young of the year are not sufficiently strong to make a sustained flight from a well-trained dog, and tree a few minutes after being started. An ideal season, at least in the Northern States, would extend from November 10 to December 31. The hunter, who takes 90 per cent or more of all animals which reach the market, would get in some excellent sport and at the same time be reasonably assured of hunting in the years to come.

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