History

The cottontail rabbit was first collected and described in timbered areas of Florida, hence the Latin and Greek origin of its scientific name, *sylvilagus* meaning "wood hare" and *floridanus* "of Florida". The cottontail rabbit includes many species and subspecies that range from southern swamps and eastern coastal marshes to the agriculturally oriented Midwest, tall and shortgrass prairies, the Rocky Mountains, and beyond to the Pacific. It is found in almost any suitable cover below timberline and above sea level.

Little is known about the pre-settlement distribution of cottontail rabbits in Iowa. Cultivation by man no doubt favored rabbits much the same way it favored quail at the turn of the century. Cottontails are the best known and most widely hunted game mammals in Iowa and all of North America. Records show that more cottontails are harvested annually than any other type of game mammal. The cottontail's popularity is largely due to its great abundance, widespread occurrence, and accessibility due to its close association with agriculture.

Identification

Cottontails and other rabbits and hares are often classed as rodents, but there is reason to place them in a separate order known as *Lagomorpha*. Rodents have only two upper incisors or front teeth, but rabbits and hares have four. The two "extra" incisors are small and are located just behind a larger front pair.

Cottontails weigh from 2 to 2¾ lbs and measure in length from 14 to 20 inches with females slightly larger than males. Ears measuring up to 3 inches in length can be cocked in any direction to detect the slightest sound. Their large eyes are located on the sides of their heads, enabling them to see in all directions without moving. Hind feet from 3 to 4½ inches long and large back and leg muscles make the cottontail extremely quick and agile.

Male and females are colored alike and do not change color during the year. They vary from reddish to grayish brown sprinkled with black that gives the fur a peppery brown color. Dark gray brown ears bordered with black, brown chest, rusty red neck, grayish white belly, tan feet and dark brown eyes all add to their inconspicuous gray appearance. The short tail is brownish above and white below. When a cottontail runs, the tail is turned up (much like that of a white-tailed deer), and the white part is very conspicuous, hence its name — the cottontail.

Reproduction

Cottontails breed in every month of the year in the southern part of their range, but in Iowa, the normal breeding season extends from February though September. Males, or bucks, attain breeding condition by mid-February, two or three weeks prior to actual breeding. Therefore, onset of the breeding season is actually determined by the physiological condition of the female or doe. Cottontails are most active near dawn and dusk and most courting and mating is done then. Bucks become very aggressive when mating and will kick, bite, and tear at rival males and may become involved in frenzied, hopping, running, and jumping encounters with females.

A doe can produce from 5 to 6 litters a year with litter sizes ranging from 1 to 8 and averaging 4 or 5. Females are capable of breeding as juveniles at approximately 6 months of age. The gestation period is 26 to 28 days and a doe may be pregnant while nursing young from her last litter. An adult doe can produce 20 to 30 young a year making her a virtual "rabbit factory". Studies have shown that litter sizes are larger in areas where soils are more fertile and that litters of individual females are largest during the middle of the breeding season when the vegetation is most nutritious.

The young are born in a shallow depression lined with grasses, roots, leaves, and fur which the doe pulls from her chest and belly. The doe digs this depression with her forefeet as she nears the end of pregnancy. Its dimensions are approximately 5 inches deep, 7 inches long and 5 inches wide. The nest is normally located in idle grassy areas, hayfields, lawns, or gardens.

Cottontails are deaf, blind, naked, and helpless at birth, ranging from 3 to 4 inches in length and weighing about 1 ounce. Hares, on the other hand (including the white-tailed jackrabbit in Iowa), are born with their senses well developed, eyes open, well furred, and are able to walk soon after birth. Eyes of cottontails open within a week, and the young remain in the nest for approximately 15 days. During this time, the mother will remain concealed in a resting-place nearby. However, at dawn and dusk, she will move to the nest, uncover it, feed the young, and recover it. If the nest becomes unsafe, she may move the young to another location. Initial trips from the nest by the young are short. They may nibble on succulent vegetation for the first time but return to the nest at night to be fed and for warmth. By the time they are 20 days old they will have left the nest. It is also during their first 2 to 3 weeks of life that well-meaning humans rescue "abandoned" young rabbits. It is best to leave young rabbits in the wild if you do find them, as the doe is probably not far away.

Food Habits

The cottontail diet consists almost entirely of plant material, and it varies by season because of the seasonal change in plant availability. The majority of the cottontail's spring and summer foods are succulent herbaceous materials including the leaves, stems, and flowers of many grasses, sedges, herbs, legumes, and garden crops. As summer becomes fall and fall becomes winter, there is a progressive change to a diet of buds and bark of woody plants including willow, birch, hawthorn, blackberry, multiflora rose, white oak, buckbrush, sumac, and many species of orchard trees and nursery stock. Where available, and particularly in Iowa and other Midwest states, waste agricultural grains such as corn, soybeans, sorghum, and wheat are nutritious, palatable, and highly sought after fall and winter foods. Cottontails may be concentrated in high densities where these agricultural grains are found in close association with brushy winter cover.

Rabbits do occasionally eat material other than plants. Cottontails have been reported eating snails, moths, other insects, and even their own young. Rabbits also have the peculiar trait of "coprophagy" or eating their own feces. It is believed they do this to obtain vitamin B produced by bacterial action in the large intestine. Rabbits lack the complex stomach of ruminants such as cows, and the only way they can salvage these nutrients is by re-eating them.

Limiting Factors

The cottontail is prey for virtually all types of predators and host to many diseases and parasites, which results in the loss of great numbers of rabbits. Cottontails have a short life span in the wild, with the average probably not over a year. A study in Michigan showed that only 2 out of 226 tagged cottontails ever reached two years of age. However, cottontails are very prolific, and it is this prolific nature that enables them to survive as a species. Predators known to take cottontails include skunks, feral house cats, dogs, badgers, foxes, coyotes, mink, weasels, bobcats, hawks, owls, crows, and snakes. Young rabbits may also drown in the nest bowl during periods of heavy rain and flooding. Even man poses a threat to cottontails in several ways. They are killed each year on our roads and highways and young rabbits in nests are destroyed when hayfields are mowed and idle areas are burned in the spring.

Parasites and diseases are always present in rabbit populations, but most have little serious effect on rabbits or man. However, if predators are scarce, cottontails may build up extremely high densities in areas of good habitat. In these instances, nature's system of checks and balances steps in. Parasites and diseases can take a heavy toll on cottontails, reducing their numbers to that which the habitat can support. When individual rabbits become stressed during periods of high density, whether it be due to injury, lack of food, or lack of adequate space between individuals, a particular parasite or disease may additionally weaken the animal enough to cause its death. Parasites which rabbit are susceptible to include ticks, mosquitoes, flies, fleas, lice, chiggers, lungworms, tapeworms, pinworms, roundworms, and liver flukes. Diseases include fibromas, papillomas "rabbit horns", pseudotuberculosis, and coccidiosis. With one exception, none of the diseases and parasites of cottontails pose a serious threat to man, particularly if all rabbit meat is well cooked before it is eaten.

Cottontail infected with Shope papillomavirus

A disease known as tularemia or "rabbit fever' is harmful to both cottontails and man. The chances of catching tularemia are very slight. The disease is not common or deadly but is often magnified out of proportion through gossip. Rabbits that have tularemia lose their wariness and appear sluggish and tame.

Tularemia is most prevalent in dense rabbit populations and is transmitted from rabbit to rabbit by biting insects such as ticks and fleas. Infected rabbits die within 7 to 10 days after infection. The incidence of tularemia in rabbits and consequently in humans drops off dramatically after the first frosts in autumn because the insects that transmitted the disease become less active then.

Humans contact the disease generally when cleaning rabbits. Bacteria in the rabbit blood or other body fluids enter cuts, abrasions, and even undamaged skin on a person's hands. The symptoms in humans are much like that of the flu. There are no vaccines to prevent tularemia, but several common drugs can reduce its effects.

Though man, predators, parasites, and diseases limit rabbit numbers in the short-term, the long-term availability of adequate habitat will dictate the number of cottontails present. If the trend toward more intensive agricultural practices on private land continues, we will surely have fewer cottontails in Iowa in the future.

Habitat Needs

Most cottontails spend their entire life within a 5-acre area. Therefore, all of its requirements including food, shelter, nesting, hiding, and escape cover must be met within this small area. If they are not, rabbits will range more widely and population densities will be less. In Iowa, the most desirable rabbit cover includes a good interspersion of cropland, idle grassland, brushy draws or brushy woodland borders, briar patches, osage orange or multiflora rose hedgerows, and other idle areas.

Probably the quickest method to increase rabbit numbers is to construct brush piles, especially if they are located near idle grasslands, cropfields, and brushy areas. A brush pile constructed for rabbits should be at least 5 feet high and 10-15 feet in diameter, and the more brush piles in an area the better. Smaller brush piles don't provide adequate cover to shelter rabbits from the weather or their enemies.

Fencing of farm woodlots and odd areas to exclude grazing and encourage growth of natural vegetation such as giant ragweed is also beneficial. Abandoned farmsteads grown up in a seemingly impenetrable tangle of grass, brush, and briars is another favorite for cottontails. The maintenance or lack of destruction of such areas can provide for some exciting sport on a sunny winter afternoon.

There are many designs for arranging the cover types mentioned to provide desirable "rabbitat". The key is to intersperse various cover types to maximize the amount of "edge" present. However, it is not necessary to take good farmland out of production to provide habitat for rabbits. On most farms, simple adherence to wise soil conservation practices will provide adequate cover to sustain a healthy rabbit population.

Hunting

Cottontail rabbits are distributed throughout Iowa with greater numbers generally found in the southern counties. Cottontail hunting is enjoyed by thousands of sportsmen each year. Cottontails are widely scattered during the first two months of the season because of the abundance of cover present and few hunters seriously pursue them then. With the opening of the upland gamebird seasons, the take of rabbits increases, as many rabbits are killed incidental to bird hunting. However, the serious rabbit hunter doesn't get down to business until the ground is snow-covered in December, January and February.

Iowa's harvest of cottontails has declined drastically since 1960. In the early 1960's, cottontail hunters harvested over 2 million rabbits annually. Today only about 200,000 are harvested each year. This decline in harvest can be attributed to intensified agriculture leading to the loss of preferred habitats and also to the loss of rabbit hunters. The number of people hunting rabbits has declined 80% in the last 40 years, from 170,000 to 32,000. Much of this loss of hunters is likely related to the shift from rural to urban lifestyles and also the opportunity to hunt other species such as deer and turkey.

There are several effective techniques that may be employed in hunting rabbits including stomping brush piles, or walking abandoned farmsteads, brushy fencerows, wooded draws, or roadsides. The same areas may be covered more quickly if a hunting companion is stationed at the other end, but one must know where the other hunter is at all times. The purest form of rabbit hunting is done with the companionship of one or more beagles. Turn them loose in a tangle of brush and briars on a sunny winter afternoon, pick a stand with a good view, and sit back and enjoy the day. Listening to a ringing chorus of beagles on a hot track and trying to connect with a bouncing brown blur flashing through a brushy tangle can indeed be very sporting.

The two most popular guns used in rabbit hunting are the shotgun and the .22 rimfire rifle. The best shotguns for cottontail hunting are chambered for 20 gauge shells or smaller with shells containing 6 or 7 1/2 shot. Most cottontail hunting in Iowa is done on private land. Additionally, the Iowa DNR maintains 300+ public hunting areas containing more than 300,000 acres, most of which provide good to excellent rabbit hunting, particularly late in the season.

Economics

Sales of hunting licenses to rabbit hunters provides revenue for state fish and wildlife programs, and hunters spend hundreds of thousands of dollars for food, gas, and motels boosting local economies.

Cottontails sometimes cause considerable damage to flower beds, gardens, fruit trees, and large commercial orchards and nurseries. Rabbits are best kept out of small areas and away from fruit trees with mesh wire fence. Fencing around large commercial operations also works, but the cost of fencing makes this impractical in many instances. Chemical repellents have been developed which aid in repelling rabbits from these commercial operations. Elimination of existing rabbit habitat near areas where they are unwanted will do much to prevent their damage.

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THE EASTERN COTTONTAIL RABBIT

(Sylvilagus floridanus)

Biological Facts

Weight: 2-2.75 lbs; females slightly heavier than males.
Length: 14-20 inches.
Top speed: 30-35 mph.
Identification: sexes identical.
Habitat: brushy/weedy/grassy habitats interspersed with agriculture.
Foods: grasses and forbs in summer; waste grains and browse in winter.
Life expectancy: 90% annual mortality rate; few live to age 2.
Mating: polyandrous; females will reproduce with more than one male in a year.
Breeding period: February-September.
Nests: shallow depression in the ground lined with grass or leaves and fur plucked from females chest.
Gestation period: 26-28 days.
Litter size: average 4-5; range 1-8.
Litters per year: 5-6.
Young: born naked and blind, leave nest bowl at 20 days.

Mar 2004