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Cotton Rats

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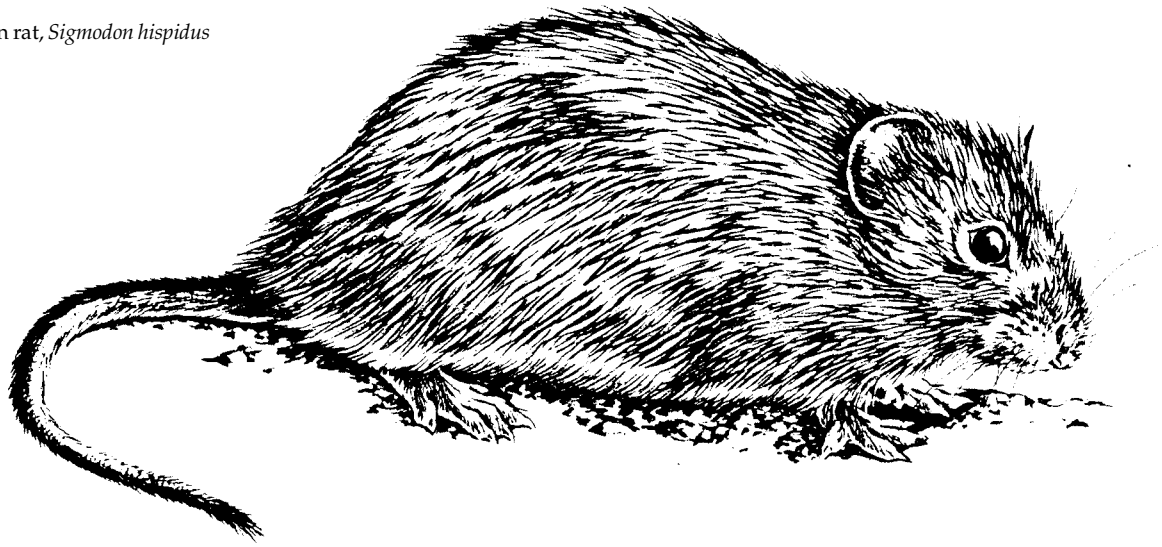
COTTON RATS

Fig. 1. Hispid cotton rat, *Sigmodon hispidus*



Damage Prevention and Control Methods

Exclusion

Usually not practical.

Cultural Methods

Remove dense vegetation.

Repellents

Not effective.

Toxicants

2% zinc phosphide on dry bait.

Fumigants

Not practical.

Trapping

Snap traps (rat traps).

Live traps.

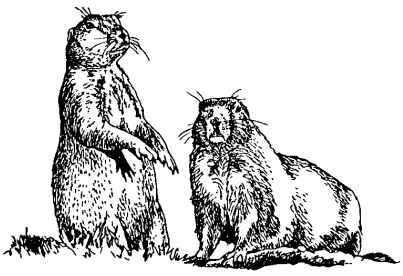
Shooting

Not practical.

Identification

The hispid cotton rat *(Sigmodon hispidus)* is a moderately large, robust rodent with a scaly, sparsely haired tail that is shorter than the combined head and body.

Cotton rats have relatively large eyes. The ears are large but almost hidden in the fur. They have four toes and a small thumb on their front feet and five toes on each hind foot. The cotton rat has very small internal cheek pouches. Distinguishing characteristics are the rough grizzled appearance of the blackish or grayish fur and the rather stiff black guard hairs.



PREVENTION AND CONTROL OF WILDLIFE DAMAGE — 1994

Cooperative Extension Division
Institute of Agriculture and Natural Resources
University of Nebraska - Lincoln

United States Department of Agriculture
Animal and Plant Health Inspection Service
Animal Damage Control

Great Plains Agricultural Council
Wildlife Committee

This rodent has a high "Roman" nose and color similar to that of a javelina, resulting in the name "javelina rat" in many areas.

The total length averages 10 inches (25 cm) including the tail length of 4 inches (10 cm). The cotton rat may be distinguished from the Norway rat by its smaller size, shorter tail, and longer grizzled fur. Evidence of cotton rat presence are stem and grass cuttings 2 or 3 inches (5 or 8 cm) in length piled at various locations along runways, which are 3 to 5 inches (8 to 13 cm) wide. Pale greenish or yellow droppings, about 3/8 inch (9 mm) in length and 3/16 inch (5 mm) in diameter, may also be present along the runways.

Fig. 2. Range of the hispid cotton rat in North America.

Range

The hispid cotton rat occurs over most of the southern United States, from the southeastern tip of California, southern Arizona and New Mexico, north to eastern Colorado, eastward through the southern portions of Kansas and Missouri, through Tennessee and North Carolina, and southward along the Atlantic coast through Florida, the Gulf states, and up the Rio Grande Valley (Fig. 2).

Two other species of cotton rat, the least cotton rat *(S. minimus)* and the yellownose cotton rat *(S. ochrognathus)*, occur only in small areas of southeastern Arizona and southwestern New Mexico. They are very similar to the hispid cotton rat.

Habitat

Cotton rats prefer dense cover such as grassy fields, overgrown roadsides, or fencerow vegetation adjacent to cultivated fields. They also occupy meadows, marshy areas, cactus patches, and weedy ditch banks. Under the protective cover, the cotton rat will have well-defined runways radiating in all directions from the nest site.

Food Habits

Cotton rats are normally herbivores, eating the roots, stems, leaves, and seeds of a wide variety of plants. They also feed on sugarcane, fruits, berries, and nuts. Cotton rats will cut tall plants off at the base and continue to cut them into shorter sections. They also eat insects, the eggs and young of ground-nesting birds (particularly quail), and the carcasses of dead animals.

General Biology, Reproduction, and Behavior

Cotton rats are basically nocturnal but will venture out in the daytime and are active year-round. The home range is small — from 1/4 to 3/4 acre (0.1 to 0.3 ha) for females and 1 to 1 1/4 acres (0.4 to 0.5 ha) for males. Cotton rats do not store food or hibernate. They can swim and do not hesitate to do so. This species is excitable, pugnacious, and aggressive toward mice living in the same fields. Their nests are a crude mass of dry grass fibers stripped from larger plant stems, placed in shallow surface depressions, among clumps of coarse grasses, underground in shallow tunnels, or under rocks or logs.

The species is very prolific and will breed throughout the year. Several litters may be produced annually, averaging 2 to 15 young per litter. The gestation period is 27 days, and the young are weaned in 10 to 15 days. Most young breed for the first time at 2 to 3 months of age. Therefore, several generations may live in the same nest at one time. The average life span is 6 months.

Damage

Cotton rat populations fluctuate greatly, ranging from 11 to 149 per acre (28 to 373/ha), and cause the most serious damage during population peaks. They may damage a variety of crops, including alfalfa, grains, grasses, vegetables, peanuts, fruit crops, sweet potatoes, and sugar beets. Cotton rats are especially troublesome in sugarcane and melons. Since these animals will eat quail eggs, a high cotton rat population may have a detrimental impact on quail nesting success. Cotton rats also compete with quail for the same foods.

Legal Status

Cotton rats are not protected in most states; some states classify them as nongame mammals. They may be taken if causing damage. Check local and state laws before beginning control measures.

Damage Prevention and Control Methods

Exclusion

If the area is small or the crop to be protected is of high value, a sheet-metal barrier 18 inches (46 cm) tall may be used to exclude cotton rats. Bury the barrier about 6 inches (15 cm) to prevent cotton rats from burrowing under it.

Cultural Methods

Remove dense cover by burning, mowing, plowing, or the use of herbicides to reduce habitat and prevent large population increases. Habitat modification is best as a preventive measure, since this control method will have little effect on the ensuing damage once a population reaches its peak.

Repellents

None are registered for repelling cotton rats.

Toxicants

Only zinc phosphide (2% active ingredient) is currently registered and being marketed for cotton rat control, and its use is limited to sugarcane fields. When applying toxic bait, lightly scatter teaspoon quantities in the rats' runways at 12- to 30-foot (3.6- to 9-m) intervals according to label instructions.

Fumigants

Fumigants are not very practical because cotton rats use their burrows and tunnels infrequently. Since state pesticide registrations vary, check with the local extension office or state wildlife agency for information on repellents, toxicants, and fumigants in your area.

Trapping

Small rodent live traps or rat-sized snap traps are effective for catching a small number of animals. The traps should be baited with a mixture of peanut butter and oatmeal or a piece of fresh carrot or sweet potato. The trap should be set in the runway at a right angle to the direction of travel.

Economics of Damage and Control

The amount and extent of damage is directly related to the relative density of the cotton rat population. The cost of control must be weighed against the value of the crop to be protected, such as sugarcane or melons.

Acknowledgments

Figures 1 and 2 from Schwartz and Schwartz (1981), adapted by Jill Sack Johnson.

For Additional Information

Camedon, G. N., and S. R. Spencer. 1981. *Sigmodon hispidus*. Mammal. Sp. 158:1-9.

Clark, D. O. 1972. The extending of cotton rat range in California — their life history and control. Proc. Vertebr. Pest Conf. 5:7-14.

Clark, J. P. 1986. Vertebrate pest control handbook. California Dept. Food Agric. Sacramento. 615 pp.

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