

# Getting Rid of the Rodent Pests

(The following article appeared in a recent issue of the Country Gentleman. It is of particular interest at this time while the proposition of rabbit bounty and control are under consideration and therefore is copied. The story is too long for insertion complete in one issue, therefore the second installment will be published next week.)

(By E. V. Wilcox)

When Lewis Carroll in describing the Jabberwock referred to "the teeth that bite, the claws that scratch," he probably did not have in mind the prairie dog, the various kinds of ground squirrels, the pocket gophers, the kangaroo rats and the jack rabbits. But all the teeth of every one of these animals are busy gnawing at the farmer's crops, and all their claws are industriously tunneling underground apartments or constructing nests in which to rear the coming generations of prairie dogs and their numerous relatives to fatten on the coming crops of the farm.

These are not pests that have recently been brought in from foreign countries. They are not the kind that somehow managed to get by the immigration inspector. They are native Americans, every one of them. They were mentioned by the earliest explorers who crossed the Great Plains. Before agriculture had extended west of 100th degree L. these rodents lived on the leaves, stems, bark or roots of native grasses and other plants. But when men began to plant garden and field crops here and there in this range country, the prairie dogs, squirrels, and rabbits soon noticed that wheat, oats, barley, alfalfa, carrots and corn tasted much better than grama grass, sagebrush and affilaria roots.

These rodent pests not only took a serious toll of garden and field crops but they began to increase in numbers, at first slowly and later at a more alarming rate, until they became a veritable plague. What was the main cause of the increase of these pesky creatures? Man, directly and indirectly, man raised an abundance of succulent and savory food for them, and man killed their enemies. Then the prairie dogs and ground squirrels and jack rabbits had nothing to do but eat and multiply—and they did both without much restraint.

### The Dog Towns

The natural enemies of these pests are coyotes, wolves, foxes, skunks, weasels, badgers, owls, hawks, falcons, eagles and so on. The coyote is extremely clever in catching jack rabbits, prairie dogs and their cousins. In fact he was so effective at the job that the jack rabbits had reasons to think twice as often of Nemesia in the shape of a coyote as of a feast in the form of alfalfa. The coyote considered a young prairie dog or rabbit a very toothsome morsel, and he, of course, had much to do with setting a moderate maximum on the number of these rodents. The same may be said in a lesser degree for wolves, foxes, hawks, owls, weasels and skunks.

The badger should receive special mention as a champion exterminator of prairie dogs and ground squirrels. I remember how in the nineties the badger cleaned up thousands of acres of "dog towns" and squirrel dens in the Judith Basin, Montana. The rodents had become a nuisance. Then an army of badger came in through Judith Gap and proceeded slowly to dig out of their burrows and eat all the prairie dogs and squirrels in that region.

It was a stupendous undertaking. There were thousands of inhabited burrows. And the burrows of prairie dogs sometimes go down as deep as twelve or fourteen feet! But the badgers with most uncanny perseverance covered every inhabitant of these burrows in some blind passage and then patiently tunneled their way to them and ate them. The prairie dog tasted good to the badger whether he finally reached him at the breakfast, lunch or dinner hour. It took several years to do the job on the whole area, and then the badgers went away looking for other dog towns.

But just as the prairie dog conceived a greater fondness for alfalfa and wheat than for dry range grasses, so the coyote found young lambs, chickens and turkeys more to his liking than prairie dogs. Thus both the prairie dog and the coyote became unpopular, but the coyote incurred the greater enmity of man. Settlers shot, poisoned, trapped and killed coyotes. California, for example, passed a law in 1891 offering a bounty of five dollars each for coyote

scalps. The law was in effect only eighteen months, but 71,723 coyotes were killed under it. Then the jack rabbits began to multiply alarmingly. By 1893 the farmers complained that jack rabbits were causing far more harm than the coyotes had done. A bounty of twenty cents each was then offered for rabbits.

Likewise the hawks and owls fell under the curse of man because they too occasionally took a chicken to give variety to their regular ration of prairie dogs and rabbits. Then there were the foxes, skunks and badgers. Their greatest misfortune was that they were furs. And so man shot or trapped them for their furs. Now, this was all very fine for the prairie dogs and jack rabbits. The badger no longer disturbed their quiet subterranean homes, and hawks and coyotes, no longer snapped them up when they ventured out after forage. With their natural enemies out of the way the only limit to the number of these rodents was set by the amount of available food on farms and ranges and they promptly started out to attain this limit.

Thus we have gradually learned of the animals which hold the rod in a roundabout way that having kill-idents in check, we must ourselves do the work which these carnivorous animals formerly did for us—namely, kill the rodents. If we look at maps showing the distribution of some of these rodent pests we find that the pocket gophers cover all the states west of 100th degree L. that ground squirrels are equally ubiquitous except for the western end of Washington, that the jack rabbit has claims staked out all over the region except little patches of Montana, Idaho, Washington, Oregon and California, and that the prairie dog has squatted on the whole Great Plains area and most of the mountain section—but has refused to visit California and the rest of the Pacific Coast.

In order to understand better the nature and extent of the problem of extermination before us, it may be well to take a hasty look at the habits and family life of four or five of the chief injurious rodents of the West. The prairie dog, "fat and greasy citizen" of the plains is a social animal living in colonies or dog towns varying in extent from a few acres to thousands of square miles. Dog towns twenty mile long are not rare and in Texas there was a colony which covered 25,000 square miles. In a dog town the number of holes an acre varies from a few to more than two hundred. Not all the dog towns are occupied. Now and then a snake or burrowing owl cleans out a whole family of dogs, but the average number an acre may be set at twenty-five, which would give the great Texas dog town a population of 400,000,000.

The number of young in each litter is about four, and the young first appear at the mouth of the burrows from May to June. Prairie dogs are extremely industrious. When they are not eating they are working on the burrows, bringing out dirt and stones. The mouth of each burrow thus comes to be in a craterlike mound of dirt about one foot high and three or four feet in diameter. The hole goes almost straight down ten to fourteen feet, and then horizontally about an equal distance. The nests are in side chambers leading off from the horizontal part of the burrow.

Prairie dogs, like most or all of the other burrowing rodents of the West, get along without water. For the most part their burrows are miles from water and of course they do not dig deep enough to reach water. They get sufficient water in the green vegetation which they eat. It has been estimated that thirty-two prairie dogs will eat as much grass as a sheep and 255 as much as a cow.

Ground squirrels are essentially pocket editions of prairie dogs. Slightly smaller but of much the same habits, they are likewise social and live in colonies. The burrows, which may have only one or two openings, or even four or five if the family is more consequential, descend from one and a half to four feet or more into the ground, after which the rooms are located along a horizontal tunnel ten to fifty feet long. A litter of ground squirrels varies from two to fourteen, with an average of about six. These pests are fond of almost anything which the farmer may grow. They can eat sagebrush and dry range grass, but they prefer alfalfa, grain and other crops. They have a habit of biting off the wheat stems just as they are about to head, eating only the tender parts. Thus whole fields may be mowed down.

The pocket gopher is an underground sapper of tireless energy. They are constantly extending their mining tunnels, which are about

three inches in diameter and three to ten inches beneath the surface of the ground. The gopher is looking for roots to eat. Alfalfa roots and carrots come in handy. Provided with fur-lined pouches in his cheeks, the gopher can collect booty till he has a load and then go to his storehouse. In the course of a year a single gopher may tunnel a network of passages under a field of several acres. Here and there along the tunnels he comes to the surface to throw out loose soil, thus making mounds all over the field. Otherwise they almost never show themselves. I have many times found on rolling up my blankets in the morning, that a gopher has tunneled under me while I slept.

### Forage At Night

A curious little animal with long tail and long hind legs and known as the kangaroo rat has in recent years become a scourge in the Southwest. They dig up and eat or carry away all kinds of seed as fast as you can plant them. Vegetable gardening is quite impossible when kangaroo rats are numerous. Burrows have been found with several bushels of seed stored away for winter use.

In this rogues' gallery of rodents I must also reserve a place for the jack rabbit. Five of these rabbits will eat as much as a sheep and do it offener. They do not burrow, but make their nests in the grass under weeds or low brush. They eat anything green or succulent, including alfalfa, grain, garden vegetable, grapes and young fruit trees. The jack rabbit sits in the shade of a sagebrush by day and eats all night long. Just at dusk you see them begin their active foraging and you wonder where such an army of them could have been concealed during the day.

But perhaps someone inquires how big this rodent problem is. Well, if you should read the annual report of the county agents for 1919 you would conclude that it is one of the biggest agricultural problems west of 100th degree L. for it is treated in detail in the report on almost every county of the Western States. It became necessary for the Bureau of Biological Survey to make rodent extermination one of its major projects. To this end cooperative agreements were reached with the agricultural extension service in all the Western States except Texas and Oklahoma. In Nevada the work was assigned to the state rabies commission and in California to the horticultural commission, but both these bodies cooperate with the extension service, with the help of the state relations service.

The work of extermination began first in the states worst affected. Kansas in 1901 passed a law providing for the destruction of prairie dogs and gophers. It was estimated at that time that dog towns covered 2,000,000 acres in the state. A similar law was placed on the statute books of Nebraska in 1902. The constantly increasing damage from rodents soon forced some concerted action toward their extermination in all the states west of 100th degree L.

In this, as in all movements requiring cooperative action, the first step was from individual initiative. Farmers, in self-defense, tried various methods of saving their crops from destruction. They studied the habits of prairie dogs and gophers to learn how they might be attacked most successfully. Farmers gave their young sons a small bounty for prairie dogs and ground squirrels. The boys became expert marksmen. In many cases the boy brought in scalps in such numbers as to make the farmer wonder where the bounty money could be found. But the pests still increased in numbers. Two seemed to spring up for each one that was shot. Traps were tried and other kinds of homemade contrivances. Fumigation by various methods was attempted. In these experiments the farmers made use of sulphur fumes, hydrocyanic acid gas and carbon bisulphide. Thousands of squirrels and prairie dogs were killed in this

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way. But these methods would really try the patience of Job. Just picture yourself a farmer out on the limitless reaches of the Great Plains in a thirty-mile wind, trying to persuade a poisonous gas to go down into a prairie-dog hole. As a rule these gaseous irritants the farmer about as much as the prairie dog.

The books say that carbon-bisulphide gas is heavier than air and will all sink into the rodent burrows. But the wind whirls some of it about and you somehow manage to inhale enough to have a maddening headache the next day.

Then the farmer tried poisoned baits. In these baits he used strychnine, arsenic, cyanide of potash, barium carbonate, corrosive sublimate and phosphorus. He noted the kind of food preferred by the prairie dog, the various kinds of ground squirrels and the pocket gopher, and also the jack rabbit. Then the bait had to be infiltrated or coated with the poison and so scattered as not to endanger livestock and birds. It was found that he kernels of wheat, barley and oats were most enticing to prairie dogs and ground squirrels, that carrots, apples and raisins suited the pocket gopher, while alfalfa would get the attention of jack rabbits.

(Concluded Next Week)

It may become necessary, even yet, to build a spite fence between the

democrats and republicans of Ohio. Family jars are unethical in these days of political scrappery and disillusionment.

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