

# Getting Rid of the Rodent Pests

Below is a continuation of the story written by E. V. Wilcox and originally published in the Country Gentleman. The first installment of this article appeared last issue and this installment completes it. The article is published because of the widespread interest taken in the eradication of rodent pests in this county.

When these methods of extermination were intelligently applied, the farmer saw that control of the rodent plague was possible, provided everybody did his part. But it was painfully evident that after a farm had been completely freed from rodents it would not long remain so, if one neighbor's farm were a prairie-dog hatchery and if another neighbor maintained an asylum for ground squirrels and pocket gophers. Then, too, we must remember that the public lands seemed to be held as a vast reserve for the enjoyment and multiplication of all sorts of pests.

At this stage of the campaign the states took up the problem. Perhaps the first move of the state legislature was to try the bounty system. A price was put on the head or scalp of all these noxious rodents. The scheme was tried in nearly every Western State. The first result in every case was the rapid exhaustion of the fund provided to pay the bounty. Then the law of diminishing returns came into effect. Hunters found that they could not make good wages after the ranks of the pest had been considerably reduced. They, therefore, decided to let the rodents multiply for a while. This was the case in California, Colorado, Idaho, Kansas, Minnesota, Missouri, Montana, Nebraska, North Dakota, Oklahoma, Oregon, South Dakota, Utah, and Wisconsin. In California, the bounty was paid for pocket gophers on presentation of the scalp with the ears. But the gopher has almost no external ears, and county clerks are not all trained mammalogists. It was soon found, as well worded by T. H. Scheffer, that "any ingenious boy with a ticket punch could easily manufacture a half dozen legal scalps of a single gopher."

But the present campaign of rodent extermination in which the Biological Survey is playing a leading part rests on a solid basis. It is under the immediate direction of Dr. W. B. Heil, assistant to Dr. A. K. Fisher. Twelve men have been placed in charge of as many districts in the western part of the country. There are also some assistant district agents, bringing the crew of the Biological Survey in the rodent fight up to about thirty. In this work a Federal fund of \$197,000 was used in 1919. Now thirty men, working alone, would not make much impression on the dog towns, squirrel colchaches and jack-rabbit empires of onies, gopher subways, kangaroo-rat seventeen states. These men, however, under the direction of the Biological Survey, have enlisted the active interest and cooperation of various state, county and local agencies, and, through them, hundreds of thousands of farmers have been induced to go into this campaign for a fight to the finish.

As in so many other agricultural movements the county agent is the king pin in each county. He holds meetings in all communities to awaken interest in the campaign, outlines the plans necessary for success, tells of successful work along this line elsewhere, suggests leaders who can work up local organizations and secure pledges of cooperation from farmers and ranchmen, makes arrangements for the proper mixing and distribution of the poison bait, organizes concerted drives and is in every way the leading figure. The county and community organization for rodent extermination is often as elaborate and detailed even down to the duties of the various individuals concerned as in a military operation. Thus in Jackson County, Kansas, April 7-12, 1919, was made Gopher Week, and it went hard with the gophers. In alfalfa fields it appeared that one quart of poisoned grain was enough for ten acres of gophers.

The extermination of prairie dogs is a very popular project in New Mexico. There are about 15,000,000 acres of dog towns in the state, with a population of at least five dogs an acre. The owners of eighty per cent of the private land are willing to cooperate in this work. In 1919 the state legislature provided \$25,000 to help the campaign. In Wyo-

oming about 13,000,000 acres of land were injured by rodents last year to the extent of two dollars an acre. Needless to say the farmers are going on the warpath. Perhaps the best work was done in Weston County. The farmers had nearly cleaned out the rodents on their farms, but a reinfestation took place from government land. Thus the people are getting tired of killing prairie dogs on their farms until the big ranches and government lands are treated at the same time. As Mr. L. P. Reed reports: "The dogs have simply moved in from the state and government lands again, and are just as bad as ever."

During 1919 Montana made great progress in rodent extermination. In Blaine County 2000 farmers spread poisoned bait on 720,000 acres. In Teton County the farm bureau had a gopher committeeman in each community, and 2500 farmers killed 2,118,000 gophers with poisoned bait. In fact, practically all counties in Montana report corresponding figures in this campaign. Perhaps Toole County showed the widest cooperation of town and county officials, farm bureaus, schools and individuals. It was estimated that there were at least two gophers an acre for the whole county. A nearly complete clean-up was made in some areas. A county-wide raid was made on the flicker-tail gopher in Sheridan County, both on private and state lands, using 70,000 pounds of poisoned bait.

Thus through the whole list of counties of the seventeen Far West States, showing the tons of bait used, the thousands of acres treated and the millions of rodents killed. Bringing the figures together for the whole West, we find that prairie dogs occupy more than 100,000,000 acres of land, and that in 1919 2,000,000 acres of privately owned crop and forage land and 200,000 acres of public lands were treated, with the result of destroying seventy-five to ninety-five per cent of the dogs on that area. Ground squirrels were practically exterminated on 1,294,000 acres of public domain and 13,465,000 acres of private land. No complete statistics are available on the number of gophers, kangaroo rats and jack rabbits destroyed. In Union County, New Mexico, kangaroo rats were cleaned out of 11,000 acres of crop land, and seven community rabbit drives netted more than 100,000 jack rabbits.

**The Scourge of Rabbits**  
In addition to the \$107,000 used by the Biological Survey in rodent extermination the states contributed \$714,815 to the work. Moreover, much of the actual hard work, as is always the case in such matters, was done without money and without price. The rodent experts furnished guidance and directions and helped in mixing and distributing the bait. The farmers and ranchmen did the rest.

The wide experience of farmers and government experts with injurious rodents has brought out certain specific methods which are most effective in exterminating these pests. In studying these methods we may as well begin with those which are applicable to jack rabbits. Rabbits of any kind if allowed to multiply without restraint become serious pests. Take the well-known case of Australia. The common rabbit was introduced into that country in 1844. During the twenty-five years following that date the Australian Government expended more than \$5,000,000 trying to destroy them. In New South Wales alone 19,000,000 rabbits were destroyed in a single year. That state once offered a reward of \$125,000 for an effective rabbit remedy but no one ever qualified for it.

Australia tried various infectious diseases in a campaign to exterminate rabbits. Several world-famous bacteriologists worked on this problem, but all to no purpose. Bounties also proved to be no good. The rabbits increased under a bounty system. The Australians used large quantities of phosphorus mixed in bait as a bait. Phosphorus is commonly considered too dangerous for use under our conditions.

Somebody once planted a few rabbits on Laysan Island, one of the bird reserves in the Pacific. Within a few years the progeny of these rabbits ate everything except the coral sand. It became necessary to put wire protectors round the trunks of coconut trees! But no one who has had experience with rabbits needs to be reminded of their destructiveness.

For many years big organized drives have been carried out for the purpose of surrounding and grad-

ually driving into a wire corral all the rabbits on a certain tract which can be covered by the saddle horses and autos of the neighborhood. Hundreds of thousands of jack rabbits have thus been corralled and killed. Recently still larger numbers have been poisoned. As poisoned bait, the Biological Survey recommends one ounce of strychnine sulphate dissolved in two gallons of water and sprinkled over ten pounds of alfalfa-hay leaves. This bait is distributed in handfuls in fields from which stock is excluded.

In winter one ounce of strychnine may be sufficient for fourteen pounds of alfalfa leaves, or the heads of rye or emmer may be substituted for alfalfa. If poisoned oats are preferred the bait may be prepared as follows: "Mix one tablespoon of starch in one-half cup of cold water and stir into one pint of boiling water to make a thin, clear paste. Mix one ounce of powdered strychnine with one ounce of baking soda and stir with the starch to a smooth creamy mass. Stir in one teaspoon of table salt. Apply to twelve quarts of good clean oats and mix thoroughly to coat each kernel. This bait is distributed about a tablespoonful at a place, or in twenty-five to thirty doses, preferably on a cold clear night in winter."

What use can be made of the rabbits killed in the drives or by poison? Even as early as 1895 at least 1,000,000 native rabbit skins were used in the United States for making felt, besides the huge importations of mouset skins for that purpose. Seventeen million came from New Zealand in one year. Until war conditions cut off the foreign supply of skins Dr. Ned Dearborn of the Biological Survey replied in answer to my question, "The best makers of the United States turned up their noses at jack rabbits. But now you feel that is probably made of jack-rabbit hair. The rabbit skin, clipped and dyed, becomes elastic wool."

The jack-rabbit meat may be used for feeding hogs and chickens. Even the bodies of rabbits poisoned with strychnine may be fed to chickens, if the head and intestines are removed. Jack rabbits have been marketed for meat since 1890 or, perhaps earlier. Retail stalls wanted them hog dressed, or with the skin on, while the packers preferred them fully dressed, and paid thirty-five to fifty cents a rabbit.

But suppose you are troubled with ground squirrels, not rabbits. In that case the official prescription for the Biological Survey differs from that for jack rabbits by using one half-pint rather than one pint of boiling water. Then instead of salt you stir in a quarter pint of heavy corn syrup and one tablespoonful of glycerin, and finally one scant teaspoonful of saccharin. Apply to twenty quarts of oats and mix thoroughly. Each quart of this mixture is enough for forty to sixty baits to be scattered along squirrel trails or on the clean hard surface near the holes. Follow-up work for ground squirrels and prairie dogs after poisoning consists in treating with carbon bisulphide the few dens which still seem to be inhabited. Thus in Contra Costa County, California, last year 250 gallons of carbon bisulphide were used to saturate 19,000 waste balls which were rolled down into the squirrel dug-outs.

For prairie dogs just mix a heaping tablespoonful of starch in cold water and stir it in three-quarters of a pint of hot water. Then add the strychnine, baking soda, corn syrup and glycerin, as for ground squirrels. Make the dose of saccharin one-tenth of an ounce, and apply the whole formula to thirteen quarts of the best grade, heavy, thoroughly cleaned oats. A big prairie-dog campaign was conducted in Colorado in 1919. Larimer County used 10,000 quarts of poisoned oats on 115,000 acres of dog-infested land. Moffat County used nine and a half tons of oats and 1125 ounces of strychnine in killing the pests.

**JOHN GEMBERLING,**  
  
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But how are we to get at the pocket gophers in their tunnels? A somewhat different bait is required. Just cut sweet potatoes or parsnips into pieces of one inch and one-half inch square. Then sift up a quart of this material a mixture of one part of a one per cent solution of one-tenth of this quantity of saccharin, stirring to distribute the poison evenly. By means of a probe the bait is forced into the hole to eight inches below the surface, can easily be located near fresh mounds. One or two baits are then placed in the runway and the probe hole closed.

The Biological Survey began in 1910 a systematic study of controlling rodents. At first the work was conducted in the National Forests in cooperation with the Forest Service. The National Forests had become excellent breeding grounds for rodent pests. The actual campaign of extermination began in North Dakota in 1915 and was rapidly extended to Montana, Idaho and Oregon, and later to all the Western States. All kinds of extermination methods were tried. But aside from community drives and organized hunts for jack rabbits, the only method which the Biological Survey recommends on a large scale for any of the rodent pests is strychnine in a bait of grain, preferably oats or barley, alfalfa leaves or sweet potatoes, depending upon the food preference of the particular kind of rodent to be destroyed.

For ground squirrels the best time to use poisoned bait is April first to July first. The same date applies to prairie dogs. The work may be continued to October first with this bait. Midwinter is the best time for poisoning jack rabbits.

On the Jornada Range in New Mexico an attempt was made in 1917 to exterminate the prairie dog. Oats and milo maize were treated with strychnine for bait. The first application killed ninety-five to ninety-nine percent of the dogs. A crew went over this range again in 1918. Not a single prairie dog has been seen on the treated area since June, 1918. The 2305 acres thus cleaned up was previously of no use, for the prairie dogs ate all the grass. After the animals are killed all evidence of the previous dog towns soon disappears. The holes become filled up by the wind and the trampling of animals.

It cost six cents an acre on an average to exterminate prairie dogs during the last two years, with a range of three to ten cents in different localities. Oats are preferred to other kinds of grain for bait for the reason that birds are not so likely to eat oats as wheat. Barley or milo maize may be substituted for oats. As already indicated, after the strychnine barrage comes the mopping up with carbon bisulphide. The whole process of extermination, as included in the calculation of the cost at six cents an acre, is as follows:

The losses caused by noxious rodents had come to be little less than appalling. On a range area with average density of population, by these pests, prairie dogs and ground squirrels, on alfalfa, the prairie dog and other rodent crops. In a few days the jack rabbits may clean up the rest of the forage, while the kangaroo rat carries away into his burrow the seed of the grass, range grasses, and the pocket gopher tunnels for the roots of the range plants. In cultivated fields the damage is even more conspicuous and is brought home to the farmer day after day.

After daily considering all the charges which had been fully proved against prairie dogs and their rodent relatives the jury of farmers brought in a unanimous verdict of guilty against the whole tribe and have organized a campaign of extermination against "the teeth that bite, the claws that scratch."

Some people are foredoomed to go through life without great wealth. They have honor instead.

The laws of this country were made for all people to obey. A few people do not obey.


It is a simple matter to see the fault of others, and quite as easy for others to see ours.

Whenever we hear a fellow talking about his brains we wonder just how badly scrambled they are.

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