quite extinct. A small colony, living on Guadaloupe Island, escaped destruction, though raided on several occasions, and from late reports there would seem to be a few scattered remnants to remind us of this once abundant species.—A. W. ANTHONY, *Nat. Hist. Museum, Balboa Park, San Diego, California.*

MICE AND CHIPMUNKS HELP RESTOCK FORESTS

Mice and chipmunks are helping to reestablish the forests of Oregon and Washington, according to officials of the Forest Service, United States Department of Agriculture. Studies made by J. V. Hofmann, director of the Wind River Forest Experiment Station at Stabler, Washington, have shown that a large part of the young fir growth coming in on burned or logged areas in these States is not wholly due to seeding by occasional trees which are left, but in part to seed buried by small rodents beneath the duff of the forest floor.

In the West mice and other rodents are usually condemned as workers of evil in the forest. They often do considerable damage to food supplies, and their appetite for pine and fir seed is chiefly responsible for the abandonment of attempts to reforest burned-over and waste areas by direct seeding methods. Sometimes, however, the work of these little animals is beneficial.

"In the Douglas fir region," says Mr. Hofmann, "the forests produce a heavy seed crop every two or three years. Rodents collect the seed from the cones in large quantities and bury them just beneath the surface of the soil. Part of the seed thus stored away is eaten, but snow and soil movement often cover many of the hoards so that they are never found. When logging operations open up the stand, these seed germinate and produce a new stand of little trees."

The Wind River Experiment Station is but one of several similar establishments maintained by the Government in the national forests for solving forestry problems. In this particular case many thousands of dollars have been saved annually to western lumbermen through the assistance of rodents in restocking cut-over lands. This is one example of the value of the experiments being carried on by these stations, which are so important to the perpetuation of our forests and dependent industries.—U. S. DEPARTMENT OF AGRICULTURE PRESS SERVICE, *Washington, D. C.*

A RECENT MIGRATION OF THE GRAY SQUIRREL IN WISCONSIN

In a previous paper I have noted a migration of northern gray squirrels (*Sciurus carolinensis leucotis*) across the Mississippi River from Wisconsin into Minnesota during the autumn of 1905. The migration may have been caused by a shortage of nuts on the Wisconsin side of the river (Bull. Wisconsin Nat. Hist. Soc., vol. 8, p. 87, 1910).

On a field trip for the United States Biological Survey during the past summer (1920), I had occasion to visit Pepin, Wisconsin. While there, Mr. Broach, a reputable citizen of that village, told me about a migration of gray squirrels which occurred early in the fall of either 1914 or 1915. The squirrels came from the hills 2 or more miles back of Pepin, followed a point out into the foot of Lake Pepin, and there swam a distance of about ¼ mile across the Mississippi River to the Minnesota shore. Mr. Broach would give no estimate of the number

of squirrels but said "there was a continuous movement, and possibly an average of two entering and two emerging from the water every few minutes for about a day." Mr. Broach stated that there was no food shortage of the Wisconsin side of the river, there being an abundant crop of acorns, nuts, and corn.—HARTLEY H. T. JACKSON, *U. S. Biological Survey, Washington, D. C.*

CÆSARIAN OPERATION ON LEPUS ALLENI, AND NOTES ON THE YOUNG

On March 13, 1920, a female *Lepus alleni* was shot on the Santa Rita Range Reserve, south of Tucson, Arizona, for breeding record. When the body was opened, three very large foetuses were discovered, and after a little hesitation it was decided to open the uterus and note the condition more definitely. No sooner was this done with the first than on the freeing of the head the young animal began to breathe precisely as if normally born. After a little further hesitation, which nearly resulted fatally for the third youngster, it was further decided to release all of them and see whether they would survive. This was done as quickly as possible, with the result that in a few moments all three were lying across the warm body of the mother in the sunshine, breathing normally; and in a surprisingly short time attempting to find a nipple for nursing. In actual fact, the first one released from the amnion was attempting to suckle before the third one was fully freed. No bleeding whatever occurred when the umbilical cords were cut although this was done immediately on releasing them from the membranes, which fact would indicate that they must have been normally born within a very short time, probably within the ensuing twenty-four hours. As the eyes were open from the first, there can be no doubt that they are open at normal birth in this species.

The sun was bright and warm, the hour being 10.00 a.m., and there was scarcely a perceptible breeze, so that no difficulty was experienced in keeping the diminutive jacks warm until they were thoroughly dry. In the meantime they kept close up against the now cooling body of the mother, whose nipples they repeatedly sucked upon. However they evidently secured no milk, as none would hold to a teat for more than a few seconds.

Some photographs were taken of them alongside the body of the mother, after which they were wrapped carefully and taken to camp on the seat of the car. Here for a few hours they were kept warm and contented in the sunshine and were fed a small amount of milk from a spoon. During the afternoon they were taken on a forty mile trip to Tucson, and established in a box with plenty of old woolen blanket for warmth. After several attempts to feed them in various ways an ordinary pipette was found to be most satisfactory. About five pipettes full of warm cow's milk, amounting to from 8 to 10 cc., constituted a feed during the first day, and three feedings per day were decided upon after some observation. The second day condensed milk, diluted with an equal quantity of water, was substituted for fresh cow's milk.

Owing to the fact that very little exposure would chill the little animals, measurements were not taken on the first days of life. All were weighed however, and the weights were 108, 103.5, and 90 grams, respectively, at noon of the day they were taken. In spite of every care and the use of the same food, the smallest did not thrive from the first as the others appeared to do. It ate as much