

## PROGRESS REPORT ON THE MANAGEMENT OF THE COTTONTAIL RABBIT

by

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Arnold O. Haugen

The present report mainly concerns information secured on the cottontail rabbit during the period from March 20 to June 20, 1938, however, the data included for the Check and Brush Pile Quadrats was collected between Feb. 22 and March 17, 1938.

Areas

The Food Superabundance, Check, and Brush Pile Quadrats border on the north, east, and south sides of the Removal Quadrat. One half mile to the north of this cluster of areas, lie the Hole and Stocking Quadrats which adjoin each other for  $\frac{1}{2}$  mile. On May 9, and 10, 1938 the 112 brush heaps of the Brush Pile Quadrat and the 112 burrows of the Hole Quadrat were completed.

Methods

Trapping. All live-trapping has been done by means of box traps set at 110 yard intervals, and has been conducted on each of the management areas for a period of 10-11 days.

Hair Identification. The use of the artificially constructed burrows by rabbits was determined by identifying the hair which the rough edges of the boards of the entrance combed from the back of the visiting animals.

Results

Catch. Nights with a rain or heavy dew have yielded a larger catch of rabbits than the usual expected daily average for any quadrat. Since Feb. 22 fifty individual cottontail rabbits consisting of 20 females and 30 males have been handled a total number of 138 times on the six management quadrats.

Sex Ratio. The 20 female and 30 male rabbits live-trapped on the management areas between Feb. 22, and May 10 result in a sex ratio of 150 males per 100 females.

Weights. The weights recorded at the time of the original capture of the 41 rabbits live-trapped since March 20, average 3 lbs. 1 oz. for the females, and 2 lbs. 10 ozs. for the males. These weights show that the present females are 3 ozs. heavier, and the males 2 ozs. lighter than were the corresponding averages for the sexes shown for the period from Jan. 1 to March 20, 1938.

Trap Efficiency. The low trap efficiencies of the Check (1.66%) and Brush Pile (1.50%) Quadrats may be due to the inefficiency of the triple combination of corn-apple-carrot bait used between Feb. 22 and March 17. The Removal Quadrat was baited with a triple combination of salted corn-apple-oatmeal, as were also the Stocking, Hole, and Feeding Areas. It is apparent from Table I that the Stocking area with a trap efficiency of 8.35% is high, but is fairly closely followed by the Hole (7.48%), and the Food Superabundance (5.14%) Quadrats. The average trap efficiency of 4.31% for the management

quadrats as a whole is about  $2 \frac{3}{4}$  times as great as was the average efficiency for all the areas reported on in the April 1, 1938 report to the Division of Game.

Table I

## Trap Efficiencies

Area	Trap Nights	* Rabbit Catch	Trap Efficiency
Stocking Quadrat	479	40	8.35%
Hole Quadrat	468	35	7.48
Food Superabundance Q.	564	29	5.14
Check Quadrat	482	8	1.66
Removal Quadrat	679	18	2.65
Brush Pile Quadrat	530	8	1.51
Totals	3202	138	Average 4.31%

Populations. In the April 1, 1938 report, the populations of the Check and Brush Pile Quadrats were shown as "Corrected Populations" which were arrived at by applying the sex ratio found by live-trapping between Jan. 20 and March 20, 1938. Table II, however, is made up to show the apparent populations of the six management areas, as determined by live-trapping during the period from Feb. 22 to May 10.

Table II

## Rabbit Populations of Management Areas

Area	Acres	Days Trapped	♀	♂	Rabbits Apparently Resident	Border Line Rabbits
Hole Quadrat	160	11	6	7	13	2 ♂
Stocking Quadrat	160	10	6	5	11	2 ♂
Food Superabundance Q.	160	10	2	5	7	1 ♀ 1 ♂
Check Quadrat	160	10	1	3	4	1 ♀ 1 ♂
Removal Quadrat	160	10	1	2	3	2 ♀ 3 ♂
Brush Pile Quadrat	160	11	2	3	5	1 ♂
Totals	960	62	18	25	43	Border Line Individuals 2 ♀ 5 ♂

\*Includes recatches



The apparent resident rabbit populations of the Quadrats are Hole, 13; Stocking, 11; Feeding, 7; Brush Pile, 5; Check, 4; and Removal Quadrat, 3. In addition to the apparent resident populations there are seven individuals that can be classed as border line animals which range in more than one quadrat. The total acreage (960) of the six areas yielded 50 individual rabbits, which indicates a population density of one rabbit per 19 acres of oak grub.

In addition to the local populations discussed, there were 7 females and 4 males released on March 29, 1938, in the Stocking Quadrat. Of this transplanted number, two females were later taken in the Hole Quadrat which borders on the Stocking area along the SE quarter.

Breeding. Between March 9 and 16 it was noticed that the clitoris of the females underwent a change from a firm to a more flabby appearance, but the first lactating female was not found until April 27. The testes of the males were noticeably increasing in size during the middle of March. Two young rabbits have been accounted for on the management quadrats, and three young have been captured on the Swan Creek farm and are being held captive for experimental purposes.

Mortality. Only three cases of rabbit mortality have been found on or immediately near the management areas. On April 15, and again on May 24, the hind quarters of a freshly killed rabbit were taken from a Great Horned Owl's nest located in the vicinity of the Check and Food Quadrats. On April 15, Rabbit male 54 was killed while captive in a box trap covered with 1 inch fox fencing. The nape of the rabbit's neck was torn or chewed open, indicating the probable work of a weasel.

Cruising Radius. Cruising radius as used here is considered as representing one-half the distance between the two extreme points at which a rabbit has been taken. All the 29 rabbits live-trapped more than once since March 20, 1938 have been included in the calculation of the average cruising radii. Twelve females which repeated 26 times indicate an average cruising radius of 169 yards, while 17 males repeating 50 times indicate a range with a radius of 219 yards. The two largest female cruising radii are indicated by two females transplanted from the Mason Game Farm, and are 563 and 330 yards, as compared to a resident male which was captured 13 times in 21 days and has shown a 497 yard radius.

Cover. One hundred twelve brush heaps ( $4\frac{1}{2}$ ' high x 12-14' in diameter) placed at 110 yard intervals in the Brush Pile Quadrat and an identical number of burrows similarly spaced in the Hole area, were completed on May 9 and 10, 1938. The burrows are made such that the underground enlargement can periodically be examined to indicate usage and predation. One month after completion 48% of the artificial burrows indicated use by mammals as proved by the hair found on the rough edges of the boards forming the burrow. Thirty-two percent of the usage was indicated by rabbit hair, while the remaining 16% used consisted of uncertain identity.

Other Captures. Other captures handled during the 62 days of live-trapping on the management areas are 15 fox squirrels, 4 crows, 1 woodchuck, 1 raccoon, 1 house cat, 1 turtle, and 1 blue jay.