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WORK PLAN J-62

EVALUATION OF EXPERIMENTAL RELEASES OF WILD TURKEY IN NEBRASKA

March 1, 1962, through February 28, 1963

by Ken Robertson

Objectives

This study is designed to evaluate the experimental releases of wild turkeys in Nebraska.

Techniques

Attempts were made to determine movements, nesting success and mortality of Merriam's wild turkeys released in the Pine Ridge and transplants in other areas. Similar data were obtained for the releases of Rio Grande wild turkeys.

Frequent contact was maintained with local cooperators in the Pine Ridge. Landowner report cards were given to cooperators at the Rio Grande release sites and Merriam's releases outside the Pine Ridge. Department personnel kept records of all observations.

A cannon-net trap was used to capture Merriam's turkeys for additional releases.

Findings

Merriam's Turkey

Pine Ridge: The 1962-63 winter population of Merriam's turkeys in the Pine Ridge was estimated at 3,000-4,000 birds. This estimate was primarily from kill figures obtained during the season. Because of a preponderance of males in the kill, probably resulting from hunter selectivity, the number of juvenile females (79) was doubled to obtain the number of juveniles in the kill. The number of juveniles (158) was divided by the number of adult females (28) in the kill, for a young per adult hen ratio of 5.6:1. The young per adult hen (5.6) was multiplied by the estimated number of adult hens present during the spring of 1962 (500). This gave a population estimate of $(500 \times 5.6 + 1,000) = 3,800$ birds in the fall of 1962.

The present population resulted from the release of 28 birds in 1959. The first breeding season the population increased to 115, the second year to 325, and by 1961-62 the population was at least 1,000 birds.

Field observations indicated complete east-west dispersal through the Pine Ridge. However there is one area (Glen, south of the White River) where no reproduction has been reported. Birds have been reported in the area and one nesting hen was observed, but no young have been reported. There are two possible reasons for the lack of reports in this area. The first reason is the small number of turkeys in the area and the second is the lack of human habitants in the area.

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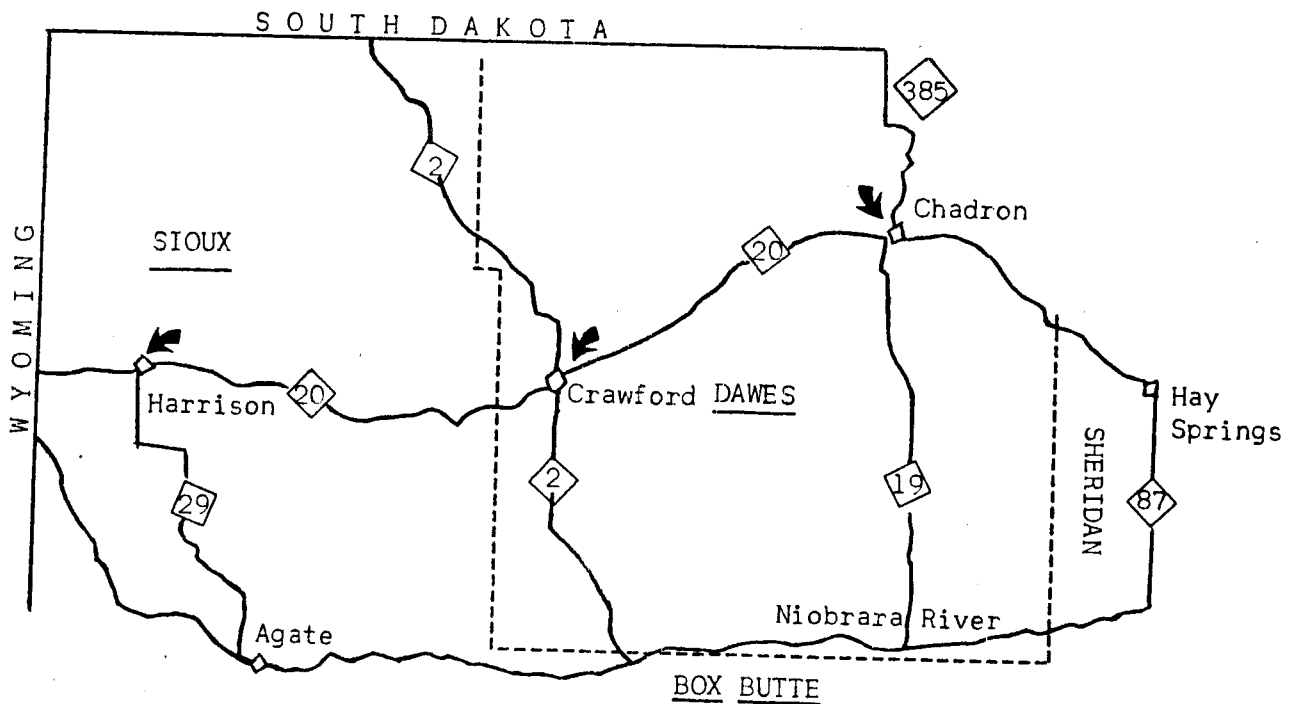
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As in previous years, some strutting and mock battling took place as early as January. In late February wintering flocks began to disperse and during early March courtship and mating took place. By mid-March the birds were widely scattered looking for nesting sites.

Thirteen brood observations during 1962 showed 36 hens with 327 young for an average of 9.1 young per hen with brood. During the years 1959-1962, 45 brood observations showed 101 hens with 897 young, for a four year average of 8.8 young per hen with brood. The average brood size by year was as follows: 1959 - 7.5, 1960 - 8.8, 1961 - 10.1 and 1962 - 9.1.

A nine day either-sex season, from November 10 through November 18, 1962, was the first open season on turkeys in recent years. Five hundred permits were authorized and issued. The open area included those parts of Box Butte, Dawes, and Sioux Counties north of the Niobrara River and west of highways U.S. 87, 20 and 385 (Figure 1).

Figure 1. Open area 1962 hunting season.



↓ Indicates location of turkey check stations.

Regulation placed legal shotguns as 10-20 gauges, inclusive, and only shot sizes of 2 to 6 were permitted. Shooting hours were one-half hour before sunrise to one-half hour after sunset and the bag limit was one bird.

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Hunters were required to present their birds, with plumage intact, at one of three check stations. Various biological and success data were obtained. A total of 500 permittees bagged 281 birds for a success of 56.2 per cent. Based on 424 returned questionnaires, 17.6 per cent of the permittees did not hunt. The indicated success of active hunters was 68.2 per cent.

Sex and age composition of the 281 birds checked was as follows: 126 juvenile males, 79 juvenile females, 1 juvenile no sex data, 47 adult males, and 28 adult females. The kill consisted of 61.8 per cent males, with 736 young:100 adults.

With an open season of nine days, 60.5 per cent of the kill occurred on the first day and 85.8 per cent on the first three days. Sixty-nine per cent of the successful hunters bagged their birds in less than one day of hunting and only 2.5 per cent required more than three days. Successful hunters averaged 1.45 days or parts thereof in the field, while unsuccessful hunters spent an average of 2.31 days.

Approximately 70 crops were collected during the hunting season for future analysis. cursory examination indicated oats, corn and wheat as primary food, with lesser amounts of alfalfa, green wheat, and weed seeds.

Wildcat Hills and Cheyenne Escarpment: The 1962-63 winter population at these three releases was approximately 80-100 birds. The number at each site was as follows: Carter Canyon (50-60), Bull Canyon (20-30), and Redington (16).

Limited data from random observations and landowner report cards indicate reproduction occurred at all three sites. Only one brood report was received. This report (1 hen and 7 young) was from the Redington release. The other two releases, Carter Canyon and Bull Canyon, both showed increases in fall populations in 1962, but no broods were reported.

At the Carter Canyon release area four white turkeys were reported in the wild flocks. It is believed there were no tame turkeys in the area. If this is true, some of the birds released were probably hybrids. Two of the white birds were removed and the others will be taken out if possible.

Niobrara River: The estimated winter population of Merriam's turkeys along the Niobrara River in 1962-63 was 300-350 birds. At the Schlagel Creek area, 1962 was the second year of production. For the other five releases along the river, 1962 was the first year of production and reproduction was reported at all sites.

Turkeys are now present along the river from south of Cody in northcentral Cherry County to east of Carns in southeast Keya Paha County.

The following information was obtained on the Niobrara River releases through observations and landowner report cards.

Carns: Two brood observation cards reported two hens with 15 young and a third observation reported 12 young but no hen. The total known winter population was 24 birds.

One white turkey was taken from the flock during the winter of 1962. This was the only known white bird in the flock.

Johnstown: Three brood observation cards showed three hens with 21 young. A fourth observation of eight young birds west of Chimney Creek in Keya Paha County may have been birds from this release. A flock of 16 birds was known to be at the release site and other flocks were assumed to be in the area.

Kilgore: Four cards listed six hens with 72 young for an average of 12 young per hen with brood. This large brood size is possibly a result of two broods seen with only one hen. The estimated winter population at this site was 100 birds. This high population, with only one breeding season at the site, is a result of movement of birds from the Schlager Creek release site.

Pine Creek: Observations of three hens with 20-25 young showed approximately 7 young per hen with brood. The known winter population in this area was 41 birds. They wintered in two flocks, one flock two miles and the other eight miles from the release site.

In April, 1963, a flock of 14 birds moved 16 miles upstream in about two weeks, and later returned about eight miles downstream. The reason for this extensive movement is because the timbered area is a relatively narrow strip along the stream.

Schlager Creek: This release site has now had two breeding seasons with apparently good reproductive success both years. Brood data is lacking but about 100 turkeys were estimated in this area during the 1962-63 winter.

In February 1963, 25 birds were trapped from a flock of 42 at this release site. The winter population prior to trapping was about 125 birds.

Turkeys from this release have been reported 25 miles west and 5 miles northeast along the Niobrara River.

Sparks: Information on this release is limited. During deer season hunters observed 21 turkeys four miles south of Sparks along the river. The winter population was about 40 birds.

Trapping and Transplanting: Commencing in the winter of 1960-61, birds were trapped and transplanted from previously established flocks. To date 119 Merriam's turkeys have been trapped and released at 13 sites (Figure 2).

During the winter of 1962-63 trapping operations near the Schlager Creek release site resulted in the capture of 25 turkeys. Only one trapping attempt was necessary because of a capture of adequate numbers of both sexes.

The birds were sexed, aged and banded. They were released the following morning at the following sites: Halsey Forest in Thomas County, Verdigre Creek in Knox County and Plum Creek in Brown County (Table 1).

Figure 2. Turkey release sites.

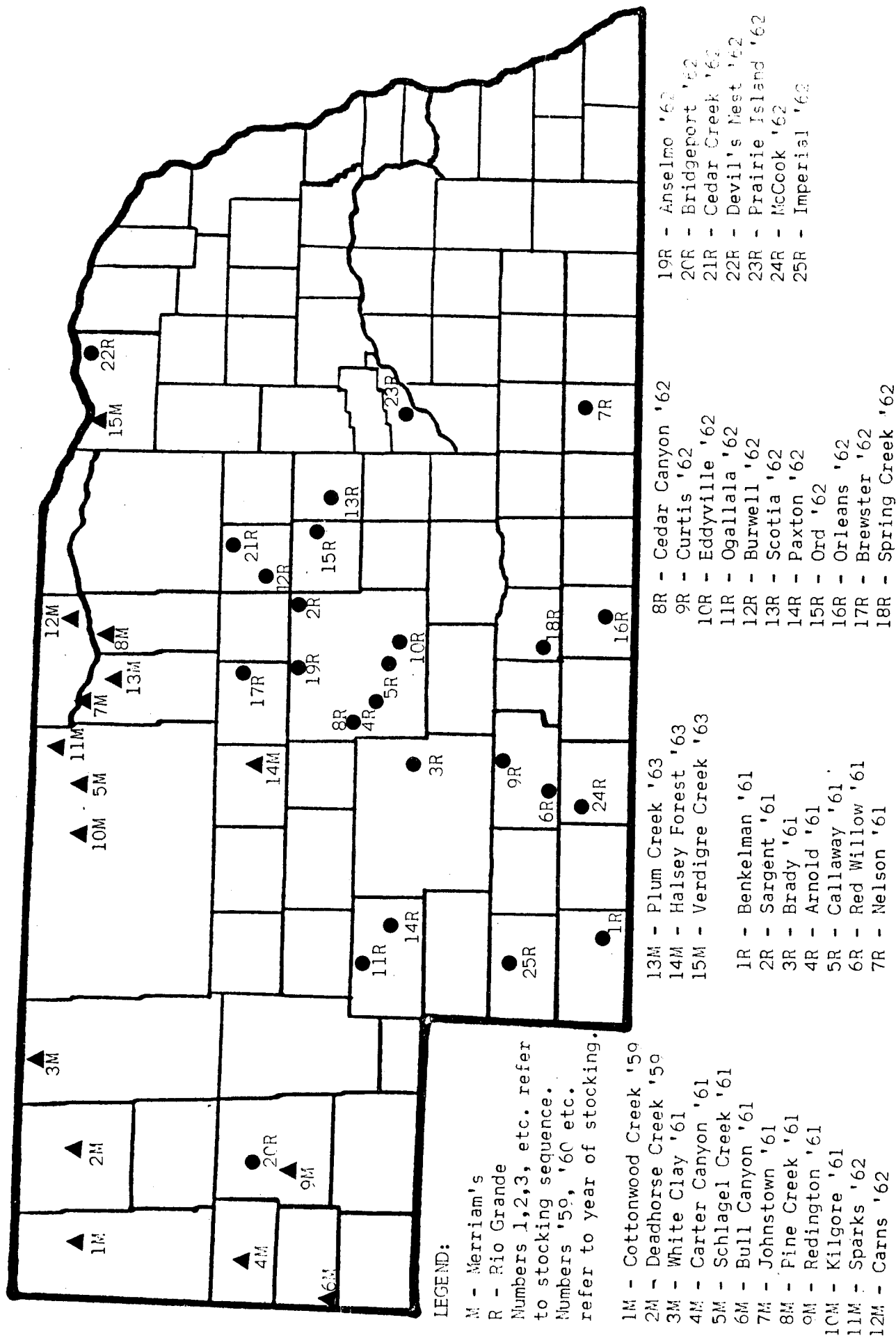


Table 1. Merriam's releases February 21, 1963

Area	Map Code	Release Location	Male		Female	
			Juv.	Ad.	Juv.	Ad.
Plum Creek	13M	S2, R23W, T31N Brown County	2		2	3
Halsey Forest	14M	S30, R26W, T22N Thomas County	2		3	4*
Verdigre Creek	15M	S2, R7, T29W Knox County		2	6	1
			4	2	11	8

* Included one hen, banded as an adult on Feb. 28, 1961, when released at Schlagel Creek.

Rio Grande Turkeys

A total of 518 wild trapped Rio Grande turkeys were obtained from the Texas Game and Fish Department in 1961 and 1962. The birds were released primarily along the major river systems in the central and southwestern parts of the state (Figure 2).

At two of the release sites, Benkelman and Sargent, releases were made in March 1961. At the remaining 23 sites releases were made between November 1961 and February 1962.

Field observations and report cards indicated a variation in movements of the released birds. In some cases the birds remained in the vicinity of the release sites. At other sites the birds scattered in small flocks and individual movements of 25 air line miles were recorded.

Landowner reports showed broods were observed at 20 of the release sites. A total of 29 report cards showed 52 hens observed with 276 young for an average of 5.3 young per hen with brood.

Anselmo: Five brood sightings reported 13 hens with 28 young for an average of 2.2 young per hen with brood. Reports indicate little movement, as all reports were from same area.

Arnold (two sites): Approximately 45-50 young were observed but not with hens; one report listed one hen with eight young. The birds were reported in one flock prior to nesting season but then scattered.

Brewster: There are probably no birds remaining in the vicinity of this release. The habitat at this release was submarginal to marginal. The release was made with the idea of testing the birds in habitat where woody cover was quite sparse.

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Benkelman: Four hens with 27 young were reported at this release area, for an average of 6.75 young per hen with brood. Birds from this release have been reported from Parks, about 17 miles west, to Trenton approximately 30 miles east of Benkelman.

Burwell: Reports list five hens and 19 young, and one brood without hen, for an average of 3.8 young per hen with brood.

Bridgeport: Two reports list one hen with 7 young, and 13 young with no hen, for an average of 7.0 young per hen with brood. These birds apparently wintered in two groups. One group was in the vicinity of the release site, and the other group was approximately 20 miles southeast of the release.

Brady: Four reports listed seven hens with 53 young for an average of 7.5 young per hen with brood. These birds were all reported in the general vicinity of the release.

Callaway: Limited data shows reproduction occurred, but no definite brood was reported.

Curtis: The only brood report listed two hens with eight young. During February 1963, two separate flocks of 20 birds each were observed.

Cedar Creek: About 20 young were observed in the area of this release.

Devil's Nest: One brood report listed one hen with 11 young. The lack of information on this release is probably due to the very low human population in the area.

Eddyville: The only report on this release was made one week after the birds were released. The lack of reports is puzzling as this was thought to be one of the better release sites.

Imperial: A total of five hens and 26 young (5.2 young per hen with brood) was observed in this release area. A flock of 22 birds was observed in the area during December 1962.

McCook: Four observation cards listed four hens with 37 young for an average of 9.25 young per hen with brood.

Nelson: Two reports listed two hens with 13 young (6.5 young per hen with brood) and a total of 34 young was seen without hens. The timber at this release is narrow and the birds moved up and down the creek bottom about eight to ten miles.

Ord: The only observations reported for this release site were made immediately after the release.

Orleans: Four observation cards listed six hens with 23 young, an average of 3.8 young per hen with brood. A few days after the release, four hens were reported at the south edge of Alma a distance of about ten miles from the release site.

Ogallala: Three observation cards listed three hens with 24 young for an average of 8.0 young per hen with brood. The farthest reported movement from the release site was five miles southeast.

Paxton: No broods were reported here but six nests were destroyed by mowing in an alfalfa field about three miles west of release site.

Prairie Island: Five young were reported without a hen. Two gobblers were reported about two miles west and a mile south of Columbus. If these were wild turkeys they traveled about 40 miles from this release site.

Sargent: A total of eight hens with 82 young (10.2 young per hen with brood) was observed around this release area. All reports list the birds within eight miles of the original release site.

Scotia: Limited data showed two hens with 11 young for an average of 5.5 young per hen with brood. The broods were seen two miles west of the release site.

Red Willow: Two observation cards listed two hens with 11 young, an average of 5.5 young per hen with brood. The birds were reported about six to eight miles up the creek from the release site.

Spring Creek: Observation cards listed nine hens with 18 young for an average of 2.0 young per hen with brood. However, one report listed six hens with one young.

Discussion and Analysis

Merriam's

With four years production, and an estimated 3,000-4,000 turkeys in the Pine Ridge, the first open season was authorized in 1962. There were several reasons for an early season; possibly, high production could be maintained for a longer period; carrying capacity of portions of the range was being approached, as evidenced by movements of nesting birds to marginal or submarginal sites; local crop depredations might be alleviated; less wary and hybrid birds could be removed, resulting in a more desirable game bird; and several hundred hunters could be provided with recreation at no cost to the resource.

The number of permits authorized and issued (500) was low, in an attempt to curb unfavorable reactions which always preceded the first season on other species in Nebraska. With the demonstration that hunting did not significantly reduce the turkeys, more liberal regulations should be expected in the future.

Sex and age composition of the 281 birds killed was as follows: 126 juvenile males, 79 juvenile females, 1 juvenile no sex data, 47 adult males, and 28 adult females. These figures show a heavy preponderance of juvenile males in the kill. This preponderance of juvenile males may possibly be explained by the tendency of hunters to shoot larger birds in the flocks (for average weights of birds see Table 2). Also the adult birds, both males and females, were fewer in numbers and may have been more wary.

Table 2. Weights of Merriam's turkeys, 1962 season.

Sex and Age	Whole Birds		Eviscerated Birds	
	Sample Size	Average (lbs)	Sample Size	Average (lbs)
Juvenile Male	58	12.5	59	11.2
Juvenile Female	37	8.7	37	7.6
Adult Male	27	17.8	19	15.8
Adult Female	13	9.5	13	8.7

It is felt that the 1963 fall population will possibly approach the carrying capacity of the Niobrara River range. The potential turkey range is about 250 square miles of ponderosa pine-juniper type, along about 150 miles of the river and its major tributaries. From field inspections of some of this range, it is thought the unit carrying capacity will be lower than the Pine Ridge.

Investigators in other states indicate about a 50 per cent turnover in the turkey population each year. In the southeast, with unlimited permits, a fall either-sex season will remove about 15-20 per cent of the population and a spring gobbler season will remove about 8-10 per cent. It is recommended that a spring gobbler season be initiated in the near future in all areas open to fall either-sex seasons.

Rio Grande

Although it is too early to predict results of the Rio Grande releases, the numbers of sites from which reproduction has been reported is encouraging. If reproductive success in 1963, which will be the second year of production for most sites, is as good or better than in 1962, prospects for establishment will appear good.

Six nesting Rio Grande hens were killed on alfalfa fields during mowing operations. From available reports the Merriam's have not utilized alfalfa for nesting and there have been no reported mortalities from mowing operations. The Rio Grandes may not have as rapid a population expansion as the Merriam's because of agricultural hazards. Also the human population is much greater in the Rio Grande areas and there is more disturbance.

At the present time there are not enough data to estimate the total Rio Grande population.

Summary

The Merriam's turkeys in the Pine Ridge reached an estimated 3,000-4,000 birds in the fall of 1962. Data indicated an average brood size of 9.1, comparable to the four-year average of 8.8.

A hunting season of nine days was held with a limit of one bird of either sex. A total of 500 permittees killed 281 birds for a success of 56.2 per cent. Post season questionnaires showed an active hunter success of 68.2 per cent.

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Reports of broods and fall populations along the Niobrara River indicated good reproductive success at all release sites. The estimated fall population for these releases was 300-350 birds.

Limited data from the releases in the Wildcat Hills and Cheyenne Escarpment indicated reproduction at all release sites and a fall population of 80-100 birds.

Reproduction was noted at 20 of the 25 Rio Grande releases. A total of 56 hens with 276 young was reported, for an average of 5.3 young per hen with brood.

Present data are insufficient to show success of the Rio Grande releases.

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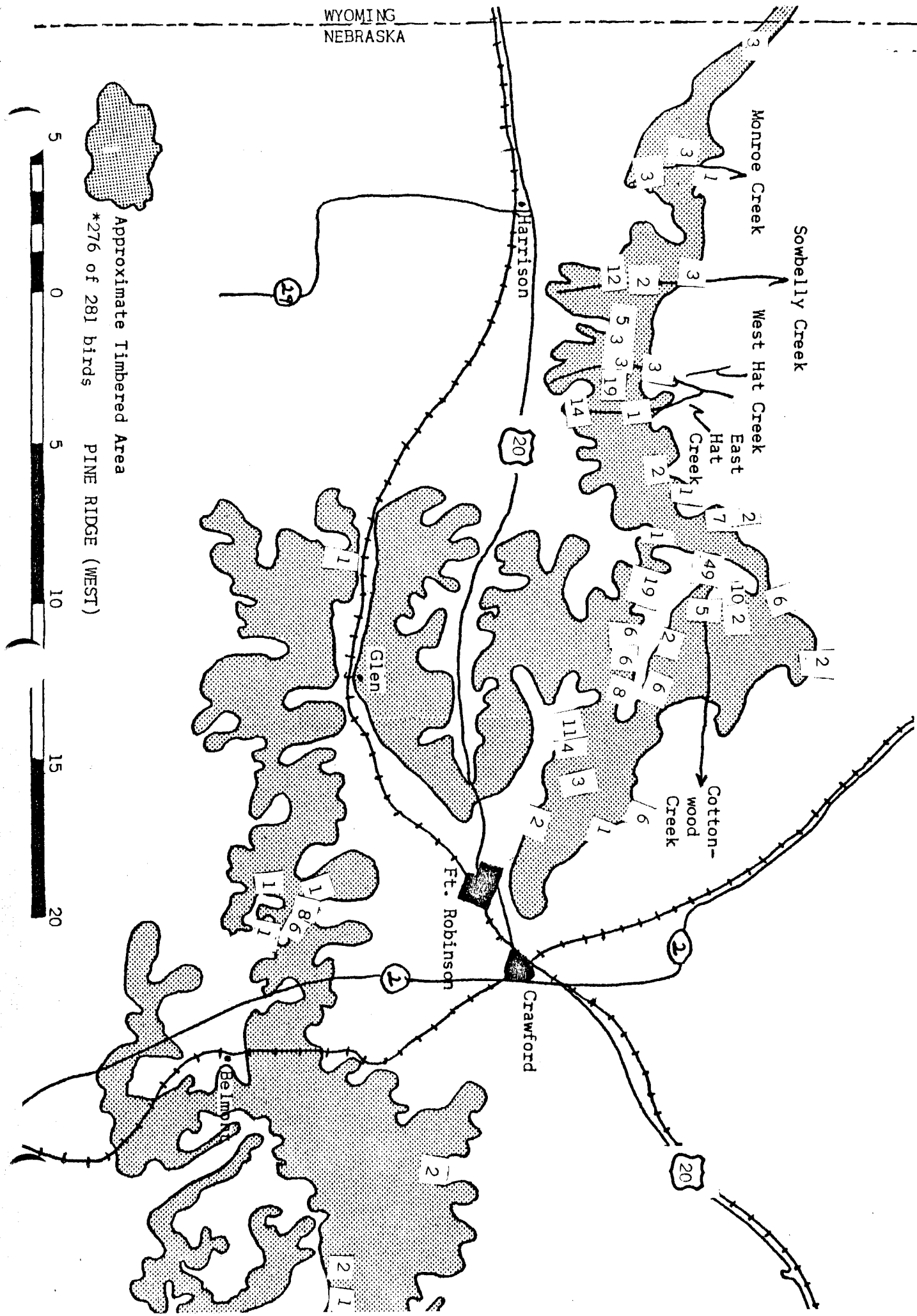
Date June 1, 1963

Approved by Karl Menzel
Assistant Project Leader

Date June 14, 1963

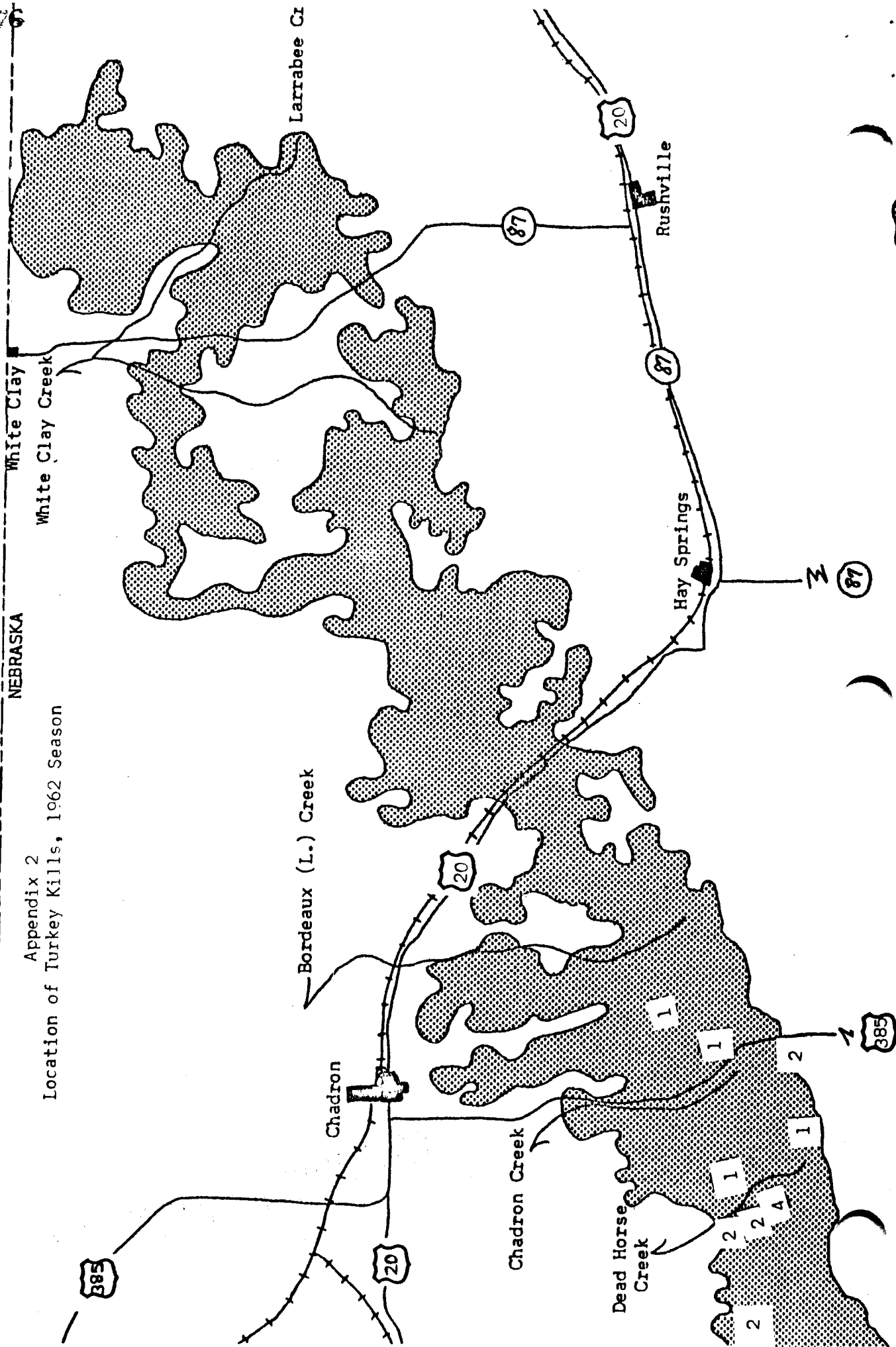
A P P E N D I X

Appendix 1
Locations of Turkey Kills, 1962 Season*



SOUTH DAKOTA
NEBRASKA

Appendix 2
Location of Turkey Kills, 1962 Season



ONE DITCH (E. 1st)

Approximate