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Game Information Leaflet **Number 101**

"A VOLUNTEER WING COLLECTION STATION[1]"

Sound management of game birds requires considerable knowledge concerning the biology of each species. To help accumulate some of this knowledge, breeding and production surveys have been developed for most upland game species; however, important data on age and sex structure of most populations are still lacking. This deficiency can be partially overcome by collecting wings from hunter-harvested birds. From analysis of these wings, information can be acquired concerning sex and age composition of the harvest, nesting success of breeding females, hatching dates, and production and survival rates.

Blue grouse (*Dendragapus obscurus*) occur in varying densities over more than 20,000 square miles of diverse habitats and terrain in Colorado, and receive only low to moderate hunting pressure and harvest (Rogers 1968). Due to low hunting pressure and extensive occupied range, manned check stations have not been economically feasible for collecting sufficient samples of wings to satisfy management requirements. With low harvests, hunter densities, and interest, a more efficient and economical method for collecting wings has been needed. To be feasible, any method selected must be capable of sampling large areas.

Volunteer part (wing, foot, etc.) collection stations have been developed and used successfully by the Arizona Game and Fish Department for obtaining data from small game hunters. Because of Arizona's encouraging results, the Colorado Division of Wildlife constructed and tested 10 wing collection stations in Middle Park during the 1975 sage and blue grouse seasons. Design of the structures and results of station operations are outlined in this paper.

DESIGN AND CONSTRUCTION

The wing collection station described is a modification of the station developed by personnel of the Arizona Game and Fish Department (Fig. 1). It consists of a 30-gallon metal drum with the supporting mechanism consisting of a single metal fence post (7 ft.) and 4 ft. 2 in. of 2-in.-diameter pipe (Fig. 2). The pipe screws into a 2-in.-diameter floor flange attached to the drum and slips over the fence post which is driven into the ground. These modifications permit a significant reduction in cost and labor, compared to the Arizona design.

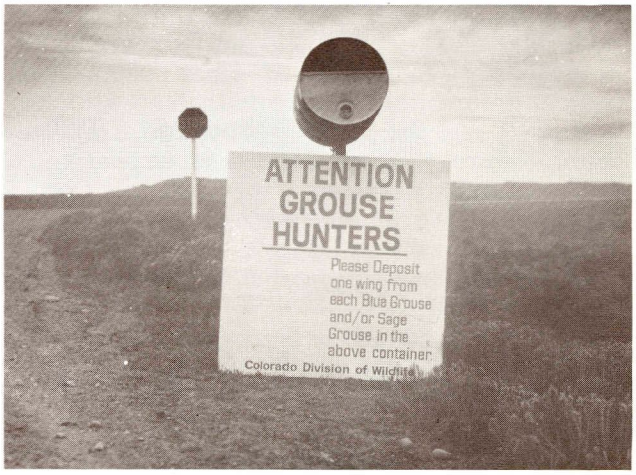

Fig. 1. Wing collection station in the field, showing sign and collection drum. (Photo by Ron Oakleaf)

An opening for depositing wings into the drum is cut out of the lid. The first cut is made along the rim of the lid for approximately one-half its circumference. Another cut is then made through the middle of the lid, thus creating a semicircular opening (Fig. 2). A 19-in. piece of 1/8-in. x 1/2 in. x 1/2-in. angle iron is welded over the second cut to prevent possible injury to hunters reaching into the drum (Fig. 2). Prior to installation the entire drum should be cleaned and painted, preferably with a rust retardant paint.

The floor flange is bolted to the outside, lower middle portion of the drum. When the pipe is screwed into the flange and held vertically with

[1]*Contribution from Federal Aid Project W-37-R.*

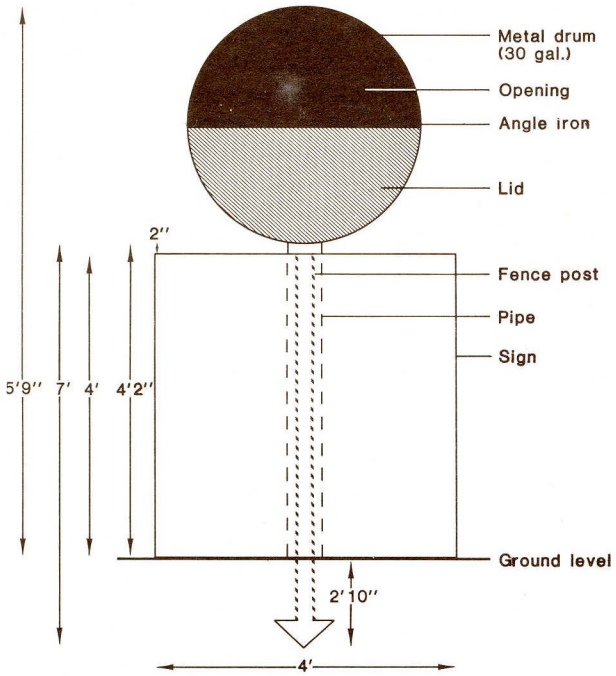

Fig. 2. Diagram of front view of wing collection station. (Diagram by Richard Hoffman)

the drum attached, the resulting apparatus resembles a large cylindrical mailbox (Figs. 1 and 3). At the desired location the fence post is driven into the ground and the pipe (with drum attached) is slipped over the post. To prevent the pipe and drum from rotating around the fence post and to insure stability of the assembly, a 1/4-in. cable is fastened to the drum and secured to a metal stake driven into the ground (Fig. 3). U-bolt clamps are used for fastening the cable to the barrel and stake.

The depth to which the fence post is driven into the ground and the length of the pipe depend upon the size of the sign utilized. Signs used in Middle Park were 4 ft. x 4 ft.; consequently, the fence post was placed about 2 ft. 10 in. into the ground. Approximately 4 ft. 2 in. of fence post remained above ground, enough to allow the pipe to touch the ground when slipped over the post and permit the sign to be attached to the pipe without touching the drum (Fig. 2). With the above specifications, the station will be about 5 ft. 9 in. in height.

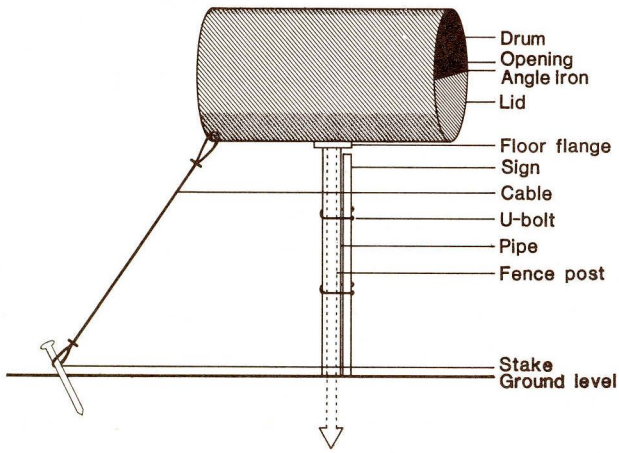

Fig. 3. Diagram of side view of wing collection station. (Diagram by Richard Hoffman)

Signs were constructed of 3/4-inch plywood and painted with weather-resistant paint (Fig. 1). Each sign was secured to the pipe either with U-bolts or with wire attached to eyelet screws on the back of the sign. Materials and approximate costs for parts and labor per station are summarized in Table 1.

Table 1. List of materials and approximate 1975 cost for one wing collection station.

Quantity	Item	Estimated Cost
1	30-gallon metal drum (used)	$ 5.00
1	7-ft. steel fence post	2.00
1	4 ft. 2 in. of 2 in. pipe, including cutting and threading	5.79
1	Floor flange, 2 in.	1.89
1	4 ft. x 4 ft., 3/4-in. plywood sign	30.00
1	7 ft. of 1/4 in. cable	1.47
2	U-bolt clamps, 3/4 in.	.70
1	19 in. of 1/8 in. x 1/2 in. x 1/2 in. angle iron	.45
4	1-in. eyelet screws, 1/4 in. diameter	.19
	Miscellaneous	
	Bolts (1 in. x 5/16 in.) nuts, washers	.90
	Rustoleum paint	1.38
	Metal stake	1.00
Total materials		$ 50.77
Labor (construction, including sign) 5 hrs. at $5.00/hr.		25.00
Total cost, materials and labor		$ 75.77

RESULTS AND DISCUSSION

Prior to the opening day of grouse season stations were placed along roads leading from most major grouse hunting areas in Middle Park. The stations remained available to hunters throughout the season (September 13 to October 5). All stations were checked each weekend, usually on Sunday evenings, and opportunistically during the week. Since Middle Park attracted both sage and blue grouse hunters, instructions on the sign requested one wing from each grouse harvested, regardless of species. This probably prompted even those hunters who were uncertain of which species they shot to deposit a wing.

One hundred and twenty blue grouse and 81 sage grouse wings were collected from the 10 drums. Although the stations were available to both blue and sage grouse hunters throughout the 23- and 3-day seasons, respectively, only 19 blue grouse wings and 10 sage grouse wings were deposited on weekdays; the remaining 172 wings were collected on weekends (8 days), primarily opening weekend. In comparison, seven manned check stations operated for 20 days (8 hrs. per day minimum) involving 25 people resulted in the collection of 505 sage grouse wings and only 111 blue grouse wings. The greater number of sage grouse wings collected at manned check stations can be attributed to the confinement of more hunters in a limited area (North Park). North Park represents a unique situation (only four access roads to the hunting area) and is not representative of most grouse hunting areas in the state, especially areas utilized by blue grouse hunters.

Of 268 blue grouse wings collected in Colorado in 1975, 44.8 percent (120) were deposited in wing collection stations, 41.8 percent (111) were obtained at manned check stations, and 13.4 percent (37) were collected by four Wildlife Conservation Officers. Only one man was needed to set up (15 minutes per station), check (2 hours per servicing), and disassemble (15 minutes per station) the 10 stations. Compared to manned check stations, the volunteer wing collection stations were more efficient and required considerably less time, manpower, and expense for operation. Because these stations were unmanned, no additional data could be collected.

Minimal effort was necessary to maintain the stations. Occasionally trash had to be removed from the drums, and the signs had to be cleaned once to remove mud. One sign was shot twice with a 22-caliber gun; otherwise, no other maintenance was required.

With increased knowledge gained in 1975 concerning hunter distribution in Middle Park, samples of grouse wings received should increase in future years due to relocating non-productive barrels to more favorable locations. To further increase sample sizes, more drums will be built and used in other popular grouse hunting areas in Colorado. One minor change in design will be made from that used in 1975; a diagram showing hunters where to separate the wing from the body will be included on the signs.

SUMMARY

Volunteer check stations as described have been successfully used in Arizona to collect data from a variety of small game species. In Colorado they were instrumental in inexpensively increasing sample sizes of blue and sage grouse wings collected in Middle Park in 1975. Use of such stations in other areas of the state for a variety of small game species should greatly increase data available for management purposes.

ACKNOWLEDGMENTS

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