A Funnel Trap for Rio Grande Turkey

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Abstract: A safe, efficient, low-manpower method of capturing Rio Grande turkeys (*Meleagris gallopavo intermedia*) sustainable over long periods of time was needed as an alternative to drop nets and rocket nets. We trapped 549 turkeys during a 3-year study of breeding chronology in Rio Grande turkey hens in Texas. We captured 107 birds (19.5%) using a rocket net and captured the remaining 442 birds (80.5%) using 4 × 8 × 10-ft. wire funnel traps. The funnel trap became the method of choice after its efficiency became apparent. During the last 1.5 years of the 3-year study, no more than 2 days of effort with ≤6 funnel traps was required to capture a minimum of 26 birds. One advantage of the funnel trap is that 1 person can safely trap turkeys. Another advantage is that private ranchers better accept a single trapper using a funnel trap than they do a crew of 3–5 people using either drop nets or rocket nets.

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Rio Grande turkeys have often been captured in Texas using an elevated-type drop net described by Glazener et al. (1964). These drop nets were released by pulling a wire. Later, Ramsey (1968) described a similar drop net that was released by using blasting caps which severed ropes suspending the net. Davis and DelMonte (1986) described a alternative method for releasing a drop net using non-electric blasting caps. The non-electric method is considered safer than using electric caps. Presently, the non-electric method is used almost exclusively when a drop net is employed by personnel of the Texas Parks and Wildlife Dept.

A net propelled by cannons was developed as early as 1948 (Dill 1969). The more powerful rocket-propelled nets have been available for wildlife capture since 1966. Rocket nets can be highly efficient in capturing turkey. For example, 1,450 Rio Grande turkey were captured in central Texas for restocking purposes in 13 days during January and February 1989 (B. D. Davis, unpubl. data). These birds were captured with 44 rocket net firings that averaged approximately 33 birds per shot.

Drop nets and rocket nets, as are presently used in Texas, obviously, employ explosive material. The resulting noise can modify wildlife behavior (Silvy and

Robel 1968, Watt 1969). Rocket nets are fired electrically and there is the potential danger of accidental firing and injury to personnel.

To address the problems associated with rocket and cannon nets, funnel traps may be an alternative. Funnel traps of various designs have long been used to capture wild turkeys. Wheeler (1948) described a pole-trap (with a trench entrance) to catch turkeys in Alabama. This design was improved when entrances were modified into various funnel designs. Burget (1957) described an "underpass" trap using a trench. None of these designs, however, were very mobile.

A need therefore exists to further evaluate safe, light-weight, and portable funnel traps for trapping turkeys. A wire (funnel type) turkey trap developed and successfully employed during a 3-year study (1991–1993) investigating breeding chronology of Rio Grande turkey hens in central Texas (Davis 1994) is described.

Methods

Trap Construction

The trap is 4 × 8 × 10 ft. in size (Fig. 1) and is constructed from 4 in. × 4 in. × 6-gauge welded galvanized wire commonly called livestock panels. Three 20-ft. panels are required to construct 1 trap. Two panels are each cut in half to provide the 2 9-ft., 8-in. top pieces and the 2 9-ft., 8-in. side pieces. Two 8-ft. end pieces are cut from the third 20-ft. panel and the remnant piece is used to partially construct the funnel. Note: A 20-ft. panel cannot be cut into 2 10-ft. pieces; the removal of 4 inches is necessary to "make the cut" and leave a clean edge. This provides 2 9-ft., 8-in. pieces.

The 48-in. high panels of a folded trap will fit between the wheel wells of a standard 1/2-ton pickup. One trap is less than 3 in. high when dismantled and folded flat and weighs 126 lbs. A pickup can haul approximately 7 traps (not including funnels) without exceeding the height of the truck bed.

The funnel design (Fig. 1) is 20 in. high, 16 in. wide and 32 in. long. A funnel fits a 20 × 20-in. opening on 1 side of the trap. The opening in the trap side is 20 in. wide, but the funnel is only 16 in. wide. The 16-inch width requires the bottom of the funnel to be spread approximately 2 in. on each side to fit the 20 × 20-in. opening. A funnel constructed 20 in. wide also should function satisfactorily. The opening in the side panel (to accommodate the funnel) is not centered in the panel. The beginning of the opening for the funnel is 32 in. from the left edge of the panel. The opening extends 20 in. to approximately 52 in. from the left edge (corner) and/or 64 in. from the right edge (corner) of the panel. The funnel opening (into the interior of the trap) can be adjusted to as small as 8 × 8 inches. However, an opening of approximately 11 × 11 in. to 12 × 12 in. proved very effective in capturing Rio Grande turkey.

The top pieces are not so wide that sagging of the 8-ft. span is a problem.

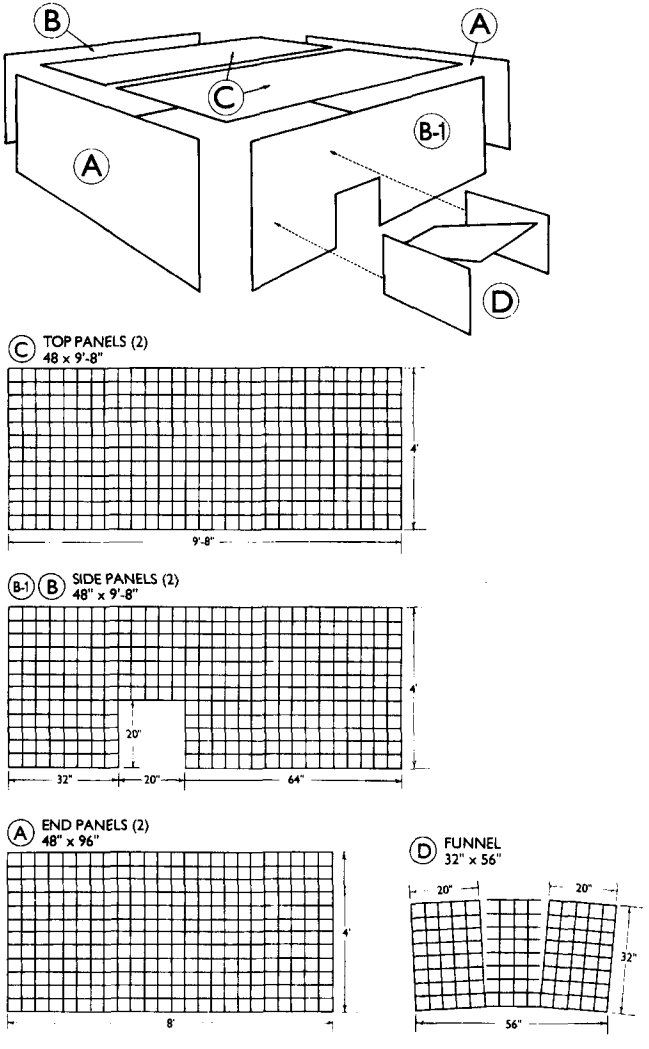

Figure 1. A brief description of a funnel type turkey trap.

Most panels of this type have a slight curvature resulting during manufacture. Care should be taken to position this curvature up. The trap is usually assembled with soft wire such as the type used to tie concrete reinforcing steel.

Turkey Capture Procedures

Two trapping methods (4 × 8 × 10-ft. funnel type wire traps and a rocket net) were used to capture turkey. The rocket net was 40 × 60 ft. with 5 rockets and required a large clean open canopy area (a minimum of 60 × 80 ft.) to operate. A funnel trap could be used in a very small closed canopy area (a

minimum of 10 × 12 ft.). Successful turkey trapping with any method, including funnel traps, requires both careful site selection and pre-baiting for extensive periods of time prior to actual trapping.

The sequence of events leading up to trapping with funnel traps required (1) careful site selection, (2) pre-baiting for extensive time periods, (3) putting up part of a funnel trap at or near the bait 2–4 days prior to trapping, then (4) assembling the trap and installing the funnel during the predawn hours of the day trapping was planned. Numerous bait sites were selected prior to the initiation of any trapping and maintained for several months each year. Bait sites not used for trapping until late April, for example, were baited every 2–3 days starting in early January. The "setting" of 1 or 2 funnel traps was all that was usually necessary to collect the minimum of 26 birds (of the required sex and age) needed during each collection period. Traps were rarely left "set" for more than 2 days.

One person usually set 2 funnel traps during each collection period. One person was often successful in catching the number of turkeys needed. However, on some occasions, especially during April and May when turkeys were reluctant to come to bait, a second person or even a third person was needed to set additional traps. During these later periods increasing numbers of funnel traps were required to obtain the desired sample. On 1 occasion, during May 1991, 6 funnel traps were set.

Each trapper maintained up to 5–8 bait sites while only using 2 funnel traps. It became apparent one person could operate from 4–6 traps and perhaps more.

Once turkeys were captured in the funnel trap, one corner of the trap was opened and birds were removed using a 10-ft. hook (Fig. 2). Hooks were constructed by cutting a 10-ft. piece of 1/2-in. aluminum electrical conduit into 2 pieces and screwed together. A 1/4-in. smooth steel rod was fashioned into a hook suitable to catch and hold a turkey leg. The hook was welded to 1 end of the conduit.

Traps were checked 2 or 3 times daily during the cooler days. However, during warm days traps were checked every 2 or 3 hours as turkey, especially gobblers, can die rather quickly if overheated.

Turkeys were captured in 7 central Texas counties, Brown, Coke, Coleman, Nolan, Taylor, Tom Green, and Runnels. Two 15-day collection periods per month were used from January through May 1991 (10 collection periods). During the second and third year (1992 and 1993), 6 collection periods were used from February through May. A minimum of 20 hens (10 adult and 10 juvenile) and 6 gobblers (3 adult and 3 juvenile) were needed each collection period. Birds responded to the funnel trap as late as the last collection period in May.

Results

We trapped 549 turkeys during the 3-year research study (Table 1), with 442 birds (80.5%) captured using wire funnel traps. We captured the remaining

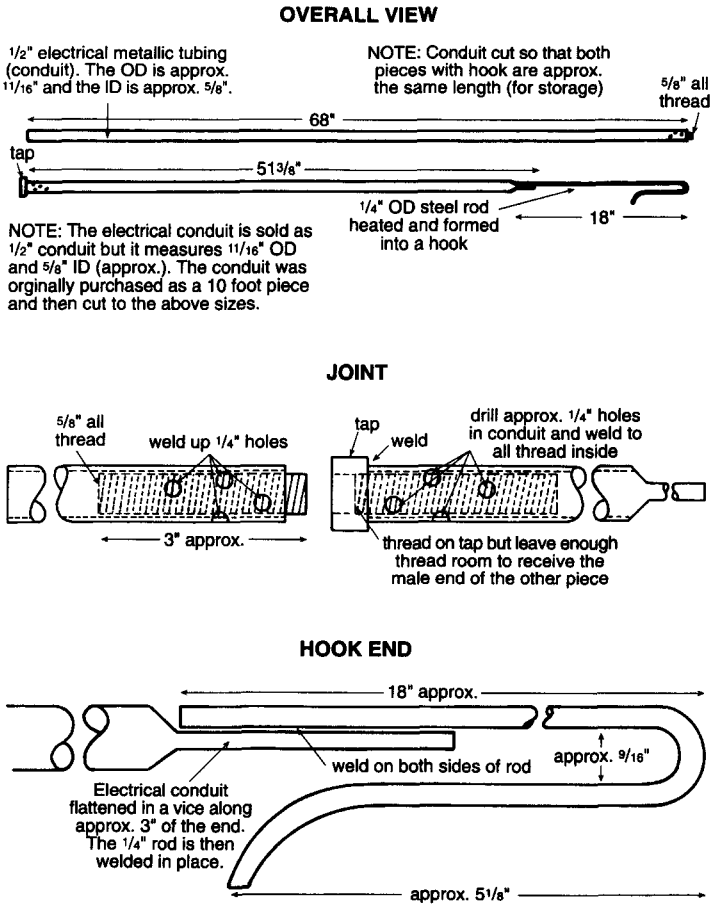

Figure 2. A brief description of a turkey hook.

107 birds (19.5%) using rocket nets. No record was kept of released surplus birds during the first year of the study (1991). As many as 23 turkeys (9 juvenile gobblers and 14 hens) were trapped at one time in 1 funnel trap. A video record was made of the 23 being trapped. Nineteen and 17 turkeys, respectively, were trapped on 2 other occasions in 1 funnel trap (B. D. Davis, unpubl. data).

A rocket net was fired 8 times during the 3-year study with catches ranging from 1 to 23 birds. The rocket net was fired 6 times during 1991, twice during 1992, and was not used during 1993. Rocket net catches were made as late as 18 April in 1991, but no later than 1 March in 1992. One person sat in a blind from before daylight until near dark on the days rocket nets were fired while 2 people usually stood by to assist. During the study, no more birds were captured in any 1 rocket net firing than were caught in 1 funnel trap (23).

A formal comparison of collection methods was not a part of the study because personnel could use all available means such as firearms, drop nets, rocket nets, or funnel traps in collecting the sample. Road kills were even used.

Table 1. Rio Grande turkey collection methods utilized in Central Texas, 1991–1993.

Time period	Year	*N* Females	*N* Males	Sample size	Collection methods: Fire-arm	Funnel trap	Rocket net	Other	Collection days[a]	Funnel traps[b]
1–15 Jan	1991	26	2	28	1	27			3	2
16–31 Jan	1991	21	5	26	5	11	10		5	2
1–15 Feb	1991	22	5	27		25	2		2	2
16–28 Feb	1991	20	6	26	3		23		3	
1–15 Mar	1991	30	6	36	2	13	21		4	2
16–31 Mar	1991	20	5	25	8	17			5	2
1–15 Apr	1991	20	20	40	20	9	11		2	1
16–30 Apr	1991	20	16	36	11	24	1		4	6
1–15 May	1991	20	4	24	11	13			5	5
16–31 May	1991	19	5	24	14	8		2	8	4
16–28 Feb	1992	15	11	26	4	4	18		4	1
1–15 Mar	1992	22	9	31	7	3	21		4	2
16–31 Mar	1992	16	8	24		24			2	1
1–15 Apr	1992	15	6	21		21			1	4
16–30 Apr	1992	17	19	36		36			2	5
1–15 May	1992	13	16	29		29			1	5
16–28 Feb	1993	12	17	29		29			1	2
1–15 Mar	1993	18	26	44	5	39			2	3
16–31 Mar	1993	21	5	26	3	23			1	2
1–15 Apr	1993	18	15	33		33			1	3
15–30 Apr	1993	19	19	38	3	35			1	4
1–15 May	1993	17	8	25	5	19		1	1	2

[a]*N* calendar days required to collect sample.
[b]*N* funnel traps set to collect funnel trap sample.

Funnel traps were developed to improve efficiency and save man-power. The funnel trap became the method of choice after its efficiency became apparent.

The sample size, sex, collection method (firearm, funnel trap, rocket net, and other), number of collection days required to obtain the sample, along with the number of funnel traps "set" is shown by collection period (Table 1). More days were spent in obtaining the sample during 1991 than in 1992, while more effort was used during 1992 than during 1993. In effect, trapping became more efficient as confidence in the funnel traps grew.

Two toms died in the funnel traps, probably due to heat. One hen was found dead, apparently trampled, in a funnel trap containing 5 mature toms. A predator killed 2 birds in 1 funnel trap. The 5 bird loss (1.13%) resulting from the funnel traps is approximately the same as experienced during 1989 when 13 birds (0.89%) were killed when 1,450 turkey were captured during 44 rocket net firings (B. D. Davis, unpubl. data).

Discussion

Turkey in Central Texas encounter fences, usually net wire, every day during their foraging activities. They usually look for a passage through the fence for a period of time before electing to fly over, thus, the funnel trap did not

appear any different to turkeys than a fence. Turkeys were not observed to hesitate when approaching wire funnel traps. The similarity of the trap to fences is probably a reason the trap proved so successful.

An advantage of the trap is that 1 person can efficiently, independently, and safely trap turkey. Also, private ranchers adjust better to the idea of 1 person using a funnel trap than to a crew of 3–5 people trapping turkey with a rocket net. One disadvantage to the trap is that it is not selective for sex as both gobblers and hens were easily captured.

Birds that are not trapped during their visit to a funnel trap will usually drift off and should later return. The noise and physical appearance of a rocket net being fired may alter the habits of birds (Silvy and Robel 1968, Watt 1969).

The overall physical appearance of turkeys captured in the wire funnel trap is outwardly better than turkey captured under either a drop net or a rocket net. Birds appear to experience less feather loss from wire traps. Birds do, however, repeatedly hit the top of the trap with considerable force when first approached, but they tire rather quickly. No birds were killed by hitting the wire but some damaged their heads. Less obvious injuries may have occurred, but were not observed. The key to keeping death loss at a minimum is the time interval used in checking the funnel traps. A rocket net, by comparison, has personnel available on site at the time of firing.

Five white-tailed deer (*Odocoileus virginianus*) were caught on different occasions in the traps. It is unknown how a deer got through the funnel and into the trap through the 11 × 11 in. opening. Seemingly, they would have to physically crawl down into and lift the funnel while forcing their way into the interior of the trap. The trap, being somewhat resilient, sustained minimal damage from their escape attempts. However, it was difficult to release the deer.

One rocket net will capture more turkeys at 1 time than 1 funnel trap; however, there are other factors to consider. A single funnel trap will cost, at current prices, approximately $70 in materials and, once constructed, should last for many years. A 40 × 60-ft. rocket net propelled with 5 rockets costs $598 for the net, $95 per rocket, and $5 per rocket charge for a total cost of approximately $1,098.00 to outfit 1 net. It then costs $25 per firing for charges.

Five rocket nets were fired 44 times during the 1989 effort to capture 1,450 turkey. This effort averaged approximately 111 turkeys per day for the collection period. To duplicate this daily volume with funnel traps would require 11 traps, if each trap averaged 10 birds per trap per day.

When large numbers of birds are needed in short periods of time, rocket nets are more efficient. When relatively small numbers of turkey are needed during multiple collection periods, funnel traps are more efficient. Funnel traps also are safer, cheaper, and require less manpower to operate than rocket nets.

Literature Cited

Burget, M. L. 1957. The wild turkey in Colorado. Job 6 Work Plan. Colo. Game and Fish Dep., Fed. Aid Proj. No. W-39-R, 68pp.

Davis, B. D. 1994. Breeding chronology in Rio Grande turkey hens. Job 7.07. Texas. Parks and Wildl. Dep., Fed. Aid Proj. No. W-126-R.

——— and B. E. DelMonte. 1986. A non-electric method for releasing a drop net. Proc. Annu. Conf. Southeast. Assoc. Fish and Wildl. Agencies 40:334–337.

Dill, H. H. 1969. A field guide to cannon net trapping. U. S. Dep. Int., Bur. Sport Fish. and Wildl. 18pp.

Glazener, W. C., A. S. Jackson, and M. L. Cox. 1964. The Texas drop-net turkey trap. J. Wildl. Manage. 28:280–287.

Ramsey, C. W. 1968. A drop-net deer trap. J. Wildl. Manage. 32:187–190.

Silvy, N. J. and R. J. Robel. 1968. Mist nets and cannon nets compared for capturing prairie chickens on booming grounds. J. Wildl. Manage. 32:175–178.

Watt, P. G. 1969. Mobility patterns, habitat relationships and reproductive success of greater prairie chicken (*Tympanuchus cupido pinnatus*) in northeastern Kansas. M. S. Thesis, Kan. State Univ., Manhattan. 188pp.

Wheeler, R. J. Jr. 1948. The wild turkey in Alabama. Ala. Dep. Conserv., Game, Fish and Seafood Div. 91pp.