

# PROCEDURES FOR CAPTURING AND HANDLING LIVE WILD TURKEYS<sup>1</sup>

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## ABSTRACT

Techniques developed by trial and error in 23 years of field work with wild turkeys (*Meleagris gallopavo*) in Florida are described. Capture methods employing traps, cannon nets, and orally administered drugs are described only briefly because they have been adequately described in other papers. Methods and equipment for baiting, observing, handling, holding, banding, and releasing wild turkeys are discussed.

## INTRODUCTION

Florida Game and Fresh Water Fish Commission biologists have captured 5,805 wild turkeys alive since 1950 for restocking and research purposes. The techniques in current use were developed gradually through a 23-year trial and error process. The authors participated in most of this work. The purpose of this paper is to describe the most practical techniques that we have used for capturing, marking, holding, and releasing wild turkeys. Some of these techniques, especially for capturing with drugs and cannon nets, have been described by us before and will not be discussed in detail again here. Some of the procedures described in this paper have been mentioned in various other publications (Sylvester and Lane 1946, Baldwin 1947, and Ellis 1961).

## ACKNOWLEDGEMENTS

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## METHODS

The practices described here were tried as possible solutions to specific problems encountered in connection with routine turkey trapping operations. Much of the work was done in southern Florida but some trapping was done in about 15 other places in the state. Most trapping was done in fall, winter, and early spring at which time only adult and older juvenile turkeys were captured, but a few pre-flight poults and mid-summer broods have been captured in connection with research studies.

The wild turkey in Florida (*M. g. osceola*) is classified as a different race than the eastern turkey (*M. g. silvestris*) and this, coupled with the notion that Florida is located in the tropics, probably accounts for the common belief that Florida turkeys are different from eastern turkeys in habits and behavior. Our

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studies do not bare this out. We believe that any innate differences between *M. g. silvestris* and *M. g. osceola* in behavior and habits are very small and not particularly significant as far as trapping and handling are concerned. On the other hand, some of our methods may not be the most appropriate for the two sub-species (*M. g. intermedia* and *M. g. merriami*) in the western United States.

## RECOMMENDED TECHNIQUES

### Capture Methods

*Pre-baiting.*—Proper bait site selection and pre-baiting practices are important. An ideal bait site is within ¼ mile of regularly used roosting cover; clear of thick underbrush to provide sufficient room and good visibility when trapping is attempted; far removed from unrelated human activity; protected from dogs, cattle, hogs, or other livestock; in soil in which turkey sign is readily visible; and is approachable in all normal weather conditions in work vehicles.

Whole shelled yellow corn has been used almost exclusively as bait because turkeys have readily accepted it, it is easy to obtain and store, and does not deteriorate quickly on the bait sites. In our experience, grown turkeys prefer whole corn to cracked corn, when the two are presented together. When cracked corn alone is offered, they select out the larger particles from cracked corn, leaving the smaller particles to eat last. They also first pick the cracked corn out of "scratch" feed, usually leaving the sorghum and other seeds. Shelled peanuts appeared to be preferred over whole corn when it was tested, but peanuts are difficult to obtain, store, and use in the field, and are much more expensive than whole corn. One disadvantage of using cracked corn and other small-particle grains for turkeys is that they attract small birds, especially black birds, to the bait sites in greater numbers, and they may eat most of the bait. On the other hand, when wild hogs or range cattle are present, cracked corn is better than whole corn because it is more difficult for the livestock to eat when scattered but is still acceptable to turkeys.

Turkeys are reluctant to feed heavily on a new type of bait, even at a bait site that has been used regularly by them on successive days, and even when the change of bait is only slight, such as from whole corn to cracked corn. They are often wary of bait placed in piles when they have been accustomed to finding it scattered.

When a new bait site is established, turkeys will begin to use it sooner if bait is scattered in several lines radiating out from the central trapping spot. These bait lines should be several hundred feet long and sparsely baited. The central trapping spot should be more heavily baited, but not so heavily that leftover bait will mold or sprout. The amount to put out at a given site can be determined by the rate of consumption and the frequency the baiter is scheduled to visit the site.

At least three, and preferably more, bait sites separated by at least ½ mile, should be pre-baited simultaneously to provide several alternative trapping sites at any given time.

When a large area is being trapped in a single operation, numerous bait sites are required, sometimes necessitating a full man-day of field work to bait the sites. When this is done daily, it is a full-time job for one man during the trapping season. Much of this baiting can be done with one of several types of automatic baiting machines which are on the market. We use several Lehman game feeder (Lehman Equipment Company, Corpus Christi, Texas) for pre-baiting in remote areas. In pre-baiting, fresh bait should be presented before daylight in exactly the same manner every morning for about one week before trapping. See Williams, (1966) and Williams, et al (1967 and 1972) for more detailed discussions of pre-baiting technique.

During the past three or four years we have become aware of a tendency of turkeys to feed less avidly and with less regularity when bait has been presented

continuously at a pre-bait station for several consecutive weeks. Occasional interruption in pre-baiting is recommended.

*Observation blinds.*—Blinds are useful in studying and trapping turkeys. Automobiles parked far enough away from a bait site will sometimes be tolerated by turkeys, and natural cover is sometimes sufficient for hiding; however, the best practice is to have available several easily erected, portable, weather-proof blinds designed with enough room inside for at least two people and their equipment, including stools or folding chairs. Portability is important because trapping sites need to be moved around for efficient trapping, especially when cannon nets are used. Portability is less important when stationary traps (Sylvester and Lane 1946) are used. Insect-proofing is necessary during the warm seasons.

We have tried a small "pop" tent, beach cabana tents, and several different blinds made from tractor umbrellas. The best has been one with a skirt of plastic cloth and camouflage insect-proof netting fitted onto a tractor umbrella (Figure 1). The umbrella is held in position by a metal rod driven into the ground over which the hollow umbrella stem is placed. The blind is made sturdy by cords tied from the umbrella corners to trees or to stakes in the ground.

The blind can be designed for viewing out from one or more sides through the insect netting, but some opaque backing on at least one side is advisable to avoid spooking turkeys because of a silhouette effect through the blind. A floor section is not necessary and tends to rot rapidly. In extremely hot weather, one or more of the side flaps can be unsnapped and rolled up to provide more ventilation. Holes can be cut through the fabric for camera lenses or two-way zippered holes can be sewn in.



Figure 1A. Observation blind in position.



Figure 1B. Observation blind broken down and folded for transporting. The umbrella stem fits into the pipe that has been driven in ground.

A tower blind is much heavier and more difficult to transport but has certain advantages if it can be used in the same place for a long period of time. These blinds are made up of three welded angle-iron cubical frames stacked and bolted together. They are held by guide wires staked to the ground or lashed to nearby trees. A tailor-made skirt similar to the one used on the tractor umbrella blind is snapped on, in one or more pieces, and a plastic cloth or tractor umbrella is used for the top. The gables are left open for air circulation. The floor is a snugly fitting piece of  $\frac{3}{4}$ -inch marine plywood, reinforced in the middle. Ladder rungs are welded onto the lower two of the three sections to provide access to the third level.

If these blinds are placed at least 50 feet from a bait site, nest, or other place to be viewed, against or in natural cover, turkeys usually become unwary of them in less than one week.

*Traps.*—A “drop net” trap and a type of “tunnel” trap were tested briefly with little success (Powell 1965). Good success was obtained with a “drop door” trap (Powell 1965) made of chicken wire and poles similar to one described by Sylvester and Lane (1946), with a manually operated door activated by a pull cord, but the injury rate to turkeys was very high. When cannon nets proved to be more effective, traps were discontinued.

*Cannon nets.*—Homemade cannons modeled after those used on waterfowl (Dill and Thornsby 1950) were tried with a 30- by 60-foot tarred fish net. The net was too heavy and too small, and possibly the cannons lacked sufficient power to project the net far enough in time to prevent most of the turkeys from

escaping the leading edge of the net. Two much lighter weight 30- by 60-foot nylon nets purchased from a commercial net-maker were tested by placing two nets parallel, facing each other, 45 feet apart to provide a 15-foot overlap. Three hundred and nine turkeys were captured with this rig in the two seasons it was used, but the turkeys showed a great reluctance to walk between the two nets. During the following two seasons a single 50- by 60-foot nylon net powered with four cannons was used to capture 625 turkeys. The birds showed less fear of the single net (laid out in plain view on the ground) and usually could be captured after seeing the net or an old facsimile ("dummy net") during a single previous feeding at the capture site.

Turkeys witnessing the firing of a cannon net, or those captured in one, will not usually approach nets again for several days. When a cannon netting operation is in full swing, alternate pre-baited sites to be used on successive days are very important for the sake of efficiency. See Austin's (1966) account of this method for more detail.

*Oral drugs.*—Alpha-chloralose (Williams 1966), tribromoethanol (Williams et al 1973), and methoxymol (Williams et al 1967) have been used successfully to capture turkeys. Secobarbital sodium, methohexital sodium, chloral hydrate, diazepam, and a few other drugs have been tested briefly but not exhaustively. Tribromoethanol proved to be the best for turkeys, but alpha-chloralose and methoxymol were satisfactory under some circumstances.

Wight (1963 mimeograph) may have been the first to try to capture wild birds with tribromoethanol but his work was not with turkeys and has not been published. Mosby and Cantner (1956) tested tribromoethanol on penned turkeys and captured 5 wild turkeys with it, but they do not discuss a field technique, presumably because their method was not very thoroughly tested in the field. Also, Mosby and Cantner's (1956) methods of calculating dosages and applying drugs to baits were very different from ours and we have not been as successful as they were with the "irrigating" experiment they described (although it is possible that our application of the irrigation technique was faulty). We have experienced increased death rates in attempting to flush out the crops of drugged turkeys because, we believe, some of the wash water containing a high concentration of drug, somehow entered the stomach instead of all flushing out through the outlet tube.



Figure 2. Turkey crop being emptied by hand massage and water tube.

When turkeys enter deep anesthesia within one hour after feeding, there is a great likelihood that they have received an overdose, but most of them can be saved if the excess bait is removed from their crops by surgically opening the crop through the skin of the lower neck and upper breast. Turkeys treated this way and color-marked have survived in pens and in the wild and show no evidence of debilitation when recaptured and examined later.

When overdose is not expected to be lethal, the depth and length of anesthesia can be reduced by removing some of the stored bait from the esophagus and crop. Bait can be worked out the mouth by massaging the crop and shaking the head and neck. A small amount of water administered into the crop by a rubber tube and gravity flow helps to loosen the bait and will wash some of the drug out of the mouth (Figure 2). Care should be taken to hold the bird upside-down during this process.

We tested intramuscular injections of pentylenetetrazol (Metrazol) to antagonize central nervous system depression caused by overdosage of alpha-chloralose and found it somewhat impractical because it quickly wore off and depression resumed. Injected stimulants may be more practical with briefer-acting tribromoethanol but we have not tested them.

When drugs can be used by properly trained personnel, they hold several advantages over conventional traps and cannon (or rocket) nets, including lower cost because less equipment is required thus reducing initial equipment costs, logistics problems, and risk of theft and vandalism, turkeys are not spooked by trapping paraphernalia, thus increasing trapping success; and drugged turkeys are easier to handle. The greatest risk in using drugs to capture turkeys is the possibility of careless use by unskilled personnel.

*Weighing drugs.*—Good gram scales are too fragile and expensive to be carried into the field every day. The most efficient way to measure drugs is to weigh out a large quantity in the laboratory for storage in vials containing various amounts. Any dosage-to-bait ratio can be mixed from these vials in the field by varying the amount of bait (which can be measured easily with a cup). The most practical measurement units for alpha-chloralose have been 2, 4, and 10 grams; tribromoethanol, 1, 3, 10 and 30 grams; and for methoxymol, 1, 2, 4, and 8 grams.

*Major elements of the drug technique.*—Pre-baiting techniques, blinds, and holding facilities are the same as for other capture methods. Optimum drug dosages are shown in Table 1. Drugs are mixed with dampened bait a few minutes before being placed at a bait site. Turkeys usually show the first symptoms of narcosis between 10 minutes (methoxymol and tribromoethanol) and 30 minutes (alpha-chloralose) and stop feeding after about 30 minutes. They can be picked up after about 30 minutes (tribromoethanol and methoxymol) to 1 hour (alpha-chloralose). Turkeys sleep for about one-half day on tribromoethanol and methoxymol and for 1 day or longer on alpha-chloralose. The overdose mortality rate has been about 9% for alpha-chloralose, about 5% for tribromoethanol, and less than 3% for methoxymol.

Table 2. Evaluation of turkey capture methods used in Florida.<sup>1</sup>

Method	Turkeys captured	Evaluation	Remarks
Oral drugs			
Alpha-chloralose (2g/cup)	1,712	Satisfactory	Slow; 9% mortality
Tribromoethanol (9-14g/cup)	340	Excellent	Fast; less than 5% mortality
Methoxymol (4g/cup)	142	Good	Fast; sometimes distasteful
Cannon nets	1,356	Very good	About 3% mortality
Drop door trap	2,107	Satisfactory	High rate of injury
Drop net	none	Not effective	Not fully tested
Funnel trap	none	Not effective	Not fully tested

<sup>1</sup>See Williams (1966), Williams et al (1967), and Williams et al (1973) for description of drug capture methods; see Austin (1966) for description of cannon net method.

*Capturing flightless poult*s—Radio-equipped brood hens and their poults can be easily found and the broods captured by hand for marking, blood smears, fecal specimens, weighing, and general examination before they were old enough to fly. Turkey poults younger than 6 days hide still at the vocal warning by the hen. After about 6 days of age, some poults continue to assume this “frozen” escape behavior but some creep and run away when warned by the hen, requiring a careful search to find the poults. After they are about 10 days old, most poults will fly into trees if pursued and cannot be easily captured by hand. We placed captured flightless poults in a container that could be closed and darkened. The hens remained in the vicinity while we worked on the poults for 10 to 20 minutes and they returned for the poults after we left the area.

### Handling Live Turkeys

*Picking up narcotized turkeys.*—Incompletely drugged turkeys, especially those on tribromoethanol, can be captured only if approached quietly with a wide-mouth, long handled dip net. They can be approached more closely from behind than from the front. If a turkey is inadvertently aroused and runs away, it can usually be approached again after a few minutes.

*Handling turkeys.*—Living wild turkeys are difficult to handle. They usually thrash wildly with wings and legs in an effort to escape but they will not attempt to peck. Care should be taken in the initial grip because they struggle most violently at first. If possible, the first contact with the turkey should be to grab both legs at the “knee” (upper end of tarsometatarsus) firmly and lift the bird off its feet while hugging the bird against the hip with the other arm (Figure 3). Another method is to grab the bird by both humeri of the wing simultaneously and hold the bird down. Turkeys lose more feathers when handled wet than when they are handled dry. Cannon netting is generally unsatisfactory during heavy rains for this reason.

Great care should be taken not to hold a turkey by one leg or one wing—they twist quickly and violently and often dislocate or break a bone before the grip can be relaxed. Turkeys are badly defeathered if grabbed around the body. Care should be taken to prevent adult gobblers from spurring themselves or the handlers but even with the best of care this happens occasionally.

Proper turkey handling can be learned only through practice, and even experienced handlers have difficulty with especially troublesome turkeys.



Figure 3. Holding live turkeys. A. Turkey legs are held firmly at the joint; bird hugged tightly against body. B. An alternate method of holding by the humeri, recommended only when the legs cannot be grabbed together. C. Heavily drugged turkeys can be held by the legs and wings.



*Banding and other marking.*—Most turkeys that are captured for management or research purposes are leg banded for individual identification. We have had good success with National Band and Tag Company Number 213 aluminum numbered riveted band (Figure 4) using size 11 for hens and size 13 for gobblers. The riveted feature is an effective safeguard against band loss.



Figure 4. Leg band being applied with riveting pliers.

Patagial wing streamers (Knowlton et al 1964) have been used with good success. Turkeys retained their streamers for at least four years, and the specimens examined after wearing streamers exhibited no significant abrasions where the buttons pierced the propatagium. A large number of plastic-fabric colors and combinations make individual identifications possible.

We tried a type of coiled plastic leg band (National Band and Tag Company, "Bandette") on turkeys with a riveted aluminum band on the other leg, but found that the plastic bands came off after a few days. A better cement might have prevented this band loss but we have not attempted to test a large number of cements with plastic leg bands because the patagial streamers were entirely satisfactory for our purposes. Ellis (1961) also tried plastic "Bandettes" on wild turkeys with poor success because of band loss, but attempted to remedy the problem with cements and wire locking devices with limited success.

Poults 1 to 10 days old have been captured and toe clipped by removing one or more toe tips with fingernail clippers, scissors, or pocket knives (Davis *ca.* 1960). Blood loss was insignificant. The distal half of the last joint should be cut off to prevent the nail from regenerating. A system of individual identification can be worked out by clipping combinations of toes on each foot. This has been especially useful for marking pre-flight poults that were too young to band, to permit them to be recognized when recaptured later for banding.

Chick dye (Columbus Vaccine Co., Columbus, Ohio) was tested for marking the plumage of young poults. The dye remained in the plumage well but the birds had to be examined in hand for positive identification and the coloring was lost as the dyed feathers were replaced during the normal molt processes. Toe clipping served the same purpose, was permanent, and easier to perform.

#### Confinement of Live Turkeys

Turkeys should be released as soon as possible, but they usually need to be held for a few hours during recovery from drugs, to be banded and otherwise processed, and for shipping for restocking releases.

*Boxes.*—Wild turkeys will injure or kill themselves in their efforts to escape if placed in pens or large containers. Besides safety to the birds, an added advantage to small individual containers is that individuals can be sorted better because age, sex, band numbers, and other information can be posted on each box whereas each turkey would have to be handled repeatedly for this type of data if several were in a common container.

We have used individual wooden, portable holding crates and wooden crates built into truck bodies, but the best container we have found is a paraffin-treated cardboard box, 30 X 17 X 12 inches, with overlapping ends for secure closing. These boxes (Figure 5A) will resist moisture and can be carried into the field. They are light, easily stored (flat), re-usable, inexpensive, and disposable. They can be used for “one way” shipment. Boxes of this type can be made to order by the larger box makers. We have experienced some mortality from overheating when turkeys were held in boxes during hot weather but this seems to have been remedied by placing the birds in air-conditioned rooms. Very little of our trapping is done during hot weather anyway because turkeys do not feed well on baits then. Where turkeys are trapped in late summer as they are in some states, overheating may be a more serious problem than it has been for us.



Figure 5. Cardboard boxes for turkeys. A. A custom-made paraffin-treated box for field use and overnight holding. B. Any ordinary cardboard box of suitable size can be sealed with masking tape and used for brief periods during shipment. An extra pad of cardboard should be placed in the bottom to absorb moisture.

Boxes are received flat from the factory and need to be stapled at one end for use. The open end, through which the turkeys will be placed inside, can be equipped with a rivet or hook on each flap and closed securely with a string, shock cord, or piece of rubber strung between the two hooks. Temporary closure can be made with masking tape.

Handholds and small air holes can be ordered from the box factory or cut in the boxes as needed later. Care should be taken not to make large enough holes for the birds to stick their heads through.

If a paraffin-treated box is to be used to hold a turkey more than a few minutes, an absorbent cardboard double bottom should be added to absorb excess moisture and for sanitation. Feces will adhere and soak into the cardboard

and not ruin the box for reuse. This will also improve the appearance of a turkey that has been held for a day or two.

Turkeys can be safely held in quiet, darkened, individual containers for three days, at least, without food or water. They do not feed well in captivity but they can be force fed water easily. This is rarely necessary, however, because they rarely need to be held more than two or three days.

Permanent wooden holding boxes are too heavy for most field use but may be satisfactory at a central headquarters. We have found that the tops should be padded on the inside and all sharp edges removed to prevent head injuries. Bottoms should be of ½-inch galvanized wire so that feces will fall through. Sliding doors are convenient in tight spaces and are usually stronger and facilitate removal of living turkeys.

*Burlap sacks.*—Turkeys can be held for a few hours in feed sacks or other strong cloth sacks if their legs are securely taped (Fig. 6). The standard procedure is to cut off a small piece of the corner of the sack for the turkey's head to stick out. In taping the legs, the legs should be taped securely together, then the periphery of the sack opening should be gathered and taped over the lower leg so that the feet stick out of the lapped opening of the sack. This prevents damage to the nails and spurs which sometimes occurs when the nails are caught in the sack from the inside. Turkeys will continue to struggle in a sack when startled but this can be minimized by placing a sock-like blinder over their heads and by loosely taping the sack more securely to the body in the area of the wings so that a small turkey cannot stretch its wing open inside the sack. If they remain tied in this manner more than about 5 hours, the legs may become temporarily or permanently paralyzed and some bleeding may occur at the alular region because of rubbing inside the sack. We do not use sacks when boxes are available.



Figure 6. Turkeys can be held briefly in burlap bags. A. A turkey is placed in bag head first. B. The periphery of the opening is gathered and taped shut around the tarsi.

*Drug injections.*—When boxes or burlap sacks were not available we have immobilized live turkeys by intramuscular and intraperitoneal injections of Brevane (Methohexital sodium, Corvel Laboratories) after they were captured.

As an emergency measure, these injections were occasionally used to immobilize turkeys more completely for examining, especially for molt data and for transporting. The injected dosage depends upon the stage of narcosis. The dosage recommended for mammals (printed on the vial) was adequate for un-narcotized turkeys if injected intramuscularly in the mid-breast region. We have not attempted intravenous injections on turkeys because their blood vessels are too fragile. Depth and timing of anesthesia after an intramuscular injection cannot be predicted precisely because of the variation in the rate of takeup into the circulatory system. Intraperitoneal injections react faster than intramuscular injections but are more difficult for one person to administer. Lighter dosages are required in intraperitoneal injection than when intramuscular site is used. We have experienced a small amount of mortality from intramuscular and intraperitoneal injections.

*Releasing a live turkey.*—When released, turkeys sometimes fly against trees, vehicles, fences, and personnel. Care should be taken to avoid releasing them near hazardous obstacles. Fences in open areas are especially dangerous because turkeys sometimes enter a long, low gliding flight before landing on the ground and occasionally strike fences at about 200 yards away from the release site.

A hand-held turkey should be released quickly with care not to restrain a turkey that is not fully under one's control. It is better to open a holding box and permit the turkey to walk out and fly or run than to remove it from the box by hand.

### Equipment

The major equipment and supplies needed for turkey trapping are listed in Table 2. The need for certain items of equipment is so obvious that some are not mentioned in the text. Some needs are so trivial that they are omitted although a written check-off list tailored to the individual trapping program is suggested. Writing materials, diaries, matches, rubber boots, pocket knives, pocket compasses, and the like are not listed. They may be considered more as personal effects than as trapping equipment, but they are not less important than much of the other "trapping" equipment.

Table 1. Equipment and supplies list for turkey trapping and handling.

Item	Use	Quantity needed
<i>General field work</i>		
Auto	transportation	1
Blind	hiding	1
Flashlight	light before dawn	1
Food & water	personnel use	enough
Insect repellent	personnel use	1 per person
Automatic baiting machine	pre-baiting	1 per bait site
Bait	baiting	enough & spare
Bucket	carry & remove bait	2
<i>General handling</i>		
Cardboard box, (or burlap sack)	holding	1 per turkey
Masking or other tape	tying legs (in sacks)	1 roll
Marking and banding supplies	marking	as planned per bird
<i>Cannon nets</i>		
Dill Cannon	project net	4 per net
Cannon projectile	project net	1 per net and spare
"Dummy net"	pre-baiting	50 foot roll
Electric cord	battery wiring	150 feet, on roll
Galvanometer	circuit check	1
6v battery	fire charges	1 plus spare
¼-inch X 18-inch steel stake	hold down net	7 per net
Cannon cartridges	fire projectiles	1 per cannon plus spares
50- X 60-foot nylon net	fire over birds	1 per set
Twine, 30 pound test	tying, repairs	100 feet
¼-inch nylon	edge, lead, and tie-down lines	300 feet
Auto cylinder hone	clean cannons	1
<i>Drugs</i>		
Tribromoethanol	tranquilizer	20 g per turkey <sup>1</sup>
Plastic bucket	mixing drug	several
Mixing spoon	mixing drug	1
Gram scales	weighing drug	1
Measuring cup	measuring bait	several
Bottle of water	wetting bait	2 quarts
Brevane	injections	about 5cc diluted per turkey
Disposable syringe	injections	2
Needle	injections	2
Sharp knife	crop surgery	1
Dip net	capturing	1

<sup>1</sup>Allowing for wastage.

An airplane is useful for shipping, especially for very long trips, but not essential since turkeys can be held safely for at least three days. When turkeys are shipped in small planes, the large (30 X 17 X 12 inch) holding boxes take up too much space. When shipment time by airplane is brief, as it usually is, much smaller non-paraffin-treated boxes can be used. Those the size of cigarette boxes (Figure 5B) are satisfactory but turkeys should not be left in cramped quarters more than about 5 hours or leg paralysis may occur. It is necessary to reinforce the bottoms of non-paraffin-treated boxes with two or more layers of cardboard to prevent the bottoms from collapsing due to the dampness of feces.

The metal trailer shown in Figure 7 was especially constructed to accommodate standard paraffin-treated holding boxes for shipment by automobile, and for hauling between the trapping area and central headquarters for processing and releasing.



Figure 7. A custom-made trailer for hauling turkey boxes and an airplane used for quick-long distance transportation.

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## **"A STUDY OF NESTING TURKEYS IN THE EDWARDS PLATEAU OF TEXAS"\***

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*Hunt, Texas*

### **ABSTRACT**

Project personnel contacted ranchers, farmers, highway maintenance crews, farm and ranch laborers, Game Management Officers, and other interested persons to receive prompt reports of nests of Rio Grande turkey (*Meleagris gallopavo intermedia*) found incidentally during the 1968, 1969, 1970, and 1971 nesting seasons. One hundred and twenty-one turkey nests were found during the four year period in the Edwards Plateau of Texas. Upon locations, nests were observed by project personnel and data recorded on nesting forms. Laying began in late February and continued through late August. Laying was started in the latest nest the eighth day of August. Average clutch size was 10.37 eggs in 71 nests observed after incubation began. Forty-seven nests produced 414 poults from 462 eggs leaving 2 fully developed embryos unhatched and 45 infertile eggs in the nests. Seventy-four nests either did not begin or did not complete incubation; of which, 40 were destroyed by varmints or avian predators, 13 were destroyed by snakes, 8 were destroyed by human disturbances, and 13 were deserted for unknown reasons. Nine nesting hens were attacked or killed by predators in the immediate vicinity of the nest site. The incomplete nests contained 785 eggs, an average of 10.61 eggs per nest, indicating they were near or in the process of incubation when destroyed or deserted. Most of the successful nests hatched May 15-June 15. Types of nest cover were woody species, grasses, forbs, and brushpiles. One hundred-one nests (83%) were in cover over 18 inches in height. Twenty nests were found in cover less than 18 inches high. Eighty-seven percent of the successful nests were in cover 18 inches or more in height. No nests were found over one mile from water. Nest sites averaged 325 yards from an available water source. Successful and unsuccessful nests averaged 330 and 321 yards from an available water source respectively. No hens were known to conceal their nests upon departure. Two nests of eggs were observed during the actual hatching period. In each case the hen and poults departed the nest site about 24 hours following the hatch. One hen was observed to actively and

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