A TECHNIQUE FOR CAPTURING WHITE-TAIL DEER IN THE DELTA MARSH BY USE OF AIRBOATS AND HELICOPTERS

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For many years the people who have been responsible for capturing and moving large numbers of whitetail deer have worked hard to improve known techniques. The wooden box trap with its many modifications has probably seen more consistent use than any other, though its weight and bulk have been a major disadvantage.

Like many other states, Louisiana has tried various methods and techniques in its deer trapping program, including the net trap, the collapsing net stretched through the woods and supported at the top with clothespins, the snare and the tranquilizer, both orally and intramuscularly (syringe gun) administered. All these methods have serious limitations which have been discussed in previous publications. There is little need to go into detail in this paper. It became apparent a new technique was needed and the pursuit and capture method described below was first initiated in Louisiana in March, 1963, by the Louisiana Wild Life and Fisheries Commission.

The helicopter has been successfully employed by game managers to capture medium to large size animals for a number of years and on several continents. Elk have been herded into drive traps by use of these machines (Howe, 1963) and captured by shooting with immobilizing drugs from the helicopter (Denney, 1966). A similar syringe-gun technique was used for capturing moose (Nielson-Shaw, 1967). Polar bears have been tracked across ice and shot with immobilizing drugs by helicopter (Leutfer, 1968). The Canadian Wildlife Service has captured caribou and moose for tagging using pontoon equipped helicopters to take the animals while swimming. Pienaar (1967) describes the capture of elephants in Africa and Russell (1967) took rhinos with helicopters and drugs. Deer have been taken in New Zealand by dropping weighted nets from pursuing helicopters.

The happy combination of suitable prairie marsh, well populated with deer, and the availability of helicopters and the modern, powerful airboats has enabled personnel of the Louisiana Wild Life and Fisheries Commission to capture relatively large numbers of deer in a short time. The airboats used in the operations are of tough, fiberglass construction, 15 feet long and powered by 150 hp aircooled aircraft engines. Each can hold four to six deer. If overloaded, these craft do not perform properly in the shallow waters often encountered in the delta marshes.

The first attempt was made in the coastal marshes of south central Louisiana near Pecan Island. Deer had been observed in substantial numbers on the State Wildlife Refuge, an area administered by the Louisiana Wild Life and Fisheries Commission. A commercial helicopter, Bell Model 47G2A/47-64 with three man capacity, was hired from a local petroleum exploration company. This machine is highly maneuverable, affords the pilot maximum visibility and permits him to keep the pursued animal in sight at all times.

During the initial phase of the operation the helicopter crew attempted to both locate and capture the deer. It was soon discovered that using this expensive machine to spot deer was a needless waste, therefore, the Piper Super Cub, which was being used as an overall observation platform, was used to find the deer which were hiding in tall roseau cane (Phragmites communis) or bedded down in wire grass (Spartina patens) clumps. Then when the helicopter returned from ferrying a load, usually four or five animals, to the central collection point, it was not necessary for the pilot to spend time searching for more deer. By this time the Super Cub observer had them located and either circled over or dived to show the exact location.

Originally attempts were made to shoot the deer from the helicopter with syringe guns; however, this resulted in many lost darts, at $5.00 each, and most of the deer which were hit did not have the dart properly placed. Add to this the fact that they were in a highly excited state which prevented the tranquilizer, Sernalin, from having the desired effect. The syringe gun idea was soon abandoned.

Of the 13 deer captured during the first use of the helicopter, the majority were taken by the observer who alighted from the machine after it was landed near the exhausted animal. Usually only five to ten minutes fast chase was needed to run even the stronger deer down. Small deer were caught and tied by the observer alone. In some instances when a strong animal was encountered, the pilot gave an assist. The deer were then loaded and ferried back in carrying racks, rectangular metal boxes, two feet wide by aproximately six feet long and a foot deep, attached to the top of each pontoon.

Almost as an afterthought some of the personnel from nearby Rockefeller Waterfowl Refuge had brought along an airboat. It was used toward the end of the six-hour operation and from it three or four deer were captured. In this small effort the potential of this type surface craft became apparent.

The second attempt to capture deer by helicopter was made in April of the same year. Permission was obtained from the Bureau of Sport Fisheries and Wildlife to conduct the operation on the Delta Waterfowl Refuge near the mouth of the Mississippi River. Many deer had been seen by air and sparse vegetation on the marsh flotant islands was more suitable to the pursuit and capture technique than on State Wildlife. Eighty deer were taken in two days. The operation was more successful than expected and there were not sufficient hauling crates on hand to properly transport the animals so many were left tied until they reached the release site.

Probably one of the most costly lessons of this operation was the folly of allowing the feet of the deer to remain tied for such an extended period. Many of the deer could not stand, others with difficulty, after the ropes and straps were removed. The ultimate mortality associated directly with this type injury was impossible to determine but it was suspected to be high.

Using only airboats, ten deer were captured on the Delta Refuge a week later. Without aerial observation the location of herds on suitable terrain was difficult. Without supporting aircraft and personnel to turn back the deer they have a frustrating habit of running to the tree covered passbanks where footing is firm, thereby making pursuit and capture impossible.

Deer capture by helicopter and airboat got underway during the early part of April, 1964, when 162 deer were taken and moved to release sites around the state. Hauling crates capable of holding five to six deer each were loaded on a barge and transported to the Delta Refuge. Each crate was well ventilated and had straw or hay placd inside to provide soft bedding.

As the animals were captured they were given an antibiotic injection. Purpose of this precaution was to combat foreign body pneumonia and other respiratory infections. Either Combiotic (a penicillin-streptomycin preparation) or Tylan (tylosin) was used, the latter being recommended by the L.S.U. Veterinary Science Department and used exclusively during the later operations.

Each captured deer was eartagged, antlers removed from the bucks, ectoparasites collected and blood samples taken, primarily to determine the incidence of domestic livestock disease. Findings related to this latter operation have contributed materially to the exoneration of the whitetail deer as possible carriers of some of the livestock diseases such as brucellosis and leptospirosis.

Two notable improvements were initiated during the 1964 operation, the most significant being the increased employment of airboats as catch vehicles. On signal from the observer circling above the scene of operation in the Super Cub that the deer were out in the marsh and in favorable position to be taken, the airboats would move to the location indicated. Each airboat was equipped with a walkie-talkie radio, thereby enabling the operator to be in constant communication with the plane and the helicopter. The entire operation was directed by the observer in the Super Cub, usually the assistant director of the Louisiana Wild Life and Fisheries Commission, who was also the pilot.

The other improvement was the provision to untie the legs of the deer as soon as possible and place them in the comfortable crates transported to the central point of operation. They were kept tied a maximum of 30 minutes and usually much less. After the crates were loaded with deer they were transported upriver and placed on pick-up trucks which made the trip to the release sites.

Generally, the 1964 technique was employed in February of 1965 when 174 deer were taken in two days of capture activity. There were some basic improvements, however, such as the use of two deer hauling crates, each capable of holding 50 deer, and mounted on flat bed trucks. The trucks with the crates in place were driven onto the barge at Venice, Louisiana, and transported to the scene of operations. Each crate was partitioned into four separate chambers running lengthwise the entire length of the crate to facilitate the passage of air over the deer.

Excessive heat had been a problem in April of the previous years, therefore it was necessary to conduct the operation earlier in the year during cooler months. Even in February, however, there is no guarantee against warm days occurring in the coastal marshes of this state. Large fans are kept on hand to force air through the crates in the event the heat becomes excessive and were used effectively on at least one occasion. To further combat the heat buildup, the crates are painted silver to reflect as much heat as possible.

Another notable development in 1965 was the exclusive use of straps instead of ropes. Ropes tend to cut, scrape and otherwise cause injury to a struggling animal. It was found that a six foot strap, one inch wide, and preferably of web construction, was ideal. It could be rolled into a neat three inch diameter package and secured with a rubber band. An adequate supply can be kept conveniently at hand and supplied to the airboats as needed.

The tying technique involves securing the two front feet first with two or three turns of the strap, then forcing one of the hind feet under the tie and between the front legs. A wrap or two is taken around this foot and the other hind foot brought up alongside the first but outside front legs. The remainder of the strap is then used to secure both hind feet and the terminating end of the strap is tucked in a fold and pulled tight. There is enough friction between the surfaces of this strap to hold it in place. The major force exerted by the deer is kicking outwardly with the hind legs. This only tightens the tie between the front legs and prevents escape by all but the most carelessly tied deer. By tucking the end of the strap under, and avoiding knot tying, the crew loading the animals in hauling crates is not forced to cut the strap. It is convenient to have this material available for reuse.

Hurricane Betsy passed directly over the Delta Refuge in September of 1965, destroying large numbers of deer and much of their habitat. Due to this severe herd reduction to attempt was made to take deer from the area in 1966.

Capture operations were resumed in 1967, resulting in the taking of 102 animals. All these were taken in one day and no notable modifications of the 1965 technique occurred.

Two more improvements were added in 1968, when 162 deer were captured on February 7 and 8 of that year. Though all the airboats (four

were used in 1968) were equipped with radio communications facilities, it was difficult for the director of operations in the plane to identify the individual airboats or their operators. It was essential that this identification be made instantaneously so full advantage could be taken of a group of deer that might be in the water but out of sight of the airboat.

To aid airboat identification, the twin rudders of each boat were painted a bright color, each airboat different from the others. Then by signaling "red" boat or "green" boat they could be directed to an exact spot.

It must be stressed the radio communications between the plane, the helicopter, the airboats and the barge where the deer were being loaded was the real key to the entire operation. Not only was the timing of each phase important but often airboat operators would become so absorbed in the chase they would become disoriented in a remote part of the refuge and had to be directed back to the scene of operations by the plane or helicopter.

Many deer had been missed in earlier operations because they escaped in the willows along the firm pass banks, as mentioned above. To make as many deer as possible available for capture the first step in each day's operation was the placing of drivers along the banks of these passes, or distributaries of the lower Mississippi River. On signal these people moved in a line perpendicular to the banks and toward the soft marsh. Cut-offs were established on each end of the line to pervent the deer from running parallel to the pass banks and ultimately escaping. Marsh going motorcycles were employed at these points with considerable success.

All airboats were directed to keep their engines silent until the spotter plane was certain as many deer as possible had moved out in the marsh and onto the small islands. Any unusual noise occurring when the deer were being driven caused them to become alarmed and run back through the drivers. On signal that the deer were all out of the willows, the airboats started their engines and prepared to move out.

When the airboats were ready the helicopter was also notified to join the scene of operations. Its primary function was to move up behind groups of deer standing on the islands and force them into the water where they were easily captured by the airboats.

The airboat crew consisted of an operator and a catcher. Each crew soon developed their own particular method of approaching and catching a swimming animal, but the usual procedure was to maneuver the boat up to the deer, on the side preferred by the catcher, the catcher placing one arm over the back and under the flank, with the other arm under the neck. The catcher can then roll back in the airboat with the deer which is usually near exhaustion at this point. Only the larger, stronger animals make it necessary for the operator to leave his seat and assist. The catcher usually straddles the deer to tie the legs. Done properly, this does not cause injury and aids in controlling the legs. When loaded, the airboat returns to the processing point and unloads the deer. Carelessness in moving deer from the airboat to the barge resulted in some injury during the earlier operations. During the 1968-69 phases they were carried on stretcher-like affairs constructed of light conduit tubing and canvas. Istead of portaging the animal upside down the 20 or 30 yards to be processed, it was simply rolled onto the stretcher. With a man at each end, two deer totaling up to 150 pounds could be carried on each trip without difficulty.

The 1969 operation was similar to that in 1968 in which the helicopter, plane and barge were used except that six airboats were used instead of four. In one four hour operation, 139 animals were taken and one deer was lost, an adult doe which apparently had been injured in the airboat.

Each year, beginning in 1964, the number of deer to be taken was determined by aerial census of the population on the Delta Refugee. White-

tails are easily observed from the air during January and February due to the very low, thin surface vegetation. One-third of the existing population is taken each year, an amount equal to the annual reproduction of the herd. Removal of a substantial number of deer from this herd during the late winter period of critically low food supply prevented die-offs since hunting is not permitted on the refuge.

Six years of capturing whitetail deer in the marshes of Louisiana have resulted in the capture of 832 animals. Accurate cost figures are difficult to obtain, since many of the people assisting with the operations were university students, often attending on their own time to observe the technique, but assuming a direct cost on each man and machine used, it is cheaper than the average deer taken in Louisiana with box traps. The operation is not without its costs but it is fast, efficient and so far a mortality rate of approximately two percent has been experienced.

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MOVEMENT RESPONSES OF WHITE-TAILED DEER TO CHANGING FOOD SUPPLIES [1]

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ABSTRACT

While studying deer movements and ecology in a logged, floodplain habitat in southwestern Alabama, the investigator noted certain consistent responses by deer to food changes.

One radio-instrumented deer shifted her range three times in response to changing food supplies (food plot to ear corn to spring greenery and back to food plot). The shifts were not great in magnitude, but they were distinct and were spread over a nine-month period. Diel movements were very concentrated when food was concentrated, but dispersed when the food supply was dispersed.

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