THE HELINET: A DEVICE FOR CAPTURING PRAIRIE CHICKENS AND RING-NECKED PHEASANTS

DENNIS L. BROWN, Texas Parks and Wildlife Department, Route 4, Box 219, Victoria, TX 77904

Abstract: A net 2.3 m × 2.4 m, made of number 248 knotless nylon with 2.5 cm mesh and attached to the skids of a Bell G-4A or Hiller helicopter, has proven effective in capturing Attwater's prairie chickens *(Tympanuchus cupido)* and ring necked pheasants *(Phasianus colchicus)*. More than 300 prairie chickens have been captured using the helinet technique at an estimated cost of $37.80 per bird. Death losses, attributable to the helinet capture techniques, were less than 4%. A total of 313 pheasants was captured at a cost of $37.39 per bird, with no known death losses. The helinet is portable, can be used throughout the year, and permits individuals of both sexes to be selected for capture.

Proc. Ann. Conf. S.E. Assoc. Fish & Wildl. Agencies 35:92-96

Ring-necked pheasants and Attwater's prairie chicken habitat in the Texas coastal prairie is similar except for the tall grass ranching country of Refugio, Golia and Victoria counties. Prairie chickens exist in these tall grass areas; however, pheasants do not. The remainder of pheasant and prairie chicken habitat on the middle and upper coastal prairie gradates from flat to gently rolling hills where the common land use is a combination of farming and ranching. Brush and tree species are primarily associated with fence lines and rice canals, but are also found scattered in pasture land. Various species of grasses, forbs, vines and brush are green throughout the year, providing abundant natural food and cover.

During 1965, officials of Ellington Air Force Base near Houston, Texas, initiated a request to the Texas Parks and Wildlife Department to trap and remove male Attwater's prairie chickens from active runways which were being used by the birds as booming grounds. Air Force and National Aeronautics and Space Administration personnel thought the birds presented a hazard to extremely heavy air traffic.

CAPTURE ATTEMPTS

Most trapping techniques such as cannon netting, walk in trapping, and drop netting require some type of bait as an attractant. However, we used all types of grain grown in the area, including corn, milo, rice and soybeans as bait without success. The only trapping technique that would catch chickens was the fixed cannon net. The fixed cannon nets were placed on the edge of booming grounds and aimed so as to cover a portion of the male's booming territory. The observer would watch the chickens until one came within the catching area of the cannon net. The net was then fired. A total of 120 man-days was expended to capture 24 male and 6 female chickens by using fixed cannon nets. Three birds were killed using the cannon nets. Survival rates of the released birds were unknown.

A more efficient and less costly method of capture was needed. We developed the helinet as a means of capturing more birds in a shorter period of time, any time of year, and at less cost. Later, the helinet also proved successful in capturing pheasants.

Acknowledgement is due Mr. Val Lehmann who helped design and construct the helinet and Mr. Joe Perroux, helicopter pilot (retired) for the United States Fish and Wildlife Service who initially proved the technique as an effective trapping device.

THE HELINET

The basic design of the helinet is shown in Fig. 1. The frame of the helinet was constructed of 1.27 cm electrical conduit. Six number 42 steel radiator hose clamps were used to attach the net frame to the helicopter skids (Fig. 2). Two braces across the top of the frame were used to reduce verticle tossing of the net when in pursuit flight. After the frame was completed, it was cut in half and 2 15.2 × 1.9 cm sections of steel tubing were slipped over the cut ends. Two holes were drilled through the tubing and conduit and 4 1.1 × 2.5 cm bolts with lock nuts were used to fasten the halves together. This allowed the net to be folded for storage and transporting.

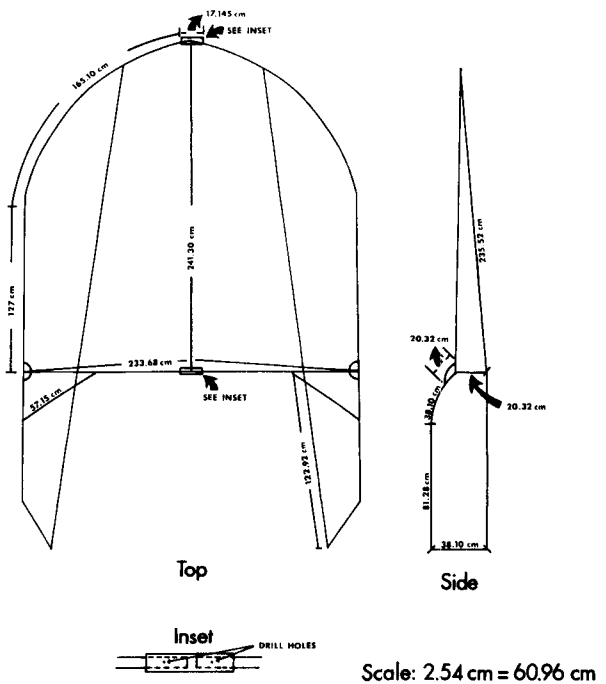

Fig. 1. Helinet for Bell G-4 skids.

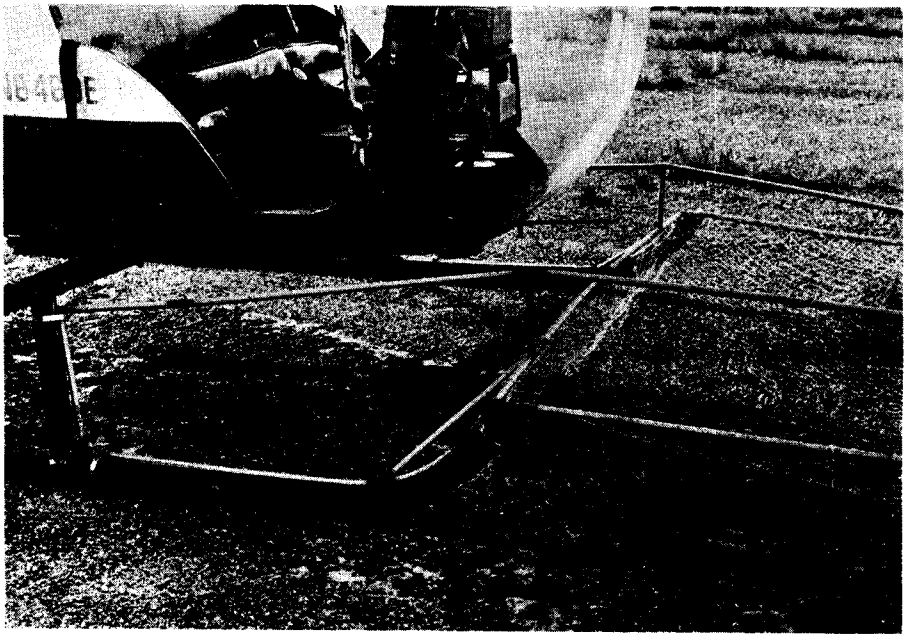

Fig. 2. Helinet attached to helicopter skids.

The net was constructed of number 248 knotless nylon with 2.5 cm mesh. The net was loosely draped over the frame so the center touched the ground. A lead-weighted skirt 35.5 cm in depth was added around the frame to prevent captured birds from escaping. When attached to the helicopter, the front of the net frame was 10.2 cm above the ground.

The helinet was installed on helicopter skids by 2 men within 10 minutes. Under favorable conditions the helinet operated 5 hours per day (Fig. 3). Use of the helinet was limited to daylight hours and then only when weather conditions were such to preclude safe operation of the helicopter.

Prior to trapping in 1968 the helinet was inspected by Safety Engineers of the National Aeronautics and Space Administration, Ellington Air Force Base and a civilian contractor for the Air Force. The net and frame did not affect the stability or performance of the helicopter and was approved by all inspecting agencies.

Flying near ground level flushed the birds. The pilot closely followed the bird until it landed. He then landed the helicopter, placing the net over the bird. Usually a bird flushed at least 3 times before capture was accomplished. The observer then stepped out of the helicopter, pinned the chicken (or pheasant) by forcing the top of the net down with his hand, and reached under the net to grasp the bird.

Trapping operations were initiated soon after daybreak and continued until approximately 9:00 a.m. After that hour, chickens and pheasants were difficult to flush and the capture rate declined. Trapping operations were again initiated approximately 2 hours before sunset and continued until dark.

Fig. 3. Helinet in flight. The helinet was developed as a means of capturing large numbers of prairie chickens and pheasants.

RESULTS AND DISCUSSION

Prairie Chickens

During the period February 20 - 25, 1968, a total of 50 Attwater's prairie chickens (26 males and 24 females) was captured and removed from Ellington Air Force Base. Total flying time involved was 20 hours. Pursuit time varied from 0.5 min to 21 min. Average pursuit time was 9.8 min for males and 9.6 min for females. After the trapping operation was concluded, it was estimated that 8 to 10 chickens remained in the vicinity of the base.

Attwater's prairie chickens were again trapped with the helinet at the Base during February 16 - 22, 1970; 27 males and 17 females were removed. A total of 23 hours was flown during the trapping operation. Average pursuit time was 8.7 min for males and 10.8 for females. After trapping operations were terminated, only 5 to 8 chickens were thought to remain.

In conjunction with life history studies on the Attwater's prairie chicken, 300 chickens have been trapped or retrapped by the helinet technique in Texas coastal prairie counties. Of the 300+ chickens trapped using the helinet, a 4% death loss occurred during trapping, transporting and release activities. Trapping cost of all chickens captured using the helinet technique, including helicopter rental time and 1 person catching, amounted to $37.80 per bird.

Pheasants

During the 1960 - 70's, Texas was receiving wild trapped ring-necked pheasants from California to be released in the coastal prairie along the Texas Gulf Coast. After successful colonies were established, pheasants from these release sites were trapped and transplanted to additional areas. Trapping efforts using techniques such as night lighting, cannon or rocket nets, drop nets or clover net types were tried without success. A total of 15 birds was captured by night lighting which cost $162.00 per bird.

The same helinet technique used to capture Attwater's prairie chickens was used to capture pheasants. Captured pheasants have been held in crates up to 24 hours prior to releasing. No deaths occurred. The helinet was used to capture 35 pheasants which were fitted with transmitters and released. All birds were alive after a 5-day period. From June, 1976, to present date, 313 pheasants have been captured with the helinet. No pheasant deaths have been attributed to the capture technique. Capture costs for the 313 birds averaged $37.39 per bird. Average capture rate was 5 pheasants per hour. The Texas Parks and Wildlife Department now uses the helinet as the standard technique for capturing prairie chickens and pheasants in the coastal area.