



Mist netting waterfowl

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Introduction

Employment of a mist net to capture waterfowl was undertaken when wire box traps had limited success. The primary targets were Blue-winged Teal (*Anas discors*) and Wood Duck (*Aix sponsa*). The procedures described in this paper are not necessarily the best methods; however, they proved successful and should be considered when undertaking similar projects. Nets dyed black or green were used, the black nets proving more effective. Nets were also structurally modified. Observations were made from a blind to determine both net effectiveness and bird reaction prior to and after contact with the net. Reduction of net visibility was achieved.

The Net

At night, in areas where ducks feed, the use of Bleitz Wildlife Foundation's 10' x 60', 4-ply net has had satisfactory results. However, this net is cumbersome and requires more than one individual to emplace and operate. The use of a modified 210d/2-ply 4" webbing, 7' x 60' net has proved very effective even during daylight hours, and the net can be emplaced and operated by one individual. This net is adequate for ducks weighing up to 750 g, when emplaced in a manner that allows the net to give way when contacted by a bird.

To modify the net, it should be opened on a smooth flat surface such as a basketball court or a tennis court. On the 4-shelf net, cut and remove the second and fourth cross support cords. Then cut the side support cords on both sides at the points where the now-removed cross cords tied into the sides. Now expand the net until all webs appear of uniform size. The webbing should retain this uniformity when the net is set in the field. Add sufficient line to the sides, rehang the loose webbing, and tie off. The length of the cord needed may vary from net to net.

The modification requires additional effort initially, but the end results are rewarding. There are two important advantages to this modification: the net's height can be increased by 80%, and net visibility is greatly reduced. Visibility reduction is a most important consideration in netting waterfowl; an unmodified net is easily seen by a duck even under subdued light. The black modified net has proved to be effective in any type of set except during heavy fog, where the green net was also ineffective. A white net may be effective in areas where fog is common, but neither the white nor the sand-colored nets were available for trial.

The modified net can be hung either loosely or tightly. A loose net has a visible pocket, while the tight one does not. If a pocket is required, the top and bottom cross support cords may be adjusted to form an adequate pocket by simply raising or lowering the appropriate cross support line. We found an adequate pocket to be one that had a 10 cm overhang in the center where the net sags. (The standard Bleitz net has a built-in pocket or shelf at each horizontal cross support line except the top one. Ducks entangled in this net rarely escape, but the time taken to remove a bird from this type set can be excessive — especially in subdued light.)

The tight net is most effective in open water sets where the birds are in straight and level flight. Birds observed contacting a tight net initially penetrated the net to the chest, then entangled feet and legs, next both wings. Continued struggle caused several loops of webbing to wind around the neck. Also, tight webbing has a tendency to cut when a bird is attempting to get free. To prevent injury, immediate removal of a bird from a tight net is mandatory.

The loose net, being more visible, is best emplaced where the background makes it invisible. This net will capture a bird regardless of the flight speed or angle of contact. When a bird strikes either net, a pocket will form because of the weight of the bird.

However, the pocket in a tight net is not as effective as one in a loose net, and a bird striking near the top cross support line sometimes escapes before it becomes adequately entangled. Quick reaction by the netter can reduce the number of birds lost from a tight net.

The Area

There were two primary netting areas, both located on Pine Bluff Arsenal in Arkansas. One is known as Yellow Lake, and the other is referred to as the Duck Pond. In the Yellow Lake area, which has approximately 200 acres of open water and 100 acres of backwater, there are many shallow backwater flats where water depth is approximately 15 cm. All protected backwaters are covered with duckweeds (*Lemna spp.*), furnishing an abundant supply of natural food. Within this area, sets were placed in open water, in narrow passes, and in dense woods at a Wood Duck crossover site between two water bodies. Waterfowl leave the lake at sundown each evening to feed in the cultivated fields and return at sunrise.

The Duck Pond consists of 20 acres of flooded pin oak flats. The trees were thinned in one two-acre area and brown-top millet planted. Except for a few Wood Ducks that roost there, most waterfowl leave this area each evening and return after sunrise.

The Set

Selection of a site usually requires a reconnaissance several days prior to net placement. Selection of an area should be determined by the number of birds using the area, times of arrival and departure, angle of approach and departure in relation to the surface, background, and flight speeds.

The birds at Yellow Lake were found to follow the tree line and stay over open water until reaching a turnoff leading to backwater. After leaving the open water, they used established flight lanes which were not always in the center of the branch or creek. In narrow sections they did fly down the center or climb over the narrow area.

The birds at the Duck Pond site were found to have three entry points, and nets placed across these entry points were very effective. Other species would follow the Wood Ducks into the area; Wood Ducks left both sites back through the entry area, but other species chose the most open area available. Arrival and departure times of birds in an area dictate when the net should be emplaced. These

times also determine how visible a net will be to a bird at any time other than a night set since subdued light conditions assist in rendering the net invisible. Wood Ducks have a remarkable ability to locate obstacles in their flight path in subdued light. The angle at which a bird approaches the net and the background are important, since these factors determine whether or not the net will be noticed in time to avoid contact. By observing the set from different angles, one should be able to determine how visible the net will be; it must blend with the background. Generally, if the background is correct, a bird approaching a net while following a descending flight line — or on a line which is level with the top of the net — will not see the net in sufficient time to avoid it. Maneuverability is directly proportional to flight speed.

We found that Blue-winged Teal seldom succeeded in avoiding a net unless they were very low, approaching below the net center. Teal attempted to fly over the net as their only maneuver to avoid the obstacle. On the other hand, Wood Ducks displayed an amazing ability to avoid a net. They were generally flying at a reduced speed when low, and seemed to have a natural ability to avoid obstacles. A Wood Duck would not hesitate to execute what seems to be a complete flip and then fly under the net or would make a 180° turn.

The Wood Ducks entering the Duck Pond descended through openings in the trees. They were alert for obstacles and under full control during descent. The tight net was used initially and very few birds discovered the net prior to contact, but the net was not effective. Most birds contacted the net but then escaped. The loose net, on the other hand, proved to be ideal for this type of situation. The only problem encountered was one of overloading the net when Wood Ducks arrived in a flock, for the 2-ply net would not support more than five birds at one time without damage to the net. One solution was to leave adequate line on one end of the top cross support, with a quick release knot on this line, so that — when released — the top line would drop down to a point where the birds reached the surface of the water.

Wood Ducks at Yellow Lake flew straight and level and were not overly alert. The loose net was effective prior to the first morning light; after that, the tight net proved effective. Green-winged Teal (*Anas carolinensis*) were successfully captured in the loose net; the tight net stopped them, but they easily slipped through the webbing with minimal struggling.

Initially, Blue-winged Teal at both locations were difficult to capture. Flight speeds varied, and those striking the net on a descending approach at top speed went through the net, breaking the webbing. Some, however, slipped through with only a loss of feathers and no other obvious adverse effects. By using long nylon support lines to add elasticity to the net, we were able to reduce the number of teal which flew through the net by breaking the webbing. There were no instances of Wood Ducks breaking through the net; nevertheless, they are capable of achieving sufficient velocity to do so.

The most productive set at Yellow Lake was in a narrow tree-lined channel between two large open-water areas. The net was placed across a 20-meter site, in a curve; this offered a perfect background. The distance between the bottom of the net and the water surface varied, but a clearance of 50 cm was most effective. Wood Ducks attempting to fly under the net changed direction at the last moment and hit the bottom of the net. These birds caused the net to sag and become fouled with duckweed, but the duckweed was easily removed while wet by simply shaking the net. Dry duckweed, on the other hand, had to be picked out of the net.

The open-water set at Yellow Lake was productive only during subdued light. This set captured American Widgeon (*Mareca americana*) and Gadwall (*Anas strepera*). The net was easily seen and avoided after sunup.

A woods set between water bodies where Wood Ducks crossed was attempted. This was a natural crossing site and was improved by removing low underbrush and small trees to produce a tunnel effect. Predaceous birds and animals as well as perching birds made this an unprofitable venture, however. The net had to be under constant observation, or a captured duck would be subject to attack by predators. Perching birds were constantly becoming entangled in the net.



Removing birds from the net

To remove a duck from the modified net, first determine the side from which it struck the net; the bird must be removed from that side. Do not attempt to force it through the net. A duck can be removed in a minimum of time by first freeing one leg, gently pulling the bird away from the net by

this leg, and then freeing the wing on the same side. Grasp the outer primaries and leg in one hand and free the other leg. Next, untangle either the head or the other wing — whichever appears quicker. The remaining appendage is usually simple to free. During the untangling procedure, make certain that webbing does not become wrapped around the head and neck, strangling the bird.

The loose net will also catch birds which present a hazard to the netter, such as the Great Blue Heron (*Ardea herodias*), Black-crowned Night Heron (*Nycticorax nycticorax*), and Great Horned Owl (*Bubo virginianus*). The Great Blue Heron and Great Horned Owl require special care in removing from the net. The heron is very aggressive and is a serious threat to the netter's eyes. Nets hung over the water add to the problem. First, the heron's head should be immobilized; then the bird can be removed from the net. It should be released at arm's length, while one watches for the bird's final jab.

The owl is somewhat easier to handle. Have two sticks available, free one leg, and place one stick in that foot. So long as the bird is being held, it will grasp the stick. Use the same procedure with the other leg. Free the wings, pull the bird away from the net by the wings, and free the head. Release the owl upwind of the net.

Conclusion

The American waterfowl bander has traditionally relied upon the cannon net and wire trap to capture waterfowl. The mist net has not been employed by the modern-day waterfowl bander. The Chinese on the other hand, have used the mist net for thousands of years to capture waterfowl and Mr. Eric G. Bolen, Assistant Director of the Rob & Bessie Welder Wildlife Foundation, recently reported that each year the mist net is successfully employed at the Bharatpur Sanctuary in India to capture thousands of ducks. The mist net certainly has possibilities which we as Americans have not appreciated.

The mist net should not be considered as a replacement, but rather as a complement, to our other capture methods. At your next opportunity, try the mist net in a Wood Duck roost. You will find the experience rewarding and exciting. As you improve upon or discover new techniques, submit them to the *North American Bird Bander*. Together, we can revive one of man's oldest and most successful methods of capturing waterfowl.

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