THE AUTOMATIC BOW TRAP

By Robert P. Yunick

Recent modifications in the design and use of the automatic bow trap, or bow net as it is sometimes called, have demonstrated the trap's versatility and potential. Since this trap may be of use to EBBA members, Frank Frazier asked that I present some of the details on the construction and use of the automatic bow.

In 1954 H. B. Tordoff described an automatic bow trap for taking raptores.[1] This trap is rectangular (24 x 32 inches) in shape and built on a wire mesh base. It employs a live bait such as a mouse or sparrow. The bait is tethered to the trap with a fine wire or string. It uses a rat trap to power the trigger mechanism and two rat-trap springs to operate the bow. It is pictured in Figure I. In the 24 x 32-inch size, the trap was used to capture Kestrels, Screech Owls and Migrant Shrikes. Other sizes were used for Long-eared Owls, Great Horned Owls, Black-capped Chickadees, Greater Prairie Chickens and Starlings. While trapping raptores, Tordoff reported using up to four baited traps at once.

H. Meng discussed some of the disadvantages of having an automatic treadle on a bow trap and showed the construction of a radio-control device for remote tripping of a bow.[2]

More recently, S. G. Priklonski published his results on the use of the automatic bow trap in Russia.[3] The trap that he described is circular, light weight (about one-half pound) and operates on a different triggering device, generally without the use of bait. This trap is pictured in Figure II.

About 120 of these bows were in use during 1956-1957 at the Oka State Preserve in Central European U. S. S. R. They took about 1,000 birds. During the period 1954-1960 more than 8,500 birds of 131 species were captured in automatic bows by Priklonski et al.[4] The trap was used near water to take terns, gulls, shore birds, bitterns, ducks, etc., as well as raptores (using the rectangular trap), and various land birds. The use of this trap on shore birds is stressed because from 1925 to 1954 not more than 500 adult sandpipers (Charadriiformes) were banded in the Soviet Union, while during the 1954-1960 period 2,020 of the 8,500-bird take were shore birds of 27 species. Included were 400 great snipes and 522 common sandpipers.

In the spring the trap was set along thawed shorelines at the water line and took 3.3 to 7.8 birds per 100 trap-hours. The trap was most effective at the peak of spring high water. In fall, it was used on sand bars and mud shoals. The use of this trap near water was not without difficulty. Among 5,435 captures, there were 319 casualties listed. Of those listed 61.8 percent either froze, or drowned by the action of waves from boat wakes; 14.3 percent were killed by the trap itself; 19.2

percent were killed by feathered predators and the remaining 4.7 percent were not listed. This predator take makes it clear why Tordoff only used four baited traps. A bird once caught by the trap then becomes easily accessible bait for a predator unless the bander is nearby to manage the traps.

Attempts at using the trap on land birds at other than spring and fall migrational periods by setting the trap at feeding areas were not as successful. However, use of the trap in the spring on the first thawed patches of ground and later atop the nests of ground-nesting birds was productive. The catch on thawed ground areas was 36 birds per 100 trap-hours. The catch included members of the Sturnidae, Alandidae, Fringillidae and thrush groups. It is interesting that Priklonski et al. also reported taking hedgehogs, water rats, hares, jackals, frogs and large fish in these traps.

It would appear that trap construction can vary considerably depending on one's particular use. It seems wise to use the best points of both the Tordoff and Priklonski designs to fashion one's own devices. Priklonski recommended a 21 to 24-inch diameter circular trap made of 0.118-inch (about 10-gauge) galvanized wire for rook-sized birds (about the size of a crow). The netting is 0.02-inch thread with about 0.75-1.0-inch holes. Tordoff recommended wire in the bow no smaller than no. 9 gauge and netting made of cheese cloth, nylon curtain material, or ¼- or ½-inch mesh minnow seine material. Depending on the diameter of the trap and the weight of the netting, one could use mouse- or rat-trap springs to power the bow. The construction is easy. Without stringing the netting to the bow, it took me about 15 minutes to build one of these circular bows on first try. One must make certain to use sufficient netting in order to have enough "bag" to the trap so that a captured bird has adequate room to move while held in the trap.

To my mind the treadle looks as though it could be improved. It seems that allowing one's trapping success to depend on the tripping of a string by a walking bird is somewhat of an unfavorable gamble. Tordoff's idea of a hardware cloth treadle is more appealing. Even more appealing would be a treadle of larger area. Since a treadle must be light weight and delicately sprung for small birds, it seems that Priklonski's trap could be modified by making a light-weight treadle from a circular or rectangular wire loop strung with fine wires and mounted on a three-string suspension connected to the trigger. As such, the treadle should be camouflaged. Tordoff recommends painting the entire trap with flat paint and camouflaging the base with grass, sand or snow. Since the Priklonski version has no base other than the ground on which it rests, the trap must be anchored to prevent birds from lifting the trap and escaping. Also, those traps with powerful bow springs would tend to jump when tripped and anchoring eliminates this movement. The trap is anchored with two or three hair pin-shaped pieces of rigid wire which are pushed into the ground thus holding the base hoop to the ground.

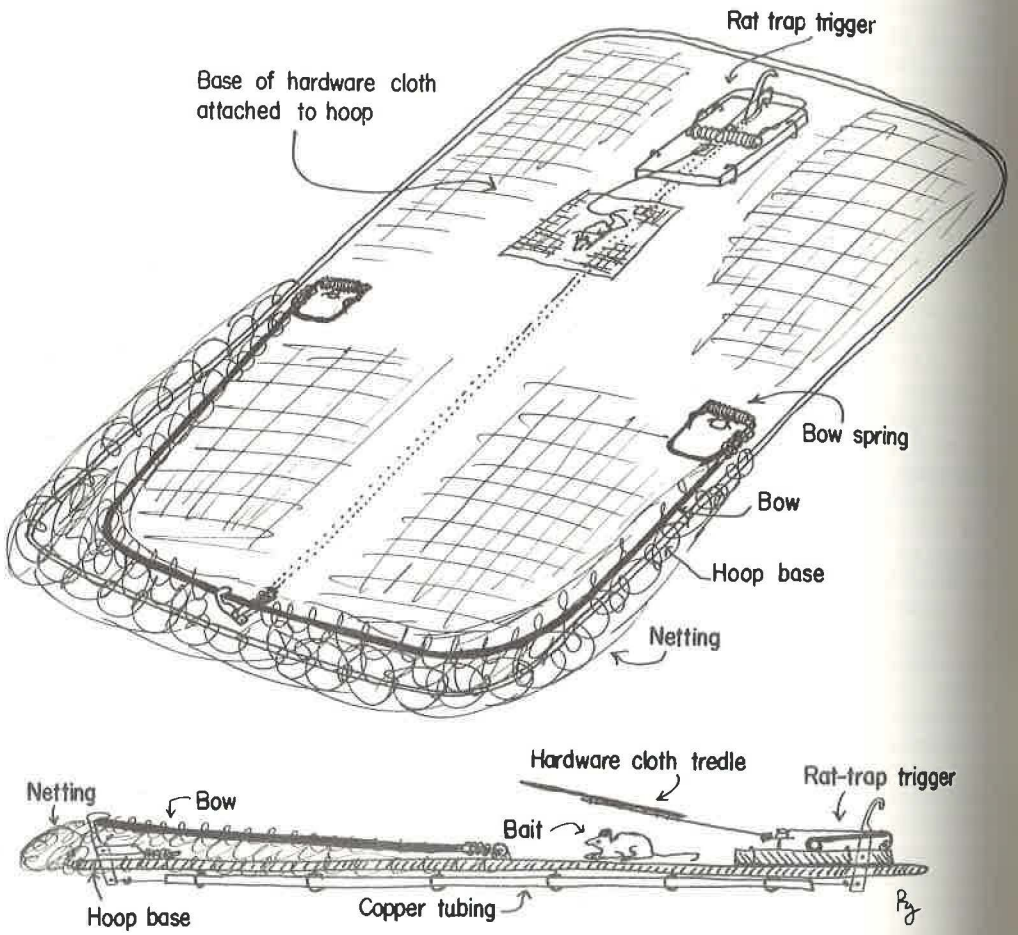

FIGURE I

AUTOMATIC BOW TRAP
(TORDOFF)

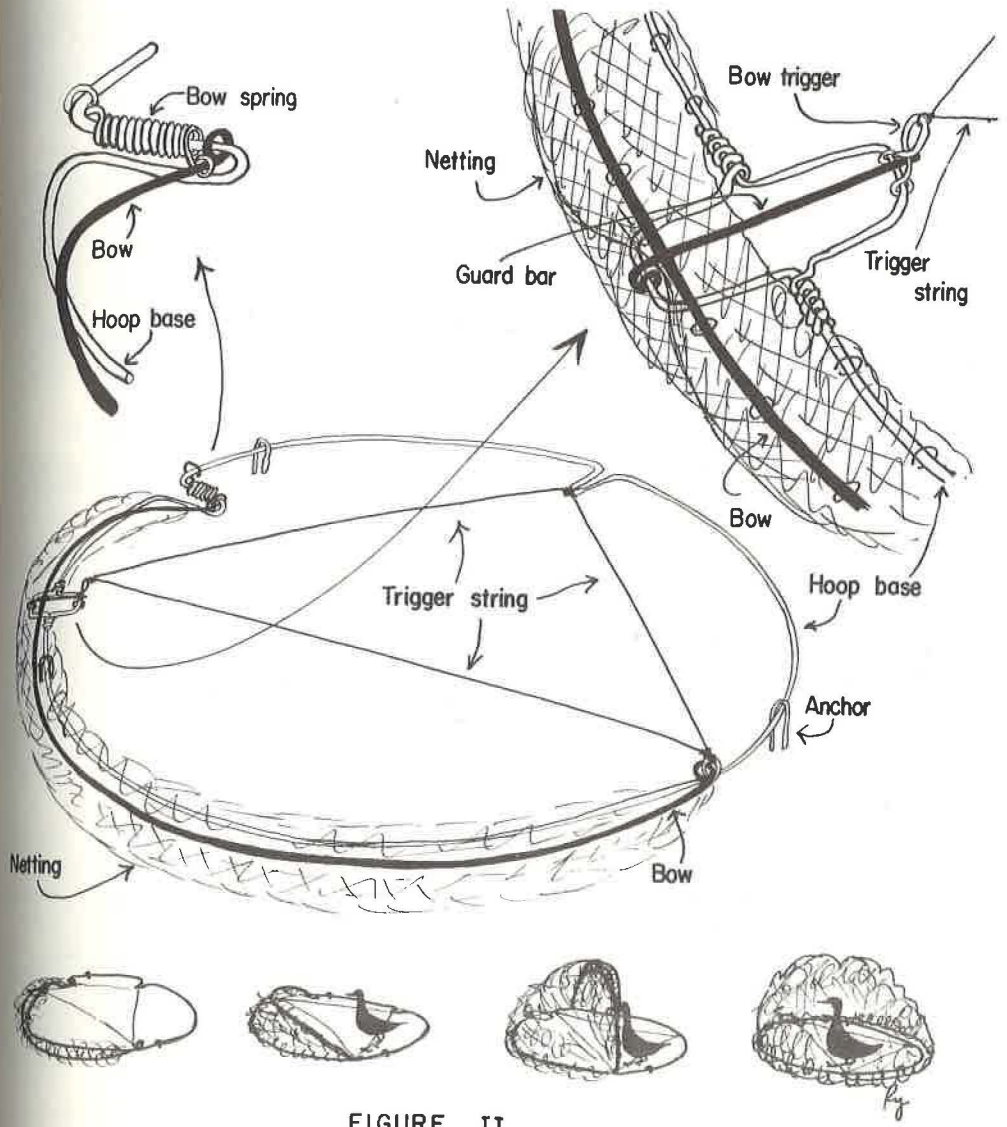

FIGURE II

AUTOMATIC BOW TRAP
(PRIKLONSKI)

It seems that the bow trap would be quite useful for taking ground nesting birds especially in cases where one is conducting a nesting study and desires to band or recapture the parents of a series of banded nestlings. It is interesting to speculate on some other uses. One of my first thoughts concerned the possible adaptation of this trap to a feeder platform where it could be used as either an automatic trap or one tripped by a pull-string from one's house. I can visualize how large numbers of birds milling about a feeder platform could possibly make the use of this trap hazardous. Nonetheless, with proper modifications to eliminate the hazard of hitting or pinning birds with the bow, it is possible that this trap could be satisfactorily adopted. An idea that intrigues me all the more involves the wily crow. In some areas, crows and gulls frequent garbage dumps; or in the case of the crow, roadside kills. This trap might work well for taking species that come to offal or carrion. I wonder, however, how serious a drawback the wariness of these species would be. The first crow or gull might come easily and be the last bird as well. It's an idea worth trying. The automatic bow could be adapted to a water drip or bird bath. Undoubtedly there are numerous other applications for this trap depending on treadle design. The individual can fashion the trap to his own needs.

Acknowledgment - I want to thank Frank Frazier for copies of translations of Priklonski's papers, and Walter B. Sabin for a copy of Tordoff's paper.

References

1. H. B. Tordoff: J. Wildlife Management, 18(2), 281-4 (1954).
2. H. Meng: EBBA News, 26(5), 185-8 (1963).
3. S. G. Priklonski: TR OKSK GOS ZAPOVEDNIKA, 4: 402-424 (1962).
4. S. G. Priklonski:et al.: Biological Abstracts, 46(2), 1523 (abstract 18993)(1965).

1527 Myron St., Schenectady, N.Y. 12309