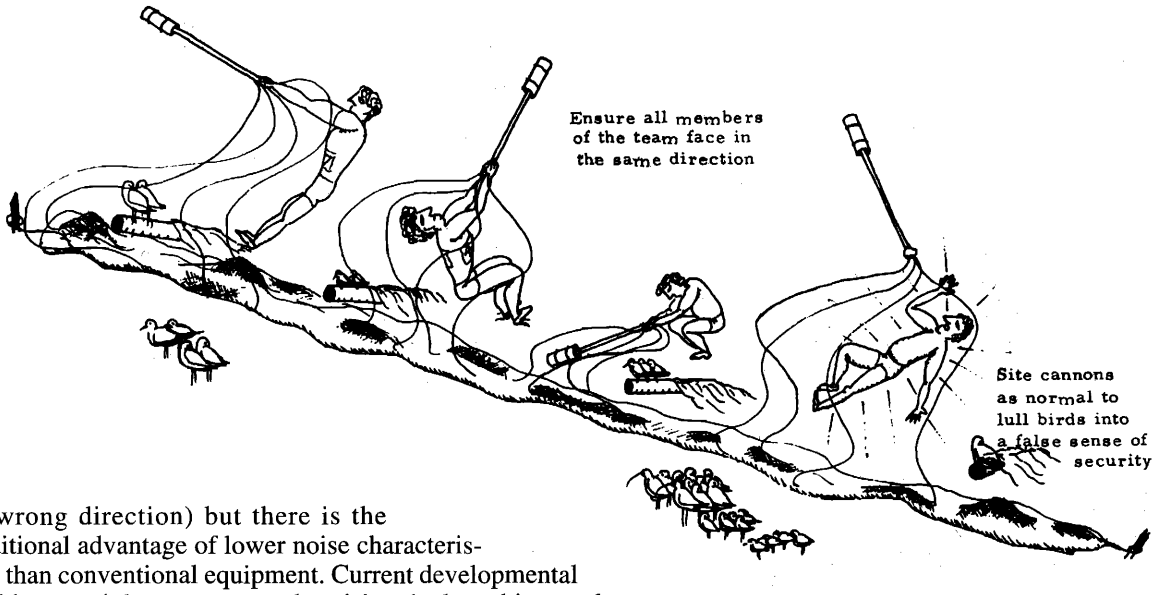


in wrong direction) but there is the additional advantage of lower noise characteristics than conventional equipment. Current developmental problems mainly concern synchronising the launching, and camouflaging the new cannon-substitutes. A further announcement will appear if these difficulties are ever overcome. Thanks to Nick Davidson for the technical drawing of this equipment printed above.

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# Projectiles again

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**Citation: Green, G.H. 1980. Projectiles again. *Wader Study Group Bull.* 29: 9.**

In December 1978 I reported on new developments in cannon net projectile design and recommended use of a straight metal rod in place of a variety of ropes, hawsers, hinged rods – a gamut of ramshackle contraptions which had been devised during the search to eliminate "troubles with projectiles" (Green 1978). Since then we have used rods (type 8 in the previous note) on many occasions without any failures. Several other groups have changed to rods and everyone seems to find them superior to the older designs – indeed they have the added advantage of spreading the net more efficiently because they are heavier. The rod is 7/8 inch (15 mm) diameter welded into a hole drilled into the end of the projectile. The end protruding from the barrel is fashioned into a circular loop which is welded into position. The net traces are attached to the loop either by threading the spliced trace loops through it or with a shackle. There has been a good deal of concern in the past about the strength and reliability of shackles but we seem to have overcome this problem by using shackles made from steel of the same diameter as the rod. Overall these measure about 4½ × 2½ inch diameter about 1¼ inch (4.5 cm). The strength of this equipment probably contains very large safety margins and so far we have not experienced any failures – the shackles have not even bent!

We generally set the net laid over the barrels as described previously (Green 1978) and take care to arrange the shackles so that the curve of the 'D' lies in the projectile loop and the net traces are round the shackle pin. The shackle is folded back towards the traces so the whole thing moves smoothly on firing. Incidentally a slow motion film shows that the projectiles cartwheel very soon after firing (within two-three projectile lengths of the barrel) and when the net setting method described is used the long rod moves more or less vertically about the point of balance.

The rods do sometimes get bent when they land on rock or if the heavy end penetrates soft sand or mud so that a "whipping" effect occurs. We straighten them with a heavy hammer and I am told that mild steel rod of this size is very unlikely to show fatigue and fracture in these circumstances. Obviously if very severe bending occurs the metal may either require heating before being straightened or the rod replaced. If a bend occurs near the weld careful inspection of the weld should be made for signs of weakness – if in doubt replace the rod. Needless to say high-quality welding is essential.

Besides manufacturing our own equipment we have now built several sets of projectiles for other groups and we have also adapted old projectiles by cutting off the old ring, drilling a hole and welding a rod into place.

[. . .]

Incidentally O-rings are often lost because the grooves in which they lie are not deep enough. On the new projectiles we make these deeper than many people currently use so the O-ring requires little filing to make it fit the barrel. Old projectiles are often too difficult to manage for us to offer to deepen grooves – you could use a file!

[. . .]

## Reference

Green, G.H. 1978. Troubles with projectiles. *Wader Study Group Bull.* 24: 20–22.

# Catching waders with a "wilsternet"

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Since 1974 we have been trying to catch full grown waders (mainly Oystercatchers *Haematopus ostralegus*) inland in Friesland, a province in the north of the Netherlands. Results with mist nets near roosts at night were moderate to poor. In 1975 and 1976 we had good results catching waders on their nests (Koopman & Hulscher 1976). Attempts to catch Oystercatchers at roosts with a large clapnet (4 × 15 m) gave poor results (once a catch of 25 birds). In 1976 we had the opportunity to buy a "wilsternet" – a net especially designed for catching "Wilsters" (Golden Plovers *Pluvialis apricaria*). Golden Plover catching has been practised in the north of the Netherlands since the 17th century (Eenshuistra 1973). Since this type of net is not very well known outside Friesland and because our results using it are fairly promising, we think it worthwhile to describe the net and how it works. According to Eenshuistra (1973) a good description with sketches of a comparable type of net is given by Payne-Gallwey (1882).

## Equipment

One net with poles at both ends, 1 cable, 1 tension line, 1 pullcord, 4 pegs, 3 security sticks, 10 small wire pegs, 2 see-saws for live* decoy birds (not always essential), 25–35 stuffed decoys, 1 hide, 1 shovel.

### *Net*

We advise nylon net with a thread thickness 210 denier/12 ply. Thinner thread injures the birds. Mesh size: 6 × 6 cm to 3.2 × 3.2 cm depending on the quarry. The net measures 25 m in length and is 3.5 m high. At the bottom edge there is a strong string with a loop every two meters. Pegs through the loops fasten the net to the ground. The upper-most meshes are reinforced with nylon thread of thicker diameter and a steel wire (diameter 3 mm) is laced through them (Figure 2).

*The use of live decoy birds is prohibited by law in the UK and some other countries: if in doubt consult your national ringing authority. – The Editors

### *Poles*

At either end of the net there are round, wooden arms (poles) 3.2 m long. Front arm diameter is 6 cm, rear arm may be thinner. Both have hinges revolving in wooden bases (oak or beechwood) (Figure 3).

### *Cable*

Total length 50 m consisting of 35 m of steel wire (diameter 3 mm) with 9 m of polypropylene rope (diameter 8 mm) at one end and 4 m at the other. A cable wholly of steel wire also operates very well.

### *Tension line*

A propylene rope of 6.5 m (diameter 8 mm), or steel wire.

### *Pullcord*

A steel wire cable (diameter 3 mm), length 40 to 70 m provided with one or two wooden sticks at the end as handgrips.

### *Pegs*

Round, wooden, 90 cm long, diameter 6 to 8 cm (nos. 1 to 3 in Figure 1).

### *Security sticks*

See Figure 4. Wooden, pointed, round, 20 cm long with a notch at the upper end. A little round stick, 12 cm long; diameter 1 cm can be squeezed into the notch; this gadget keeps the cable pressed to the ground, before action.

### *Wire pegs*

'r'-shaped, iron, to fasten bottom edge of the net to the ground.