

## Capture myopathy ('cramp') in waders

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**Citation: Green, G.H. 1980. Capture myopathy ('cramp') in waders. *Wader Study Group Bull.* 28: 15.**

This problem, discussed in *Bulletin* 24: 24 and 27: 19, relates chiefly to certain long-legged waders which 'go off their legs' on capture and are reluctant to fly when released. They generally recover given a long enough period (often prolonged – may be hours or days) of quiet and, if necessary, an adequate food supply. The damage to the birds appears to be caused when they struggle in the net in which they are captured and may be exacerbated by further restraint in *small* bags or *low* keeping cages in which the birds cannot stand. Dr P.R. Evans has drawn our attention to a relevant paper and this is reviewed below followed by a report on a cannon net catch of Bar-tailed Godwits *Limosa lapponica* from Dr C.D.T. Minton.

The paper mentioned by P.R. Evans is by J.R. Henschel and G.N. Louw (1978) 'Capture stress', metabolic acidosis and hyperthermia in birds', *South African J. Sci.* 74: 305–306. The authors refer to reports of severe losses during capture of wild ungulates due to 'capture myopathy' (basically

loss of structural and functional integrity of muscle fibres when muscles are severely over-strained) and to irreversible leg paralysis in flamingos after pursuit, capture and transport (Young 1967). To study the problem in birds a series of species of doves were restrained in a mist net for an hour and then in a dark box for five hours. During this period rectal temperatures were checked and the levels of several enzymes likely to be liberated into the blood if muscle fibres were damaged were monitored. Temperatures dropped sharply on capture then rapidly rose above normal before returning slowly to normal. Enzyme levels increased significantly indicating muscle damage and enzyme leakage into the blood. Most of the birds were unable to fly when released one to six hours after capture but had recovered by next day. The author suggests that capture myopathy can develop in routine procedures and it seems likely that some species are more prone to the conditions than others.

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## Occurrence of 'cramp' in a catch of Bar-tailed Godwits *Limosa lapponica*

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**Citation: Minton C.D.T. 1980. Occurrence of 'cramp' in a catch of Bar-tailed Godwits *Limosa lapponica*. *Wader Study Group Bull.* 28: 15–16.**

Further to the recent note (Stanyard 1979) on 'cramp' in Curlew *Numenius arquata* the occurrence of a similar condition in a cannon net catch of 186 Bar-tailed Godwits in Victoria, Australia may be of interest. Twenty birds were affected by cramp – a far higher percentage than in any previous group in the UK of between 100 and 500 godwits). Like those reported by Stanyard the affected birds were found to be sitting down in the keeping cages even though these were high enough for the birds to stand. Although most gradually improved after release one bird did not recover and the fate of several others is uncertain.

The main difference between this and other godwit catches was the length of time taken in covering the birds after firing the net. (Only five of a team of eleven people were immediately available and the covering material was located about 200 metres from the net.) Further differences were that the leading edge of the net reached the sea, necessitating lifting ashore (the large UK catches of godwits have been on fields) and a larger mesh size which allowed the birds greater freedom to struggle so they became more

entangled in the net than usual. However, the birds were extracted reasonably quickly from the net and banding (ringing) and processing proceeded expeditiously in warm (25°C) dry conditions.

This experience supports earlier conclusions, including those of van Heerden (1977). In particular they suggest that (a) 'straining' is the prime cause of 'cramp'. Minimising this during and after capture is the most important potential remedy; (b) the condition has probably taken effect before the birds are placed in keeping cages. (Tall keeping cages are not therefore considered a total remedy although they probably help recovery and reduce the chance of further development of the conditions which might occur if the birds strained against the confines of small low cages); and (c) it is vital that birds which exhibit cramp on release are not immediately recaptured and replaced in keeping cages. Chances of recovery are probably maximised if the birds are left to recover quietly and gradually without further harassment. Subsequently someone walking slowly on the down-wind side of the bird may help provide the extra stimulus for final



recovery – the bird making the effort to fly off. The presence of other normal birds being released and flying away near cramped birds seems to encourage the recovery process.

### Some conclusions

One can conclude from these notes that waders prone to capture myopathy (Curlew, Whimbrels *Numenius phaeopus*, Bar-tailed Godwits and perhaps certain other long-legged species) must be extracted from the net (cannon or mist) in which they are captured as rapidly as possible and transferred to tall (so the birds can stand) hessian (or similar cloth) cages where the light is subdued but not so dark that the birds crouch. If the extraction time from a cannon net is to exceed a few minutes the catch must be covered immediately with lightweight dark cloth which subdues the birds and reduces their efforts (straining and struggling) to escape. Also generally, but particularly if birds are showing signs of cramp, release should be considered as an important part of the ringing process and should not be left to an unsupervised inexperienced member of the team.

### References

These include those mentioned in this note and also those listed in Henschel and Louw's paper described by Green (1980) above.

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## Possible capture myopathy in Bar-tailed Godwits *Limosa lapponica* in Australia

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**Citation: Purchase, D. & Minton, C.D.T. 1982. Possible capture myopathy in Bar-tailed Godwits *Limosa lapponica* in Australia. *Wader Study Group Bull.* 34: 24–26.**

Capture myopathy is a condition associated with stress which occurs in many mammals and some species of birds (especially those with long legs) following their capture. The most obvious symptom is paralysis of the limbs, particularly the legs. Birds affected by capture myopathy also seem unable, or unwilling, to fly. In recent years three notes have been published in the *Bulletin* about capture myopathy in long-legged waders in Britain (Green 1978, 1980, Stanyard 1979). In Australia, with an increase in the numbers of Bar-tailed Godwits *Limosa lapponica* and other long-legged waders being banded, capture myopathy has now shown itself to be a problem. A previous incident in Australia involving capture myopathy has already been reported (Minton 1980). This note provides details of another incident in Australia involving possible capture myopathy in Bar-tailed Godwits.

During 19 and 20 March 1981, a group of about 20 banders, including the authors, visited Botany Bay, New South Wales. Botany Bay, 20 km south of Sydney, is roughly circular with a diameter of approximately 8 km. About half the shoreline comprises sandy beaches fronting suburban (including industrial) areas, and the other half mangroves and mudflats.

On 19 March 1981 two cannon nets (each about 28 × 13 m in size) were fired at 07.30 hrs on a rising tide on

a sandy beach at the northern end of Botany Bay. The weather was fine. The temperature was about 18°C and rising. Twenty-four Bar-tailed Godwits and one Lesser Golden Plover *Pluvialis dominica* were caught. Some birds were trapped under the front portion of the net which landed in the sea, but the net and birds were quickly moved to the shore. The birds in the net were then covered with large sheets of cloth or hessian. When this had been done, the birds were removed and placed in holding cages about 1 m high. All the birds were then processed (banded, measured and examined for moult).

Immediately after each bird was processed it was released by placing it on the sand in a quiet area about 40 m from the processing site. On release, eight of the Bar-tailed Godwits showed some paralysis of the legs. However, they all seemed to recover and fly away. About 1.5 hours elapsed between when the net was fired and the last Bar-tailed Godwit was released.

Later on 19 March one cannon net was fired at 18.30 hrs (a few minutes before sunset) on a rising tide on a sandy spit at Towra (about 7 km across the bay from the previous banding site). The weather was fine, although a cool wind was blowing. The temperature was about 15°C and falling. The front portion of the net landed on a number of birds in the

