

WEIGHT LOSS IN SANDERLINGS *CALIDRIS ALBA* AFTER CAPTURE

by Charles T. Schick

Weight loss in shorebirds after capture can result in inaccurate determination of field weights and confound comparisons between captures not processed in the same fashion (Wilson and Davidson 1982). This problem is particularly acute when processing large captures where the size of the capture spreads out weighing over several hours. This points to the need for large-scale shorebird banding operations to quantify weight loss during the period of captivity and to correct for this loss when possible and appropriate. Several workers have now quantified the weight loss in three species, Dunlin *Calidris alpina* (OAG Munster 1976; Lloyd et al. 1979; Davidson 1981 in Wilson and Davidson 1982), Common Snipe *Gallinago gallinago* (OAG Munster 1975), and Red Knot *Calidris canutus* (Davidson 1981 in Wilson and Davidson 1982).

In this note I report weight loss in captive Sanderling captured from night roosts at Bodega Bay, California, during the winter of 1982-83. The study area is described in Myers (1980) and Connors et al. (1981). All birds in this study were removed from mist nets and weighed immediately, then placed in boxes in the field for 1 to 4 hours, weighed at least once more in the field, and then brought to the laboratory for processing and further weighings.

Initial weights of 12 birds captured on the evening of 3 March 1983 averaged 48 g. During their first hour of captivity they lost an average of 1.2 g or 2.5% of initial weight (Figures 1 and 2). Weight continued to decline at a lower rate through the duration of the experiment, an average of 0.4 g or 0.8% of initial weight per hour for the next two hours, and an average of 0.3 g or 0.6% per hour after three hours for a cumulative weight loss of 5.0 g or 10.3% of initial weight after 13 hours (Figures 1 and 2).

On 4 other evenings (24 November, 8 and 9 December, and 3 February) during the same winter, a few of the birds captured were weighed immediately after removal from the nets, and again at 1 hour and 3 hours after capture. Pooling these data with those above, the average weight loss after 1 hour (n=16) was 1.3 g or 2.7%, and after 3 hours (n=19) was 2.3 g or 4.3% of initial weight. These losses are just slightly greater than the 3 March data alone.

These results parallel those of Lloyd et al. (1979) for Dunlin captured on the Wash. In both studies birds had a high initial weight loss followed by a gradual decline thereafter. Both species are of similar size, and in both the cumulative loss after 12 to 13 hours in captivity was 10%.

These rates of weight loss may reflect, in part, the fact that repeated handling increases stress (Lloyd et al. 1979). I made no attempt to test this possibility.

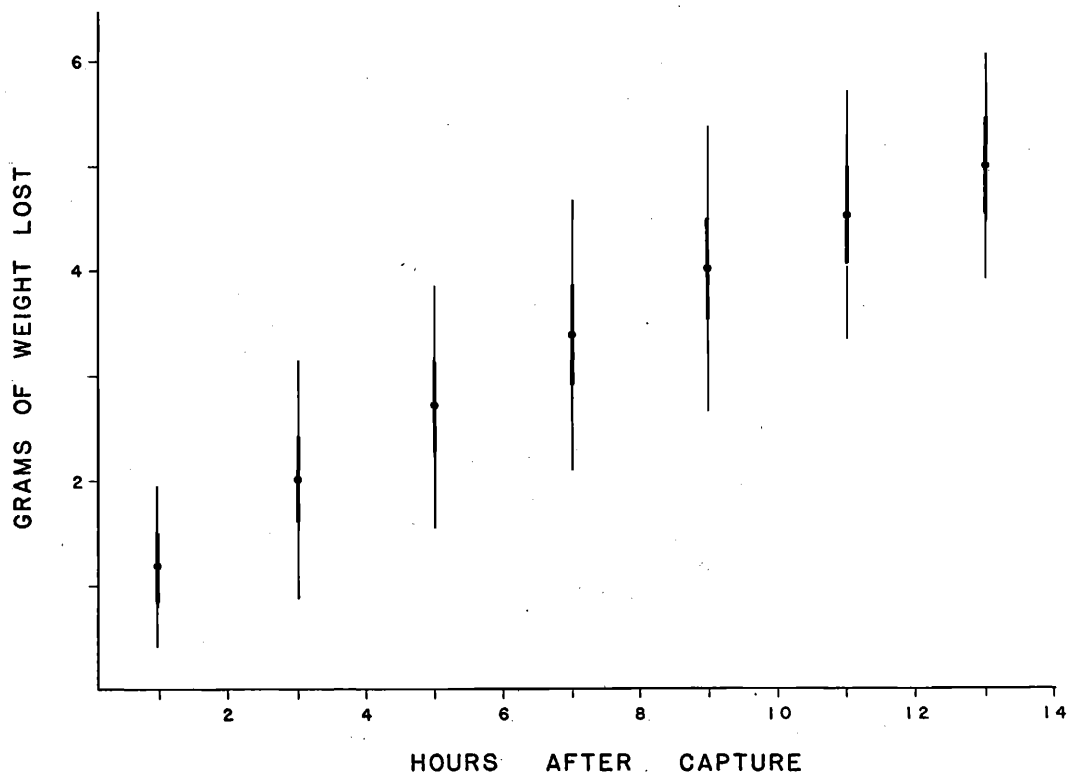


Figure 1. Grams of body weight lost by captive Sanderlings as a function of hours since capture. Means, 95% confidence interval (thick lines), and ranges (thin lines). Data from 3 March 1983 (n=12).

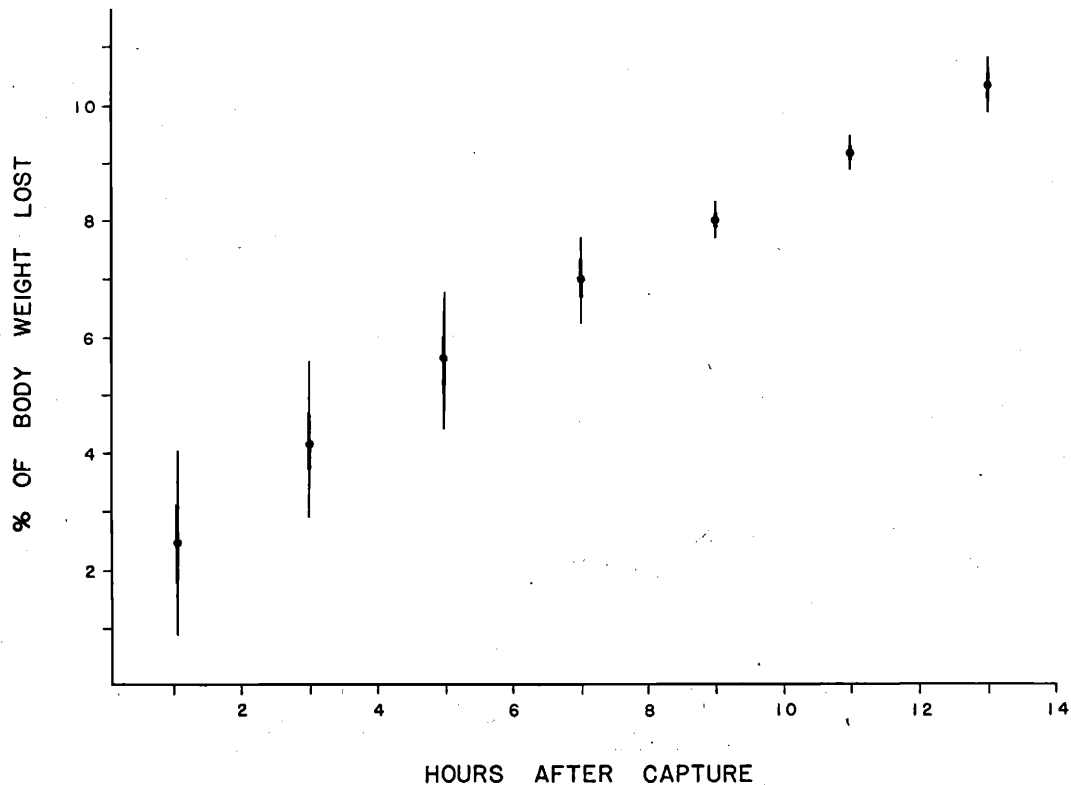


Figure 2. Percentage of initial body weight lost by captive Sanderlings as a function of hours since capture. Means, 95% confidence interval (thick lines), and ranges (thin lines). Data from 3 March 1983 (n=12).

The initial capture weight of birds may also affect the rate of weight loss. If it is assumed that much of the initial weight loss is due to dehydration, and that heavier birds are carrying a higher percentage of fat, then heavier birds should show a smaller percentage weight loss than lighter birds. Average initial capture weights of birds varied between the catches: 24 November, 56 g (n=3), 8 December, 46 g (n=1), 9 December, 52 g (n=3), 3 February, 51 g (n=3), 3 March 48 g (n=12). However, the effect of pooling these data (see above) only slightly increased the gram and percentage weight loss after 1 and 3 hours, suggesting perhaps that rate of weight loss, on average, is rather uniform regardless of initial capture weight. Obviously this conclusion is tentative, and considering the small sample sizes, should be viewed with caution, but it does suggest that weight loss may be due to both dehydration and tissue utilization, even during the first hours after capture. I did not investigate the effect that different holding temperatures may have had on weight loss rates.

Whatever the mechanism(s) involved, these results highlight the importance of recording the delay between time of capture and time of weighing when banding any shorebird species. As urged by Wilson and Davidson (1981), the simple procedures used in this study should be employed by shorebird banders to obtain accurate field weights and to help standardize weight data.

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