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duck, down

White-backed Duck diving behaviour

The White-backed Duck is an aberrant whistling duck that shares several morphological features with the stiff-tailed ducks (Oxyurini) because of their shared reliance on diving for feeding. White-backed Ducks eat vegetable matter, especially water-lily seeds, collected from the bottom of shallow wetlands. Clark (1969, *Wildfowl* 20: 71–74) reported that dive durations increase with water depth, lasting 12 to 14 seconds in water 0.3 metres deep, 15 to 20 seconds in water 0.6 to 0.9 metres deep, and 25 to 30 seconds in water approximately two metres deep. Recovery intervals between dives range from four to 12 seconds, increasing with dive duration and depth, giving a dive efficiency (the ratio of dive duration to recovery period) in the order of 2 to 3.

above *White-backed Ducks appear to be champion divers in freshwater.*

On 9 January 2018, I recorded dive and recovery times for a White-backed Duck diving in a farm dam in the upper Olifants River Valley, 23 kilometres south of Citrusdal in the Western Cape. Unusually, the dam was largely devoid of floating vegetation (although it has supported large numbers of water-lilies in previous years) and this was the only occasion from 7 to 11 January 2018 that a White-backed Duck was observed on the dam. A nearby dam with a dense growth of yellow floating heart *Nymphoides thunbergiana* and blue water-lilies *Nymphaea nouchali* had as many as six White-backed Ducks at this time. From 11h30, the duck was observed diving repeatedly in the deepest part of the dam where the water was about three metres deep. White-backed Ducks typically feed at dawn and dusk, and then mostly sleep during the rest of the day. Diving at midday may be related to the relatively deep water, assuming the ducks use some visual stimuli while foraging, because light penetration is greatest when the sun is high in the sky.

Clancey (1967, *The Game Birds of Southern Africa*) claimed that White-backed Ducks leap into the air at the start of a dive, but this was not noted by Clark (1969). Diving birds that feed on the bottom of lakes or in the sea tend to leap into the air when diving to deeper depths to initiate steeper dive angles and thus minimise the time spent commuting to the lake or sea bed (for example, Wilson et al. 1992, *Marine Ornithology* 20: 7–16). We might thus expect that if a White-backed Duck were going to leap, it would be when diving in deeper water than that observed by Clark. In the event, no leaps occurred, with the duck submerging smoothly from the surface. As also reported by Clark, there was very little lateral displacement during each dive, making it easy to measure the duration.

Dive durations were remarkably consistent, averaging 39.8±1.1 seconds (range 38–42 seconds, n=10 dives). Recovery intervals averaged 11.9±1.5 seconds (range 10–14 seconds, excluding one lasting 22 seconds, when the bird was distracted by an aggressive interaction between two Red-knobbed Coots). Combining these data with Clark's observations, White-backed Ducks show a linear increase in dive and recovery times with water depth, as is typical of many bottom-feeding birds (for example, cormorants; Wilson & Wilson 1988, *Journal of Animal Ecology* 57: 943–955).

There is some indication that dive efficiency increases slightly with dive duration, averaging 3.3 when diving in three-metre-deep water. There are relatively few diving data for ducks in freshwater habitats (see *http://penguinessbook.scarmarbin.be*), but the maximum dive duration of more than 40 seconds confirms that the White-backed Duck undertakes some of the longest dives recorded for a duck in freshwater. Common Eiders have been recorded diving for up to 80 seconds when descending to nine metres in the sea, but given that eiders can attain depths of up to 60 metres, they almost certainly undertake even longer dives on occasion.

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