

Population dynamics and conservation biology of Red-throated Diver *Gavia stellata* in Finland

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The number of breeding Red-throated Diver pairs in Finland is considerably smaller, and the status of the population is more threatened, than generally thought. In parts of Häme, Satakunta and Pirkanmaa, south-western Finland, for example, the breeding population has declined markedly in numbers in recent decades. In spite of this, the third bird atlas of Finland (2006–2010) estimates the present population as 1 500–2 000 pairs. This estimate is 2–3 times as high as the most reliable recent estimate of the population, 600–750 pairs, which is based on 462 breeding pairs found in a species specific nation-wide inventory by BirdLife Finland in 2010.

The breeding success of the Red-throated Diver has declined in many regions in southern Finland especially since the beginning of the 2000s. In Häme, for example, the mean number of broods (successful nestings) per breeding pair was 0.74 in 1976–1979 (n = 39 nesting attempts), 0.87 in the 1980s (n = 117), 0.89 in the 1990s (n = 19), and 0.72 in 2000–2009 (n = 141), but only 0.58 broods per pair in 2010–2013 (n = 76). The respective figures from South Savo, SE Finland, were 0.79 (n = 28) in 1998–1999, 0.68 (n = 161) in 2000–2009, and 0.62 (n = 203) in 2010–2013. The recent respective figures in the north are higher, for example in the Martimoaapa mire in Simo, south-western Lapland: 0.95 in 1993–1999 (n = 112), 0.88 in 2000–2009 (n = 168), and 0.76 broods per pair in 2010–2013 (n = 74). Also in Taivalkoski, further east, Red-throated Divers nested, on average, more successfully in 1998–2013 than in Häme and South Savo, but the figures are not as reliable as from the three other areas due to somewhat lower intensity in the search of unsuccessful pairs. It is not known whether the present level of natality is high enough to compensate mortality or not, as the ringing data of the Finnish population is too scanty to calculate any real mortality estimates.

The Red-throated Diver population seems to be more viable in eastern and northern than in southern Finland. One of the most significant and alarmingly increasing threats to the breeding success is disturbance by hikers, nature photographers, bird-watchers, fishermen, summer cottage owners, and other people visiting nest ponds. Tens of nesting attempts are destroyed by human disturbance every year especially in southern and western Finland.

Artificial rafts have been built for Red-throated Divers in Häme since the 1970s and later on in various parts of Finland. In many regions the average nesting success has been higher in these rafts surrounded by water than along the shores where also mammalian predators are able to rob diver eggs. Rafts should be built in the future, too, but this work requires expertise, because in too visible or otherwise unsuitable sites rafts may increase the vulnerability of divers for predation and disturbance by humans.