

# Diving times of grebes

By *D. E. Ladhams*

During August to October 1966 I made regular observations on the diving of the Pied-billed Grebe *Podilymbus podiceps* which lived in a well-defined territory on the west side of Chew Valley Lake, Somerset (Ladhams, Prytherch and Simmons 1967). The results prompted me also to time the dives of four other species of grebes at the same locality—and on a few occasions at two other places, Blagdon and Barrow Gurney Reservoirs, which are not far away—during the same period and in April 1967. This paper summarises my findings.

Complete submersion by diving in open water seemed to be the Pied-billed Grebe's only method of finding food, which it then always consumed on the surface; I estimated the maximum length of the fish which I saw caught to be about five inches. Diving was almost splashless, but in still water it was possible to follow the track of the bird by the swirling on the surface. Its dives varied from 2 to 25 seconds, with an average of 13 seconds; fig. 1a summarises the times of 356 dives during 25 feeding sessions, each lasting about half an hour. No information on the diving times of this species was given by Palmer (1962) and I have been unable to trace any other published records. The feeding of the Pied-billed Grebe at Chew was watched in a wide variety of conditions and the duration of dives appeared not to be related to (a) time of day; (b) sun, wind, rain or other weather; (c) presence or absence of other waterfowl; or (d) depth of water, although this was probably never more than five feet in the area concerned.

The dives of four other species of grebes were timed in similar conditions and are likewise summarised in histogram form on page 29: Little Grebe *Podiceps ruficollis*, 182 dives (fig. 1b); Great Crested Grebe *P. cristatus*, 146 dives (fig. 1c); Black-necked Grebe *P. nigricollis*, 139 dives (fig. 1d); and Slavonian Grebe *P. auritus*, 120 dives (fig. 1e). The great majority of the dives of the Little Grebe were comparatively short, about 11 seconds, whereas Witherby *et al.* (1938-41) and G eroudet (1965) quoted an average of 15 seconds and a maximum of 25 seconds. The same authors, and Ingram and Salmon (1941) and Simmons (1955), together showed a range of diving times for the Great Crested Grebe from 11 to over 50 seconds, the average probably being about 25 seconds; at Chew, however, the maximum I recorded was 45 seconds, the average 18 and the minimum 5. Great Crested Grebes only a few months old showed the same distribution of diving times as adults.

The Black-necked Grebe was reported by Witherby *et al.* as diving for about 25-35 seconds, and times noted by various other observers have ranged from 9 to 68 seconds (Géroutet, Ingram and Salmon, Dewar 1941, Carden 1960). The longer times have been recorded in deep waters, and my figures at Chew in winter rarely exceeded 20 seconds and had an average of only 11 seconds. The average for the Slavonian Grebe was  $17\frac{1}{2}$  seconds at one of the other reservoirs nearby in winter (82 timings varying between 15 and 30 seconds) and  $19\frac{1}{2}$  seconds at Chew in April (39 timings between 10 and 25 seconds); a range of 25 to 40 seconds was given by Géroutet.

Some of these differences may be connected with the comparatively shallow water at Chew, but no doubt the wide range of diving times recorded for one individual during a single feeding session is due to a variety of causes, such as ease of finding food, degree of hunger and fatigue, state of plumage, and so on. American literature (e.g. Palmer)

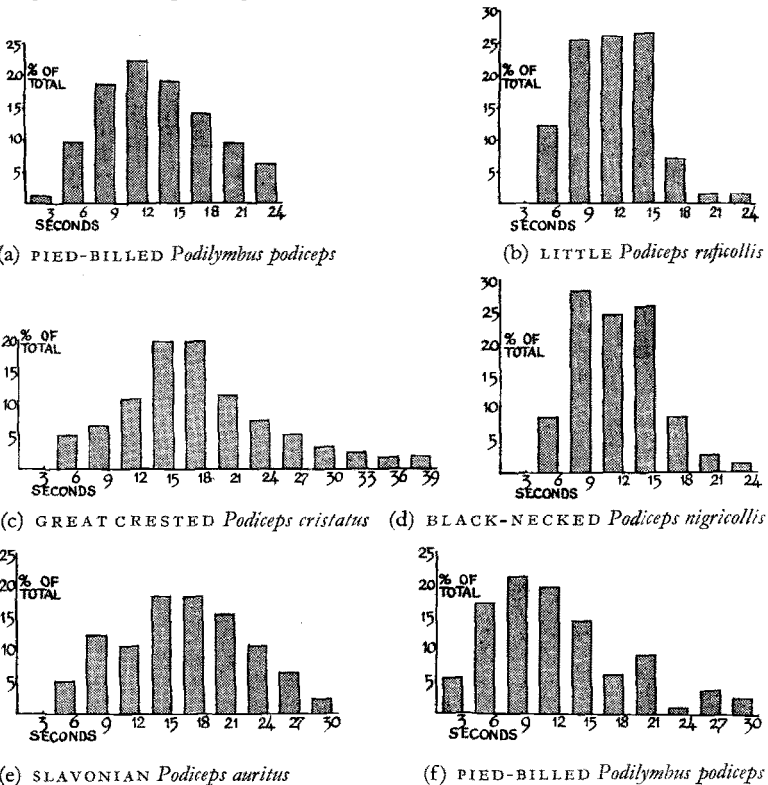


FIG. 1. Histograms showing the duration of (a-e) the dives of five species of grebes at Chew Valley Lake, Somerset, and (f) the pauses between the dives of the Pied-billed. Each histogram is made up of times taken by stop-watch and distributed here in columns of 0-3 seconds, 4-6 seconds, and so on. The height of each column shows the frequency of the times it covers, this being expressed as a percentage of the total number of observations

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suggests that the Pied-billed Grebe is slightly larger than the Black-necked (although this was not our impression at Chew); if this be accepted and the five species placed in order of size, from Little to Great Crested, it is interesting to note that this is the same as the order of the average duration of dives recorded at Chew—11, 11, 13, 17½ and 18 seconds.

Fig. 1f summarises the pauses between the dives of the Pied-billed Grebe. These ranged between one or two seconds for taking breath to stoppages of over half a minute. Occasionally there were longer breaks in a feeding session, but these have been omitted from the histogram, which shows an average of about nine seconds. Eating took up most of

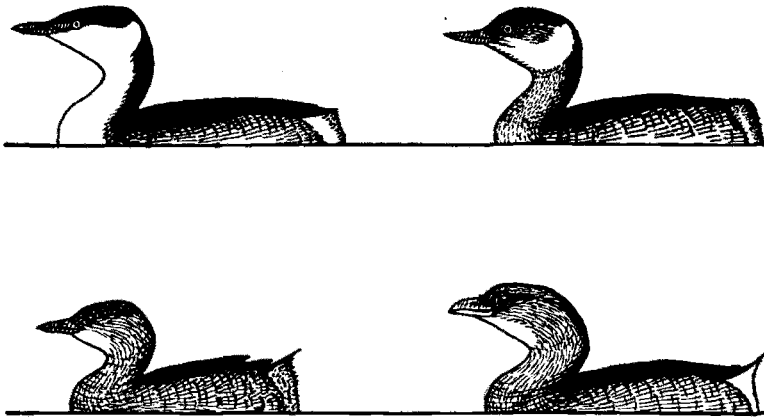


FIG. 2. Grebes in winter plumage: upper two, Slavonian *Podiceps auritus* and Black-necked *P. nigricollis* (latter at a transitional stage); lower two, Little *P. ruficollis* and Pied-billed *Podilymbus podiceps* (sketches: Robin J. Prytherch)

the pause after a successful dive and there was also a little quick preening during approximately one in every five intervals. On a few occasions the bird was seen to spend up to ten seconds scanning under the water with its head half-submerged, peering right and left, before diving. This action was not a form of surface-feeding, such as has occasionally been observed in other grebes, but was evidently a deliberate search. Apart from the activities mentioned, most other pauses were taken up with patrolling slowly over a very limited area less than 200 square yards in extent.

Finally, I am grateful to Robin J. Prytherch for supplying the drawing reproduced as fig. 2, which shows the winter plumage of the Pied-billed compared with that of the Slavonian, Black-necked and Little, and which also illustrates our impression of the comparative sizes of four of the five grebes discussed in this paper (omitting the largest, the Great Crested).

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