

two nests of the Common Pochard with resp. 11 and 16 eggs, two and three of which are attributed to the Red-crested Pochard.

In addition to previous observations at the same locality two female Red-crested Pochards were seen with young in the northern parts of the „Vinkeveense plassen”, which are situated close to the „Botshol” (cf. Vooûs, 1943). One female was followed by some five newly hatched downy young. The other female was seen with three still downy young of about three or four weeks (July, 18th).

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## Some Remarks on the Life-History of the Black-necked Grebe (*Podiceps n. nigricollis* Brehm)

BY

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According to the map to be found in the book of Mr. Haverschmidt, the breeding of the Black-necked Grebe in the Netherlands has been positively stated in seventeen localities.

I collected a number of observations of adult birds in the year 1940 in a rather small pool at Schellinkhout, about five kilometres east of Hoorn (cf. Vogels Zuiderzeegebied, 3de aanvulling). But then I could not prove that they were breeding-birds.

Unfortunately I could not pay much attention to this fine species in the two following years.

This year, 1943, however, I succeeded in ascertaining the fact that a couple of these birds had been breeding there successfully. I saw the first specimen on June 4th. I saw the other partner for the first time on June 13th. And I caught a first glimpse of the three downy young ones on July 16th. The following remarks are based upon twenty observational days, viz. four in June, ten in July and six in August. The duration of my observations ranged from a quarter of an hour to well over three hours. I always used eight times magnifying glasses.

First of all some remarks on the cause of this breeding. There are two possibilities in my opinion, either of which may be the true one. First: the summering birds of the previous years have become breeding-birds, perhaps because some hampering factor, unknown to me, has been eliminated. The second possibility is, that the birds were indeed breeding-birds in the past

years, but succeeded in escaping from my attention. I think the first suggestion to be the most likely.

The biotope was a rather small pool, just behind the old dyke of the former Zuiderzee. This pool probably thanks its existence to an excavation of the land in former times in order to get materials for the old dyke near it. It forms one of the scarce places with a rich animal-, especially bird-life in a vast area of cultivated polders.

The vegetation predominantly consists of reed (*Phragmites communis*), growing there in narrow patches or forming rather large islets. These islets or patches of reed will undoubtedly have hidden the nest of the Grebes, as I often saw one partner disappearing in them, obviously with breeding-intentions.

The quietness and remoteness of the place, together with the abundant vegetation of water-plants and its being an apparently inexhaustible "producer" of all kinds of little animals, which serve as food for others, has attracted a large number of birds in about eight species, breeding there. The most striking feature of the bird-fauna is the abundance of the Black-headed Gull (*Larus ridibundus*), which has been breeding there for at least six years. In the breeding-season of this year, 1943, about a two-hundred young ones were successfully reared. The Black-necked Grebe likes to settle down in a gullery, as is a.o. mentioned in Niethammer's "Handbuch" (III, p. 32). It is the case in many Dutch „*nigricollis*“-settlements too. The relation that will undoubtedly exist between *Larus ridibundus* and *Podiceps nigricollis*, seems to be not yet known.

Other breeding-birds in the pool in the year 1943 were: *Podiceps cristatus* (at least one pair), *Podiceps ruficollis* (very numerous; estimation: ten to fifteen pairs), *Fulica atra* (numerous), *Gallinula chloropus* (at least two pairs), *Aythya fuligula* (very probably one pair), *Anas platyrhynchos* (estimation: three or more pairs) and in all probability *Spatula clypeata* and *Acrocephalus scirpaceus*.

The behaviour of the Grebes aroused my interest and though I did not make important discoveries, yet a description of my observations will perhaps be a stimulus to ornithologists to pay closer attention to this species. I borrowed the division of the subject-matter from Makink's publication on the Avocet, only slightly adapted.

**1. Individual conduct.** This chapter is meant to give a survey of the actions common to this species in relation to the various very first necessities of life.

a. Feeding. I distinguished four methods by which the Black-necked Grebes gathered their food. First: the diving-method. This is the commonest way: the bird dives into the water with a sudden jerk of its neck and head in an undescrivable smooth manner and seizes its food with its bill there. It is highly probable, in my opinion, that the catch is often devoured under the surface of the water; but occasionally a bird was seen coming upwards with its catch in its bill.

When the catch was a small fish, it was held in the middle of its body.

With a series of rapid shakings the fish was moved in the bill, so that the Grebe could swallow it head first. <sup>1)</sup>

Only the legs are used in diving, the wings are pressed against the body. The average time of one dive was about twenty seconds, with an average lull between two dives of about ten seconds.

Next the second case: the *skimming-method*. The head — and part of the neck sometimes — are put into the water and are moved forwards and backwards in the length of the body. This method seems suited to catch small insects etc., living near the surface of the water. I have not very often seen this method, however. This method seems comparable with that of ducks (*Anatidae*), eating duck-weed and with that of *Avocets*, described by *Makkink*.

The *dipping-method* is the third manner. The Grebes dip their necks and heads vertically down into the water and then look about for something eatable. Only very seldom did I see this method. The method is quite the same with *Coots* and *Swans*. *Avocets* also have a suchlike attitude sometimes, according to *Makkink's* paper.

Finally the fourth case: the *pecking-method*. The swimming or floating bird pecks at edible things on or near the surface of the water, sometimes in quiet succession, but generally in an unsystematical, apparently careless way. We often see quite the same method used by *Black-headed Gulls*, *Coots*, other species of *Grebes* and by some species of *Limicolae*.

b. *Cleaning of the feathers*. The most characteristic cleaning movement, a peculiarity of all *Podicipedidae*, is the „circle movement” as I call it. The Grebe tilts its body, so that the glittering white side of the body is shining in the sun. Then it keeps rubbing with its bill against the feathers and the skin. In the meantime a continuous paddling with the foot on that side of the body prevents the bird from falling down into its former position. This paddling causes the rotation of the body on the water. After about five minutes the feathers on the other side are cleaned in the same way; the „circle movement” is just the reverse then of course. This method of cleaning the feathers was often an easy field-character to recognize a Grebe in a crowd of *Coots* e. g.

The arranging and cleaning of the feathers of the wings and the back is done by pecking movements, varying in rapidity as many other birds do. The feathers of the neck are arranged by repeatedly pressing the bill against them, so that they are combed as it were.

Finally, when all this work has been done, the Grebe partly rises from the water and a shaking of the body can be seen, attended with a flapping of the wings or not.

By this arranging, cleaning and greasing the feathers are kept in a good condition, which is of course of very great importance.

c. *Bathing*. Only seldom did I see them taking a bath. This was done by continually and quickly dipping their heads and necks into the water and

<sup>1)</sup> My description of the fishing is based on observations of migrants.

by splashing with their wings at the same time; so in much the same way as the Black-headed Gull does.

d. Once I saw a bird stretch backwards a wing and a foot of the same side of the body at the same time, while it was quietly floating on the water. Perhaps this stretching movement is made in order to chase away a certain drowsiness (?).

e. In rest or asleep the bill is put into the feathers of the back and the neck lies on the back. There is also a second attitude of rest: the floating bird bends its neck backwards so that it lies on the back in a very graceful position.

f. Grebes are bill-fighters; they attack enemies with their strong bills above or under water. In the last case they resemble submarines that carry out a torpedo-attack. This "torpedo-fighting" has already been stated for other Podicipedidae as the dabchick e. g. by many writers.

g. In taking to flight I never saw a bird going on the wing; it tried to escape from an imminent danger by diving. When the dangerous being was at a certain distance it tried to escape by slowly swimming away in a curiously cautious attitude: looking back suspiciously at regular intervals, now with its right, now with its left eye. When the danger continued to approach, it dived at last.

I never saw a Black-necked Grebe flying or walking, so I cannot describe these ways of locomotion. They will undoubtedly be the same as in other Grebes. When they are swimming, they use each foot in turn.

2. Sexual conduct. When my observations on the Grebes began, the couple was seldom seen together. And even when this was the case, I never saw any sign of courtship. I think that peculiar courtship-actions are restricted to the early hours of the day and to the earliest period of married life.

On another occasion, viz. on May 25th, 1943, on the "Waschmeer" near Hilversum, I saw a couple standing opposite each other in the "Pinguin Tanz" as is described in Niethammer's "Handbuch" of the Great Crested Grebe (*Podiceps cristatus*). I suppose the courtship of the two species will have more similarities.

3. Parental conduct. One of the quaintest and funniest scenes of the family-life of the Grebes is that of swimming and diving adult birds, carrying two or more of their chicks on their back. But this is only to be seen for a rather short period in *Podiceps nigricollis*, for the young ones rapidly grow independent, at least in comparison with *Podiceps cristatus* - this has already been stated by Niethammer.

Especially in the first days after the hatching of the eggs, the parents remain hidden with their offspring in the reeds or swim and dive about always very near the sheltering reeds. Then one parent — the male partner according to Niethammer — is constantly feeding the "whimpering" young birds. This feeding will be discussed in detail in the chapter on the filial conduct.

When the young birds grow older, the whole family moves to the open water, often remaining there for hours at a stretch, far from the protection of the reeds.

About a week after the birth of the chicks each mate is going to look after part of the young ones and there seems to be a loosening of the nuptial tie, caused by the offspring, as the partners always seem to shun each other, are even hostile when they meet. For this really seemed the only explanation to me, when I saw the two partners fighting more than once when they approached each other.

On one occasion I saw an adult bird pecking at a young one. Unfortunately I could not discover for what reason.

4. *Filial conduct.* The behaviour, typical of the young ones is discussed in this chapter.

a. *Feeding.* In the very first days of their existence the chicks are continually fed by one parent for the greater part of the time. When each bird has taken care of part of the young ones, it may occur that a young bird leaves a parent and joins the other. Once I saw that this happened. During the feeding the young birds are frequently uttering a rather loud chirping sound. The parents are diving for food, generally for about twelve seconds. When they come above the water, they rapidly swim in the direction of a young one. The latter does likewise. Both have their necks stretched forwards. Then the old bird offers the food by bending its head forwards. The young bird takes the food out of the bill, without any noticeable aid of the old bird.

It may be, in my opinion, that the golden feathers on both sides of the head serve to direct the attention of the young ones to the bill, as their source of food — of course apart from their other functions, if any.

When they have grown older, the young birds soon begin to gather their own food by diving. The dives are pretty short in the beginning, but gradually increase in length, as the birds become more and more independent. A heavy splashing is characteristic of the diving young birds. Even when the young birds seem quite able to gather their food themselves, they are sometimes fed by a parent. Perhaps this is due to the only gradually waning instinct of feeding of the old birds.

When about a fortnight has passed, the young birds can apply all the methods used by this species, to gather food.

b. *The "instinctive flight".* A most remarkable feature of the behaviour of juvenile birds after having been fed by an adult bird is the "instinctive flight" as I called it. This flight consists of a three or more decimetres' swimming, away from the parent, immediately after having got its share. The biological significance seems clear: the young bird secures the safety of its portion by this action, especially when other young birds are in its neighbourhood. It is obvious that this flight is instinctive, for I often saw it take place when there was no danger at all that the food would be stolen by some enemy.

Only once did I see that an instinctive flight did not take place.

I never saw anything of the sort of the young ones of the Dabchick or the Great Crested Grebe.

After about three weeks they are fully independent and behave like grown-up birds in all their activities as: feeding, sleeping, diving and swimming. Now you often find them idling away their time, swimming in the middle of the pool.

5. **Conduct of summering birds.** My observations in the year 1940 on summering birds are as follows: I often saw the birds floating on the water in the neighbourhood of each other. Sometimes they were chasing one after the other at full speed, dashing forward across the water with flapping wings and splashing feet. They spent most of their time in sleeping and diving for food. Seldom were they seen near the sheltering reeds.

6. **Food.** It was hardly possible to get an insight in the nature of the food. I can only say it was often vegetable matter. I never saw them eating fishes here.

7. **Enemies and reactions to them.** Men were feared. When they saw them approach the pool, the Grebes usually fled into the reeds, when they came too near. Dogs too were considered to be a danger. Coots (*Fulica atra*) often attacked the old and young birds by pecking at them with their strong bills; they usually swam away from them in the above-mentioned cautious and suspicious attitude, when the former approached in a threatening way. Their reaction to the approach of grown-up and juvenile Great Crested Grebes was likewise. They were really a little afraid of their larger relatives!

8. **Moult.** After and at the end of the breeding season the moult of the adult birds set in. First of all the heads and necks were moulted. This moult of the head- and neck-feathers is continued in August and the following months till the winter plumage is acquired. When moulting the birds were much shyer and less active.

I hope that these stray notes will be an impulse to others to study the life of this handsome bird more fully.

The observations recorded above are certainly incomplete and will have no general validity, at least partly not. But yet I thought it better to publish my remarks now, as it is not probable that I shall be able to continue my observations next year.

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