

DO EARED GREBES ENGAGE IN FLIGHT DURING COURTSHIP?

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Abstract

Courtship displays of Eared Grebes were observed at two locations in Saskatchewan for a total of 12 h, and 14 cases of flight involving either one or two birds were recorded. In most occurrences, the grebes became fully airborne; however, it was not clear whether they were simply retreating from conspecifics to continue courtship with a selected partner in isolation. I suggest that these flights, especially when two grebes take off simultaneously, may be ritualized and represent a courtship display behaviour on their own.

Introduction

Grebes (Podicipedidae) are a family of waterbirds that rarely fly outside migration. The majority of their members maintain the necessary architecture and minimum of wing musculature for direct, rapid flight. However, since the wings are not needed much in daily life, grebes develop functional flightlessness for part of the year.³ The courtship rituals of the different species of grebes generally do not include elements of flight. Only in the Retreat Ceremony known from the Great Crested Grebe and other *Podiceps* species, a low dashing kind of flight with the feet paddling over the water surface occurs when one partner in a pair retreats from a common bout of head-shaking.

Similarly to other grebes, Eared Grebes rarely fly except during migration.¹ Eared Grebes using Mono Lake in California for long stays during their autumn migration become flightless while they feed to obesity, and their flight muscles may lose up to 50% of their mass. Before

continuing their migration, conspicuous wing-flapping exercises are used to rebuild wing muscles.⁴ A similar, though less dramatic, cycle is repeated at the breeding locations.⁵ McAllister did not mention any element of real flight in the courtship of the species.⁶ A kind of pattering across the water with wings flapping, similar to the retreat of the Great Crested Grebe, is thus far the only element reported being similar to flight. It is used to escape from courting groups to initiate a Discovery Ceremony (for a description of the Discovery Ceremony, see note at the end of this article).¹ The same apparently applies to the European nominate race, the Black-necked Grebe.

When following the courtship displays of Eared Grebes at two locations in Saskatchewan in the spring of 2008, I observed the birds engaging in flight beyond a mere pattering on the water surface, which did not appear to be intended to initiate a Discovery Ceremony. Here I describe the occurrences and interpret their meaning.

Observation Sites

Eared Grebes were observed on 24 May 2008 at a shallow body of water near Blaine Lake and on 25 and 27 May 2008 at Little Manitou Lake. Little Manitou Lake is an extremely saline lake of ca. 13 km² located at 51°44' N and 105°30' E, about 100 km southeast of Saskatoon. A population of about 53 Eared Grebes was observed for a total of 5 h from Range Road 250 cutting the eastern edge of the lake. The second observation site was on the Blaine Lakes west of the Town of Blaine Lakes at 52°49' N and 106°57' E.



Figure 1. Take-off of a pair of Eared Grebes (near Blaine Lake).

André Konter

There, the north basin of the Blaine Lakes is cut in two parts by Township Road 444, and about 66 Eared Grebes were present in the southern part (another 18 in the northern part) during the observations that lasted for about 7 h. All observations were conducted from Roads 250 and 444 with Zeiss binoculars (10×25) using the car as a blind, and photos were taken with a Minolta Dynax 7D camera and a Sigma AF 800-mm lens.

Observations Involving Flight

Blaine Lakes (north basin):

1] Three times two birds in a loose pairing took flight (Fig. 1), rising well above the water surface. They flew simultaneously in the same direction and landed after 20-40 m in areas with no or few conspecifics. They then simply drifted apart while preening and diving.

2] Twice a single Eared Grebe performed a similar flight retreating from a flock. In one case, "Advertising" followed, but did not seem to provoke a response.

3] Two Eared Grebes were swimming parallel to one another with no other conspecifics in their immediate vicinity, when both suddenly halted, lifted their

necks, and took flight. They landed again after 15 m near emergent vegetation. Still close to one another, both lifted their necks straight up, stayed like this momentarily, and then lowered their necks again before swimming into vegetation, and out of sight.

4] Two grebes at the border of a group remained parallel for a while with their necks vertically raised, crests erect, and rotating slightly on the water surface. Suddenly, both took off, reached a maximum height of about 2 m, and landed after 30 m some distance from other grebes. While still 5 m apart, they started preening with no apparent courtship action following.

5] From two Eared Grebes at the edge of a loose group, and not readily identifiable as a pair, one suddenly became airborne, followed after a short hesitation by the second. They alighted about 2 m apart, raised their heads, and swam in parallel into the emergent vegetation, not moving closer to each other while doing so.

Little Manitou Lake:

1] Two Eared Grebes from a group

suddenly took flight. They reached a height of more than 1 m above the water surface. Both landed simultaneously after about 30 m in the same place and started preening. No other activity directly linked to courtship followed, but the pair was rather isolated from other conspecifics. Feeding and preening, they drifted slightly apart, came together again, and slowly swam back to rejoin the flock.

2] Two Eared Grebes flew off from a group, circled, and landed simultaneously after about 25 m of gliding. One individual adopted an “Inviting” posture on the open water surface, turning its back to the second bird. This second grebe swam close to the first, passing it slightly before stopping. Both turned parallel to one another, and the “Inviting” bird dove, followed immediately by the second.

3] Twice a pair of Eared Grebes was only noticed after take-off. Both times, the grebes landed at about the same place and no particular action followed.

4] Once, a single grebe became airborne. “Advertising” followed soon after landing, was repeated, and then the bird

started swimming slowly back to where it originated.

5] One grebe (A) flew off escaping from a group of three (A, B, C), landing after about 30 m. Although this flight seemed lower than most others observed, the feet of the bird lost contact with the water surface for part of the distance. The two other birds (B and C) followed soon after. B landed close to A, and both engaged in a bout of head-shaking with heads kinked forward and low. Grebe C quickly swam towards the pair (A, B) and immediately dashed at A, driving it away. Grebe B did not intervene, but thereafter accepted the invitation for head-shaking by grebe C. This display was hardly started when it was interrupted by preening.

Possible Interpretations of Flight Actions

Excluding the isolated case where a single bird in flight was followed by two others, none of the take-offs can be seen as aimed at directly attacking another bird with a pattering flight low over the water. Indeed, no flights were directed at conspecifics. Except for a retreat apparently intended at initiating



Figure 2. The Ghost-bird (left) goes for the final dive while the Cat-bird (right) prepares for its surfacing (Discovery Ceremony, Little Manitou Lake). André Konter



Figure 3. Final appearance of the Ghost-bird (right) in the Ghostly Penguin while the Cat-bird (left) already folds its wings away (Discovery Ceremony, Little Manitou Lake).

André Konter

a Discovery Ceremony, I could not find in the literature any mention of flight in the context of courtship in the North American Eared Grebe. Especially, no description of two birds becoming airborne simultaneously or involving a flight height where the feet are clearly off the water appears to exist. From a total of 14 flights observed in this study, only four were performed by single birds, and these could eventually be interpreted as a retreat for initiating a Discovery Ceremony (Figs. 2, 3), even though in one case the retreating bird was followed by two others. In no case did "Advertising" actually succeed in initiating any display. Also in no case did a single bird react to the "Advertising" calls of another grebe by flying to its mate as occasionally happens in Horned Grebes.⁸

For the nominate Black-necked Grebe, Prinzing described what he termed "flight-racing", a display developing out of parallel swimming when two partners race with flapping wings, heads kinked forward, and feet performing footsteps on the water surface.⁷ According to

Fjeldså, "Splattering" that ends with a low flight of up to 50 m occurs in aggressive situations.² Prior, the birds swim together in a "Penguin-dance", then turn parallel and, after a short rush, start to flap wings to alight. The description broadly agrees with the "flight-racing" of Prinzing, although there it exists as an independent courtship display away from aggressions.⁷ Later authors no longer mention flight performances in the context of pair formation other than related to the Retreat Ceremony for the nominate.

In seven of the ten Saskatchewan cases where two grebes took flight, they flew away from a loose group of conspecifics, and in two cases it remained unclear where the pairs started. For all nine of these observations, the explanation suggested by Fjeldså may apply: the flights can be regarded as attempts to get away from potentially interfering neighbor birds to continue mutual displaying without disturbance.² However, after landing, only in one case "Inviting" on the open water surface occurred, whereas seven times no further courtship followed

the flights and the birds simply preened or started food-diving. In another case, both grebes simply swam into emergent vegetation. Generally, in grebes, preening may be regarded as a display and is then termed Habit Preening. The action is very stereotyped and mostly no real preening occurs. In the Eared Grebe, preening is more difficult to interpret, and in fact no obvious differences seem to exist between real and ritualized preening. The evidence for Habit Preening in the species is largely contextual, for instance following or interrupting other displays. On this basis, some of the flights observed could represent a separate courtship display ending with Habit Preening. As two birds are involved, it could signal to others that their pair formation is well advanced. However, it cannot be completely excluded that two grebes may have taken off simultaneously by chance, both having the intention to start "Advertising" after landing, but refrained from doing so because they were not free from competition (two competitors moved together).

In the two cases where the paired birds alighted close to and disappeared into emergent vegetation, the action might be interpreted as a directed flight to a possible breeding site, similar to Parallel Swimming that may also be directed towards potential platform locations.

In only one case, it was clear that two grebes moved in isolation before taking flight. They did not appear to retreat from other rivaling conspecifics, and the common flight had a good chance of representing a true display.

It is also noteworthy that in contrast to a "Retreat flight" as described by Cullen et al.,¹ the grebes did not simply patter across the water (except during take-off and partially during landing), but all became airborne for at least part of their

flight. At the breeding grounds during an initial phase, Eared Grebes appear less opposed to flight as is often believed. In a paper about behavior patterns, Fjeldså raised the question to what extent courtship behavior is adapted to the social organization.² In a competitive context, harsh aggression has seldom been reported in the gregarious Eared Grebes, and pursuit and attack appear more ritualized than in solitary breeders. Often no clear winner can be detected in their bouts of competition, and all grebes involved can stay rather close together afterwards, drifting apart only after some time. A pattering retreat flight might in such a situation be better suited to escape alone or in twos from a group and may have developed in time into an independent display.

Future Work

Except for retreating, most former indications involving flight in the context of pair formation have not survived in more recent publications. There is no doubt that other performances are more easily observed, either because they happen more frequently or because they are pre-announced by "Advertising". In the observation of even smaller populations of Eared Grebes, one needs a good deal of patience and luck to have focused on the right pair and to have registered its activity prior to its sudden take-off to get contextual evidence for the flights of either singles or pairs. More observations are needed, especially more observations on the pre-flight activity of the birds, to better understand what they really represent. Are they simply attempts to get away from potentially interfering neighbor birds to continue mutual displaying undisturbed as Fjeldså suggested for possibly all cases,² or could they be seen as separate pair-formation displays? Is there a particular signaling prior to the take-off that invites a partner to join in the flight? Under what circumstances do only single

birds depart? These questions require extensive further investigation.

*A note on the Discovery Ceremony: A Discovery Ceremony is initiated by an advertising call of one grebe ("Ghost-bird") at some distance from a possible mate. The second bird ("Cat-bird") may reply to the call and turns towards the initiator, who thereupon starts diving in the direction of the mate. The mate on the surface partially lifts and unfolds its wings to assume the Cat-display (Fig. 2) and follows the progress of the Ghost-bird below the water. The latter may surface one or several times, either only displaying its head above the water surface or assuming a Hunched Posture before submerging again. In its final dive, it generally passes underneath the Cat-bird (who rotates) to grow out of the water in a Ghostly Penguin Display (Fig. 3) with its back turned towards the Cat-bird. The Ghost-bird swings to facing at maximum height and maintains the penguin posture by treading water. The Cat-bird abandons the Cat Display and raises into the penguin posture, too. Thus, both move towards one another to perform a penguin dance, breast to breast or, once together, to move parallel. The ceremony ends with Head Shaking and Habit Preening. At this moment, one partner may wish to engage in a second Discovery Ceremony. If so, it suddenly rushes over the water surface (Retreat Ceremony) to halt at some distance and adopts the Cat Display, whereupon its partner may submerge again.

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