



Reactions of birds to heavy rain

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A note by myself and another by David A. Christie on the reactions of wildfowl and waders to rain and hail (*Brit. Birds* 77: 20-21), with a request for other observations on the subject, stimulated a further 11 notes describing the behaviour of birds in such conditions. This summary has been compiled at the request of the Editorial Board of *British Birds*.

Kennedy (1970) reviewed the rather meagre information then available, and detailed the disadvantages of wetting to a bird. Replacement of the trapped air within the plumage of a bird by water increases the rate of heat loss from the body. The smaller the bird, the greater the surface area relative to the volume, so the greater is the disadvantage. If the air temperature is low, resistance to wetting, and subsequent cooling, and recovery afterwards, are impaired. Effectively, the most damage is done to small birds in cold weather (leaving aside the other problems—of finding food, for example—posed by adverse conditions).

That birds adopt a posture with head withdrawn, bill pointed towards the rain, body rather upright and feathers sleeked, to prevent water penetrating the plumage, is well known, but, as Kennedy showed, poorly documented. An interesting observation of Curlews *Numenius arquata* standing upright, with heads hunched and tails drooped to allow water to run off, was illustrated by C. F. Tunnicliffe, and reproduced in Niall (1980). J. Graham (*in litt.*) reports a mixed flock of Least Sandpipers *Calidris minutilla* and Semipalmated Sandpipers *C. pusilla* on Grand Cayman, West Indies, on 22nd February 1983, which stopped feeding, stood close together and raised their bills at an angle of about 30°, head to wind, when a heavy downpour occurred. J. D. Aldridge (*in litt.*) reported a few Lesser Black-backed Gulls *Larus fuscus* and several hundred Black-headed Gulls *L. ridibundus* at Chew Valley Lake, Avon, on 2nd August 1982, pointing their bills at between 45° and 75° above normal during a heavy thunderstorm with hail. The juvenile Black-headed Gulls present, however, held their

bills in the normal position. Kennedy noted that young birds are more subject to mortality from wetting than old ones, and these young Black-headed Gulls may not have yet learned the appropriate technique, but it is odd that they did not learn by copying the accompanying adults.

On 9th May 1981, at Rye Harbour, East Sussex, Richard C. Knight and Pamela C. Haddon observed gulls and terns reacting to rain in this fashion, also described by R. E. Elliott (*Brit. Birds* 76: 314). Five immature Little Gulls *L. minutus*, several Black-headed Gulls, Common Gulls *L. canus* and Common Terns *Sterna hirundo* raised their bills upwards to 50-60°, into and parallel with falling rain during a very heavy downpour. The most interesting observation was that a Common Tern acted in the same way while in flight. On 2nd August 1983, the same observers saw the same behaviour, also at Rye Harbour, from Common Terns, Little Terns *S. albifrons* and Sandwich Terns *S. sandvicensis*, and this time a Little Tern flew 450 m into a force 2 wind, with its head pointing upwards at 50°, during heavy rain. It is interesting that the rain caused these flying birds to react in this manner, but not to settle on the ground.

Kennedy also discussed sheltering from rain by birds. It is clearly of survival value for a bird with poorly resistant plumage to take shelter from heavy rain if possible. Swifts *Apus apus* move away from, or fly around, local storms and may not emerge from the nest for much of very wet days. Yet Starlings *Sturnus vulgaris* may take shelter, but have been observed to continue feeding in the open during torrential downpours. Kennedy also reported seeing Pied Wagtails *Motacilla alba* and a Willow Warbler *Phylloscopus trochilus* feed in the open in heavy rain, though Blue Tits *Parus caeruleus* and House Sparrows *Passer domesticus* have been seen to take shelter. Mrs Jean D. Garrod (*in litt.*) saw two Swallows *Hirundo rustica* fly headlong into a hole in a dense bramble bush at Minsmere, Suffolk, to escape torrential rain on 16th September 1983. They quickly emerged as the rain ceased. Bernard King (*in litt.*) watched a juvenile Osprey *Pandion haliaetus* at St Mary's, Isles of Scilly, on 6th October 1982. At Porth Hellick lake, it fished from, and regularly perched in, a tall conifer, but at the onset of heavy rain settled on mud at the lake edge, sheltered by a thick stand of reed *Phragmites*, and remained there for 15 minutes until the storm passed. Meanwhile, Coots *Fulica atra* on the lake also sought shelter in the reeds.

Bernard King also watched two Little Grebes *Tachybaptus ruficollis* at Marazion Marsh, Cornwall, on 26th January 1972. Whereas the Little Grebes which I reported at Chasewater, Staffordshire, sought open water during a storm, those watched by King always immediately left open water to seek shelter in reeds when strong winds and heavy rain swept across the lake at intervals during the day.

At Drift Reservoir, Penzance, Cornwall, on 11th January 1986, Bernard King was watching a party of some 60 Teals *Anas crecca* feeding in the shallows of a quiet bay. Rain had been threatening most of the afternoon, and it was cold, with strong gusty winds. The Teals remained close to the water's edge until a violent storm came slanting into the bay. The ducks immediately took flight through the rain and were lost to view. After only 12 minutes, the storm ceased as suddenly as it had arrived, and, just as

suddenly, the Teals flew back once again, to settle into the shallows.

The same observer reports on the behaviour of 3,000 Ruddy Ducks *Oxyura jamaicensis* at Lake Jessup, Florida, USA, on 19th December 1983. Small parties were leaving and others arriving, leaving the approximate total of 3,000 intact until, unexpectedly, a torrential, tropical rainstorm broke. Ruddy Ducks quickly left the area, and an hour later none was to be found.

At the same time, another, very different species, acted quite unlike the ducks. A group of 60 Turkey Vultures *Cathartes aura* were in nearby treetops. As the rain fell, all of them fully extended their wings, rain-bathing until the observers left.

J. Graham, on 12th January 1984, noted a Magnificent Frigatebird *Fregata magnificens* in the West Indies, during a downpour 'so intense that it flattened crested waves raised by a 16 knot wind'. The frigatebird patrolled 50-150 m offshore, unperturbed by the storm, except when taking temporary evasive action to avoid a lightning strike. At the same time, a Belted Kingfisher *Megaceryle alcyon* ignored nearby cover as it perched on an open rail for 20 minutes. Precipitation was approximately 70-100 mm per hour.

That different species react in different ways is also illustrated by Geoffrey Beven (*in litt.*), who watched birds at Minsmere on 28th March 1977. It was very cold, with a strong north wind, some sunshine and frequent showers of snow. At times, the snow blew horizontally and there were bouts of hail, reducing visibility to 10 m. Of 21 Avocets *Recurvirostra avosetta* present, four were visible during the worst of the hail and these crouched in shallow water behind a patch of herbs, head to wind; but, as the weather eased, several Avocets fed in deep water. Black-headed Gulls, one with head turned back and bill under its scapulars, also crouched behind herbs or islets in the worst of the blizzard, but fed when the hail stopped, even though snow was then falling heavily. Shelducks *Tadorna tadorna* and Moorhens *Gallinula chloropus* fed normally, and were active throughout the worst of the weather. I have watched many thousands of Oystercatchers *Haematopus ostralegus* on Texel, Netherlands, take shelter from gales and intermittent rain, in very cold conditions, by crowding together along the lee of embankments and inside reedy dykes, while Knots *C. canutus* were bunched together, and Bar-tailed Godwits *Limosa lapponica* and Grey Plovers *Pluvialis squatarola* were widely scattered over open fields in similar very windy, very cold and wet conditions.

David M. Wilkinson (*in litt.*) reports the behaviour of a flock of Bewick's Swans *Cygnus columbianus* and a group of feral, free-flying Barnacle Geese *Branta leucopsis* at Martin Mere, Lancashire, on 14th January 1984, in a strong, cold wind with frequent showers of sleet and hail. Most of the swans spent the whole time sitting front to the wind, with their heads tucked back into their body feathers, whereas the geese adopted this posture only during the showers, but otherwise grazed during a period of four hours.

Very heavy hail has obvious dangers in that, unlike rain, wetting is less of a problem than physical damage from the solid hailstones. R. M. Lord (*in litt.*) was at Pagham Harbour, West Sussex, on 5th June 1983. There was a

southeasterly wind of force 6-7, at low tide, until suddenly all was still and very quiet. Flocks of waders, including Redshanks *Tringa totanus*, Dunlins *Calidris alpina*, Grey Plovers and Curlews, approached ahead of a storm. The noise of large hailstones hitting the mud was audible at 1½ km. Little, Common and Sandwich Terns, Shelducks, Oystercatchers and Ringed Plovers *Charadrius hiaticula* flew up from the mudflats and the shingle-island breeding colony and flew southwest in front of the advancing hail. The stones measured some 3 cm in diameter, but the storm quickly passed, the wind increased again, and the birds drifted back. No hail was recorded 2½ km away, and the birds had presumably avoided it. Many eggs in the colony had, however, been smashed.

While it is clear that heavy rain and hail will cause many species to take evasive action, take shelter, or adopt postures which seem likely to reduce the effects of wetting on the plumage, it is also obvious that not all species, or individuals, will act in a predictable way. That birds take shelter during thunderstorms, for instance, is vaguely referred to in the literature and assumed to be the case by most birdwatchers, but there is still room for detailed and *systematic* study of the everyday reaction of birds to rain, as well as the more extreme examples, such as those recorded here.

References

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