

SOME BREEDING-HABITS OF THE LAPWING.

BY

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THESE notes on certain breeding-habits of the Lapwing (*Vanellus vanellus*) are based on observations made during the past three years in Cumberland, and all generalizations made apply only to the writer's experience.

A. COURTSHIP.

I. *Pre-Mating Ceremonies*:—The pre-mating courtship of the Lapwing extends over the autumn and early winter months, usually from September until February, in some cases from August onwards; no pre-mating ceremonies were seen earlier than the first week of August, although a certain amount of "scrapping" was noticed amongst some individuals of the flocks assembled in July. As long as the weather remained mild and open, the flocks (most held varying numbers of adults and young, but some had a majority of adults, in others the young were in the ascendant) annually frequented certain pasture and meadow fields during their stay in the district and generally no Lapwings bred in these fields the following summers. When hard frost set in, numbers left the district and those remaining spread themselves about the adjacent fields in pairs and singly; whilst if the frost was very severe all left the neighbourhood. It is probable that the birds watched during the periods August—October consisted of birds reared in the neighbourhood, whilst from October onwards Scottish breeding birds may have been present.

Most pre-mating courtship was seen on the fine, sunny days following frost, especially if the frost had just begun, but courtship was also observed when snow was on the ground, a cold wind blowing, or on days of intermittent rain. The most obvious sign that pre-mating ceremonies were proceeding was the behaviour of the birds*: a continuous calling of "peet" and "pee-wit" indicated a varying amount of courtship. Although a flock might rise, fly around, and settle in a field several times a day, certain individuals were noted always to return to the same piece of ground and keep off any intruders. These birds mainly had their territories on the outskirts of the flock and both males and females thus occupied territories, the males apparently in order to display

*No young birds seem to participate in these pre-mating ceremonies.

to the females, but the reason for the females occupying territories was not discovered, although some females were noticed displaying. When a Lapwing was in occupation of a territory and another alighted or attempted to alight on this ground, the occupant assumed an attitude of hostility, *i.e.* head lowered, body and tail elevated, wings rather open, often pecking at the ground and calling a shrill "peet." If the Lapwing alighted, fighting usually began, the combatants striking at one another with wings and feet, occasionally varying this by swooping down at each other. Such fights often lasted intermittently for over half-an-hour. When the female was in possession of territory she usually drove away the male by running at him, the male always retreating, often with wings uplifted.

The males generally displayed when the females were close at hand, but they rarely took any notice, often moving away when the males began. Usually a male was in possession of territory before he displayed and either waited until the female entered his domain or else tried to attract her attention by displaying on the edge of his territory. The fighting between males over a territory was presumably in order that the victor might display to the females, but this does not explain why the females fought for territory when they did not display. Sometimes a male would approach a male and female and display, the other male replying with a like display. There was a certain amount of individual variation in the display, but usually it began with the male picking the grass, then scraping the ground with his feet and going forward on to his breast, which was moved up and down on the ground or else in a circular manner from right to left, whilst the wings were held wide apart and the tail elevated to show the bright tail-coverts. Usually the males uttered a shrill "peet-peet-peet" during this display; on several occasions birds assumed to be females displayed in a like manner and then attacked and drove away in succession several males. On one occasion when a male had displayed to a female he struck and fought with her.

Besides this display on the ground, males would occasionally give an exhibition of their tumbling-flight, uttering part of the spring song whilst doing so. Also, just before dusk, the flock would often go through aerial evolutions before settling for the night.

2. *Post-Mating Ceremonies*:—Although the flocks were watched for three autumns it was not discovered how the females accepted the males, but when the birds began to

arrive on their breeding-grounds in the spring many were seen to be in pairs, and it was assumed that these birds had paired-up during the autumn and early winter. This habit of sometimes arriving in pairs on the breeding-grounds is not confined to the Lapwing, as the same fact has been noticed with the Redshank, Sandpiper and Curlew. It is possible that some Lapwings pair for life (during the autumn when a single bird left a flock, another was noticed to fly up and accompany it), others may take a new mate every two or three years or even each year, but, however they pair, all the males perform the post-mating courtship and as this particular phase of the courtship is confined almost entirely to the males, it appears it is done in order to arouse the excitement of the females so that they will allow sexual union. Lapwings began to visit their breeding-grounds from the middle of January onwards, but settled occupation was not noted before the second week of February (this applies to land about three hundred feet above sea-level; land at higher altitudes was occupied later in the month). The display of the paired male took place in the presence of the female: generally the female was behind the male, sometimes in front, or else standing by him. The display began by the male pecking the grass in front of him until the ground was bare, throwing the grass over his back, then, using his feet, he scraped away the top soil, often moving his body up and down, and then going forward on to his breast, moved it up and down or else in a circular manner from right to left until a definite hollow was formed, when his tail was sharply depressed and his feet moved with great rapidity to clear the hollow. During this performance the bird usually uttered a rapid, shrill "peet-peet-peet" and often threw grass or soil over his back. After his display it was usual for the male to perform his tumbling-flight and give his spring-song of "pees-wēep-wēep-wēep, pees-wēep."

On one occasion a male displayed when some distance from the female, then flying to her, displayed a few feet in front of her and returning to his original position was followed by the female. In another case the female put the male to flight, then alighted beside another female and began moving her body up and down as if about to display, but another male passing over she made the "hostility" sign, then returned to her mate.

Unmated males tried to obtain mates by displaying before a pair, the paired male usually answering with a display and then driving the other away, whilst if an unpaired male

displayed towards a paired female when her mate was absent she usually replied with the "hostility" sign.

More fighting was noticed during the pre-mating courtship than the post-mating, and what little there was appeared to be due to sexual rivalry, as when an unmated male in the presence of her mate tried to display towards a paired female, or when a paired male, evidently desiring copulation and refused by the female, fought with her. Each pair apparently had a definite territory (the females showed themselves as little as possible) but mainly as a nesting-site, as four or five pairs would nest on a quarter-acre of ground and once the young were hatched, the adults and their broods seemed free to move wherever they liked. The presence of a Crow or Rook was a signal for all the males to rise and attack it.

3. *Nest-Building*:—The first part of the nest-building, the making of the nest-hollow, was done by both sexes and appeared to be part of the post-mating courtship. The hollow was made by both birds performing as in the post-mating display: first the male scraped out part of the hollow, performing as above described, whilst the female stood beside him and threw grass or soil over her back; then the male left the nest-hollow, the female took his place and with rôles reversed both performed as previously described. The birds worked on until the hollow was formed, but the lining of the hollow was not seen and may only have been done by the female. When the birds have to lay a second or third clutch they may utilise one of the scrapes made by the male when displaying. Occasionally a female was found brooding on an empty nest.

B. SEXUAL UNION.

Copulation was seen on many occasions but never after any post-mating display by the male, and generally the male, some distance away, flew to and alighted beside the female, copulated, then either flew away or else both birds ran forward in different directions or even flew away. Usually copulation was performed in silence but exceptions were noticed. Thus a female assumed the coition-attitude, called a rasping "peet," the male flew to her, copulated, then walked away; on another occasion both birds uttered a rasping "peet" before pairing.

Three exceptions to the above generalizations were seen. A male, some distance from the female, began walking towards her, uttering all the time a rasping "peet," and arriving beside her, the female assumed the coition-attitude, copulation occurred, then the male alighted to one side, raised his

wings to their fullest extent, then flew about twenty yards and on alighting made the post-mating display. Another male uttered the "peet" note, flew to and alighted behind the female and was about to copulate when he noticed the writer and thereupon flew away some distance and made the post-mating display. A male, flying about, suddenly alighted beside the female, copulated, then flew away. After some time the female flew to where the nest with one egg was, and began pecking grass and throwing it over her back.

C. INCUBATION.

Incubation seemed to be mainly the work of the females, but on two occasions a male was seen incubating. In the case where both sexes incubate the writer does not know whether there is any nest-relief ceremony. With most pairs the duty of the male was to keep guard, warn the female of the approach of human beings, and attack any bird that passed over the breeding-ground. The average incubation-period is twenty-four days, and incubation proper does not begin until the clutch is laid, although the eggs may be brooded a few hours each day, and usually each night, during the laying-period.

Pair No.	Last Egg.	Eggs Hatched.	Incubation-Period Days.
1.	April 10	May 4	24
2.	April 13	May 7	24
3.	April 5	April 29	24
4.	May 3	May 27	24

Full clutches are general from the last week of March onwards, and if the first clutch is taken a second is laid; if the second is robbed presumably a third clutch is laid, as day-old nestlings may be found each year from the last week of April until the first week of July, but possibly the chicks from a third laying are not so hardy as those from a first or second laying.

D. CARE OF YOUNG.

As soon as the eggs begin to chip both adults become very demonstrative, swooping down to the intruder and, with sheep or dogs, often striking them, whilst uttering their "peë-wit" or "peë-ëë" and trying to entice the intruder away by feigning injury or pretending to be brooding young. These actions are continued during the fledging of the nestlings, whilst the other breeding birds usually flock overhead and add their cries to the parents' calls. Sometimes the male, in his excitement, gives the breeding-song.

With most broods the young remain together until feathered, both adults feeding and guarding them, but the females usually brood them, although occasionally males were noticed brooding young. The Lapwing thus differs in its method of rearing the young from the Curlew where, when the four eggs hatch, the male often takes two young, the female the other two, and the family does not unite until the young are partly-feathered, by which time there are often only one or two left.

Generally, the nestlings are brooded during the day until about twelve days old and at night until sixteen days, but no doubt the weather has a great effect upon the amount of brooding, because in dry warm weather the young will not be brooded so long as in cold wet weather.

E. THE YOUNG.

The young Lapwings usually stay in the nest until their down is dry and for the first few days do not go far away, but afterwards appear to move freely about the field and, if the field adjoins a road, the adults may lead them across it into the adjacent field. From birth, the nestlings crouch as soon as the adults give the alarm, although in their first days one or two nestlings in each brood will often run a few yards before crouching, and this crouching is maintained until the danger is past, while it is persisted in until the young are able to fly. When handled, on being released, the young usually crouch, although sometimes they run off to a fresh hiding-place, but are more likely to do this when feathered. It is rarely that the young seek hiding like young Redshanks nor is it general for them to answer the adults' calls as is the way with young Curlews or Sandpipers. The nestlings are expert swimmers.

F. AVERAGE BROOD REARED.

It is not easy to estimate accurately the average brood reared, for although four young are generally hatched, it is certain that very few, if any, pairs rear the full brood. In the past three years the writer has ringed three hundred and thirty nestlings or young birds, but dividing this number by the number of pairs of adults would not give the average brood reared, as in April and May the broods consisted mainly of four downy nestlings, whilst from June onwards the average brood was one or two partly-feathered young. Possibly the average brood reared is about two.

Carrion-Crows (*Corvus c. corone*), Rooks (*C. f. frugilegus*) and Jackdaws (*Colæus m. spermologus*) are the worst enemies

of young Lapwings as their keen eyes readily detect the white napes of the nestlings. When the adults give the alarm the brood, even if only a few hours old, usually crouches at once and remains thus until the danger is over. However, one or two nestlings will often run a few yards before crouching, thus inviting disaster, as their white napes reveal themselves to the passing Crow or Rook.

G. FLOCKING AND MISCELLANEOUS NOTES.

Adults and young begin to flock from the third week of June onwards; the earliest date the writer has for flocking is June 9th. In common with other species, Lapwings occasionally pay visits to their breeding-grounds during the autumn and early winter months.

During the winter months Lapwings consume many earthworms which they catch by listening for them.

The Common Gull (*Larus c. canus*) and the Black-headed Gull (*L. r. ridibundus*) are parasitic on the Lapwings during the winter. The procedure is for a Gull to approach closely a Lapwing busy pulling an earthworm or grub out of the soil and as soon as the Lapwing is successful give chase to it until the Lapwing either drops its prey or eats it.

Rooks, from their numbers, probably commit more havoc amongst the Lapwings' eggs than either Carrion-Crows, Jackdaws, Magpies (*Pica p. pica*) or Jays (*Garrulus g. rufitergum*).