

MY WOODCOCK STUDY

by B. N. Lowde

(continued from Vol.110, No.2, pp.83-90 (2004))

I had often wondered why in this area Woodcock nest much earlier than in areas a few miles (kilometres) away (as the crow flies) where Dr Graham Heron was doing his study on Woodcock in Whitwell Wood. We had young chicks when he had only just got eggs. This was especially evident when I caught my first ever young Woodcock, which was in mid-February. As it was about three weeks old, I calculated that it must have hatched from an egg laid over the Christmas-New Year period.

Given that the male Woodcock is polygamous and takes no part in the incubation of the eggs or in the rearing of the young, I had often wondered how the female Woodcock manages to successfully hatch her eggs at a time of the year when there is usually frost and snow about. As the Woodcock's nest is only a shallow depression in the ground lined with leaves, it seemed to me a wonder that the female could hatch and rear young in late January-early February.

Another founder member of our club told me that at university he had done his thesis on the geology of the area in which we live and that this area had once been part of a shallow inland sea (the Zechstein Sea), which had laid down a rich deposit of coral, which now takes the form of magnesium limestone. This belt of limestone which varies from six miles to nine miles (approx. 9km-14km) wide along its length, starts at Nottingham and runs diagonally northwards to the coast just south of Newcastle. As our village and the surrounding woodlands are situated on this strip of magnesium limestone, though only near the edge of it, the soil is very rich in worms and other soil invertebrates. In one spadeful of soil we can find approximately 30 worms, whereas if we go to the border of this, which is sandy clay and 'Bunter' sandstone, a spadeful of soil contains no worms.

The conclusions I have reached are that, given that we are situated on a belt of magnesium limestone, with an abundance of food and patches of marshland created by the springs in the woods, plus the fact that we are in a shallow valley and are sheltered from heavier falls of snow by the Pennines and higher ground to the west, Woodcock in this area come into breeding condition extra early - I have since seen them roding on Christmas Day. The favourable conditions enable the female Woodcock to find food quite easily within a reasonable distance of the nest - but how did the eggs hatch successfully when she needed to leave the nest to feed on frosty nights or mornings? I was not to get a possible answer until years later.

The Wood Mouse association

A possible answer came whilst I was examining a Woodcock's nest one March. The eggs had hatched successfully and the female and young had left in the last few days of March. Whilst I was examining the eggshells I noticed that the bottom of the nest was very loose, and on probing gently with my fingers, found to my amazement that underneath the Woodcock's nest was a nest or hibernation chamber of a Wood Mouse *Apodemus sylvaticus*. I lifted the large round nest out of the ground and it immediately became clear to me that the Woodcock had been using the Wood Mouse nest or hibernation chamber to provide a form of central heating! I decided that if by probing around the female Woodcock could find the nest of a Wood Mouse which was just below the surface, she would nest on the top of it and the warmth from below would allow the female Woodcock to leave her eggs for a few minutes to feed, day or night, knowing that the warmth from the Wood Mouse's nest would keep the eggs warm.

Homing ability and feeding

My first insight into the Woodcock's homing ability came about many years ago, when a young Woodcock was brought to me by a 15 years old lad, who had found it in the woods. This was over 20 years ago, before I started my Woodcock study.

Previous to that only one other Woodcock had been brought to me, which I reared successfully. At first I fed it on worms, but at the rate it gobbled them up I soon realised that it would be impossible to keep up the required supply to sustain its appetite and growth. At the time I was keeping members of the crow family and to supplement the worm supply I would add minced ox or sheep's heart. As this worked quite well I decided to try feeding it to the Woodcock, but instead of mincing it I cut it into fine strips so as to resemble worms. I put these in the Woodcock's feeding tray and it ate them along with the worms. Having successfully reared the Woodcock, I released it back into the wild.

So, when the 15 years old lad brought me the young Woodcock, I already knew how to successfully rear it. I kept it for about a month and then released it into the wood at the bottom of my garden, about 50 yards (approx. 50m) from my gate. In the weeks following I often caught glimpses of it at the edge of the wood and very near my gate. The lad who caught the Woodcock was a keen young naturalist and frequently came to see it (and the other birds I had) while I was rearing it. He spent many happy hours in the wood looking for the Woodcock and many times fetched me to see it amongst the bushes in the wood, just 20 yards - 30 yards (approx. 20m-30m) from my gate.

Some 30 yards - 40 yards (approx. 30m-40m) into the wood is a 'ride'

that runs parallel with my house. On the ride is a damp muddy patch and I would often see the bird standing there. When I approached, it would just squat down and not fly away until I was but a yard or two (approx. 1m-2m) from it. This went on for two to three years, after which I never saw it anymore and assumed an accident had befallen it.

Often seen on my garden path which runs some 10 yards (approx. 10m) down to the back gate, were the droppings (faeces) of Woodcock, which are impossible to mistake for those of any other bird. Large creamy blobs each with a brown spot in the middle, they looked not unlike fried eggs. The brown is actually soil from the worms the birds have eaten.

Over the years, when taking clutches of Woodcock's eggs, after rearing the young I would pick out one I wanted to keep. If it was a female that I wanted, I would choose one that made no sound whatsoever, knowing that if I wanted a male I should choose one that made lots of squeaking sounds. The remaining birds would then be released back into the wild when they were about four to five months of age and fully grown. They would remain in the vicinity of my back gate and I would often see them there in the winter when snow was on the ground, jumping up and down and looking like giant moths in the moonlight.



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Two young Woodcock found in the wild, both with what appears to be malformed skulls and both suffering from partial blindness.

Young Woodcock

Observations on behaviour and coloration

In the first few days after young Woodcock have hatched, I have noticed that if I make or cause a sudden noise, they will as one, lay flat on the ground with their beaks stretched out in front of them. When they are in this position, I am amazed how they resemble coiled snakes. The young are buffy-yellow, with a dark brown area on the back and small spots towards

the rump, along with a distinctively patterned head. I imagine that when seen from above by a predator, perhaps a hawk or Jay *Garrulus glandarius*, these markings instantly send an 'I am poisonous' signal, as many know that wasps and yellow/brown caterpillars are not good to eat. Therefore, young Woodcock have evolved this snake-like patterning to enable them to escape danger.

Changes in coloration

In the *Shooting Times* and other sporting magazines much has been written over the years about differences in the coloration of the Woodcock's plumage. One line of thinking has even suggested that there are two types of Woodcock. What has become obvious to me, having kept them in captivity, is that the Woodcock's coloration changes with the seasons.

The beautiful ivory and brown fern-like patterns on the Woodcock's upperparts can be totally different in colour in the winter than in the spring. At the time of writing (winter), the one that I have in captivity (which is almost a year old), had you seen it three weeks ago would have been hardly recognizable as the same bird. The darker brown markings, previously drab and dull, have now changed to a deep brown-black, with the lighter parts changing in tone to a rusty-red. The lined pattern on the head also changes to the same colouring as the upperparts at this time. The Woodcock's underparts take on a rusty-red appearance.

The darkening of the plumage coincides with the melting of the snow, when all the leaves that fell in the autumn are wet, black and rotting, and affords the Woodcock marvellous camouflage amidst the vegetation of late winter - early spring. As spring starts to arrive, the darker feathers are replaced by tawny-reddish feathers and this seasonal partial moult continues from season to season, so as to afford the best camouflage at all times.

When I appeared on Yorkshire Television with David Bellamy to talk about the early findings of my Woodcock study, he was very interested when I likened the Woodcock's ability to change its coloration to suit each seasonal background, to a chameleon's ability to change its colour to suit its background. He was also interested in the Woodcock's ability to 'shadow' its prey. Whenever I threw a worm onto the floor of the Woodcock's cage, the Woodcock would approach it very slowly, stopping each moment or two and with both feet firmly on the floor, gently move its whole body backwards and forwards, just as a chameleon does when stalking its prey. This I assume is to match the movements of the vegetation as it is moved by the breeze, and makes the Woodcock less conspicuous. I have found that if a sudden shadow is cast, or a sudden movement is made towards a worm on the surface, it will in no time disappear down the nearest hole, whereas a stealthy approach will not startle it.

The Woodcock's bill

Observations on the Woodcock's bill show that the constant probing for food in firmer or harder ground, necessitates the fairly constant renewal of the upper mandible (top only).

In the first nine months of the Woodcock's life, the bill is only strengthened, which starts as a thickening at the top of the upper mandible. This shows as a bulge, lead grey in colour, which moves down between the inner and outer surfaces of the bill and is visible for two to three weeks. After the bird has reached one year of age, for a two to three week period before the regrowth is about to begin, the bird will eat ravenously, as so it is building up its body weight; then as the regrowth begins the bird becomes reasonably quiet and less active and spends more time sitting, as if it is conserving its energy. Throughout this period the bird continues to eat the normal amount of food that I provide. In the wild, what I have described above, usually takes place in early spring, when the worms are near the surface and plenty of surface food is available.



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The adult's bill starts to thicken at the base of the upper mandible.

In the case of the adult bird, the regrowth goes a stage further. It starts off in the same way as that of the younger bird, but the bulge is more pronounced and, in the last week, the bulge will erupt and pieces of the bill will flake off, leaving the new bill underneath. It is rather like what happens when we damage a finger nail and have to wait for the new nail to form underneath and slowly force off the old nail.



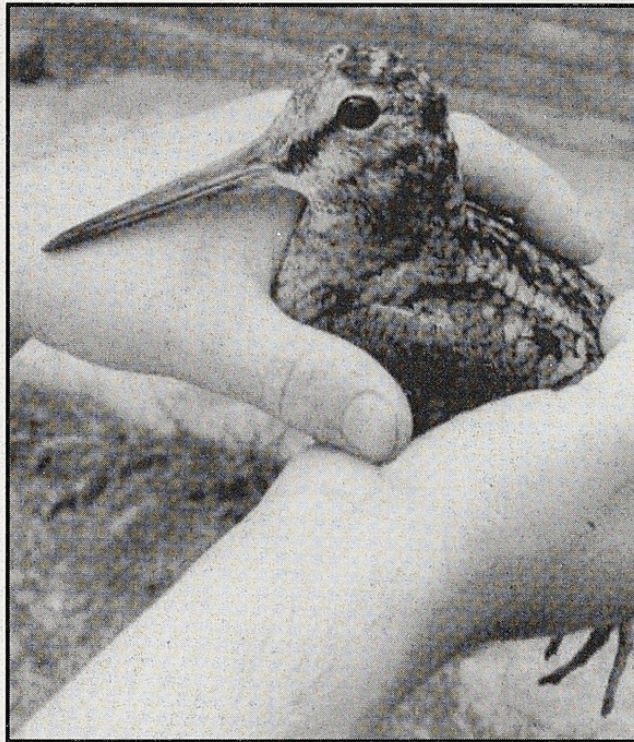
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Regrowth stops at the prehensile part of the bill.



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It then starts to flake and peel, revealing new growth of bill.



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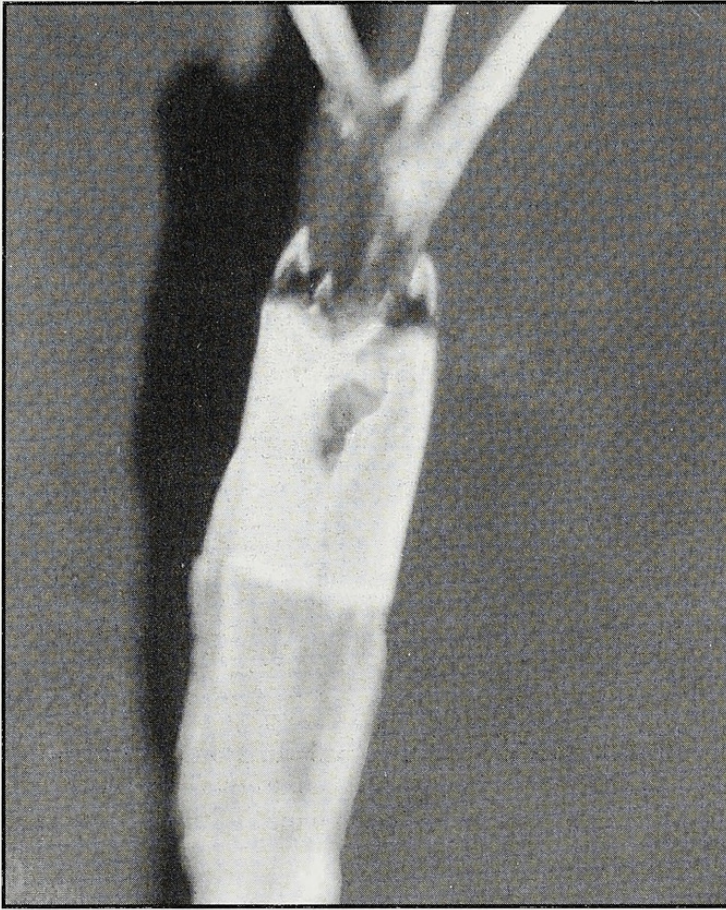
Back to normal.

Sonar theory

The Woodcock moves around continually touching the ground with the tip of its bill. Then, it will suddenly stop, push its bill down just below the surface, and then appear to be concentrating deeply. It will then push its bill further into the ground and concentrate again, before finally pushing its bill down to the depth at which it has located its prey. I believe it may be assisted in this by a type of sonar, wherein the vibrations produced by the movement of the prey are received via tactile nerves along the inside surfaces of the upper and lower mandibles. These are then amplified by the bird's ear and are received in the brain. Although I have been studying the Woodcock for over 16 years now and have found out many remarkable things, which are laid out in this account of my study, I feel that certain aspects, such as the sonar theory need more specialised attention than I am able to give.

Bill and tongue actions during feeding

When the Woodcock is probing in the ground, the prehensile section of the bill makes it easier for it to grasp worms. It is further assisted by backward-facing serrations on the surface of the tongue. These lay flat to allow the tongue to slide forward but as it is retracted, rise and help the bird to grip the worm and transport it further back along the bill. The bill is clamped shut as the tongue slides forward, then the pressure is released to allow the bird to transport the worm back along the bill. This action is repeated until the worm is fastened onto the spikes at the back of the tongue (see photo p. 137) and is eventually swallowed. A saliva gland lubricates the tongue to assist its rapid movement within the bill.



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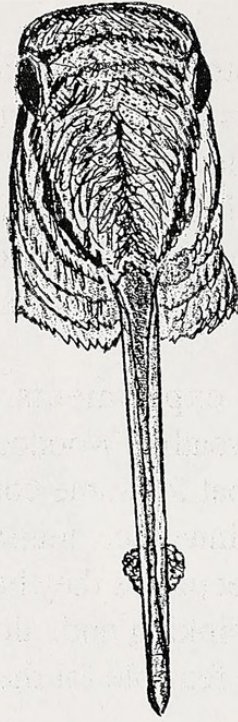
Taken with a 1-5 macro lens, this photo shows the 'worm-hooking spikes' at the back of the Woodcock's tongue. The tongue was taken from a badly injured Woodcock which died soon after being brought to me. Under magnification I discovered the two smaller spikes between the two larger, outer, hard thorn-like ones. Supple membranes attach the tongue to muscle in the throat.

Saliva gland

When a captive Woodcock is offered food, this will instantly trigger the saliva gland. The gland is situated at the point where the prehensile part of the bill begins. My sketch (p.138) shows the saliva bubbling out of both sides of the bill. My years of observation have led me to the conclusion that the Woodcock's saliva may have a three-fold purpose: as well as lubricating and aiding the sometimes rapid movement of the tongue, some agent in the saliva may assist in attracting prey and upon coming into contact with the prey (worms) may cause some degree of paralysis and thereby assist the Woodcock in extracting them.

Delousing

Each week I would clean out my Woodcock cages. Having done this I would put in two bucketfuls of freshly dug soil from the wood at the bottom of my garden. The only exception was in the winter, when if the soil was too wet, I would use fine peat.



Sketch showing saliva bubbling out of both sides of the bill.

On one occasion after having put in the soil from the wood and put the Woodcock back into its cage, I noticed that it was behaving in an unusual manner. The Woodcock was excitedly probing in one spot and being an imprinted bird I was able to observe this at very close quarters. I could see that the bird was taking something up in its bill. After a few minutes it would stop taking up whatever it was, and was then seen making movements in its throat and crop. After a while the Woodcock would regurgitate a small pellet. This it would hold in the tip of its bill and run it through the feathers on its back. When I examined the discarded pellets, I discovered they were pellets of clay and stuck to them were minute flat lice of the type that live on many birds.

This behaviour was probably due to the fact that the Woodcock's upper mandible is longer than the lower mandible; also the upper mandible has a hook at the tip to enable the bird to get a grasp on worms and these make it difficult, if not impossible, for Woodcock to remove flat lice in the same way as finches, the Robin *Erithacus rubecula* and other birds, whose bills are ideally adapted for removing minute objects etc. Therefore, the Woodcock has evolved this clever method of getting rid of lice. When I examined the spot where the Woodcock has been excitedly probing, I found a lump of clay to size of a golf ball. It was blue-grey in colour and of a coarser type than most of the clay found in this area.

I have found that captive Woodcock kept indoors, unlike birds in the wild, do not need to bathe as frequently, because they are not out in the elements, constantly getting wet; and in the drier indoor environment there is more chance of them getting lice than if they were out in the wild.

Swimming

At migration time in October-November, a bad time of the year, Woodcock make long journeys over the North Sea from Scandinavia, and this led me to wonder if they have the ability to swim. So, I experimented first with a young Woodcock. I filled my bath with water and put the young Woodcock into the bath and found that it could swim quite well. I next tried an adult Woodcock and this also swam quite successfully as I filmed it with my Super 8 cine camera.

I concluded from these experiments that when migrating from Scandinavia, if due to freak weather Woodcock are forced down onto the sea, they could quite easily float for some considerable time and when the weather clears be able to continue their migration. Being birds that spend so much time in and around wet places they have well oiled feathers. These alone should stop them from sinking and, along with their ability to swim would, I believe, make it quite feasible for them to land on the water - rest - and then continue.

The seeming ability to suppress its scent

Over the years, sportsmen, hunters as well as naturalists, had thought that the Woodcock was able to suppress its scent to avoid detection. This probably came about because dogs, such as spaniels, would appear to pass them without putting them up, and it was only when the hunter almost trod on the bird that it would fly off.

I would like to put forward a possible explanation as to why this should occur. My first insight was when my captive Woodcock would refuse their food when the temperature fell below freezing. They would not start to eat again until the temperature was a reasonable way back above freezing, even though I provided them with fresh food each day. This behaviour could, according to the severity of the weather, last two to three days, after which they would eat ravenously.

This led me to believe that Woodcock must have some kind of inbuilt biological clock which tells them when the ground is too hard and conditions are too bad for them to go looking for food. So, Woodcock sit and possibly go semi-dormant, which would mean that their heartbeat slows down and they live off their existing body fat. In this case the body would produce little or no scent.

I would like to conclude by saying that I believe they are not able to suppress their scent at will, just to avoid detection.

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LETTER TO THE EDITOR

LEG DEFORMITIES IN CHICKS

Thanks to Louise Peat for raising again the issue of leg deformities in chicks (*Avicultural Magazine* Vol.110, No.2, pp.71-75 (2004)). My experience with turacos is that I, like others, have found, as she has, that problems often occur irregularly under apparently unchanged conditions, sometimes affecting one chick in an otherwise healthy brood (see *Breeding the White-cheeked Touraco* by Hewston, *Avicultural Magazine* Vol.90, No.1, pp.209-215 (1974)).

My feeling is that problems with turaco chicks are rarely related to calcium/vitamin D₃ deficiency, but more often, as Louise suggested, to nest substrate. In these cases the condition initially involves perosis, though bone deformities may follow as a result. Another nutritional factor may be vitamin B₂ (riboflavin) deficiency, which can cause a condition known as curly toe paralysis in chickens. Richard Mark Martin mentioned (*Cage & Aviary Birds*, 18th March 1976) that London Zoo successfully treated turaco chicks with B₂ injections, and I am sure there was a reference to this in one of the *Zoological Society of London Annual Reports*, possibly 1969. I supplemented the diet of affected chicks with riboflavin, which I think had some effect. Certainly inward curling toes, whether from B₂ deficiency or other causes, often lead to splayed legs as the feet are unable to grip properly and the legs inevitably slip outwards as the bird tries to move. If the problem is not noticed until the bird has developed splayed legs, with possible associated perosis and bone deformities, the original cause may not be diagnosed.

Thinking back to when I bred turacos, I don't remember encountering any leg problems with turaco chicks while using willow baskets or boxes with carpet, as a base for all nests, and offering breeding pairs a diet of fruit (based on banana, not apple) with a little universal food (usually Bogen) and soaked mynah pellets (Witte Molen). These pellets were taken in quantity by most pairs with chicks.

Louise also mentioned curled toes in pheasants. These are usually thought to be caused by poor incubation or inbreeding, but a fascinating note in a recent *WPA Newsletter*, I think by John Corder, considered the role of stress, with some interesting case histories.

Nigel Hewston

BOOK REVIEWS

CURASSOWS AND RELATED BIRDS

Thirty years ago the first monograph of the family Cracidae - the Chachalacas, Guans and Curassows - was published. The authors, Jean Delacour and Dean Amadon, both now deceased, were ornithologists, with Jean Delacour also of course an aviculturist of great repute and President of the Avicultural Society from 1972-1985. Their monograph, of which only 3,400 copies were printed, quickly became a collector's edition. I remember acquiring a copy and sending it to Jean Delacour to be autographed. The copy went astray and was never found. He sent me a note to insert into another copy, if I could find one. After much searching I found another copy and the note sits between the pages of this treasured first edition.

Next to it on my bookshelf is now a copy of the recently published new second edition. Updated by Josep del Hoyo and Anna Motis, and published by Lynx Edicions in association with the American Museum of Natural History, it has lost none of the charm of the original edition. The family Cracidae is described in detail - from the variations in the trachea to reproduction and there is detailed information on the genera and species. Systematics are discussed and there are descriptions of these birds in the field and in aviculture. As well as all the original drawings and plates by Albert Earl Gilbert, there are new plates by him depicting the chicks of some species and the plates that correspond to the family from the *Handbook of the Birds of the World*.

Some of the birds of this family are common, others are elusive and rare. I can still recall in awe finding in a remote village in south-western Guatemala a Horned Guan *Oreophasis derbianus* - a bird then of almost mythical rarity and beauty. It was to me like encountering a unicorn! The bird was seen in a totally different light by its owners, who kept it with turkeys in a makeshift cage. It had been found as a chick and was being reared to be eaten. I rushed home to write to Delacour about the bird, but sadly he had recently passed away.

This spectacular species adorns the cover of the new edition. At the time that I found this species in Guatemala, my sole source of reference to it was Delacour and Amadon's monograph, which confirmed the bird's rarity. Its future appeared uncertain and it was perhaps doomed to disappear. The new edition, in a separate chapter that updates information in the first edition, sheds more light on this bird, stating: "This guan has been discovered at new localities....(and has) become one of the most studied members of the family." Such information proves the exceptional value of this book and allows the reader to learn about advances that have been made and of the



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