Ragge DR. 1965. Grasshoppers, crickets and cockroaches of the British Isles. Frederick Warne & Co. Ltd., London. 299 p.
[Excerpt (p. 132-138, Plate IX 1,2,3,4,5,6)]

WOOD-CRICKET

Nemobius sylvestris (Bosc)

(Plate IX: 2, 3)

Description A small cricket, *dark brown and black in colour with paler markings*. The fore wings are reduced to *short flaps* in both sexes; they extend about half-way along the abdomen in the male and less than half-way in the female. The hind wings are *absent*.

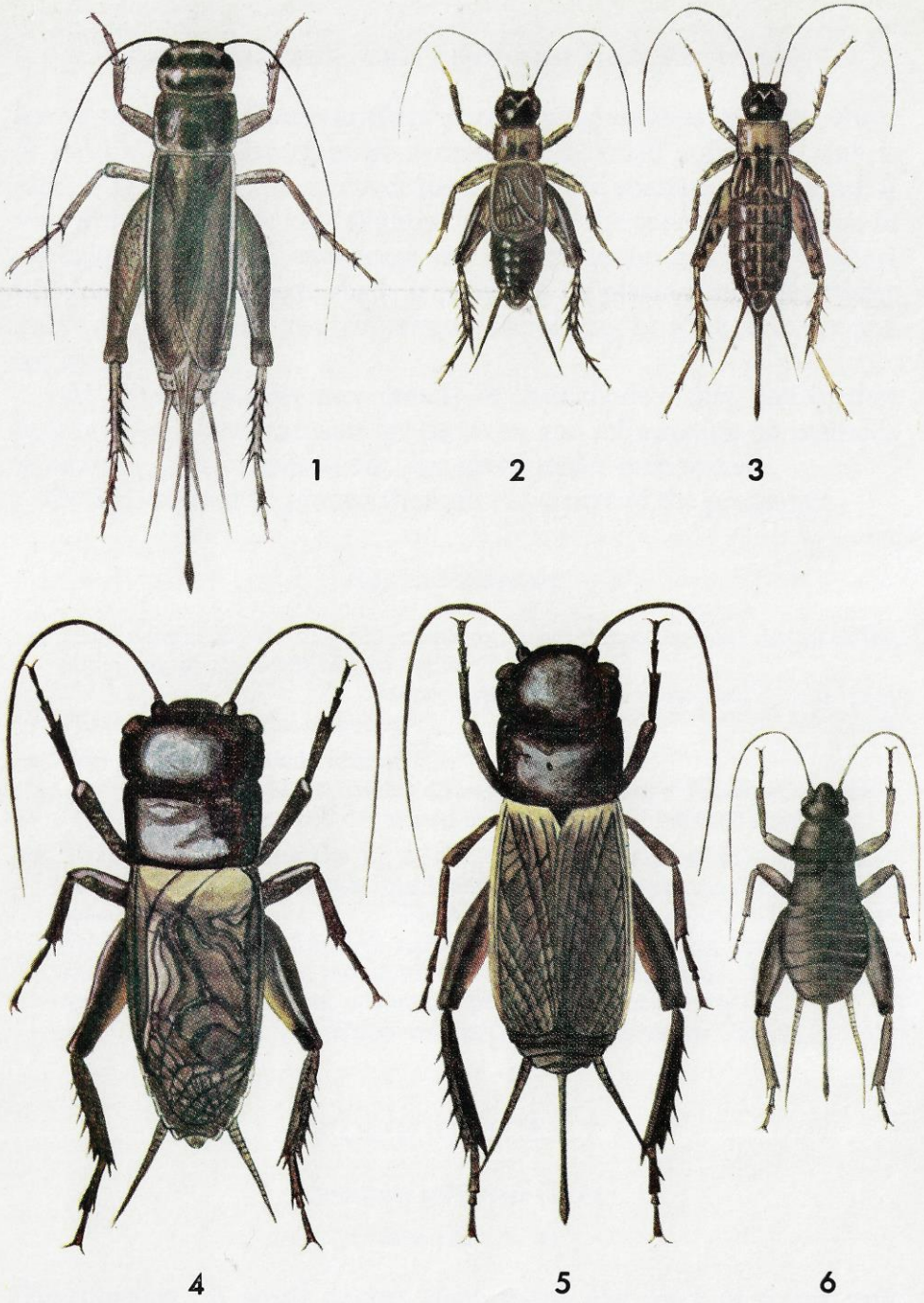

PLATE IX f.p. 133

1. **House-cricket** (*Acheta domesticus*), female, ×3.
2 and 3. **Wood-cricket** (*Nemobius sylvestris*), ×3, (2) male and (3) female.
4 and 5. **Field-cricket** (*Gryllus campestris*), ×2½, (4) male and (5) female.
6. **Scaly Cricket** (*Mogoplistes squamiger*), female, ×2½.

There is very little variation in colour; the males are generally rather darker than the females.

Measurements

Males

Total length (20): 6·7–9·1, mean 7·82
Length of the fore wing (20): 2·7–4·1, mean 3·57
Length of the hind femur (20): 4·9–6·2, mean 5·58

Females

Total length (20): 7·7–10·4, mean 8·95
Length of the fore wing (20): 1·7–2·8, mean 2·20
Length of the hind femur (20): 5·6–6·7, mean 6·12
Length of the ovipositor (20): 5·3–7·1, mean 6·29

Habitat As both its English and Latin names suggest, this insect is usually associated with woodland. It lives amongst the dead leaves that lie on the ground in the rides and clearings, and along the borders, of woods and forests, and seems to have a preference for oak-leaves. The Wood-cricket does occasionally occur in more open situations, such as on roadside banks or under a growth of bracken, but it is seldom found very far from trees.

Life History The life history of this species is most interesting in that its complete cycle occupies two years, unlike that of any of our other Saltatoria except the Mole-cricket. The eggs pass the winter in a resting phase and generally begin to hatch during June. The young nymphs pass through their earlier instars during the course of the summer, usually reaching the fifth (occasionally the sixth) instar by autumn. At this stage the nymphs measure about 5 mm. in length, and in the females minute traces of the developing ovipositor may be seen with the aid of a microscope. The half-grown Wood-crickets then spend the winter in a resting phase: growth ceases and there are no further moults for some months. They do not undergo true hibernation, however, and may be found in a more or less active state during mild spells at any time of the winter.

The nymphs resume a fully active life in April of the following year. The fifth moult soon takes place, and the last three follow during May and June. The sixth-instar nymphs are very similar to those of the preceding instar, though the rudiments of the ovipositor become

slightly larger in the females. In the seventh instar the ovipositor measures about 1 mm. and is visible to the naked eye; in the eighth and last nymphal instar it reaches a length of about 3 mm. The wing-rudiments first appear in the seventh instar in both sexes and are clearly visible in the eighth.

If the spring weather is favourable the first adults may appear in June, though most nymphs undergo the final moult during July and a few last-instar nymphs are to be found in August. Maturity is reached about 1–2 weeks after the final moult and the breeding season lasts from July until about November.

The eggs are laid singly just below the surface of the ground. The abdomen is raised until the ovipositor can probe the soil vertically, and when a suitable spot has been found this instrument is inserted up to the hilt. A single egg is laid and the ovipositor is then withdrawn gradually in such a way as to fill the hole with soil. Egg-laying continues until the autumn, and the total number of eggs laid by a single female (assuming that she remains alive and healthy throughout the breeding season) is about 200.

Most of the adults die off towards the end of the year, but a few manage to survive the winter and are still to be found in the following spring. These aged Wood-crickets have achieved a life-span of almost two years since hatching and nearly three years since the eggs were laid. Few other Saltatoria can rival this, though in this country the Mole-cricket, which in our latitudes has a life-span after hatching of more than two years, holds the record.

As a result of this two-year life-cycle the Wood-cricket may be found in at least two, and usually three, different stages of development throughout the year. During the winter its eggs lie dormant below the surface of the ground while the half-grown nymphs indulge in occasional bursts of activity above them, and a few senile adults are scattered here and there. When the eggs begin to hatch in June the nymphs that have overwintered will be in their seventh or eighth instar. At this time only these two stages of development will normally be represented, as even the hardiest of adults will usually have died off. In late summer all the individuals that passed the winter in the nymphal stage will have become adult, and the newly hatched nymphs will be passing through their early instars; there will also be freshly laid eggs in the ground.

It is also a most interesting outcome of this biennial life history that the British Wood-cricket must be divided into two distinct strains, which are rarely if ever able to interbreed. This is because the adults of one year very rarely overlap during their own adult life with adults of either the preceding or following years, so that when one strain is adult the other is still in the nymphal stage and vice versa. Although it is true that a few adults survive the winter, most of these die early in the year and it is doubtful if those that still remain have sufficient life left in them for courtship and mating. To the extent that these two strains are unable to breed with each other, one can speak of the 'Even-year Wood-cricket' and 'Odd-year Wood-cricket', but more observation and experiment are necessary before it can be confirmed that there is a really effective degree of reproductive isolation.

Habits This sprightly little species, the smallest of our crickets, is certainly not the least interesting. Like the Field-cricket it is active during the day, and in warm weather becomes so lively that it is quite difficult to catch. It progresses by a jerky running movement, and jumps for short distances if sufficiently disturbed. The best method of capture is probably by means of a specimen-tube; a net is certainly quite useless.

Wood-crickets are perhaps the easiest of all our Orthoptera to keep in captivity. A large glass jar will provide a suitable home and, as these insects are unable to climb on glass, no cover is necessary. About an inch of soil or sand should be put on the floor of the container, with some dead leaves, stones, pieces of bark, or other suitable objects to provide cover for the occupants. The soil or sand should be kept slightly damp by periodic watering.

The Wood-cricket is omnivorous in captivity. In its natural haunts it probably takes a preponderance of vegetable food (perhaps fungi in particular), doubtless supplemented by small dead insects or other very small animals. The leaves of many different plants are eaten readily, as are various fruits and many kinds of man-made foodstuffs. Lettuce will serve as a convenient food for Wood-crickets kept as pets, but it is advisable to provide occasional alternatives, such as bread, apple or small dead insects. Live insects are not normally attacked and, although it will eat the dead bodies of its own kind, this species is not pugnacious and lives peaceably even in quite crowded

conditions. Fights between males occasionally take place, but are very brief and seem never to result in any damage to the participants.

Wood-crickets are accustomed to a well-shaded environment in their natural surroundings and this should be borne in mind when keeping them in captivity. Although they flourish in warm weather they should never be put in direct sunlight.

Song (Fig. 48; Record: side 1, recording 9) The Wood-cricket has a subdued song, which carries no more than a few yards in the best conditions and seldom attracts the notice of the untrained ear. It is a quiet churring noise, frequently interrupted by very short pauses.

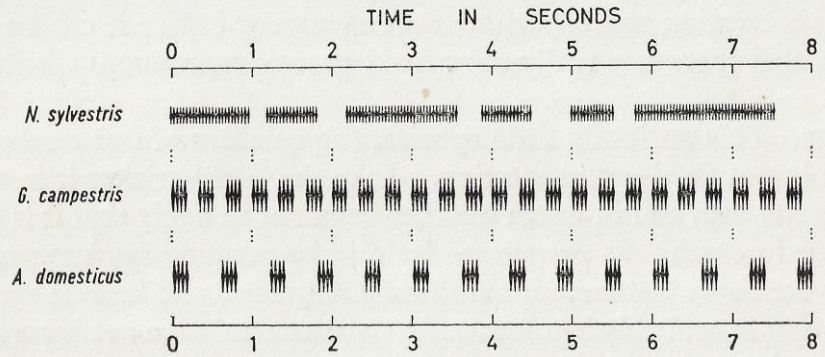

FIG. 48. Diagrams of the songs of the British crickets (see p. 31 for a full explanation and p. 284 for the English names of the species).

When one hears this song in the Wood-cricket's natural haunts it is generally a chorus of several singing males and thus sounds continuous, suggesting perhaps a distant Nightjar or Grasshopper Warbler. Although the Wood-cricket is primarily a day-loving creature, the song continues into the night in warm weather.

The courtship behaviour of the Wood-cricket is unusually interesting. In the presence of a female the male often produces an even more subdued stridulation, and from time to time jerks his body backwards and forwards. Soon the end of the abdomen becomes extended and a spermatophore appears at the tip. Gradually the jerking movements become more violent until eventually the female is stimulated to crawl on to his back. He stops singing and remains motionless. When the pair are in the correct position the male deposits the spermatophore at the base of the female's ovipositor. The insects immediately separate and sit quietly. Then the male begins his jerking movements

again and the female crawls on to his back once more; this time she remains there for some time (usually several minutes) and appears to be licking something on the male's right fore wing with her palps. There is a patch of very small, fine hairs on this fore wing, and it is very likely that small glands in this region produce a secretion on which the female feeds. Occasionally the female actually bites the wing, in which case she is promptly rejected by the male. This licking behaviour sometimes occurs before mating; rarely it is omitted altogether.

Now follows the most interesting feature of the courtship behaviour. The insects separate again, and after a lapse of some minutes the male produces a second spermatophore; it is more than twice the size of the first (about 1 mm. in diameter) and its whitish colour makes it quite conspicuous. The male carries the spermatophore about with him for some time, showing no interest in the female. Then he begins to sing once more and the jerking movements are resumed. A second mating follows, and the female receives the second spermatophore in much the same way as the first; the licking behaviour may occur again. She usually disposes of the first spermatophore between the two matings by loosening it with her hind legs, rubbing it off against the ground, and then eating it. Occasionally, however, the second mating occurs before she has done this, and she then carries for a time both the small and large spermatophores. The second spermatophore is eventually rubbed off and eaten, and so the complete cycle of courtship behaviour ends; when the male next mates he produces a small spermatophore again.

The significance of the alternate production of small and large spermatophores is far from clear. It is doubtless unnecessary for a female to receive both spermatophores before fertilization can take place, for in nature males and females are constantly intermingling and one male is not likely to mate with the same female twice in succession. The time spent by the female licking the male's fore wing may have at one time served to allow the sperms to enter her body before the spermatophore was dislodged and eaten; however, she does not now seem inclined to remove the spermatophore, even in the absence of licking behaviour, until at least half an hour has elapsed since she received it. If the male is frustrated in an attempt at mating, he eats the spermatophore and produces a small one again at the next attempt.

It should be mentioned that the male may begin his courtship behaviour and even produce a spermatophore in the absence of a female, and will in fact discourage her from mounting him until a short time after its production.

Distribution The Wood-cricket is known for certain to occur only in South Devon, Dorset, South Wilts, South Hants (where it is common in the New Forest) and the Isle of Wight. There are also doubtful records for West Cornwall, Worcestershire and even Derbyshire. The species is not known from Wales, Scotland or Ireland.

Distribution Abroad Western, central and southern Europe; North Africa.