



IDENTIFYING GRASSHOPPERS, CRICKETS AND ALLIES IN BEDS, CAMBS AND NORTHANTS

Brian Eversham & Florent Prunier

v. 2.1

August 2016

Naming of parts

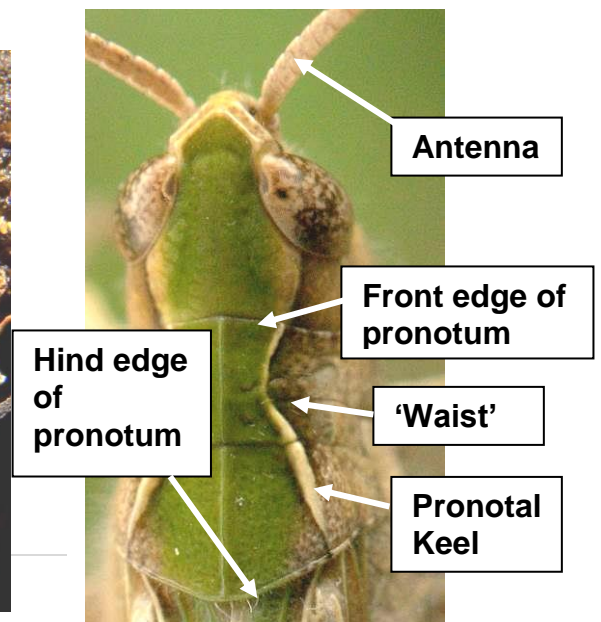
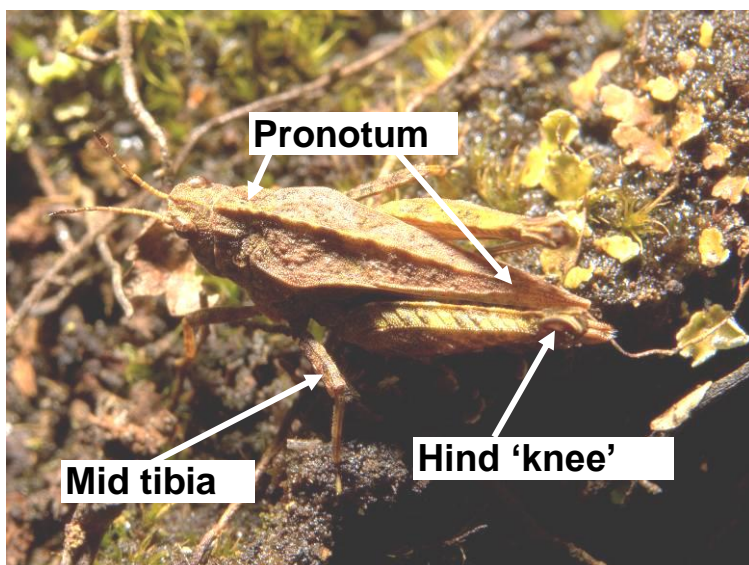
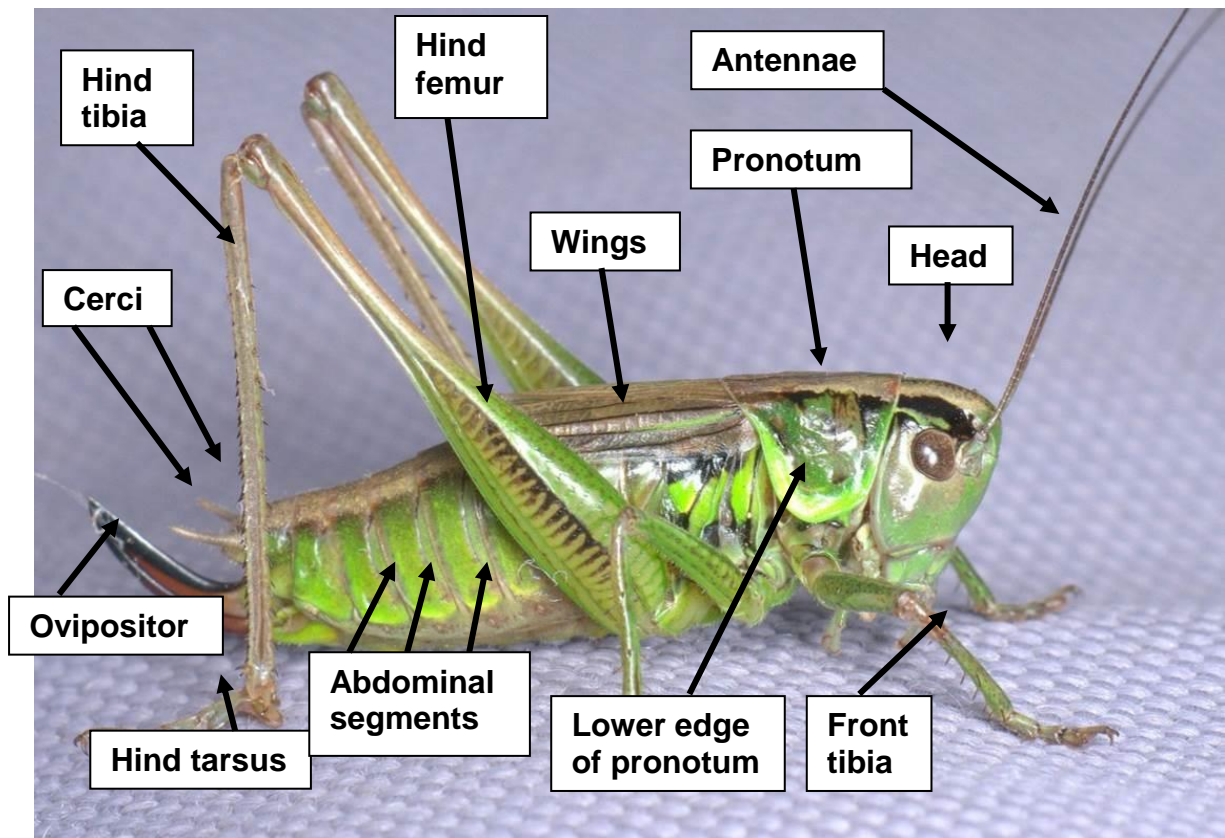


Table to identify the major groups

	Crickets and Bush-crickets	Ground-hoppers	Grasshoppers	Mole-crickets	Earwigs	Cockroaches
1. Hind legs enlarged for hopping	Yes	Yes	Yes	Yes	No	No
2. Antennae long and thin, as long as body	Yes	No	No	No	No	No
3. Small, brown, with elongate pronotum reaching most or all of abdomen	No	Yes	No	No	No	No
4. Front legs spade-like, for digging, orange-brown. Thorax velvety-furry	No	No	No	Yes	No	No
5. Tip of abdomen with a pair of pincers	No	No	No	No	Yes	No

Illustrations for the table (Note: ↓↘↙ link captions to photos)

Hind legs enlarged for hopping ↓↘↙

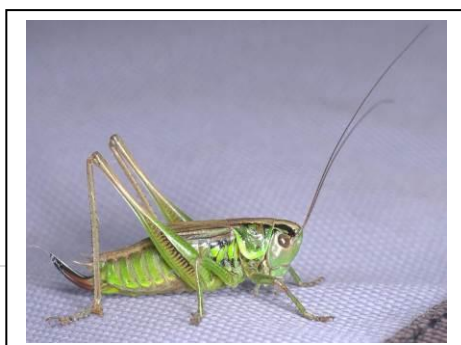


Hind legs NOT enlarged for hopping ↓



Antennae long and thin, as long as body ↓

Antennae much shorter than the body ↓



Small, brown, with elongate pronotum reaching most or all of abdomen ↙↓



Front legs spade-like, for digging, orange-brown. Thorax velvety-furry ↘



Tip of abdomen with a pair of pincers ↓↘



Crickets and Bush-crickets

Although features in the key may seem rather subtle, most species are distinctive and readily recognised with the naked eye even when immature. The exception is the two conehead species: immatures cannot be identified to species, and long-winged adults require close inspection.

- 1 Body rounded or flattened vertically, animal sits or stands upright, often holding body away from ground. Wings, if developed, held together over the back, more or less vertically, like a keel, along abdomen. Feet each with 4 segments. Cerci (pair of feeler-like structures at tail tip) short, much shorter than hind thighs. Female with ovipositor sword-like, vertically flattened. **Bush-crickets** **2**

Body flattened horizontally. Wings folded flat on top of abdomen. Feet each with 3 segments. Cerci about as long as hind thighs. Ovipositor cylindrical.

True Crickets (see notes below)

- 2 Very large, 40-54mm. Whole animal green, with pale fawn in a narrow stripe along upper surface. Female with long straight ovipositor

Great Green Bush-cricket

Tettigonia viridissima



Smaller (9-26mm long when adult). May be green or brown. Ovipositor often curved. **3**

- 3 Largely green, sometimes wings and top of back brown. Hind legs entirely green or finely dotted with black. **4**

Not largely green, usually predominantly brown or grey. Hind legs with black or brown stripe or zigzag pattern. **7**

- 4 Short and dumpy, deep green entirely covered in fine black speckles. Females wingless and with a short, broad, strongly curved ovipositor, males with very short pale straw-coloured wings reaching only 2nd abdominal segment.

Speckled Bush-cricket

Leptophyes punctatissima



More elongate in shape, often larger, not finely spotted in black. Both sexes with wings covering at least half of abdomen (reaching at least 4th abdominal segment) or longer than body. Ovipositor more slender, more or less curved. **5**

THREE CHOICES

5a Wings long, reaching tip of abdomen. Whole animal pale or bluish green except for a small part of upper side of wings. Males with long, slender, unforked flexible cerci. Head rather rounded, only a small, inconspicuous point between antenna bases, front of face held vertical or 20 degrees to vertical. 13-17mm. In trees.

Oak Bush-cricket *Meconema thalassinum*



5b Wings very short, hardly visible. Whole animal pale or yellowish green except for red-orange spot at rear of pronotum where wings start. Males with long, slender, unforked flexible cerci. Head rather rounded, only a small, inconspicuous point between antenna bases, front of face held vertical or 20 degrees. 13-17mm. In trees. **Southern Oak Bush-cricket *M. meridionale***



5c Body usually bright yellowish green, with pale brown wings. Males with short, rigid, horn-like cerci. Head rather pointed, with a substantial lump between bases of antennae and front of face at an angle of about 45 degrees to vertical. Lives in long grass, reeds, rushes.

Coneheads *Conocephalus* 6

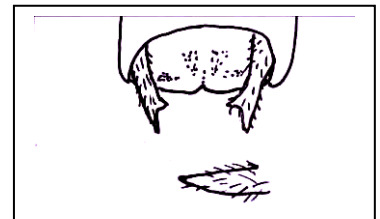


6 Often short-winged as adult. Female with strongly up-curved ovipositor. No black spines on lower edge of hind femur. Subgenital plate of male (underneath last segment of abdomen) with a pair of finger-like backward pointing lobes on either side of midline. 11-18mm.

Short-winged Conehead *Conocephalus dorsalis*



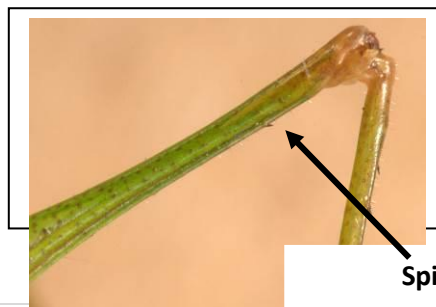
C. dorsalis male with points on subgenital plate and upcurved tip of cerci



C. discolor male with notch on subgenital plate and straight tip of cerci

Always long-winged as adult. Female with straight ovipositor. Hind femur with 2-3 tiny black downward-pointing spines on lower edge in upper third of femur, similar to spines on tibia. Male subgenital plate simply notched on midline. 16-22mm.

Long-winged Conehead *Conocephalus discolor*



Spine

- 7 Females wingless, males with very short straw-coloured wings reaching only 2nd abdominal segment. No bright line on lower edge of pronotum. 13-20mm. Common, in bramble patches, hedge bottoms etc.

Dark Bush-cricket *Pholidoptera griseoptera*



Both sexes with wings covering about half of abdomen (reaching at least 4th abdominal segment), or longer than body. Yellow or green line along edge of pronotum at sides.

8

- 8 Underside yellow. Pronotum at sides with a broad yellow stripe around front, lower and rear margin. Abdomen with 3 yellow spots on each side in basal half. Outside of hind femur with a dark brown stripe with a zigzag edge. 13-26mm. Common in rough dry grass.

Roesel's Bush-cricket *Metrioptera roeselii*



Underside bright green. Pronotum at sides with a narrow white, yellow or green stripe along rear margin only. Abdomen without pale spots. Dark brown stripe on outside of hind leg smooth, not zigzag. 11-21mm. Rare or absent from our area, found in bogs and wet heaths.

Bog Bush-cricket *Metrioptera brachyptera*



True crickets - Orthoptera: Gryllidae

The only species found in the 3 counties is **House-cricket** *Acheta domesticus*. Pale fawn, with variable dark brown markings on head, thorax, hind thighs and wings. Adults long winged. Total length 14-20mm. Lives mainly in houses and buildings, especially in central heating systems. In hot summers may survive outside
Field Cricket *Gryllus campestris* is largely glossy black with pale cream wing-bases; total length 17-23mm; it is extremely rare, found at a handful of sites on heaths or dry grassland in southern England. (The very similar **Southern Field Cricket** *Gryllus bimaculatus* is often bred as food for reptiles and occasionally escapes. Unlike Field Cricket, it has wings extending beyond its abdomen.)

Wood-cricket *Nemobius sylvestris* is small (7-11mm) and short-winged, with its hind legs mottled fawn and dark brown, and occurs in woodland in southern England.

Scaly cricket *Pseudmogoplistes vicentae* is small (8-13mm), dark brown, with plain hind legs, and occurs on shingle beaches on the Dorset and Somerset coasts.



Southern Field Cricket *Gryllus bimaculatus*



House Cricket *Acheta domesticus*

Ground-hoppers - Orthoptera: Tetrigidae: Tetrix

Three species, all small (8-14mm), mostly brown, sometimes with flecks of white or cream.

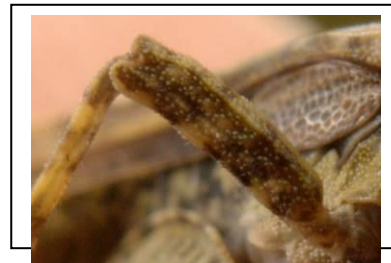
- 1 Pronotum not extending as far as hind knees, and with strong midline ridge. Hind wings always shorter than pronotum. Often in dry mossy and heathy places.
Common Ground-hopper *Tetrix undulata*



Pronotum extending beyond hind knees, and without a midline ridge. Hind wings usually longer than pronotum. **2**



- 2 Vertex (front of head) protruding between eyes in a bulge larger than one eye. Width of vertex (gap between eyes) wider than diameter of eye. Middle thighs almost straight-sided. Usually larger, 9-14mm. Common in a range of wetlands.
Slender Ground-hopper *Tetrix subulata* ↙↓



Vertex hardly protruding, the forward bulge smaller than an eye. Width of vertex (gap between eyes) narrower than diameter of eye. Middle thighs with wavy upper and lower edges. Usually smaller, 8-13mm. Rare, usually on bare mud or sparse waterside vegetation.
Cepero's Ground-hopper *Tetrix ceperoi*

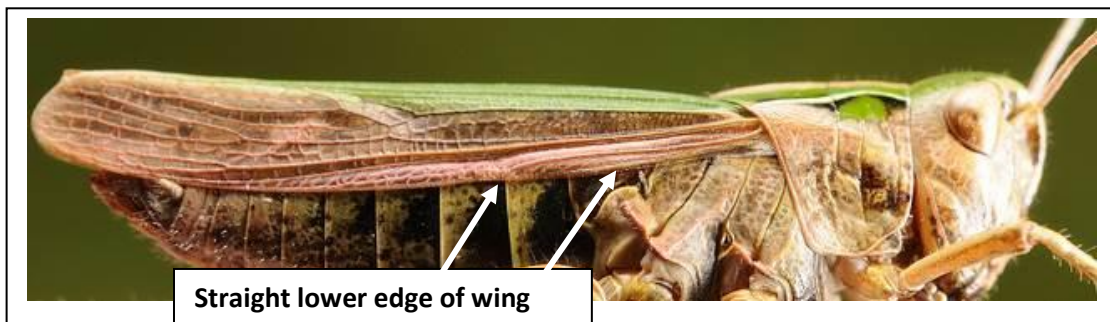
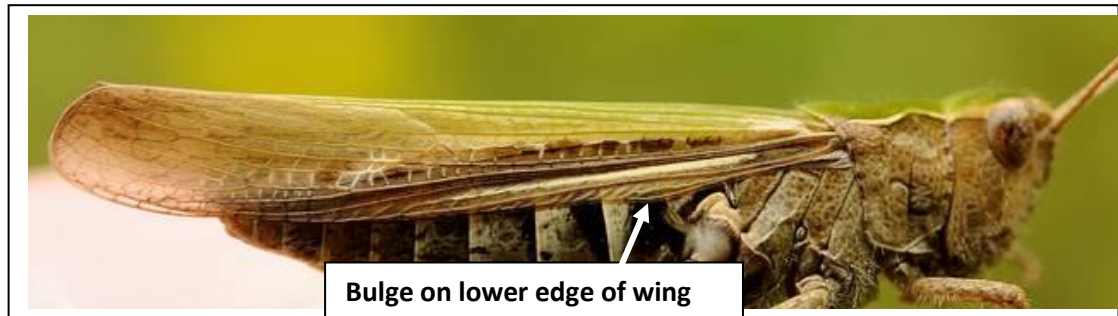


Grasshoppers - Orthoptera: Acrididae

Colour varies in most species, but some colour features help in recognising species. Females are larger than males, usually have shorter antennae, and are distinguished by a short ovipositor protruding at rear of abdomen, with an upper and lower part (the two valves);

males have the tip of the abdomen slightly curved up, like the prow of a boat. When females lay eggs, their abdomen often becomes distended, so it extends beyond the wings in most species, and they become significantly longer.

The key avoids one useful but difficult-to-see feature which is a bulge on the lower edge of the forewing near the base. This is present in *Chorthippus* and *Gomphocerippus*, but absent in *Omocestus*:



This key allows for the user missing some rather subtle features, hence some species key in more than one place, apparently contradicting earlier parts of the key.

1 Antennae clubbed or thickened at tips

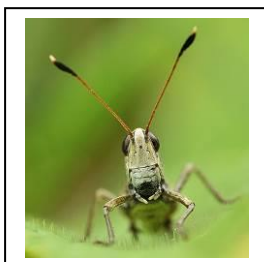
2



Antennae not clubbed or thickened

3

2 Antennae long, club darkened and with a conspicuous pointed white tip. Larger species (male 14-18mm, female 15-22mm), with gently incurved pronotal keels. Very scarce, found in warm spots on chalk grassland. **Rufous Grasshopper**
Gomphocerippus rufus ↓↘↙



Club of antennae same colour as rest of antennae. Male with club strong and turned outward, female with tip merely slightly swollen (easily missed). Small species (male 12-15mm, female 13-19mm) with strongly incurved pronotal keels. Uncommon, heathlands, dry grasslands, railways etc.

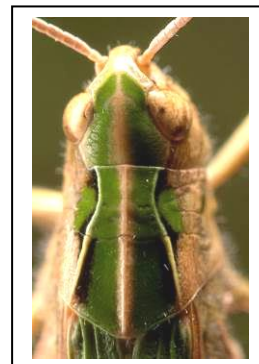
Mottled Grasshopper *Myrmeleotettix maculatus*



- 3** Pronotal keels almost straight for whole length, or slightly diverging in rear half. **4**



- Pronotal keels clearly curved or angled inwards, always diverging strongly in rear half, often diverging at front too, so > < shaped, narrowed in middle. **5**



- 4** Usually short-winged: in female, wings extend only about a third the length of abdomen, in male, forewings a little shorter than abdomen and hind wings (hidden under fore-wings) tiny. Pronotal keels very slightly converging in front quarter, and turned slightly outward in rear half. Hind 'knees' usually dark or blackish. Often smaller, especially males (male 10-16mm, female 16-22mm).

Meadow grasshopper *Chorthippus parallelus* ↓↙↘



Female Meadow Grasshopper

Male Meadow Grasshopper

Always long-winged, male wings exceeding abdomen, female reaching at least three-quarters along abdomen (in females after egg laying, abdomen may stretch considerably). Hind wings fully developed in both sexes. Pronotal keels almost straight and close to parallel for full length. Hind 'knees' rarely much darker than rest of leg. Usually larger (male 14-17mm, female 17-21mm).

Lesser Marsh Grasshopper *Chorthippus albomarginatus* ↓↙↘

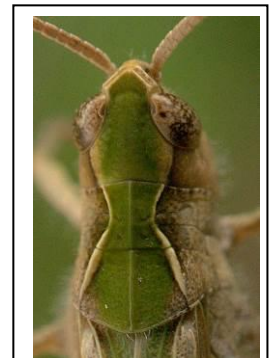


- 5 Keels of pronotum almost as close together at front edge of pronotum as at 'waist', gradually widening toward rear. →

6

Keels closest together around middle of pronotum, angled in toward a 'waist'. →→

8



- 6 [If short-winged when adult, cf. Meadow grasshopper *Chorthippus parallelus*, couplet 4]

Area in central basal half of forewing widened and with a single series of ladder-like strong parallel veins. Pronotum keels with 'waist' in middle and clearly widening at front and rear. Lower valve of ovipositor with a small outward-pointing tooth near base. Almost always mainly green with a white line along the lower edge of the wing, and a white crossline or comma about ¾ the way toward wing tip. Male usually with orange or red on underside of abdomen. Rather large and bulky, male 15-19mm, female 17-23mm **Stripe-winged Grasshopper *Stenobothrus lineatus***



↑Female Stripe-winged Grasshopper



← Male Stripe-winged Grasshopper

Area in central basal half of forewing not widened, veins weaker, not parallel, branched or forked. Pronotum keels almost parallel in front third, then widening toward rear. Ovipositor without side tooth. Rarely with above coloration. If male has red on abdomen, rarely green and often smaller. 7



↑ Female Common Green Grasshopper

← Male Common Green Grasshopper

- 7 Almost always green on sides, sometimes purple coloured. Never with orange or red on abdomen. Palps pale brown or creamy, not startlingly white. Larger, male 15-19mm, female 17-22mm. Rather scarce, mainly in lush grass in wetlands or in ancient woodland rides. **Common Green Grasshopper *Omocestus viridulus* ↙** Usually grey, grey-brown or blackish on sides. Male with orange or red toward tip of abdomen. Palps bright chalk-white. Smaller, male 12-17mm, female 18-20mm. Very rare or absent in our area, usually in sunny clearings in woodland.

Woodland Grasshopper *Omocestus rufipes* ↓



- 8 Area in middle of forewing widened and with a single series of ladder-like strong parallel veins. Underside of thorax not very hairy. Pronotum keels only gently inflexed. Lower valve of ovipositor with a small outward-pointing tooth near base. Almost always mainly green with a white line along the lower edge of the wing, and a white crossline or comma about $\frac{3}{4}$ the way toward wing tip. Male usually with orange or red on underside of abdomen. Rather large and bulky, male 15-19mm, female 17-23mm. **See couplet 6 for illustrations.**

Stripe-winged Grasshopper *Stenobothrus lineatus*

Area in middle of forewing not widened, veins weaker, not parallel, branched or forked. Underside of thorax often very hairy. Pronotum keels strongly inflexed. Ovipositor without side tooth. Rarely with above coloration. If male has red on abdomen, rest of body rarely green. 9

- 9 Large (male 15-19mm, female 19-25mm), with very hairy underside to thorax. Colour variable, but male usually with red or orange on underside of abdomen, and hind legs usually uniformly fawn or brown. Head does not look large compared with pronotum fairly long, keels angled inwards $> <$, but not extremely strongly. Very common in open habitats everywhere, including gardens.

Common Field Grasshopper *Chorthippus brunneus*



- Smaller (male 12-15mm, female 13-19mm), underside of thorax not very hairy. Forewing and hind femur usually with pale and dark banding or mottling. Male with strongly clubbed antennae (couplet 2), but female antennae only very slightly thickened (may be overlooked). Head often looks disproportionately large, pronotum short, keels very strongly angled inwards. Uncommon, heathlands, dry grasslands, railways etc.

Mottled Grasshopper *Myrmeleotettix maculatus*



Mole-cricket - Orthoptera: Gryllotalpidae

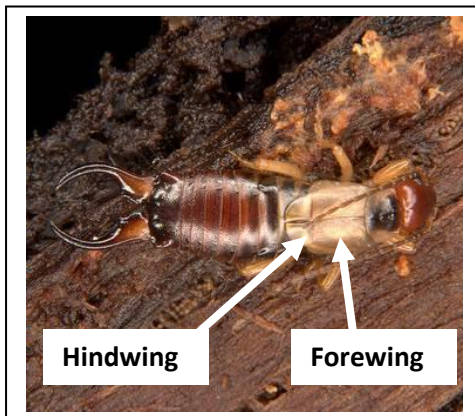
One large and distinctive species, *Gryllotalpa gryllotalpa*, living mainly underground and with front legs modified for burrowing and body covered in velvety hairs. Adults 35-46mm long. Very rare or extinct in Britain, occasionally imported from southern Europe.



Earwigs - Dermaptera

One ubiquitous species, **Common Earwig**, *Forficula auricularia*, distinguished by its large adult size (10-15mm) and its folded hind wings sticking out beyond its rectangular forewings. The pincers of males and females are very different shapes but they are smooth (untoothed) on the inside in both sexes:

Common Earwig, *Forficula auricularia*
Male ↓ Female ↘ Immature ↘↘



Note that immature common earwigs are smaller, wingless and with slender, delicate pincers.

Lesne's Earwig, *Forficula lesnei*, is similar but smaller, 6-7mm long, with no hind-wings. It is uncommon, usually found on trees and bushes over chalk and limestone. Immature Lesne's Earwigs have a distinctive broad stripe down the middle of the abdomen (see below).

Immature **Lesne's Earwig**,
Forficula lesnei, showing pale
stripe down middle of abdomen



Short-winged or Hop-garden Earwig, *Apterygida albipennis*, also lacks hind-wings, is rather slender, 6-10mm long, and has a distinctive tooth about halfway along the rather straight pincers (see below). It is found in Kent and East Anglia, but has not yet been recorded in Beds, Cambs or Northants, but is likely to occur.



Lesser Earwig, *Labia minor*, is 6-7mm long, reddish brown, with longer forewings and with hind-wings jutting out beyond them, so the wings reach between a third and halfway along the abdomen. It is almost confined to dung-heaps (very occasionally found around heaps of rabbit droppings in grasslands), and flies well.

Picture credits

Mole-cricket: (front) Stavros Markopoulos, (whole animal) Chris Kirby-Lambert

Great Green Bush-cricket: Tim Ransom

Short-winged Conehead ovipositor: Steven Falk

House Cricket: Jaap Cost Budde

Rufous Grasshopper: Carex21 and Naturgucker on Flickr

Lesser Marsh Grasshopper (female with elongate abdomen): Laurent Schwebel

Common Green Grasshopper (female): Tristan Bantock

Immature Common Earwig: M P Navest

Other photos are by the author, and most are available to view more clearly and to enlarge if necessary, at:

<https://www.flickr.com/photos/cladoniophile/sets/72157625914247292/>



**Bedfordshire
Cambridgeshire
Northamptonshire**

© Brian Eversham/Florent Prunier
Comments welcome,
to brian.eversham@wildlifebcn.org please