

# CRICKETS, GRASSHOPPERS & ALLIES

## in SW Scotland



A guide to the species, their status and their distribution in Dumfries & Galloway and Ayrshire.



# Crickets, Grasshoppers and Allies in SW Scotland

*A guide to the species, their status and  
their distribution in Dumfries & Galloway  
and Ayrshire.*

by

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# Introduction

There are around 35 native species of crickets, grasshoppers and allies in the UK. This booklet gives an introduction to the species found in SW Scotland (Dumfries & Galloway and Ayrshire) and their known distribution. The information provided on identification is necessarily abbreviated and we would recommend that recorders consult one of the published field guides for more detailed information about identification until they are familiar with the different species (see the Useful Information page at the back of the booklet). It should also be noted that at the time of production information on distribution is at present more comprehensive in Dumfries and Galloway than in Ayrshire.

Orthoptera is the taxonomic order which includes crickets and grasshoppers. Ten species of Orthoptera have been recorded in SW Scotland, nine of which are native. This is just over one quarter of the UK native species but only a tiny fraction of the 30,000 species that occur worldwide. The order can be divided into four main groups: grasshoppers, groundhoppers, bush-crickets and ‘true’ crickets.

Grasshoppers are a familiar group to many people. Adults are typically between 1.5 and 3cm in length and have enlarged rear legs which they use for jumping. They have relatively short antennae. Behind their head is a prominent saddle-shaped structure called the pronotum (a plate that covers the top and sides of the thorax). All species ‘sing’, making a characteristic chirping noise by rubbing their hind legs against their forewings. Female grasshoppers have a small ovipositor, most simply pushing their abdomen into the soil to lay their eggs. Many species vary considerably in colouration, so this is not a



Common Green Grasshopper © Richard & Barbara Mearns

good guide to species identification. Structure and songs can be used more reliably to identify them.

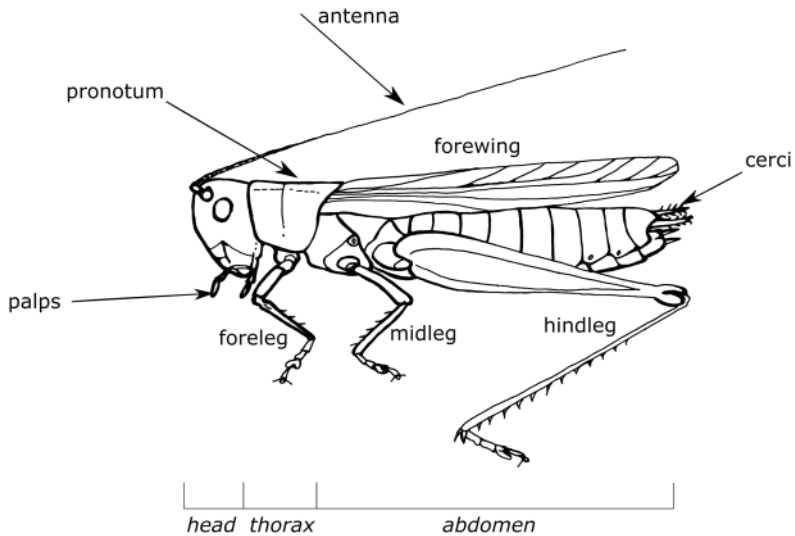
Groundhoppers are similar to grasshoppers, but the pronotum extends over the top of the abdomen (beyond in some species). They also have short antennae but do not sing.

Bush-crickets are longer-legged with very long, fine antennae. Females have a distinctive knife-like ovipositor which they use to cut slits in plants to lay their eggs. Most

Common Groundhopper



## Diagram of Orthoptera species



bush-crickets are green/brown in colour and there is less within-species variation than for grasshoppers. Bush-crickets typically favour scrub or woodland edge habitats and many species are more active at night. Unlike grasshoppers, the song is made by rubbing

the base of their wings together. The resulting song is often higher pitched than those of the grasshoppers.

‘True’ crickets are usually dark brown or black and their bodies are more rounded in

Male Short-winged Conehead , showing the long antennae of bush-crickets © John Clark





Field Grasshopper nymph

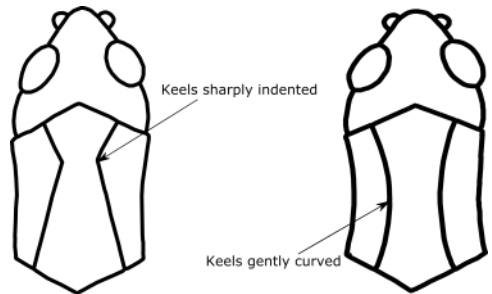
structure. They have long, fine antennae and two prominent pointed structures (cerci) protruding diagonally from the tip of the abdomen. Females of some species have an obvious central pointed ovipositor. True crickets are usually ground-dwelling.

Three taxonomic orders closely related to the Orthoptera are also considered as close allies. The order Dermaptera includes the earwigs, of which four species are native to the UK and two have been recorded from SW Scotland. Some non-native stick insects (Phasmatodea) have become naturalised in parts of SW England, though none have been recorded in Scotland. Cockroaches (Dictyoptera) include three native species and several introduced species are found indoors; at present SWSEIC has no records of this group in SW Scotland.

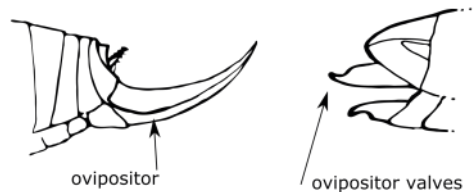
### Orthoptera biology

All species emerge from eggs, which are laid either in vegetation (typically for bush-crickets) or in the soil (typically for grasshoppers). After hatching from eggs, the larva quickly moults to become a fully-limbed nymph resembling a miniature adult. These nymphs pass through a number of transformation phases (known as instars) before reaching adult size and appearance. The number of instars varies, usually four in grasshoppers but up to 13 in some species of

### Dorsal view of grasshopper pronotum



### Abdomen of female cricket on left and grasshopper on right



cricket. Nymphs can be distinguished by their small size and the fact that their wings and reproductive apparatus are not fully developed.

### Finding and identifying grasshoppers and crickets

Most species are more readily identified from their structure rather than their colour. Indeed, many different colours are found within the same species. It is therefore more reliable to observe them closely to look for anatomical characteristics and to listen to their songs when they are not visible.



Anatomical features useful for aiding identification of sex and age of crickets and grasshoppers include:

- Size
- Wing length (in relation to the abdomen length)
- Keel shape on the pronotum (saddle-shaped structure on the thorax)
- Ovipositor size and shape

Female bush-crickets have an prominent ovipositor at the end of the abdomen used to deposit their eggs. The different shapes are helpful to distinguish between species of bush-crickets.

Differences between male and female Orthopterans include the absence/presence (respectively) of an ovipositor (obvious in bush-crickets only), size, wing length, colour and in some species the shape of the antennae.

## Calls

Calls or songs (more correctly referred to as 'stridulations') are another way of identification. An experienced orthopterist need not see a species at all to identify it. Each species possesses its own distinctive song which males use to attract females. However, some are barely audible to human ears. A bat detector can be used to improve detection of all species, particularly those with high frequency calls such as Speckled Bush-Crickets. Examples of the calls for each species can be heard on the national recording scheme website (see Useful Information page).

Short-winged Conehead habitat © Richard & Barbara Mearns









Top left - Aucheninnes Moss, Kirkcudbrightshire: site for Bog Bush-cricket.

Middle left - Claymoddie, Wigtownshire: coastal habitat for a range of grasshoppers.

Bottom left - Rockcliffe to Sandyhills coast: good for a range of grasshoppers and crickets.

©Richard & Barbara Mearns

## Time of the year

For most crickets and grasshoppers the best period to observe them is in the later part of the summer (July/August). Nymphs can be found from late May onwards, though these may be tricky to ID. Adults are usually present in greatest numbers later in the summer. When disturbed, many species instinctively jump aside. Summer is also the best time to hear them calling. In the species accounts, a colour scale indicates the months of the year when adults are more likely to occur (green - less likely, red - most likely).

## Habitats

Crickets and grasshoppers can be found in a wide range of habitats, both coastal and inland, and at low to moderately high altitudes. Some favour damp environments with short or long grass, while others require drier and warmer conditions such as south facing hillsides on rocky ground. SW Scotland is towards the northern edge of the range for several species. Thus sheltered, south facing sites (particularly coastal) with a mix of vegetation, differing sward heights and exposed bare substrate (soil/rocks) provide some of the best places to find a range of different species. The photographs opposite highlight a few examples of good habitats for Orthoptera.

Earwigs can occur almost anywhere where suitable damp conditions under bark or other

debris occurs. Gardens often provide plenty of suitable micro-habitats.

## Recording

All records of grasshoppers, crickets and related species are valuable in helping to understand their regional distribution. The basic information gathered should include the species, date, location (with grid reference) and the recorder's name (and determiner's name if someone assisted with identification). Extra information on habitat, numbers, sex/stage can also be useful. A photo is helpful to verify species identification.

Records can be submitted online via the iRecord website - [www.brc.ac.uk/irecord](http://www.brc.ac.uk/irecord). The website allows for upload of images associated with each record to aid verification. All records submitted through this route will be available to the national recording scheme and to SWSEIC.

There is also an excellent smartphone app for crickets and grasshoppers – iRecord Grasshoppers - which enables records to be submitted online (linked to the above iRecord website). The app includes a useful ID guide and calls for each species. It is available on Android and iOS.

Records can also be submitted direct to SWSEIC, the local environmental records centre for SW Scotland. Details of how to submit records can be found on the SWSEIC website – [swseic.org.uk](http://swseic.org.uk). SWSEIC would be happy to confirm identification from photographs.



Male Dark Bush Cricket © Keith Kirk

## Dark Bush-cricket *Pholidoptera griseoaptera*

### Identification

The Dark Bush-cricket is 10-20 mm long (+10 mm ovipositor). Always brown in colouration, ranging in tone from grey brown to dark brown. Prominent yellow or yellow-green underside. It has very short wings and does not have a central keel on the pronotum. There is no pale margin to the side plates on the pronotum. Female has a prominent gently curved ovipositor.

### Song

High pitched short chirps, repeated irregularly. May sing throughout the day, including dusk.

### Habitat

Only recorded in SW Scotland in coastal locations, amongst coarse scrubby vegetation

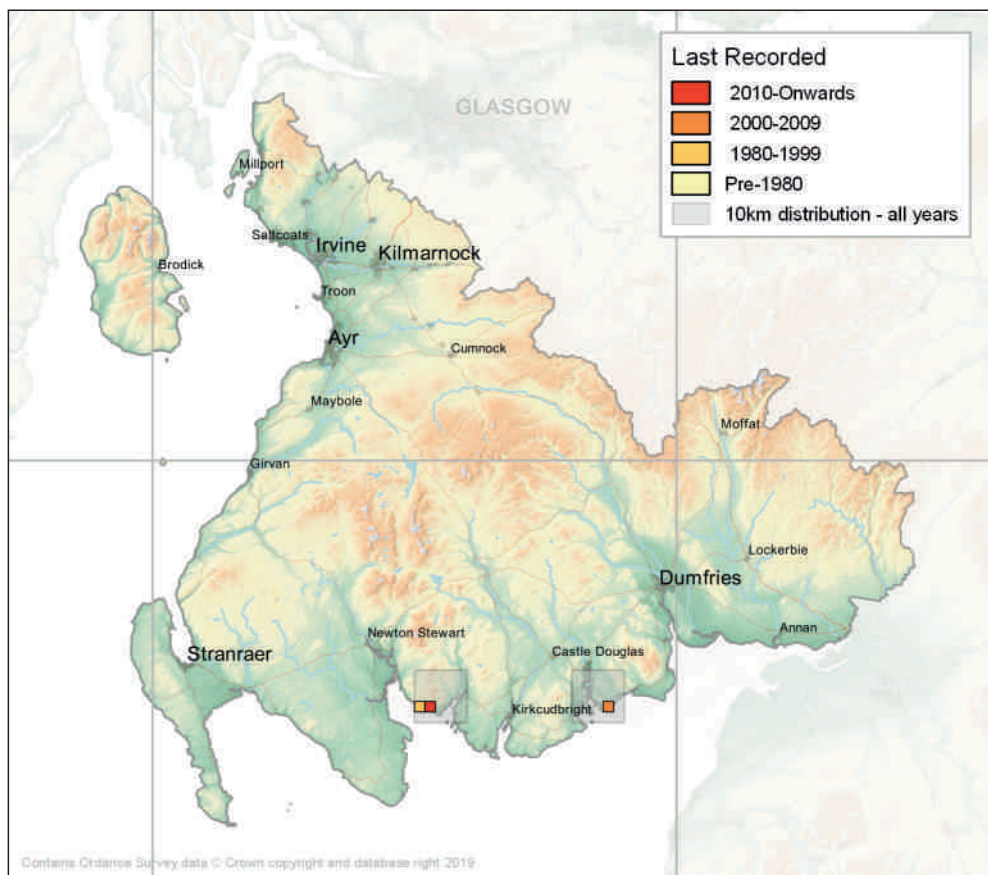
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on south-facing slopes. Further south they are known to inhabit bramble patches and hedgerows.

### Local status

Only recorded from two hectads on the Dumfries and Galloway coast: the Ravenshall area and coastal slopes west of Portling. Potential to occur in suitable habitat elsewhere on the coast.



## Dark Bush-cricket distribution in SW Scotland







Male Bog Bush-cricket © Keith Kirk

## Bog Bush-cricket *Metriopectera brachyptera*

### Identification

The Bog Bush-cricket is 11-21mm long (+ 10mm ovipositor), brown on the sides and a mixture of brown and green along its back. They are bright green on their underside. Both sexes have a pale margin on the side of the pronotum. Usually the wings are shorter than the abdomen, though long-winged individuals may sometimes occur. The females have a shallowly curved ovipositor.

### Song

Continuous high pitched chirps, easily audible, especially if several of them are singing together.

### Habitat

Found locally in wetlands (acidic habitats such as bogs) where Cross-leaved Heath *Erica*

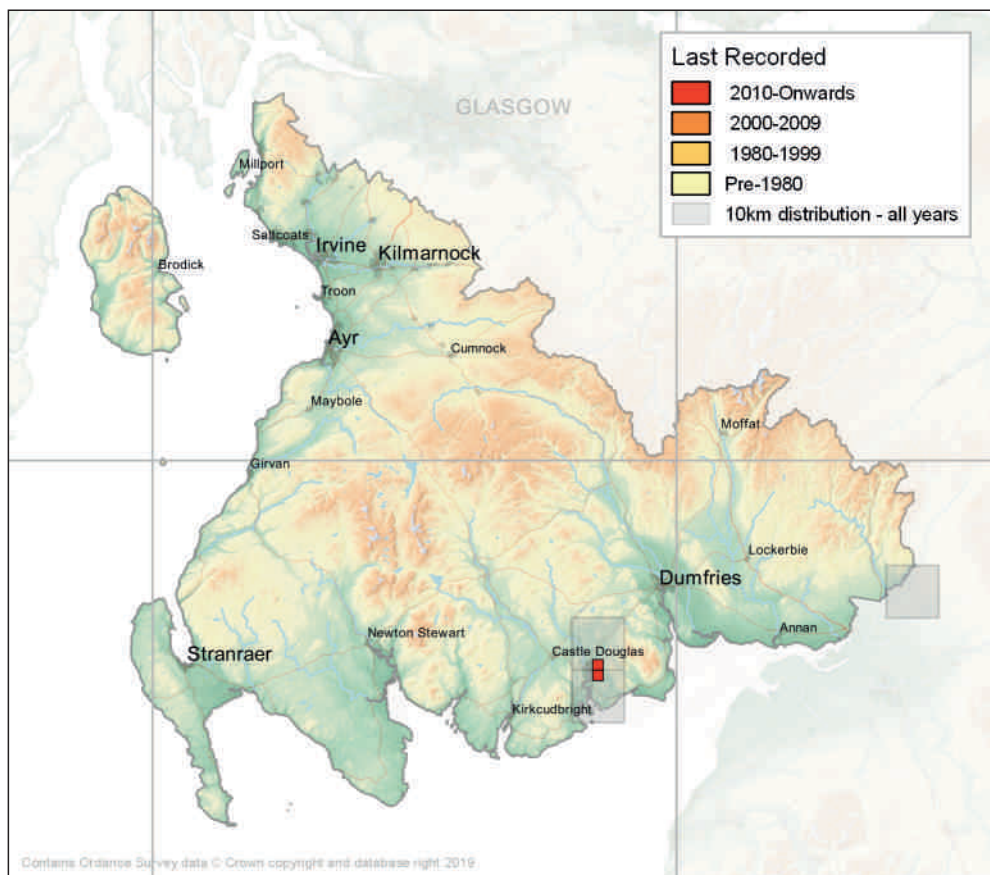
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*tetralix* and Purple Moor-grass *Molinia caerulea* are found. They are usually found at low altitudes.

### Local status

Our rarest species of Orthoptera, known from only a single area covering two adjacent hectads SE of Dalbeattie. Long established at Aucheninnes Moss, in 2018 it was confirmed present at the nearby Craigenfinnie Moss west of the B793. This remains the only known area for this species in Scotland. It is a priority species on the Dumfries and Galloway Local Biodiversity Action Plan.



## Bog Bush-cricket distribution in SW Scotland

Male Bog Bush-cricket © Richard & Barbara Mearns



Female Bog Bush-cricket © Richard & Barbara Mearns





Short-winged Conehead © Keith Kirk

## Short-winged Conehead *Conocephalus dorsalis*

### Identification

A green bush-cricket, 11-18mm in size with short brown wings that do not reach the tip of the abdomen. Usually has a brown dorsal stripe running down its head, pronotum and back. A long-winged form is known to occur, inviting confusion with the Long-winged Conehead *Conocephalus discolor* (not yet recorded in Scotland). Females have a long, gently upward-curving ovipositor.

### Song

Two calls: a quiet repetitive chuffing noise or a rapid ticking like the sound of a fishing reel.

### Habitat

Usually restricted to damp habitats, and in SW Scotland favours the head of salt marshes

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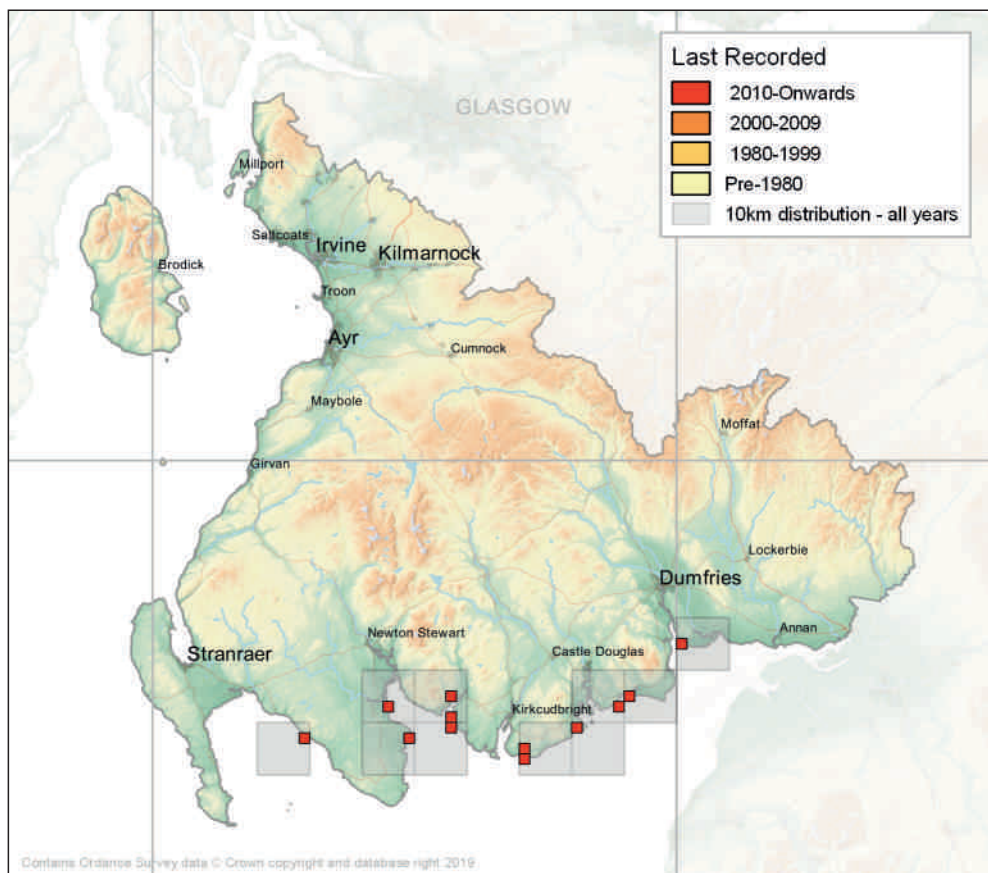


(merse), particularly areas of Sea Club-rush *Bolboschoenus maritimus*.

### Local status

A recent colonist to SW Scotland, first recorded on the coast at Rascarrel in 2011. Subsequent searches have found it at numerous sites on the Galloway coast, as far west as Port William on the Machars coast. There is a single record in Dumfriesshire from Caerlaverock NNR. Not recorded in Ayrshire. Given the rapid nature of the species spread in Galloway, searches in suitable areas of Sea Club-rush may turn up new sites.





Short-winged Conehead distribution SW Scotland





Male Speckled Bush-cricket © Ian Alexander CC BY SA 4.0

# Speckled Bush-cricket *Lectophyes punctatissima*

## Identification

A small, green bush-cricket with a brown dorsal stripe and 10-20 mm in length (<10 mm ovipositor). Minutely speckled with black dots across the whole body and wings are reduced. Speckling on nymphs is often even more pronounced than on adults. The female’s ovipositor is broad, short and sharply curved.

## Song

Very weak high-pitched repeated chirp, almost inaudible to human ears, which repeats every three or four seconds. Best heard with a bat detector where it sounds more like a click.

## Habitat

Only found in scrubby coastal grassland in SW Scotland, though further south favours

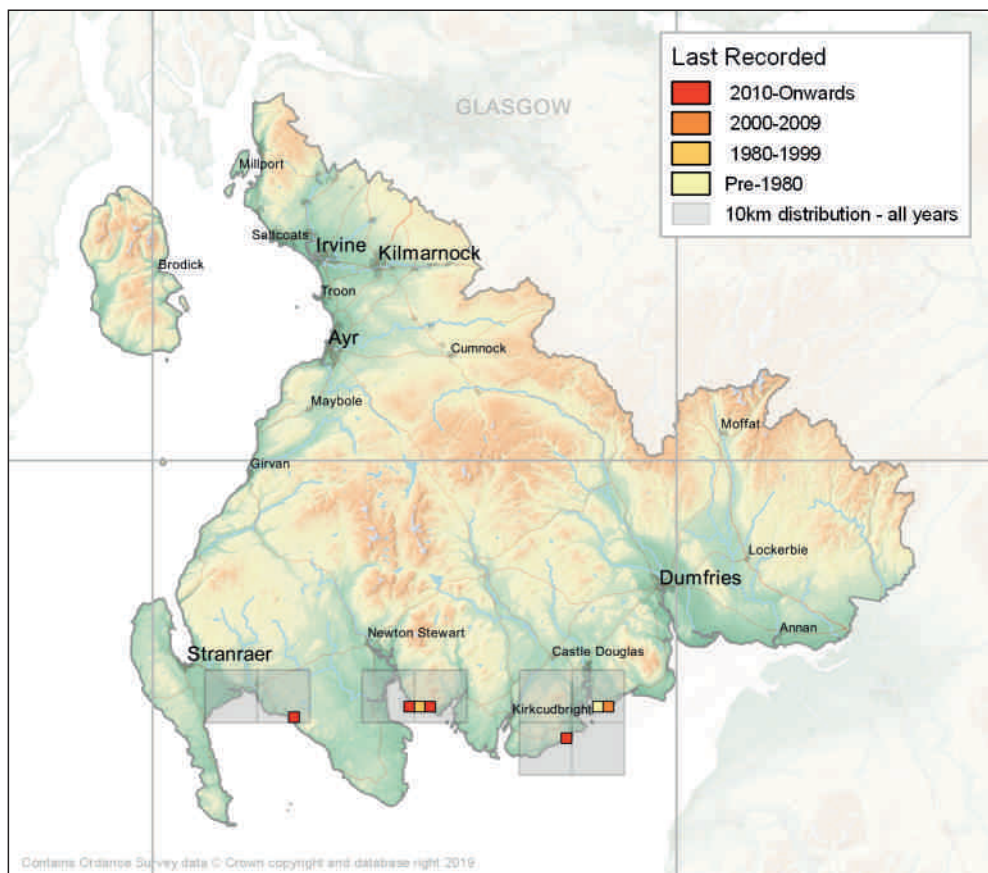
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hedgerows, open woodland, tall herbage, scrub and gardens.

## Local status

Only recorded on the Galloway coast. Recorded from 8 hectads, though one historic record for ‘Auchencairn’ allocated to NX74 could relate to an adjacent coastal square. New colonies in hectads NX74 and NX45 discovered in 2015 and 2018 respectively, and plenty of potential for other undiscovered colonies elsewhere on the Galloway coast.



Speckled Bush-cricket distribution in SW Scotland







Common Groundhopper

# Common Groundhopper *Tetrix undulata*

## Identification

Distinguished from grasshoppers by smaller size (8-14mm), 'heavily armoured' appearance and by its extended pronotum which covers the whole of the abdomen. Pronotum is strongly ridged and short wings are hidden beneath the pronotum. Variable in colour, from mottled grey/dirty green to various shades of brown/reddish/black. Unlike other Orthopterans, adults may be found at any time of year.

## Song

No song, as they have no method of stridulation.

## Habitat

Uses a range of open habitats with bare ground and short vegetation, including bare peat, sand dunes and woodland. Prefers

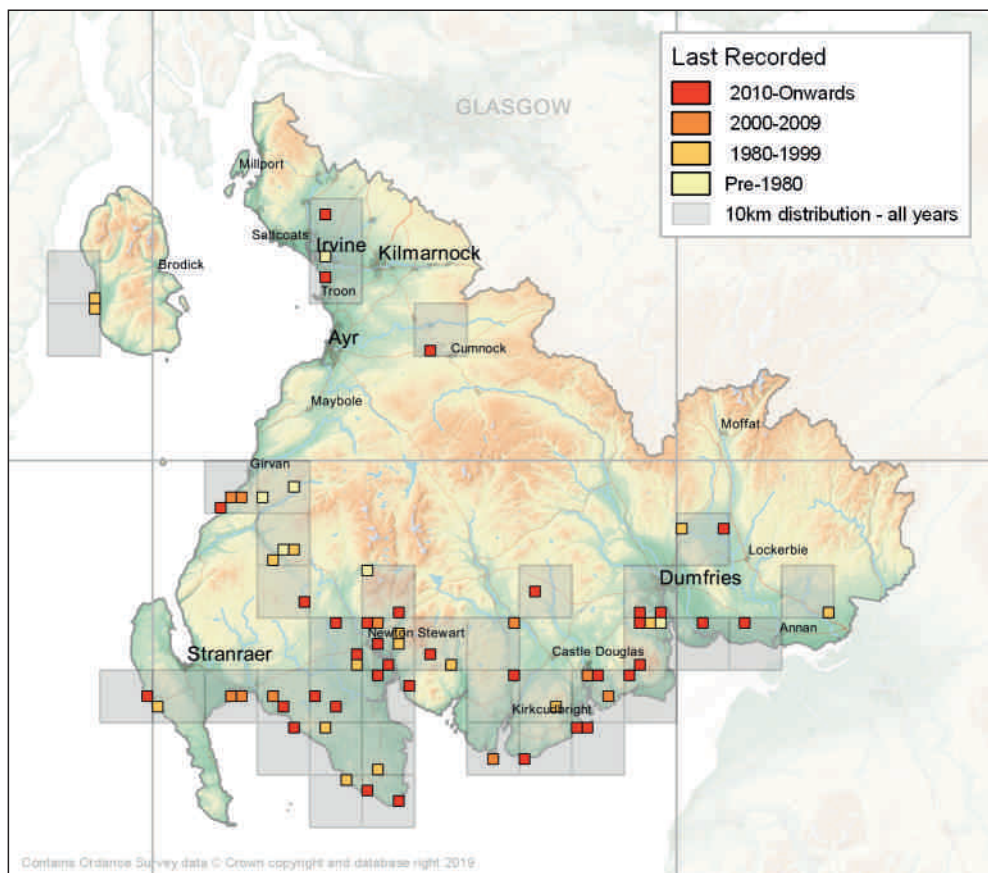
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habitat with mosses and lichens present on damp or dry bare earth. Mossy edges to tracks are good places to look for them.

## Local status

Widely distributed nationally, though less common in northern Britain. Regional distribution is patchy though fairly widespread, mainly in low-lying areas south of the Southern Uplands. Some records in Ayrshire, mainly in the south. Probably under recorded.



Common Groundhopper distribution in SW Scotland





Common Green Grasshopper © Keith Kirby

## Common Green Grasshopper *Omocestus viridulus*

### Identification

Varying on length from 14-23 mm long, usually green or green and brown. Almost always green on dorsal surface. Gently incurved keels on the pronotum, wide at the rear narrowing towards the head. Never have any red or orange on the abdomen. Forewings do not exceed the length of the abdomen and no costal bulge on the forewing.

### Song

A fast ticking continuous chirp, becoming increasingly loud, lasting 10 to 20 seconds and stopping abruptly.

### Habitat

Favours damper grassland with a long sward. Can be common in rough pastures, meadows,

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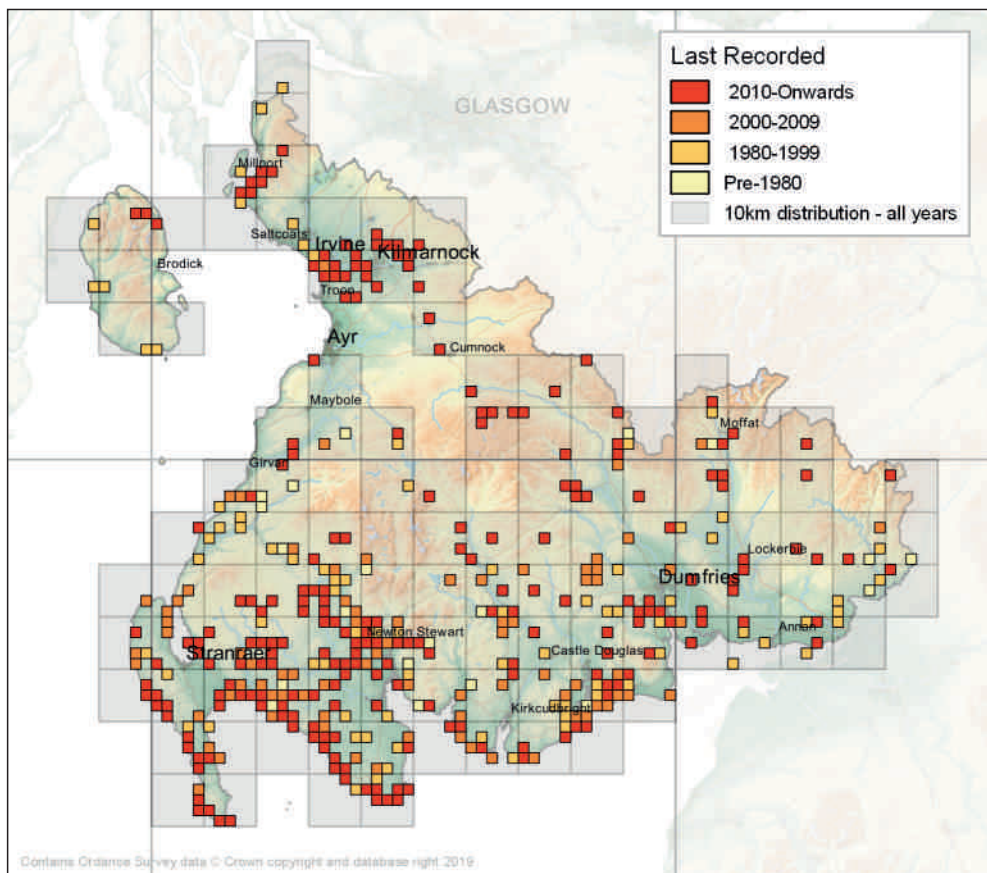


parkland and in grassy edges of forest rides. Found in coastal areas and inland, sometimes at quite high altitudes.

### Local status

Our commonest and most widespread grasshopper. Widespread in Dumfries and Galloway, particularly in the west, and recorded in some upland areas. Well distributed along the coast as well as inland. Widespread but patchy records in Ayrshire. Still opportunity to record presence in new hectads.





Common Green Grasshopper distribution in SW Scotland





## Mottled Grasshopper *Myrmeleotettix maculatus*

### Identification

Our smallest grasshopper, ranging from 12-19mm long. Numerous colour variations ranging from green to dark purple (twelve described colour forms). The pronotal keels are sharply and deeply indented and usually well marked. The male's antennae are clubbed (a distinctive feature of this species) and female's antennae are also thickened at the tip. They have no bulge on costal margin of forewing.

### Song

Rapid stridulating chirps (two per second) increasingly loud for 10 to 20 seconds that stops suddenly. Often compared to an engine having difficulty starting. Males may also produce a courtship song.

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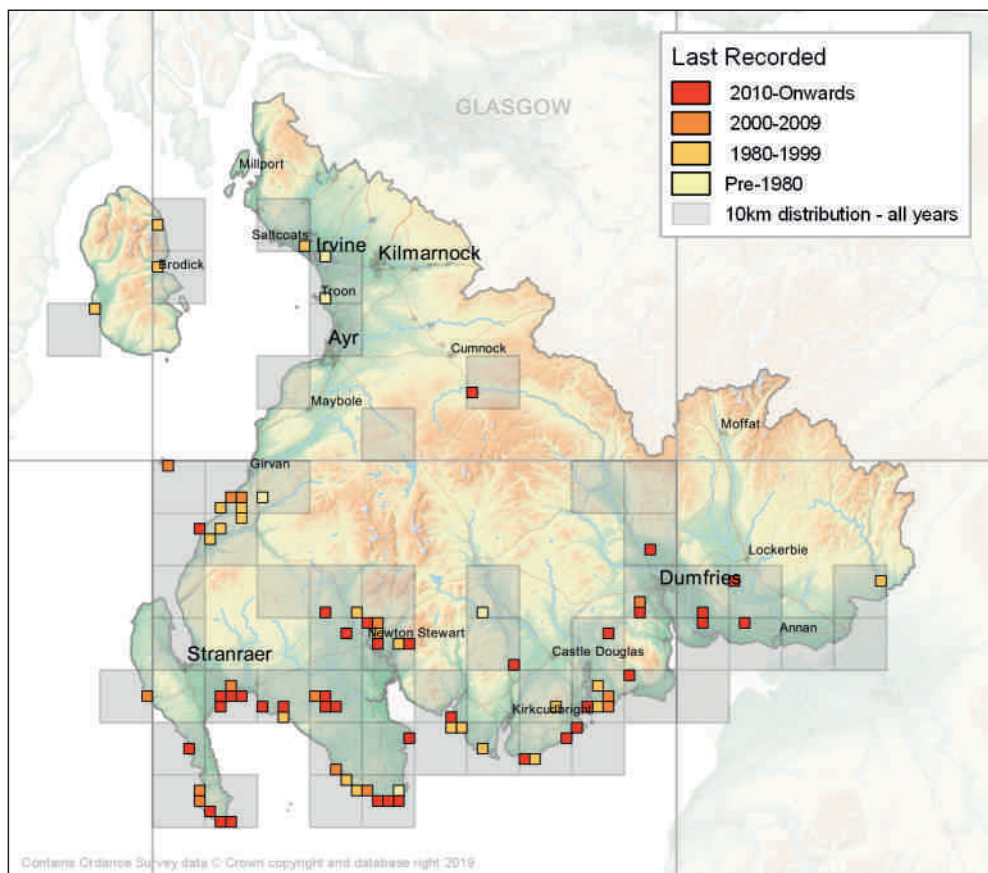


### Habitat

Prefers bare ground or short grass and sunny dry places, including dry heath and coastal dunes. Old quarries, the sides of roads and railway lines are favourable habitats as long as there is no shading.

### Local status

Common in the south and west of the region, particularly in coastal areas of Kirkcudbrightshire and Wigtownshire with relatively few records in Dumfriesshire. Ayrshire records mainly from South Ayrshire, scattered records elsewhere. The only grasshopper species recorded on Ailsa Craig.



Mottled Grasshopper distribution in SW Scotland







Male Field Grasshopper © Mark Chambers

## Field Grasshopper *Chorthippus brunneus*

### Identification

Ranging from 15-25 mm long, with sharply angled pronotal keels and wings no longer than the hind-knees. Dark triangular wedges on the pronotum fade out before reaching the rear edge of the pronotum. This species has a distinctive hairy underside thorax. Occur in a wide variety of colour forms, typically a brownish mixture but can be green or bright pink. Males often develop an orange-red colour on the end of their abdomen.

### Song

Series of two short chirps per second for between eight and 20 seconds. Males will respond to any chirp like sound and alternate rapidly with other males. The females will only chirp briefly.

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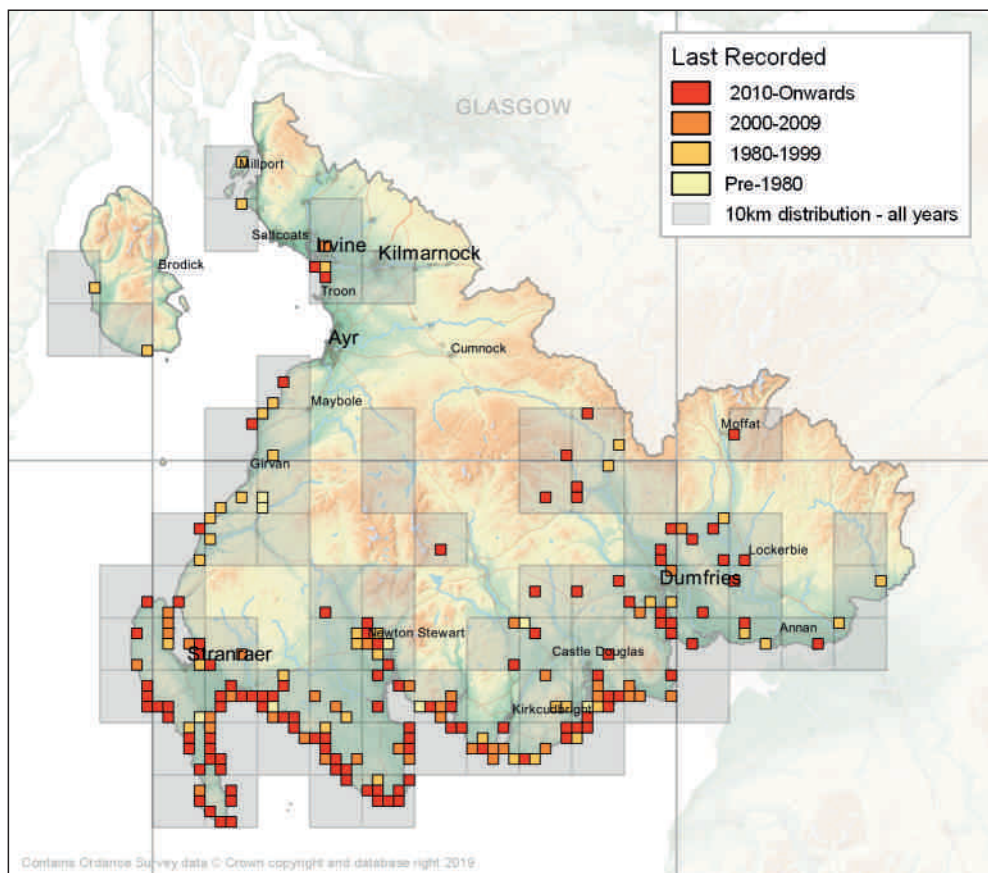
### Habitat

Hot, sunny, rocky ground, mainly in coastal areas but can also be found alongside roads. Strong preference for short vegetation and can even thrive in built up areas with sparse vegetation.

### Local status

A widespread species along the coastal areas of Dumfries & Galloway and Ayrshire. Scattered inland records from suitable habitats.





Field Grasshopper distribution in SW Scotland





Female Meadow Grasshopper © Richard & Barbara Mearns

## Meadow Grasshopper *Chorthippus parallelus*

### Identification

10-23 mm long, usually green in colour with brown wings though variable; females can sometimes be vivid pinkish purple and mature males have a yellowish green abdomen with a brownish tip. Males are long-winged (macropterous) and females short-winged (brachypterous), though some long-winged females can occasionally be found. Pronotal keels are very gently curved and there is a protrusion on the costal margin of the forewings. Hind legs usually have dark or black 'knees'.

### Song

Chirps comprising five notes per second, lasting from one to three seconds. During summer days calls tend to be shorter.

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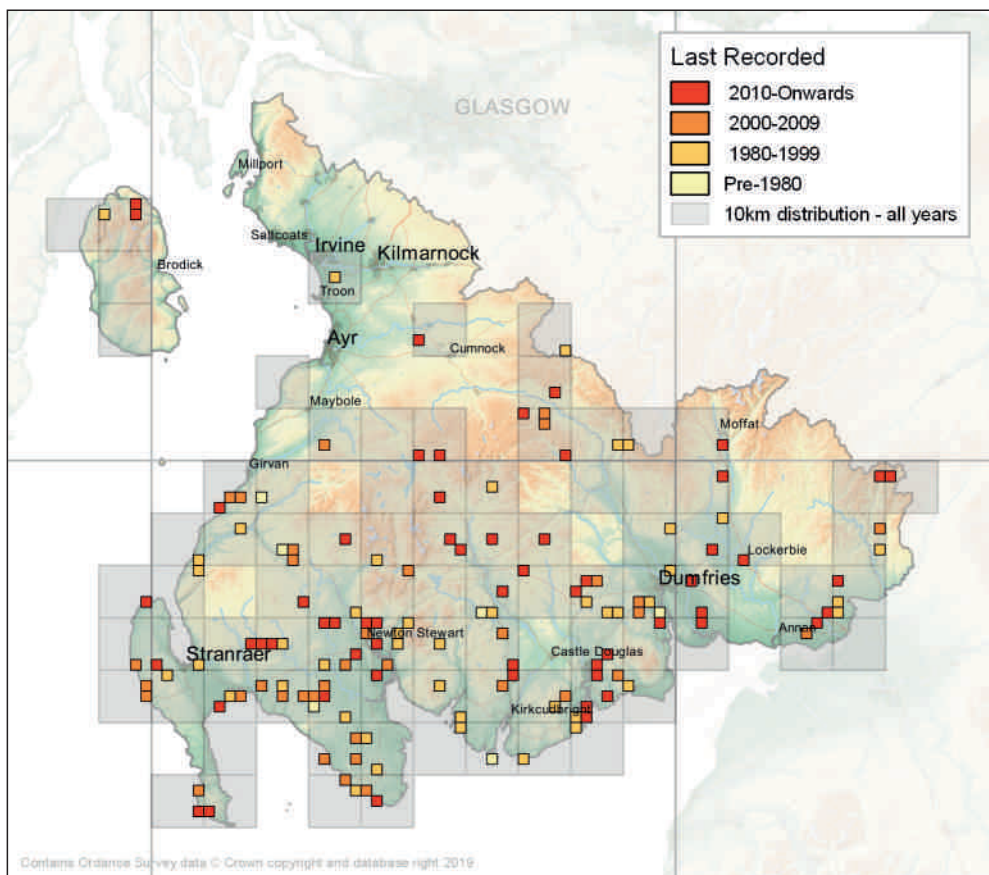


### Habitat

Occupies a range of dry and damp habitats with long grass, and can be found in coastal sand-dunes, scrubby bogs, salt-marshes and woodland rides. Tolerates damper locations than some species and can sometimes be found at high altitudes.

### Local status

Widespread throughout Dumfries & Galloway. A few scattered records from Ayrshire where it may well be under-recorded; there is a clear opportunity for recording new hectads where suitable habitat occurs.



Meadow Grasshopper distribution SW Scotland







Male Common Earwig © Alison Robertson

## Common Earwig *Forficula auricularia*

### Identification

A shiny dark chestnut-brown earwig. At 10-15mm long it is the largest of our native earwig species. In the males the pincers are curved, widened and toothed at the base. The hindwings are large and when folded up to rest, project from underneath the elytra (wing cases). The pincers are large and almost straight in females. Capable of flight but rarely choose to do so. They are largely nocturnal.

### Habitat

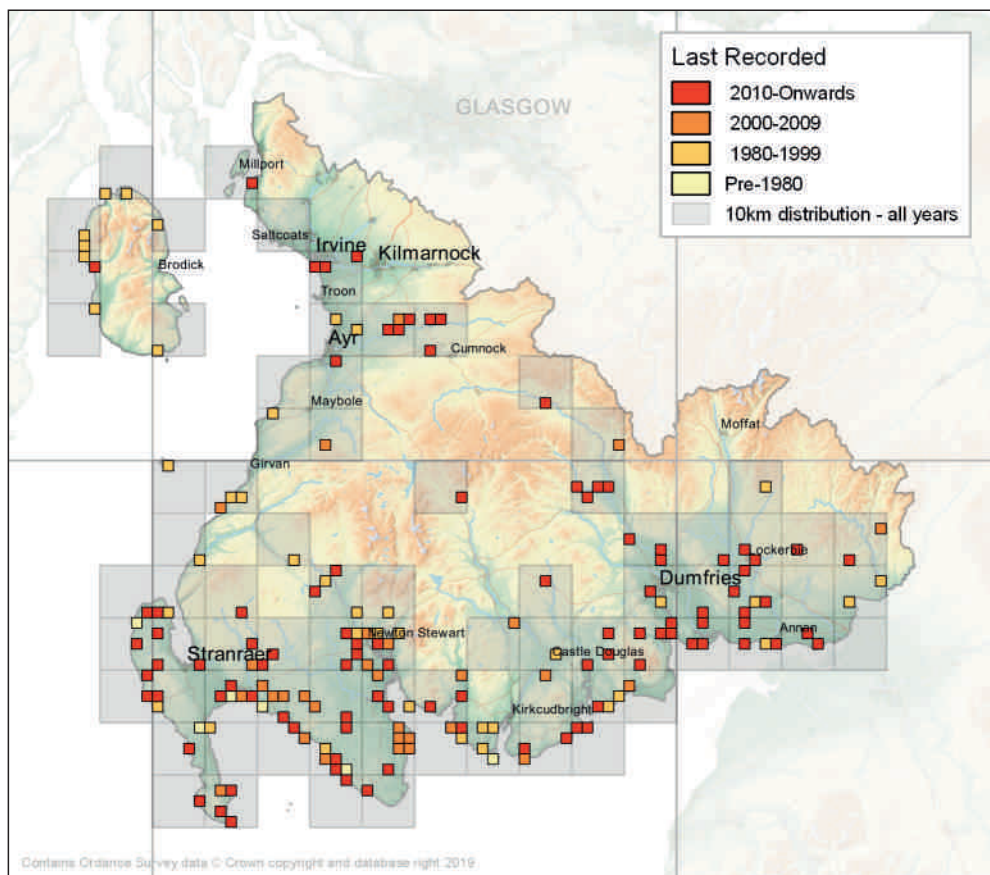
Occupies a wide range of habitats and is common in gardens. Common Earwigs require sheltered, cool, damp conditions and can be found under logs and debris or tucked away in crevices in almost any habitat.

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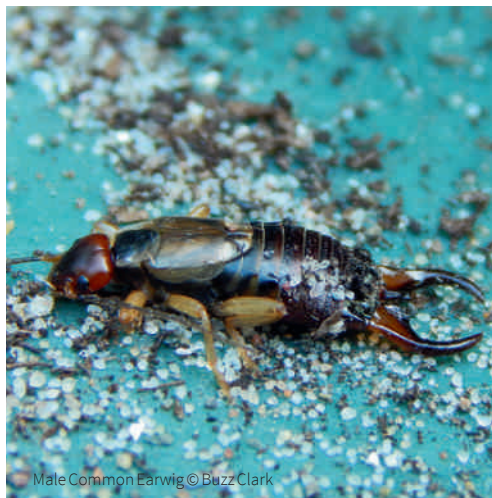


### Local Status

Widespread in the region and undoubtedly under-recorded. The distribution of records is predominantly lowland in nature, with relatively few records from the higher parts of the Southern Uplands. Recorded on Ailsa Craig.



Common Earwig distribution in SW Scotland





Female Lesser Earwig © Jon Noad

## Lesser Earwig *Labia minor*

### Identification

The Lesser Earwig is 5-6mm long, about half the size of the Common Earwig. Superficially resembles a rove beetle (Staphylinidae) though the forceps at the tip of the abdomen readily distinguish it as an earwig. Dull yellowish brown in colour, with a blackish head and long hindwings which when folded protrude from beneath elytra (wing cases). The abdomen is barrel-shaped and pincers in the males are gently curved, almost straight in females. More readily takes flight than Common Earwig.

### Habitat

This species is associated with compost or dung heaps and rubbish tips which provide heat, shelter and humidity. They can be found in both rural and urban environments.

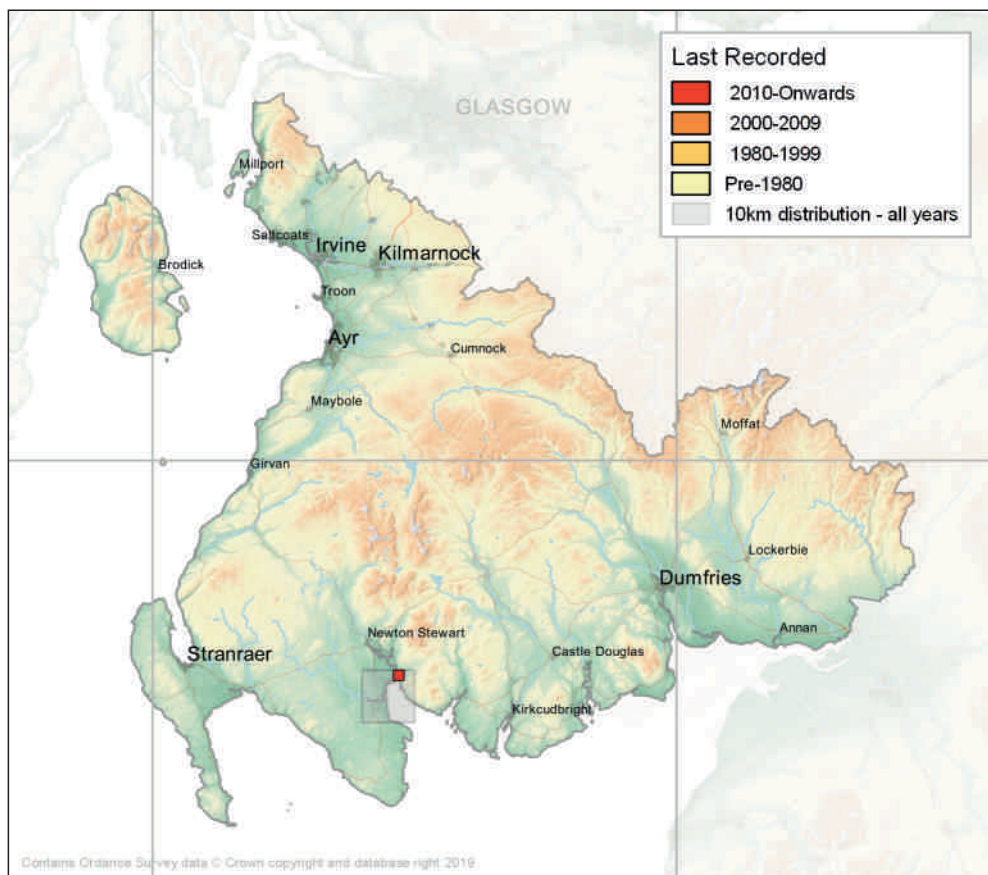
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### Local Status

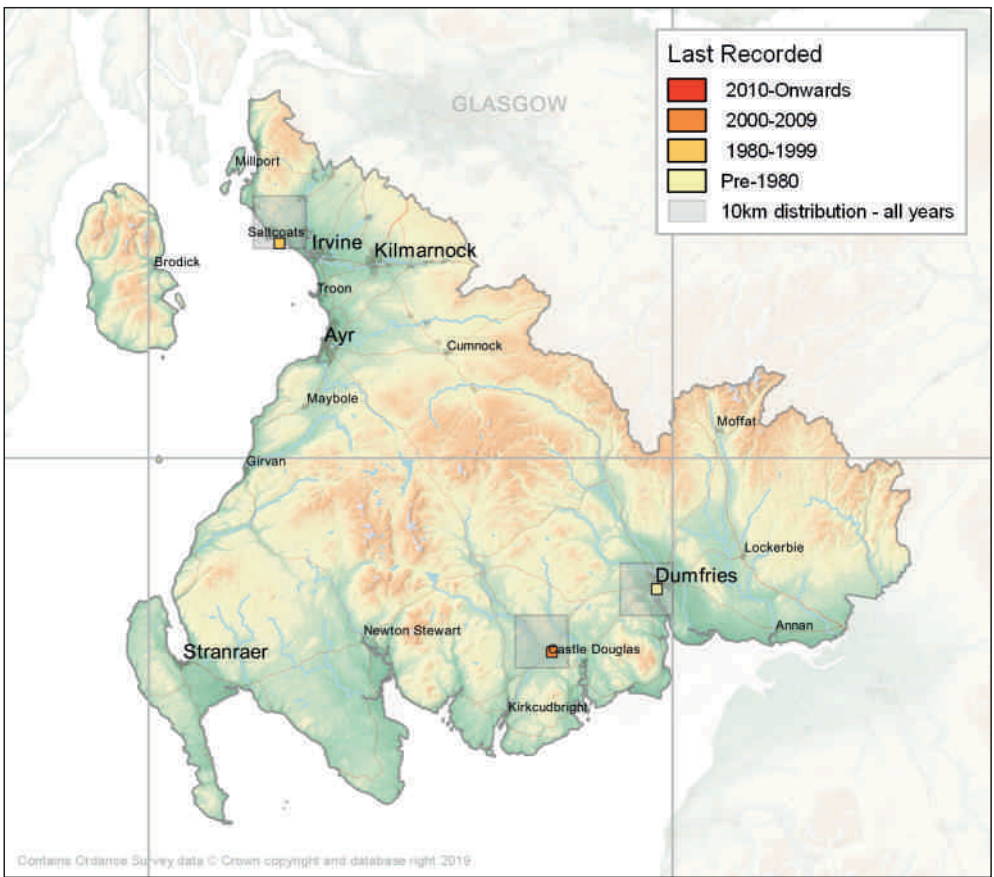
A record of the species from a garden in the Creetown area in 2015 was the first for the region. This is one of only a handful of records in Scotland, the species being more widely distributed in southern and eastern England.





Lesser Earwig distribution in SW Scotland





## House-cricket *Acheta domesticus*

### Identification

The House-cricket is fully winged, with dark bars across the head. They are 14 to 20mm long (+ 10mm ovipositor) and are usually light brown in colour.

### Song

Prolific singers, with a regular shrill chirp.

### Habitat

A non-native species at home in warmer climates, House-crickets traditionally lived close to human habitations which provided food and shelter during colder seasons.

Bakeries and breweries were favoured places. This species occurs much less frequently today with improved hygiene in houses and enterprises.

### Local status

Most easily observed in garden centres and pet shops where they are used kept as food for reptiles. Three records in SW Scotland, the most recent (in 2007) occurring in a consignment of fruit and vegetables at a local greengrocers. Most likely to occur as escapes from the pet trade and unlikely to survive outdoors.

# Useful reference material

## Books

Evans, M. and Edmonson, R. (2007) *A Photographic Guide to the Grasshoppers & Crickets of Britain & Ireland*. WGUK, Norfolk, Biddles Ltd. (Excellent information book, well illustrated)

Marshall, J. A. and Ovenden, D. A (1999) *Guide to British Grasshoppers and allied insects*. FSC Publications. (Folded laminated chart displaying commonly found species of grasshoppers and similar insects in Britain, easy to carry during outdoors events.)

Brown V.K. (1990) *Grasshoppers*. Naturalists' Handbook 2. The Richmond Publishing Co. Ltd. (Very well documented book)

Marshall, J. A. and Haes E.C.M. (1988) *Grasshoppers and Allied Insects of Great Britain and Ireland*. Harley Books.

## Further Information

The Grasshoppers and Related Insects Recording Scheme of Britain and Ireland collects national records of grasshoppers and related species to map them and study their distribution.

Visit [www.orthoptera.org.uk](http://www.orthoptera.org.uk) to find out more

Barlocco and Ardwall © Richard & Barbara Mearns







## Acknowledgements

This publication has revised, updated and extended a 2008 publication produced by Dumfries & Galloway Environmental Resources Centre (now SWSEIC): *Crickets & Grasshoppers: A guide to their identification and distribution in Dumfries and Galloway*. We would like to thank and acknowledge the work of Marie Pierre-Gaye, the co-author of that publication.

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