Shieldbugs
in SW Scotland

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

South West Scotland Environmental Information Centre

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by

Malcolm Haddow

2025

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Cover image of Red-legged Shieldbug by Jean Robson

Introduction

Shieldbugs are part of the taxonomic order called Hemiptera, meaning 'half-winged', referring to the group's forewings being partially hardened at the base whilst the hindwings are membranous. In the UK the order is divided into three sub-orders: Heteroptera (shieldbugs, mirid bugs, pond skaters and allies), Auchenorrhyncha (leafhoppers, cicadas and spittlebugs) and Sternorrhyncha (aphids, whiteflies and scale insects). This booklet focuses on the Heteroptera superfamily Pentatomoidea, the shieldbugs.

Hairy Shieldbug © Malcolm Haddow

The most defining features of adult shieldbugs are the large semi-elliptical or triangular scutellum (the hard plate that extends over the thorax and part of the abdomen), three-segmented tarsi (the lowest part of the leg) and a pair of five-segmented antennae, although four-segmented species do exist. Shieldbugs are sometimes called stink bugs, due to having prothoracic glands that ooze a pungent-smelling liquid to deter predators; this may be released when they are handled. They have a highly adapted piercing mouth part called a rostrum that is used to pierce and suck plant sap and invertebrate fluids. The diets of shieldbugs vary from species to species. Some are highly polyphagous feeding on a range of plants or insects and have the potential to be significant pests, whilst others are highly specific to a small number of host plants or prey species.

Teneral Spiked Shieldbug © Alison Robertson

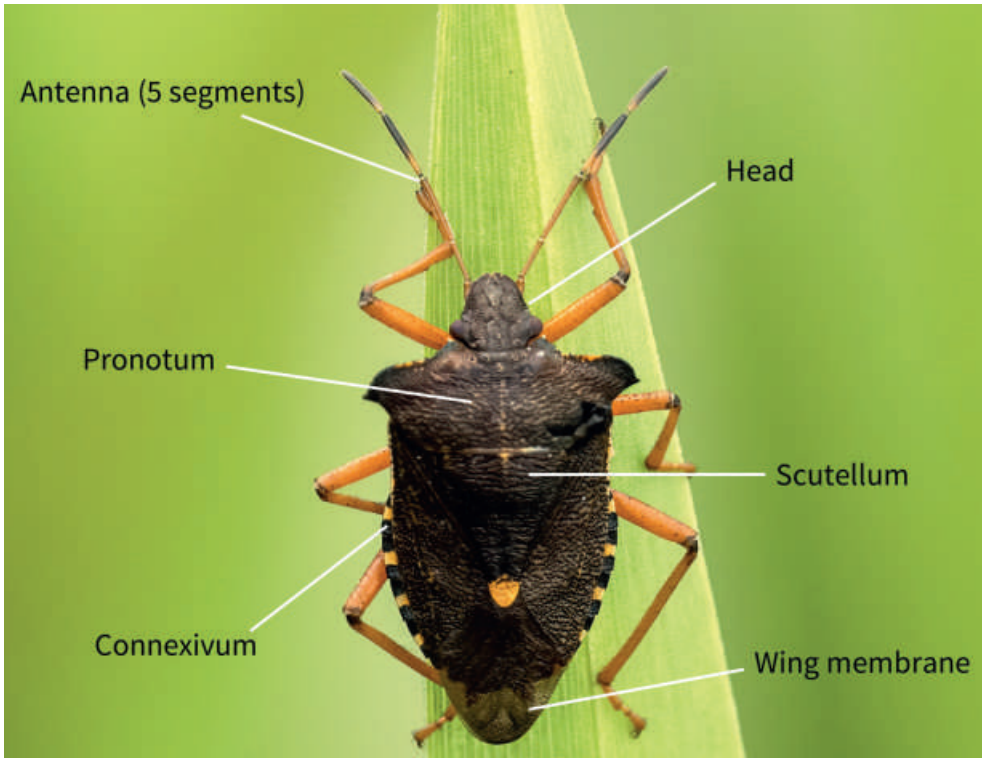
Separating shieldbugs from other Heteroptera

Shieldbugs may be confused with other Heteroptera, particularly mirids (Miridae) and seed bugs (Lygaeoidea). The distinctive shield-like scutellum and overall body shape of shieldbugs, along with their three-segmented tarsi and five-segmented antennae, help differentiate them from related groups.

Habitat

Shieldbugs use a wide variety of vegetated habitats and only a small number of species are confined to select habitats. Many species were considered woodland specialists but following further research and planting in urban and agricultural landscapes they have now become widespread and abundant. Some species are more abundant on heathland and

Anatomical features of shieldbugs useful for identification



Red-legged Shieldbug © Jean Robson

moorland, whilst others prefer woodland edges, meadows and semi-natural grassland. Some have adapted to urban areas feeding on ornamental plants and benefitting from the higher temperatures.

Shieldbugs in SW Scotland

In Dumfries & Galloway and Ayrshire, 13 species of shieldbug have been recorded. This booklet provides information and distribution maps for all species commonly found in SW Scotland, and notes on vagrants and potential colonists. The distribution maps include data available to South West Scotland Environmental Information Centre (SWSEIC) at the time of production. We are aware that there may be other data not available, and that recording effort across the region varies. The information for Ayrshire is likely to be less extensive than that for Dumfries & Galloway. Distribution maps should be treated as indicative rather than definitive. For more detailed information on identification, we recommend consulting one of the identification guides listed in the 'Useful information' section at the back of the booklet.

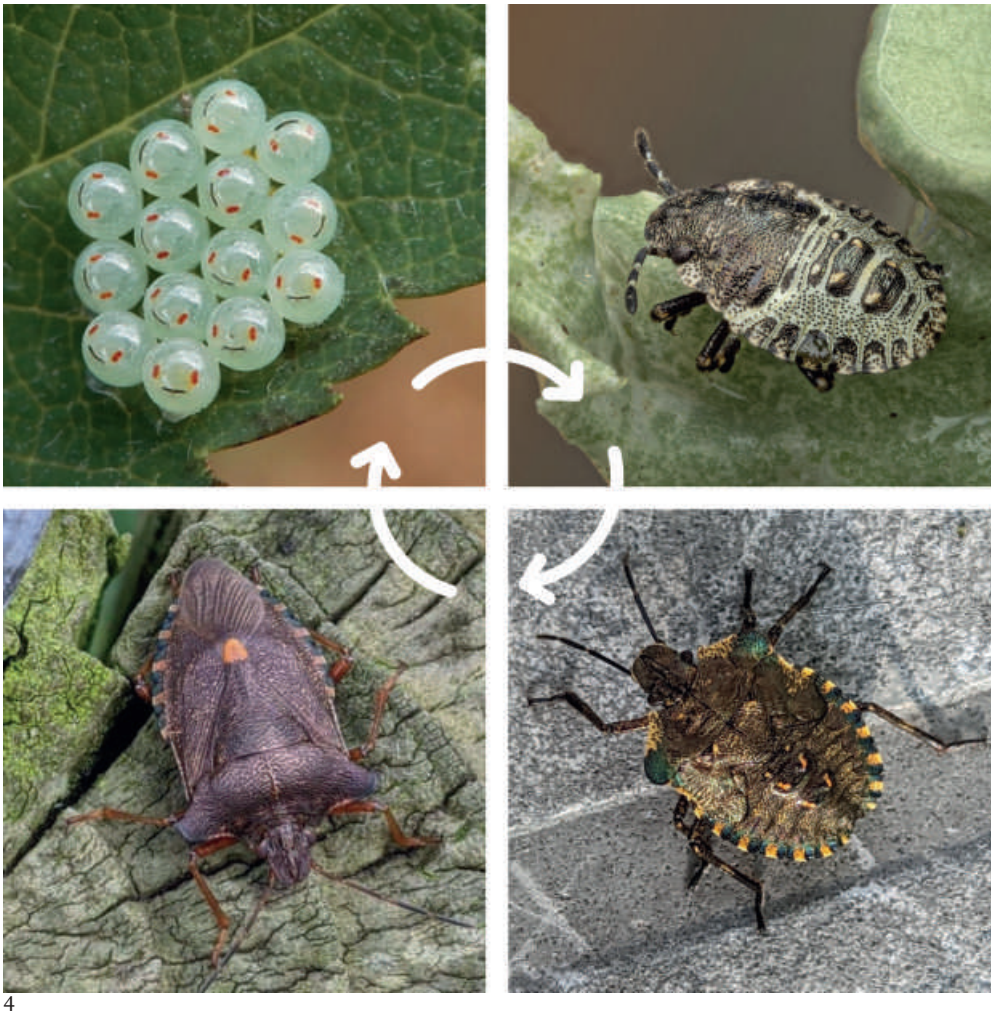
Juniper Shieldbug © Geoff Wilkinson

Life Cycles

Eggs are typically laid in clusters on the underside of leaves as protection from predators, direct light and environmental conditions. Uniquely the Parent Bug guards the eggs from potential predators and parasites.

All Hemiptera undergo incomplete metamorphosis whereby nymphs resemble adults but lack fully developed wings and reproductive structures. As the nymphs grow they will moult several times, shedding their exoskeletons. These nymph stages are called instars and depending on species a nymph may undergo five instars before sexual maturity.

It is worth noting that freshly emerged (teneral) adults will lack the usual colouration of fully grown adult shieldbugs, often appearing whitish or reddish.



Finding Shieldbugs

Shieldbugs can found be in situ on a range of unkempt, usually vegetated habitats including scrub, long grass, trees and heather.

Sweeping over long vegetation with a net can be a lucrative way of finding grassland species. Similarly, beating of tree can be helpful in dislodging arboreal species which can be collected with a beating tray.

They are often caught accidentally in moth light traps, although this method is not typically used for this group and it may not work for all species.

Shieldbug recording

All records of shieldbugs are valuable in helping to understand their regional and national 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, stage can also be useful. A photo is helpful in verifying species identification.

Records can be submitted online via the iRecord website - **irecord.org.uk**. The website allows for upload of images associated with each record to aid verification. There is also an excellent iRecord smartphone app which enables records to be submitted in the field, and is linked to the iRecord website. All records submitted through this route will be available to the national recording scheme and to SWSEIC.

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**. SWSEIC staff would be happy to help identify specimens from photographs.

Shieldbug recording © Mark Pollitt

Images on opposite page

Top left - Red-legged Shieldbug eggs © Maria Justamond

Top right - First instar Red-legged Shieldbug © Jean Robson

Bottom right - Final instar Red-legged Shieldbug © Isaac Caswell

Bottom Left - Adult Red-legged Shieldbug © Peter Norman

Hawthorn Shieldbug © Alison Robertson

Hawthorn Shieldbug *Acanthosoma haemorrhoidale*

A large, elongated bright-green and brown shieldbug with red lateral extensions on the pronotum and a red-tipped abdomen. This species has obvious dark pitting covering the upper surface. They overwinter as adults and can be found year round.

Nymphs can be found from May-October particularly on or near Hawthorn. Early instars have dark reddish bodies but these will turn green by the third instar. Nymphs are typically larger and less distinctly marked than Juniper or Birch Shieldbug nymphs. By the fifth instar nymphs are nearly rectangular in shape and have a reddish edge on the pronotum, head and antennae. Rarely, red-coloured nymphs may be found.

Size
13-16mm

Diet
A wide range of woody plants

Confusion species in SW Scotland
Birch & Juniper Shieldbug

Ecology

Originally thought of as a woodland species closely associated with Hawthorn, this species has since diversified its diet and can now be found in any habitat with bushes or trees. It is sometimes caught in moth light traps.

Nymphs and adults are known to suck the juice from Hawthorn berries but they will

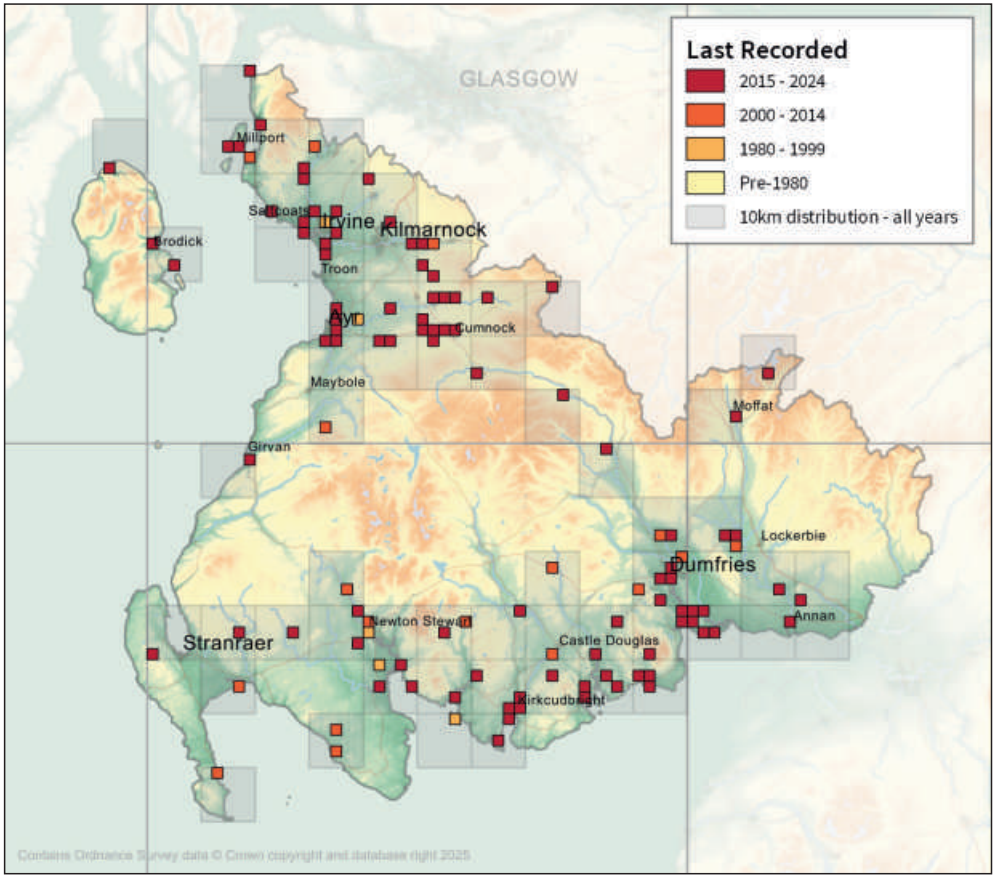
also feed on the fruit and sap of a range of native and ornamental trees and shrubs.

Local distribution

Locally widespread and patchily recorded throughout lowland Ayrshire and Dumfries & Galloway. Records largely absent from upland areas.

Hawthorn Shieldbug nymph © Alison Robertson

Hawthorn Shieldbug distribution in SW Scotland




Juniper Shieldbug © Maria Justamond

Juniper Shieldbug *Cyphostethus tristriatus*

A medium-sized yellow-green shieldbug with distinctive boomerang-shaped markings on the wings. Smaller than Hawthorn Shieldbug and less colourfully marked than both Hawthorn and Birch Shieldbugs.

The nymphs appear from June to September and unlike their relatives only go through four instars before sexual maturity. The nymphs are green throughout their moultings and have a red patch on their otherwise green abdomen. They have six black spots on the abdomen that separate as the nymph matures. From the second instar a faint pale line bisects the head, pronotum and scutellum that distinguish it from similar species.

Size
9-11mm

Diet
Junipers and cypresses

Confusion species in SW Scotland
Birch & Hawthorn Shieldbug

Ecology

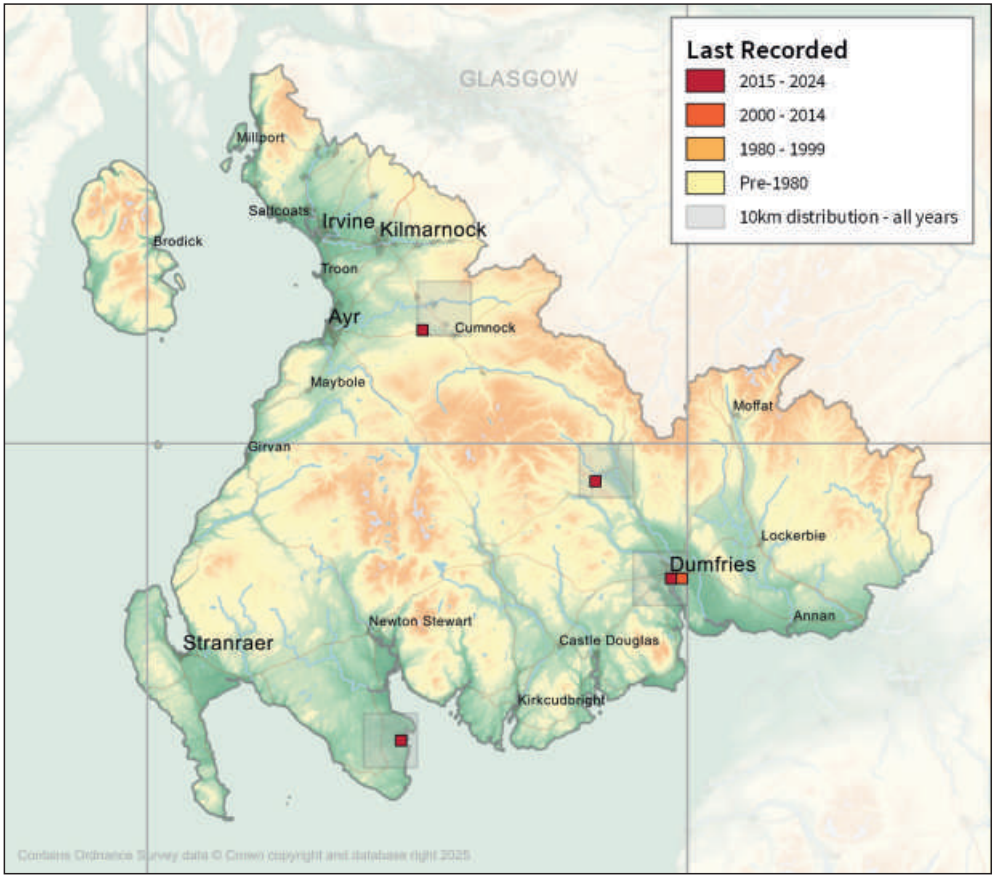
Historically this species was confined to native Juniper scrub in southern England. In recent times the species has diversified its diet to ornamental junipers and cypresses and has subsequently expanded its range as far north as the Highlands. Whilst this species can be found on wild Juniper it is most often found on ornamental species in parks and gardens, particularly on Lawson's Cypress.

Local distribution

Rare locally, with only six known records. It was first recorded in Georgetown, Dumfries on Leyland Cypress in 2008; then again at Tynron Juniper Wood on a wild Juniper in 2019, and thirdly at Garlieston in June 2023. It was discovered for the first time in Ayrshire at Ochiltree Cemetery in May 2024. Currently absent from Arran, Kirkcudbrightshire, South and North Ayrshire. Given the particular dietary requirements, it is likely that it is genuinely uncommon locally. However, it may occur in more estates, parks and gardens than currently known.

Juniper Shieldbug nymph © Alison Robertson

Juniper Shieldbug distribution in SW Scotland



Birch Shieldbug © Malcolm Haddow

Birch Shieldbug *Elasmostethus interstinctus*

This light-green and brown shieldbug is smaller than the Hawthorn Shieldbug and lacks the red lateral extensions on the pronotum and red-tipped abdomen. This species overwinters as an adult and can be found all year round.

Nymphs can be found from June to August. The nymph's head and pronotum remain darker longer than related species until the third instar and early instars' abdomens appear reddish. As the nymphs mature the upper body turns into a muted pea-green and the abdomen turns bright green. The abdomen has six distinct black spots (although the last two pairs look like one) overlaying a broad red 'y'.

Size
8-12mm

Diet
Birches and occasionally Alder

Confusion species in SW Scotland
Hawthorn, Juniper Shieldbug and Parent Bug

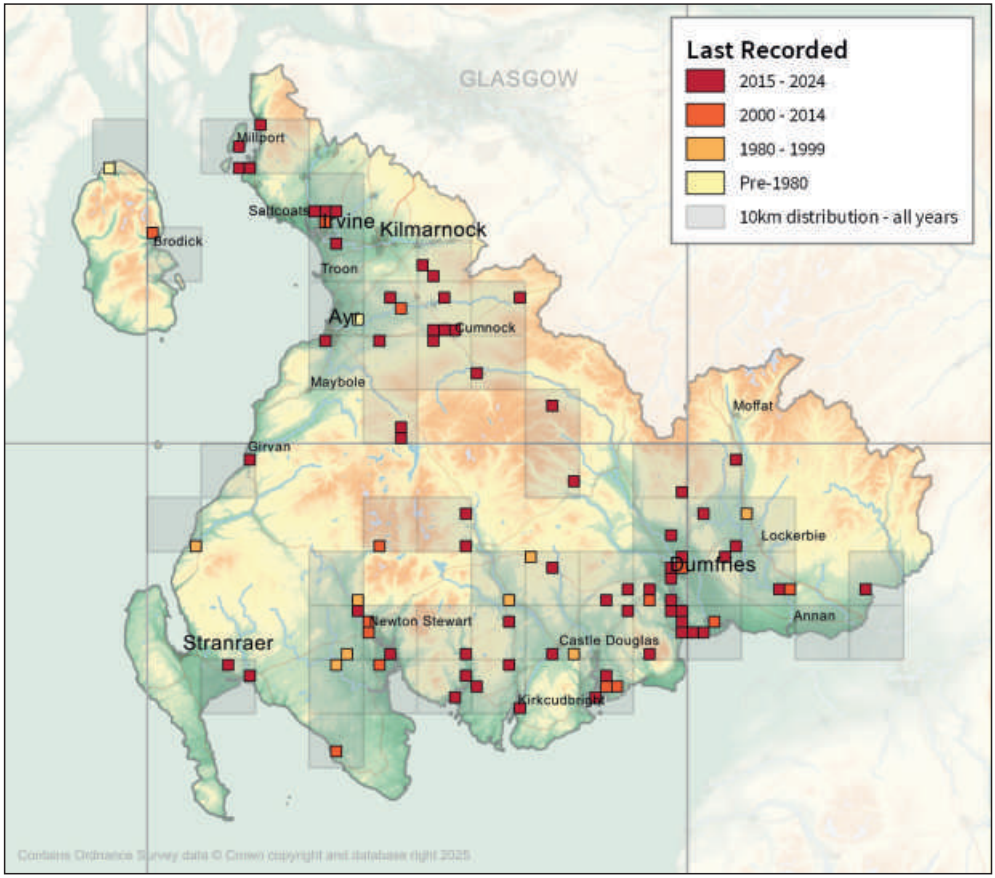
Ecology
Found in birch woodlands but also in gardens, parks and upland scrub. This species feeds primarily on the leaves and the catkins of birches and occasionally Alder, although they have also been recorded feeding on Hazel and Aspen. It is occasionally caught in moth light traps.

Local distribution

Recorded patchily throughout Ayrshire and Dumfries & Galloway. Likely to be ubiquitous on birch trees and therefore probably widespread.

Birch Shieldbug nymph © Saxifraga-Ab H Baas

Birch Shieldbug distribution in SW Scotland



Parent Bug © Jean Robson

Parent Bug *Elasmucha grisea*

This medium-sized mottled brown shieldbug has a distinctive black patch on the scutellum and black and white chequered connexivum. These two features differentiate it from darker forms of the Birch Shieldbug. They winter as adults so can be found year-round.

Nymphs can be found from June to August on birches and Alder leaves. First instars are yellowish and are usually guarded by the adult mother. Following the first moult the nymphs develop a distinctively striped head, pronotum and scutellum and a bright green abdomen. They will retain this general appearance throughout the instars until the final moult into an adult.

Size
7-9mm

Diet
Birch and occasionally Alder

Confusion species in SW Scotland
Birch Shieldbug

Ecology

Parent Bugs can be found anywhere their food plants, birches and occasionally Alder, are present. Due to planting of birches in urban areas, this species can often be found in gardens and parks. Nymphs will eat their eggs cases, not only for nutrition but to get symbiotic gut bacteria passed by the mother that helps them to digest sap.

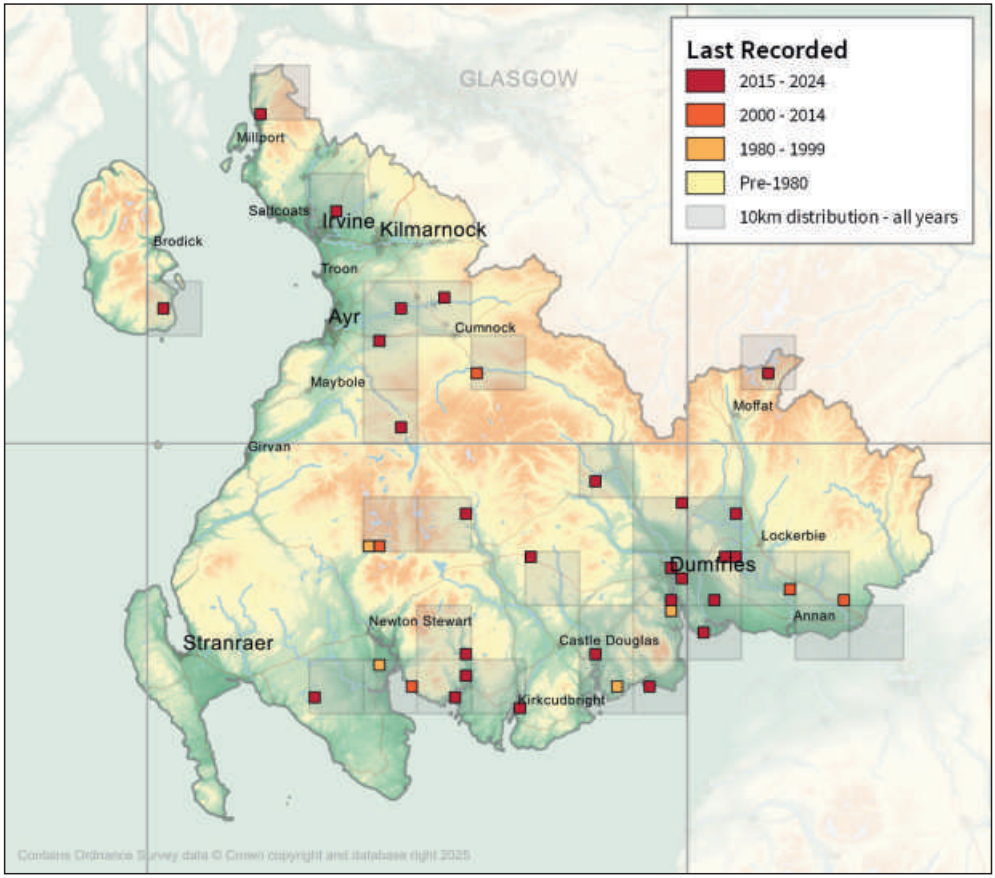
This species gets its name from brooding its eggs and protecting its nymphs from predators and parasites until their third instar. The mother will fan her wings, tilt her body and release noxious scents to protect her young.

Distribution

Records are thinly scattered throughout the region. It is likely to be under-recorded, but this may be due to genuine scarcity and lower abundance than other species.

Parent Bug nymph © Alison Robertson

Parent Bug distribution in SW Scotland




Green Shieldbug © Maria Justamond

Green Shieldbug *Palomena prasina*

A large green shieldbug in summer but darkens brown in winter. This species has a distinctive dark wing membrane and the last two segments of the antennae are reddish in colour. The upper body is covered in finely pitted dark spots. Adults are present all year round and hibernate over winter.

Size
12-14mm

Diet
A wide range of woody plants

Confusion species in SW Scotland
Southern Green and Gorse Shieldbug

The highly variable nymphs are active from June to September. The first and second instars have a black head, pronotum and scutellum, which may last until the final instar or change to green from the third instar onwards. Early instars usually have a pale margin on their pronotum. The abdomens may appear pinkish, red or green, though green is the commonest colouration. Fourth and fifth instars may be all green or black and green in colour. Green instars will have a palemargin that extends around the body, whilst blackish nymphs have a black thorax and margin and will have developed the reddish colouration on their last two antennal segments.

Ecology

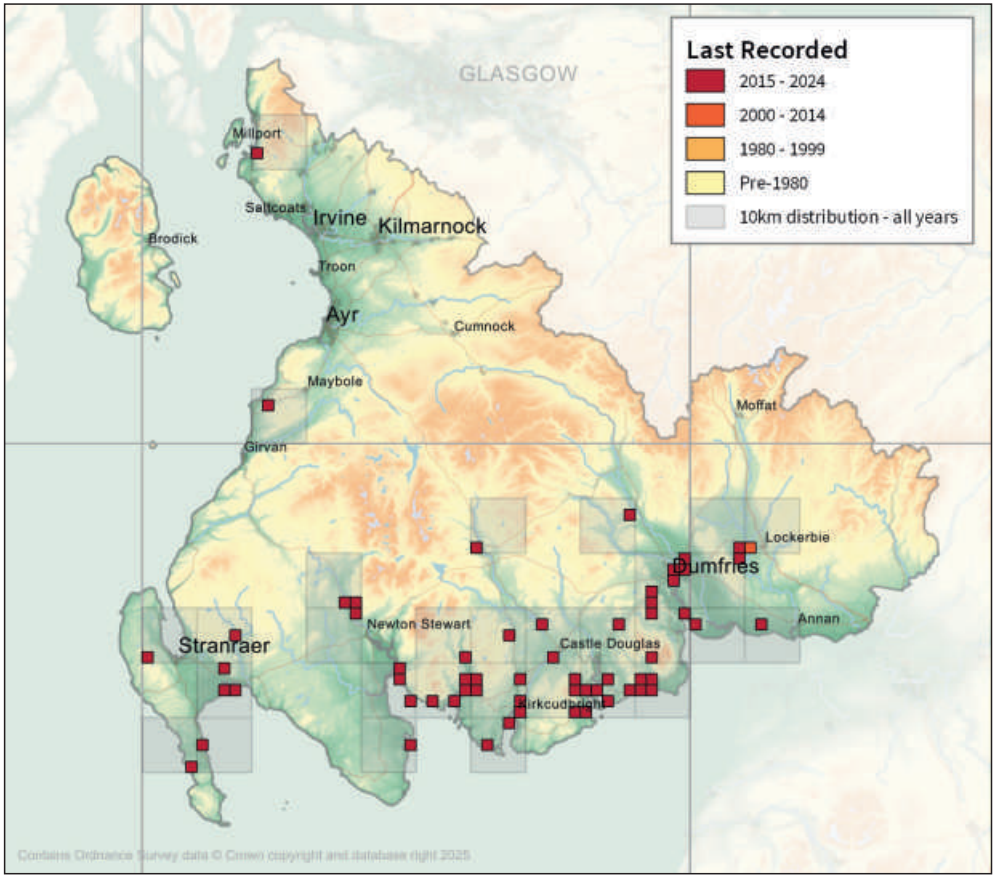
Though adaptable in their diet and habitat, this species prefers fruit-bearing trees, feeding on the fruits, seeds and sap. It has been recorded on a wide range of native and ornamental tree and shrub species.

Local distribution

A relatively new arrival to southwest Scotland, first recorded in 2010 near Lochmaben. Since then, the species has expanded westward in its range across Dumfries & Galloway. A scattering of Ayrshire records suggest it may be spreading north.

Green Shieldbug nymph © Malcolm Haddow

Common Green distribution in SW Scotland



Hairy Shieldbug © Jean Robson

Hairy Shieldbug *Dolycoris baccarum*

The species has purplish-brown forewings and lower pronotum and a pea-green head and scutellum. The distinctive black and white banded antennae and connexivum quickly differentiate it from related species. Its name comes from the smattering of fine hairs covering the body.

The nymphs are active from July to September and are obviously hairy throughout the instar stages. First instars have blackish bodies with yellowish-red abdomens. They are similar to Bronze Shieldbug nymphs, though they are less red and the fine hairs quickly differentiate them. Later instars become brown with pale-pink or brown abdomens and they develop the characteristic black and white banded antennae.

Size
11-12mm

Diet
A wide range of plants

Confusion species
Bronze Shieldbug (nymphs)

Ecology

The species can be found in a wide variety of habitats from woodlands, gardens, meadows and grasslands.

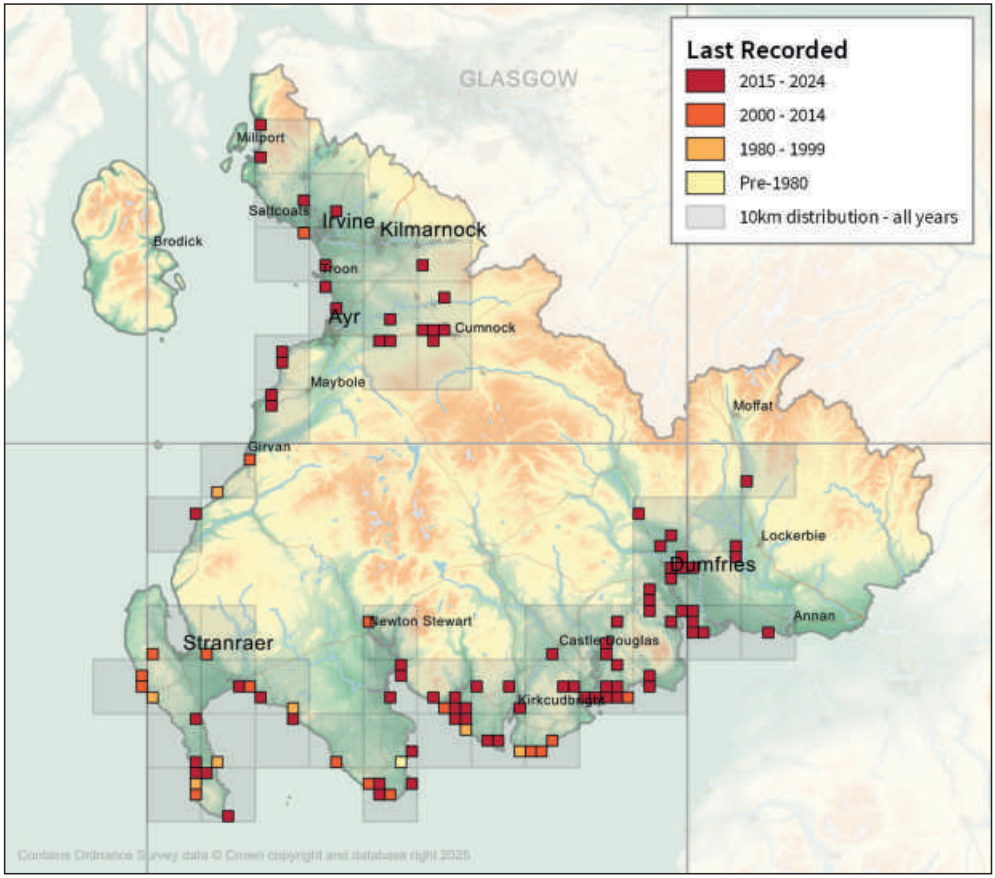
Both adults and nymphs feed on the fruit, flowers and sap of a wide variety of woody and herbaceous plants.

Local distribution

Likely to be widspread along the Ayrshire & Solway Coast. It has been patchily recorded inland but it has yet to be recorded from much of inner Galloway.

Hairy Shieldbug nymph © Alison Robertson

Hairy Shieldbug distribution in SW Scotland



Gorse Shieldbug © Maria Justamond

Gorse Shieldbug *Piezodorus lituratus*

This species undergoes an interesting colour change as it matures. Hibernating immature adults found in late summer are purplish-brown colour, though the scutellum remains green. Whilst hibernating, the adults sexually mature and turn green. Regardless of colour, Gorse Shieldbugs always have yellow edges on the abdomen, a bluish edge on the corium and uniform orange antennae. The black pitting is more pronounced than in similar species.

Nymphs can be found from June to August. The upper body remains black until the final moult to an adult, quickly distinguishing later instars from related species. In first instars the abdomen is orangey-red and becomes paler and marbled in later instars. Late instars typically have a pale rim round the pronotum and abdomen.

Size
10-13mm

Diet
Gorse, Broom and related woody plants

Confusion species in SW Scotland
Green Shieldbug

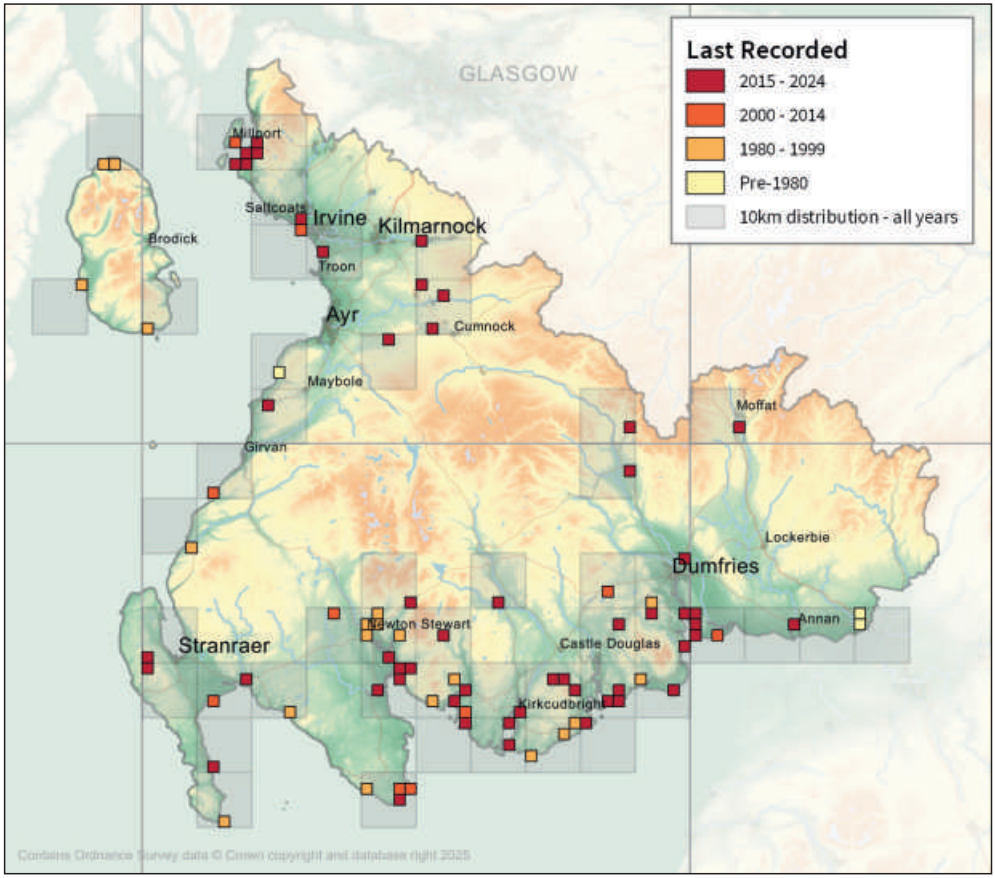
Ecology
This species can be found in almost any habitat where Gorse and Broom grow. Dyer's Greenweed and related species may also be used.

Local distribution

Historically this species had a mostly coastal distribution throughout Ayrshire and Dumfries & Galloway. In recent years it has been recorded sporadically at many inland locations , including upland habitats suggesting the species is more widespread than previously thought.

Gorse Shieldbug Nymph © Sean Clayton

Gorse Shieldbug distribution in SW Scotland



Red-legged Shieldbug © Brian Taylor

Red-legged Shieldbug *Pentatoma rufipes*

This large brown shieldbug overwinters as a nymph. Adults can be found from July-late September. This species has orange legs, an orange tip to the scutellum and hooked lateral extensions on the pronotum.

Nymphs can be found throughout the year but are most abundant from August to July. Nymphs have a bronze head and pronotum with a cream and black pied connexivum. Nymphs have a creamy mottled edge around the body and the inner abdomen can be variable in colour — grey, brown or greenish. The legs and antennae are black and unbanded, though the legs often have black and cream mottling.

Size
11-14mm

Diet
A wide range of woody plants

Confusion species in SW Scotland:
Spiked Shieldbug

Ecology

The species is found in a variety of habitats with trees including woodlands, gardens, orchards and hedgerows. It is occasionally caught in moth light traps.

Nymphs are largely herbivorous feeding on the sap and fruit from broad-leaved trees. Historically, it was associated with oaks, but it has diversified its diet to a wide range of

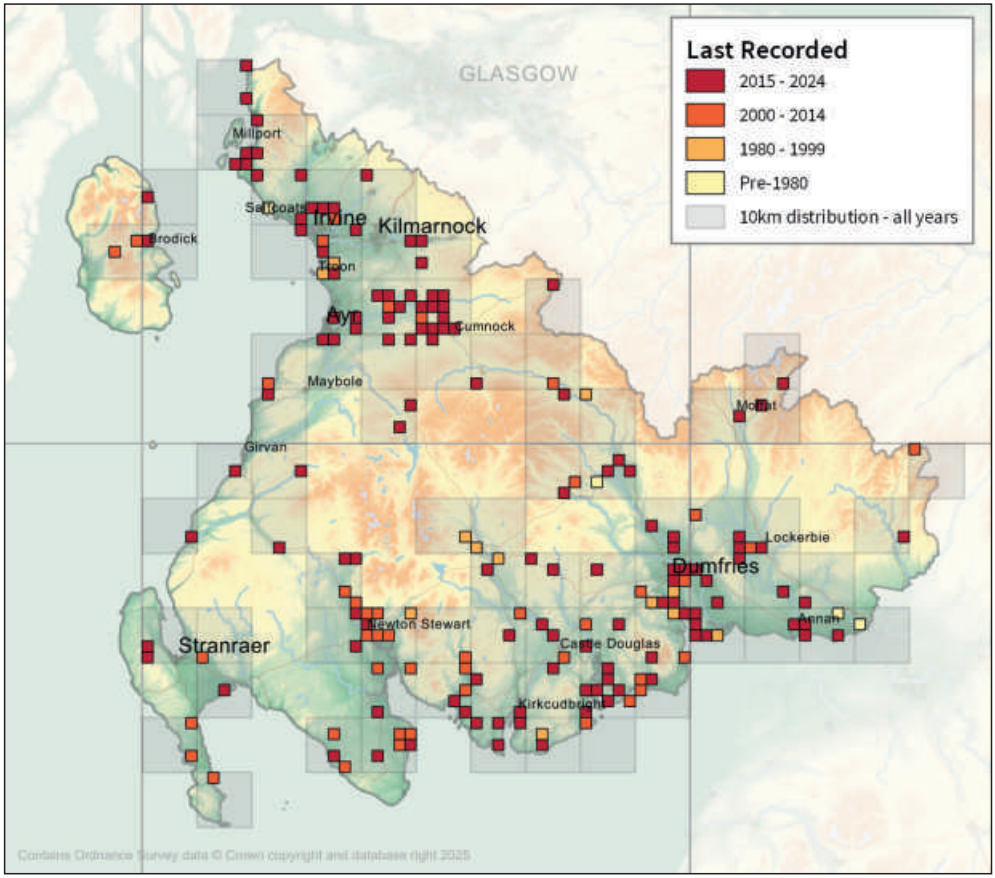
native and exotic trees. Adults are opportunistically predatory and will feed on soft-bodied insects like caterpillars and beetle larvae.

Local distribution

Our most frequently recorded shieldbug. This species is widespread, being recorded in all local authorities in both inland and coastal habitats. Probably ubiqutous in lowland habiats with woody plants.

Red-legged Shieldbug nymph © Malcolm Haddow

Red-legged Shieldbug distribution in SW Scotland



Spiked Shieldbug © Sean Clayton

Spiked Shiledbug *Picromerus bidens*

Adults are active from July to November. This large brown shieldbug is easily distinguished by the large, thorn-like projections on the pronotum. Additionally, two pale spots at the base of the scutellum and a pale blotch at the tip differentiate it from Red-legged Shieldbug.

Nymphs can be found from May to August. Early instars are primarily black with dark red abdomens. By the final stage, nymphs have two pale bands on their antennae and pale banded legs, which easily differentiates them from other nymphs.

Ecology

This species is commonest in marginal habitats close to water such as riverbanks, woodland rides and wet meadows.

Size
12-14mm

Diet
Plants (nymphs) and insects (adults)

Confusion species in SW Scotland
Red-legged Shieldbug

It overwinters as eggs which are usually laid on wood or hollow plant stems. The eggs are small brown capsules with hairs that form a circle round the top, not dissimilar to eyelashes.

Early instars are largely herbivorous, feeding on the sap of a wide range of mostly herbaceous plants. As the nymphs moult, they become increasingly predatory and by

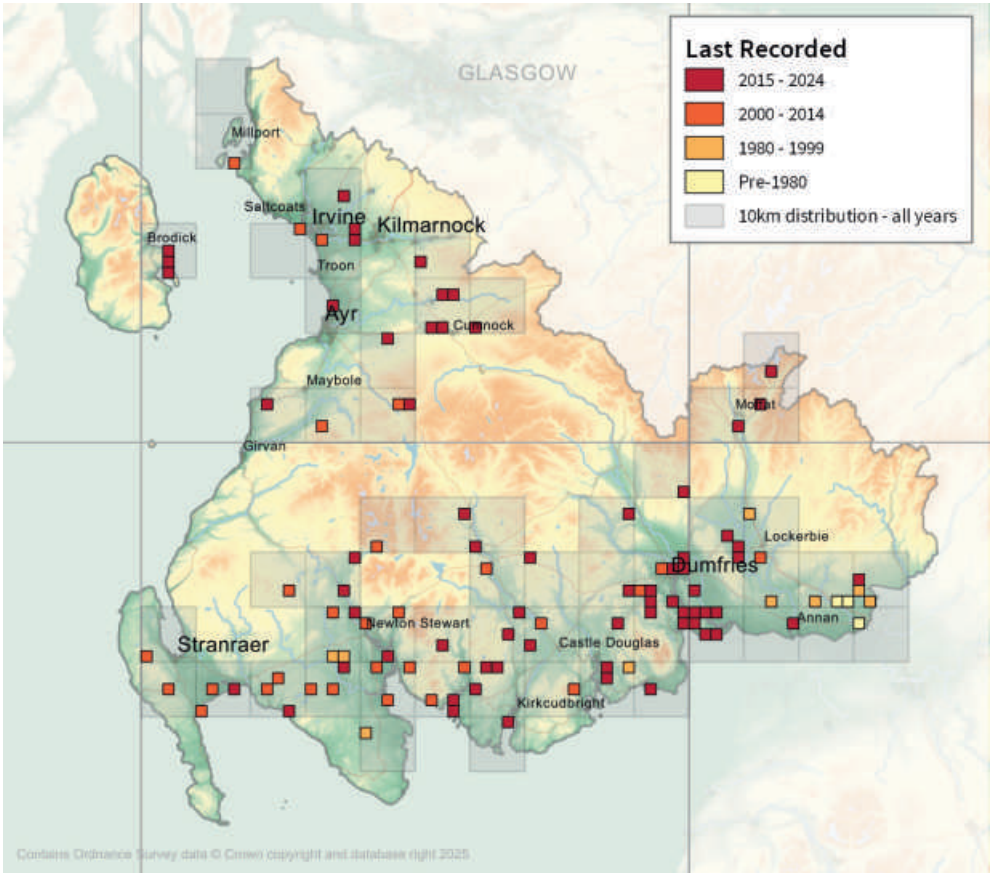
adulthood they feed almost exclusively on other insects. Known prey items include beetle larvae, caterpillars and sawfly larvae. Indeed, this species has been used as a biological control agent for crop and greenhouse pests.

Local distribution

A widespread species, being recorded patchily throughout Dumfries & Galloway and sporadically in Ayrshire.

Spiked Shieldbug nymph © Alison Robertson

Spiked Shieldbug distribution in SW Scotland



Bronze Shieldbug © Maria Justamond

Bronze Shieldbug *Troilus luridus*

This uniform brown mottled shieldbug has a distinctive orange band on each of its antennae and a chequered black and cream connexivum.

The nymphs are active from June to September. Early instars have a black body with a vivid yellow and red abdomen. The early instars of Blue & Heather Shieldbugs can look similar, but are uniform red on their abdomen. Late instars are a lustrous copper or green that is visibly metallic and reflective, and no doubt where the species got its name. The abdomen can either be cream or reddish.

Habitat
This species can be found in both coniferous and broad-leaved woodland. They occur from the tree canopy to the forest undergrowth and are best spotted on sunny days when the light reflects off the nymphs.

Nymphs begin as sap feeders on a wide range of woody and herbaceous plants. When they mature they become largely predatory, using their rostrum to pierce and suck out the

Size
10-12mm

Diet
Herbacous and woody plants (nymphs)
Soft-bodied insects (adults)

Confusion species in SW Scotland
Heather and Blue Sheildbugs (nymphs)

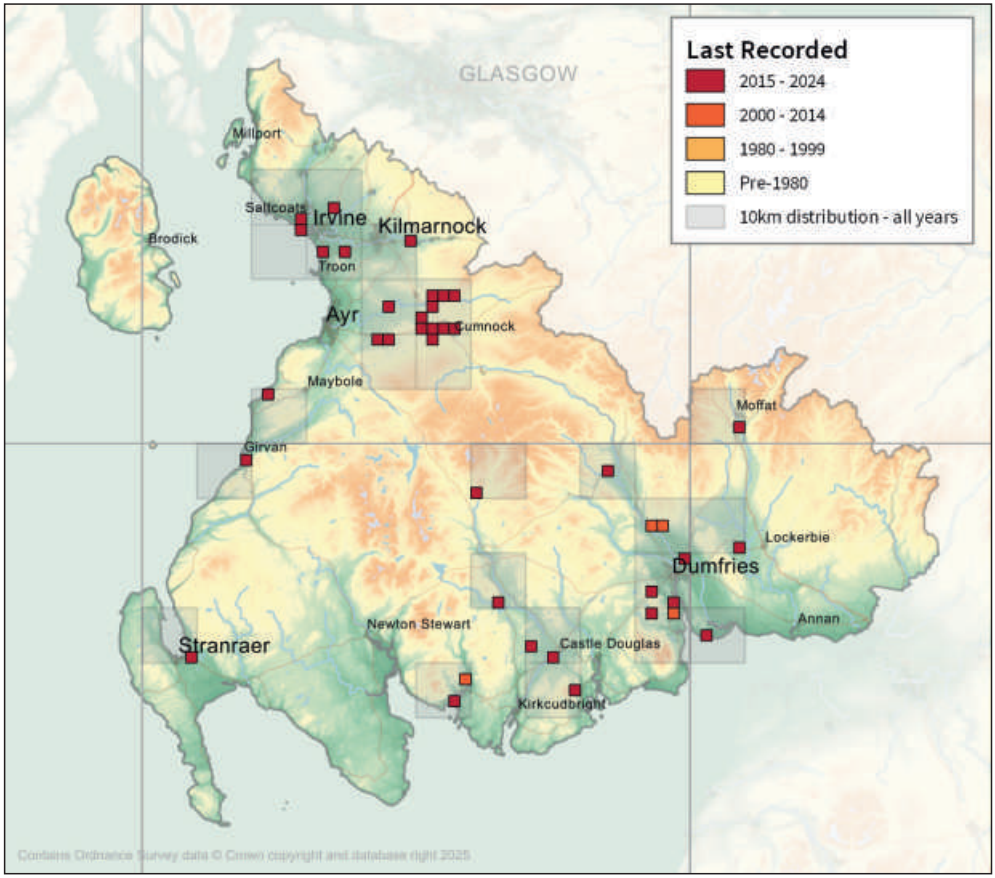
contents of caterpillars, sawfly larvae and other soft-bodied insects.

Local distribution

A relatively new colonist to the region with most records coming after 2010. The species appears to be uncommon locally but spreading, with its patchy distribution perhaps reflecting the relatively recent colonisation.

Bronze Shieldbug nymph © Malcolm Haddow

Bronze Shieldbug distribution in SW Scotland




Heather Shieldbug © Peter Norman

Heather Shieldbug *Rhacognathus punctatus*

Adults are various shades of metallic blue-brown and some individuals have orange markings on the pronotum. Most have a pale mid-line over the pronotum, although this is absent in some individuals. The most distinctive feature is the pale banding on all of the legs.

Nymphs can be found from June to August. Early instars can have red abdomens though they are often a more muted pale red (in contrast with the vivid red of the Blue Shieldbug). Later instars have pinkish lateral protrusions on the pronotum that are absent in Blue Shieldbugs.

Size
7-9mm

Diet
Heather Leaf Beetle larvae

Confusion species:
Blue and Bronze Shieldbug (Nymphs)

Ecology

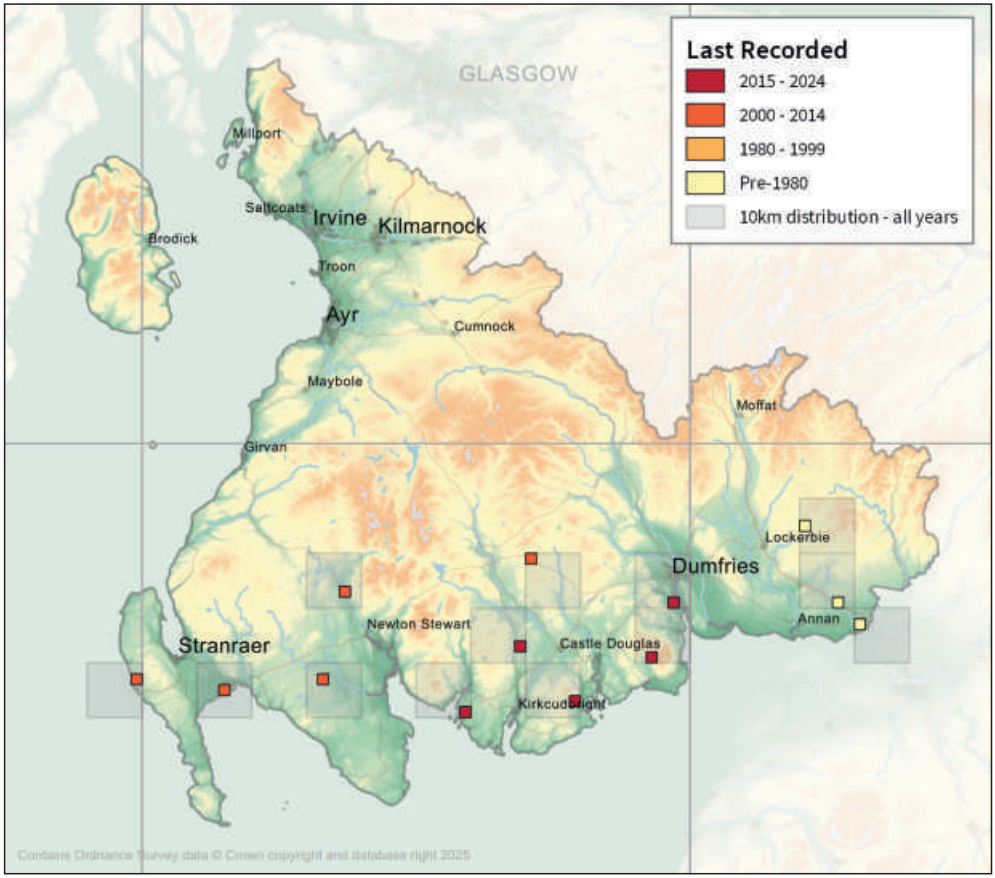
This species is largely confined to habitats with Heather, in particular moorland and bogs. It is most common, though never abundant, in damper areas and mixed vegetation swards. In other parts of the UK it has been recorded from dune slacks.

This species is largely dependent on the larvae of the Heather Beetle *Lochmaea suturalis* but in areas with willow scrub it has been known to predate Willow Leaf Beetle *Lochmaea caprea* larvae as well. Adult beetles are also predated.

Local distribution

One of our rarest shieldbugs, only recorded from a handful of scattered sites in Dumfries & Galloway. Known sites include Kirkconell Flow, Knowetop Lochs and High Camer Woods. No records from Ayrshire. Whilst this is an uncommon species in the UK, it is easily overlooked and often prefers rough and less accessible habitats, so it is likely to be found on more sites than are currently known.

Heather Shieldbug Nymph © Maria Justamond



Blue Shieldbug © Malcolm Haddow

Blue Shieldbug *Zicrona caerulea*

The small shieldbug is highly distinctive being a lustrous metallic blue in direct sunlight. In dull lighting the species may appear blackish, but should still retain a metallic sheen.

Active from June to July, nymphs can be difficult to differentiate from Heather Shieldbug and can be found in the same habitat. The bodies start black but will begin to turn blue and glossy in later instars. The abdomens are usually a more vibrant red than other species and the first two abdominal black spots curve downwards, whereas Heather Shieldbugs do not.

Habitat

This species prefers open grassy habitats where its prey is most abundant, including grassland, meadows and moorland.

Size
5-7mm

Diet
Soft-bodied insects

Confusion species:
Heather and Bronze Shieldbug (nymphs)

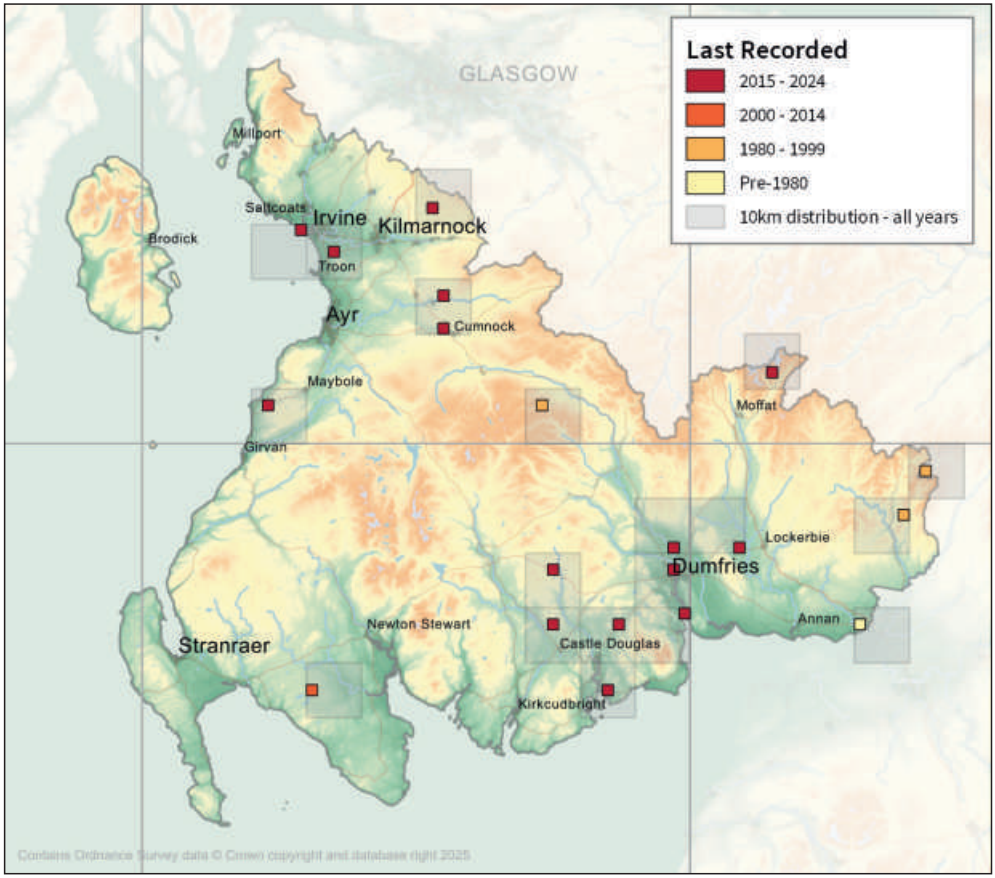
This species has evolved to mimic its main prey – metallic flea beetles *Altica spp*. This adaptation is called aggressive mimicry and improves the shieldbug's success rate whilst hunting, as the prey does not perceive the impending threat. In addition to flea beetle larvae, this species will opportunistically predate on other beetle larvae and caterpillars.

Local distribution

A scarce local species with relatively few records. Despite this, the species has been found in all the Vice Counties of Dumfries & Galloway and all three local authorities in Ayrshire. It is certainly under recorded but not unsurprisingly so, as it is quick, small and easily overlooked.

Blue Shieldbug nymphs © Maria Justamond

Blue Shieldbug distribution in SW Scotland



Scarce and vagrant species


Southern Green Shieldbug © Gill Smart

Southern Green Shieldbug ***Nezara viridula***
Similar to our native Common Green Shieldbug. In summer this species is a more vibrant green and has finer dark pitting. In winter the species darkens brown. The distinctive identification feature is 3-5 light spots of the front of the scutellum. Originally native to Africa, this species has now colonised large parts of southern Europe and is continuing to expand its range. Whilst this species has not yet colonised Scotland it has been transported here in international goods. In 2018 at Irvine, three were found in the rear light of a car that had been assembled in Romania!


Cow-wheat Shieldbug © Keith Lugg

Cow-wheat Shieldbug ***Adomerus biguttatus***
This small rare shieldbug has no previous records from our regions and has a nationally scattered distribution. However, it has been recorded in Cumbria and the Scottish Highlands and it is possible the species has gone undetected locally. Look out for it in open wooded habitats with Cow-wheat.


Tortoise Bug © Saxifraga-Ab H Baas

Tortoise Bug ***Eurygaster testudinaria***
This brown shieldbug with a profoundly curved pronotum has in recent years seen a prolific range expansion in England and Ireland. Whilst this species has not yet been recorded locally, climate change may be improving conditions further north and it is possible that Tortoise Bug will reach Scotland in the coming years.

Useful reference material

Books

Pinchen, B.J. (2009). *A Pocket Guide to the Shieldbugs and Leatherbugs of Britain and Ireland*. 1st ed. Hampshire: Forficula Books.

Evans M. and Edmonson R. (2005). *A Photographic Guide to the Shieldbugs and Squashbugs of the British Isles*. Wakefield: The Charlesworth Group.

Jones, R. (2023). *Shieldbugs*. New Naturalist No. 147. 1st ed. London: Collins.

Further Information

SWSEIC is the local environmental records centre for Dumfries & Galloway and Ayrshire. For details of how to send in records visit **swseic.org.uk**.

The British Bugs website provides a great resource on the ecology and identification of each of the shieldbugs. Visit **britishbugs.org.uk** to find out more.

NatureSpot is a website and registered charity that provides a superb photo gallery for the wildlife found in Leicestershire and Rutland. The website provides useful grading on identification difficulty and overview of a species identification and ecology. Visit **naturespot.org.uk/family/pentatomidae**

Maria Justamond, a verifier for the Terrestrial Heteroptera Recording Scheme for Britain & Ireland has created a number of very useful lifestage photo galleries that are ideal for the identification of early instars at her website **rockwolf.co.uk**

Laurieston Hall © Malcolm Haddow


Sweep netting © Malcolm Hddow

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