Status of shieldbugs on the Sefton Coast, north Merseyside

Philip H. Smith, December 2020

Introduction

Comprising the families Acanthosomatidae, Scutellaridae, Cydnidae, Thyreocoridae and Pentatomidae, shieldbugs comprise one of the most easily recognised groups of true bugs (Hemiptera, Heteroptera). About 43 species have been recorded for Britain and Ireland but a high proportion has a southern and eastern distribution. In common with several other insect groups responding to warming temperatures (Stewart & Kirby 2010), many shieldbugs are expanding their range northwards. As a consequence, several species have appeared for the first time in northwest England during recent decades (Judd, 2010).

The Sefton Coast in north Merseyside (v.c.59 South Lancashire) extends for about 25km between the estuaries of the Mersey and Ribble and is represented in 22 tetrads of the National Grid. This coastline includes the largest sand-dune system in England, encompassing a wide range of habitats and renowned as a hotspot for biodiversity (Smith, 2009). Over 3300 invertebrates are recorded on a World Museum Liverpool database. Systematic recording of shieldbugs has recently come to the fore with the online publication of Bantock's (2018) *Provisional atlas of shieldbugs and allies*. However, the distribution maps based on hectads of the National Grid are very incomplete for north Merseyside, excluding well-authenticated records from as long ago as 1997. Merseyside Active Naturalists' (2018) *Shieldbugs of North Merseyside recorded since 1996* is much more up-to-date, including many of my records. It describes 15 species, with excellent photographs of adults and nymphs, giving tetrad distribution maps up to 2017, with the number of records for each tetrad. The current report is intended to add to our knowledge of shieldbugs in the region with particular reference to the Sefton Coast.

Methods

From about 2008, I recorded shieldbugs when encountered during botanical field surveys on the Sefton coast and its immediate hinterland, especially in the sand-dunes. A small number of records was also obtained from notes and photographs taken in earlier years. In the summers of 2017 to 2019, a sweep-net was used to search more systematically for shieldbugs. Workshops on shieldbug and Orthoptera identification for the *Tanyptera Project* in August 2018 and 2019 at

Freshfield Dune Heath Nature Reserve provided records of eight shieldbug species. Further records were obtained from several local enthusiasts. Published and unpublished sources for shieldbug records in v.c.59 and the adjacent v.c.58 (Cheshire) and v.c.60 (West Lancashire) were consulted. The nbn gateway atlas maps and the *British Bugs* website were viewed online to gain an insight into current national and regional distribution. Sightings, with date and location, etc. were recorded on an Excel database. Nomenclature follows Brock (2014).

Results

A total of 333 records of 14 species of shieldbug was made in Sefton, almost all being in coastal tetrads. The richest coastal tetrads with ten species each were SD31B (Ainsdale and Birkdale LNRs) and SD20Z (Freshfield Dune Heath and Ainsdale NNR). Six coastal tetrads produced no records at all and merit further study. These are: SD31I and SD31J (Southport), SD20U (Formby Point north), SD30A (West Lancashire Golf Course), SJ39D (Waterloo) and SJ39H (Bootle). Probably due to Covid 19 restrictions, only 43 additional records were listed in 2020, compared with 103 in 2019. Species accounts follow:

***Acanthosoma haemorrhoidale* Hawthorn Shieldbug**

This large colourful shieldbug (Fig. 1) is widespread and common nationally with many occurrences recorded in v.c.59 and on the Sefton Coast. I have 33 records from 12 tetrads, these being both adults and immatures usually found on Hawthorn *Crataegus monogyna*. Dates range from 21st March to 3rd December.

Fig. 1. Hawthorn Shieldbug

***Cyphostethus tristriatus* Juniper Shieldbug**

An adult of this attractive species was collected by Joyce and David Jarvis from Nootka Cypress *Xanthocyparis nootkatensis* at Southport Botanic Gardens on 15th March 2018 (Fig. 2). Another was found in her Southport garden by Natalie Hunt on 20th September 2019 and a third by PHS on Leyland Cypress (*Cupressus ×leylandii*) at Watchyard Lane, Formby on 27th March 2020. Until recently, the only other v.c.59 record was one in the World Museum Liverpool collections that was obtained in Liverpool in 1991 (S. Judd, pers. comm.). Ramsey (2010) reports that an adult was found dead in Chester (v.c.58) in June 2009 near to trees of Leyland Cypress, while one was recorded at Sale Moor, Greater Manchester in October 2015 just south of the v.c.59 boundary. More recently, an unconfirmed sighting at Bootle on 26th July 2019 is mapped on nbn gateway. This shieldbug has also been found on native Juniper *Juniperus communis* at two sites in northern Lancashire (v.c.60) (Judd, 2006). Expanding its range in southern and central England, the Juniper Shieldbug has the ability to utilise exotic conifers as well as native Juniper.

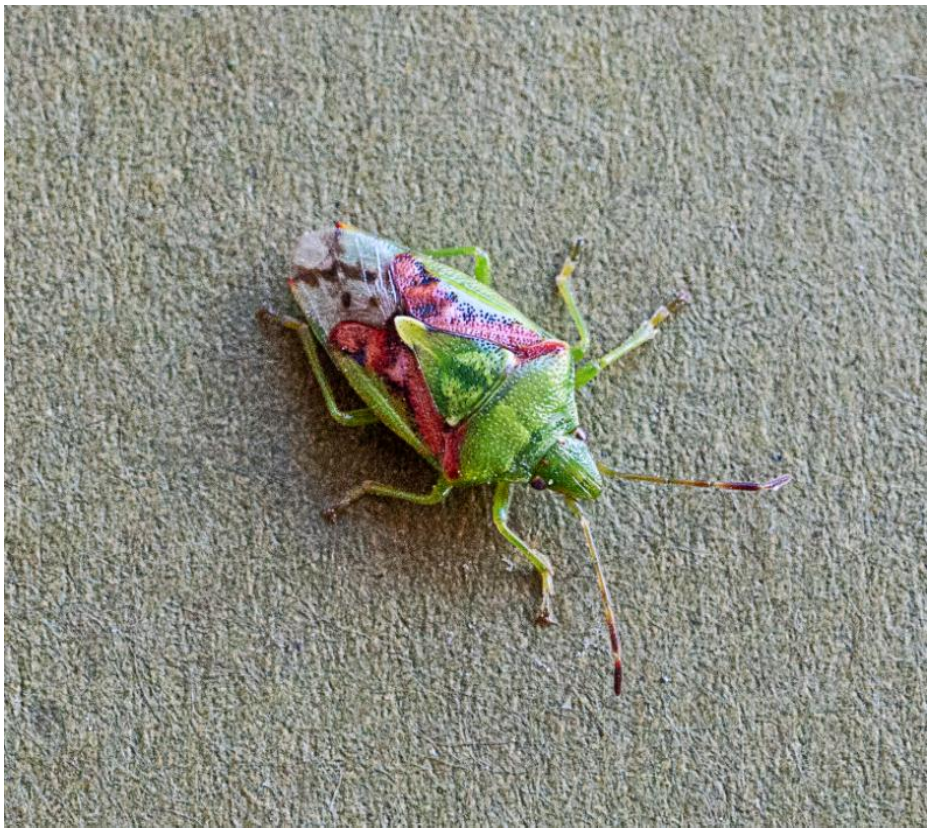

Fig. 2. Juniper Shieldbug from Southport Botanic Garden, March 2018

***Elasmostethus interstinctus* Birch Shieldbug**

Widely distributed both nationally and in v.c.59, there are several records on the nbn gateway atlas for this species on the Sefton Coast. My database has 29 records from 8 tetrads, 12 sightings being for Freshfield Dune Heath Nature Reserve (tetrad SD20Z) where it is abundant on both birch *Betula* and oak *Quercus* (Fig. 3). In 2018, 2019 and 2020, adults were also found, usually on birch, in seven other coastal tetrads. The dates of records range from 25th February to 26th September.

Fig. 3. Birch Shieldbug

***Elasmucha grisea* Parent Shieldbug**

This shieldbug is widespread nationally, though more numerous in the south. Surprisingly few have been reported in v.c.59, though there are eight shown for Sefton on the nbn gateway atlas. I have amassed 13 records from five tetrads (Fig. 4), with dates from 29th March to 7th October.

Fig. 4. Parent Shieldbug

***Aelia acuminata* Bishop's Mitre Shieldbug**

The Bishop's Mitre is a common species in England and Wales north to North Wales and South Yorkshire. It was first recorded for Cheshire in August 2005 and in West Lancashire (v.c.60) in 2007. The first for v.c.59 was in 2011 at Ravenmeols dunes on the Sefton Coast (Judd, 2010). I recorded it for the first time in September 2014 at Birkdale dunes and had only one other sighting – in June 2016 at Royal Birkdale Golf Course - until 2018, when six more records were obtained from another four tetrads by sweep-netting. R. Walker also swept three adults at Altcar Training Camp in May 2019, others following later that year in several localities. It may be inferred that this species is now widespread on the coast in fine-leaved grassland (Fig. 5). My database now has 23 records from 10 tetrads, with dates from 24th April to 15th September, most being in August.

Fig. 5. Bishop's Mitre Shieldbug

***Palomena prasina* Green Shieldbug**

This unmistakable insect has rapidly moved northwards from southern counties in recent decades (Stewart & Kirby, 2010), reaching Cheshire in 1992/93 (Judd, 2010). It was found inside a glasshouse at the Liverpool Garden Festival Site as early as 1983 (Edmunds *et al.,* 2004). The Green Shieldbug soon became well established in v.cc.59 and 60 and has reached the Cumbrian

coast and Northumberland. It is now the commonest shieldbug on the Sefton Coast. My database has 88 records from 16 tetrads on a wide range of food plants, including the non-native Japanese Rose *Rosa rugosa* and Virginia Creeper *Parthenocissus quinquefolia*. Several individuals of the brown over-wintering colour-form were recorded in autumn and early spring from 2018 to 2020 (Fig. 6), dates of observations extending from 15th January to 3rd December.

Fig. 6. Green Shieldbug: summer form (above) and over-wintering form (below)

***Dolicoris baccarum* Hairy Shieldbug**

Like the Green Shieldbug, this species occurs in a wide variety of habitats and has spread north, the first for Cheshire being in 1992, while one was found new to Lancashire at Heysham (v.c.60) in 1997 (Edmunds *et al*., 2004). Judd (2010) does not mention *D. baccarum* for v.c.59 but my first was in 2010, since when it has become common on the Sefton Coast with 87 database records from 12 tetrads on many different plants (Fig. 7). This species is mainly seen in summer, though dates range from 26th February to 29th October.

Fig. 7. Hairy Shieldbug

***Piezodorus lituratus* Gorse Shieldbug**

Despite being a nationally widespread species, according to the nbn gateway atlas the Gorse Shieldbug has been recorded only a handful of times in v.c.59 beyond Sefton. I have 33 records from eight tetrads between Blundellsands and Birkdale, where adults and nymphs were found mostly on Gorse (*Ulex europaeus*) and birch, with a range of dates from 20th March to 26th September. The green spring form was especially numerous in March/April 2019/20 (Fig. 8).

Fig. 8. Adult and immature Gorse Shieldbug summer form (above); spring form adult (below)

***Pentatoma rufipes* Red-legged Shieldbug**

This large shieldbug is considered relatively common throughout much of Britain, especially in deciduous woodland, and there are plenty of mapped v.c.59 sightings. However, I have only 13 records for the Sefton Coast in five tetrads, where adults were mostly associated with birch or oak. The only multiple sightings were from Blundellsands Key Park, where nine adults were found on the park railings in September 2018 and Ainsdale NNR, several nymphs being recorded in June 2019 (Fig. 9). Dates of sightings are from 5th May to 1st October.

Fig. 9. Red-legged Shieldbug

***Picromerus bidens* Spiked Shieldbug**

A predatory species, this distinctive shieldbug (Fig. 10) is widely distributed in Britain with scattered records for v.c.59 in the nbn gateway atlas. My database has 19 records of individuals

found on a wide variety of plants in eight tetrads between 17th June and 22nd September. The most seen together were 14 immatures on Alder at Birkdale Green Beach.

Fig. 10. Spiked Shieldbug

***Troilus luridus* Bronze Shieldbug**

Another predator found mainly in wooded areas, the Bronze Shieldbug is fairly widespread in England and Wales. Having fewer records in the north, it is scarce in Scotland. The nbn gateway atlas shows only seven v.c.59 records away from the coast, while I have eight for Sefton from three tetrads between 6th May and 17th September (Fig. 11). This insect has been rarely seen in v.c.60 but Edmunds *et al.* (2004) reported a first for Lancashire at Ramsbottom in 2001.

Fig. 11. Bronze Shieldbug

***Rhacognathus punctatus* Heather Shieldbug**

This species has been described as “sporadic and local in Britain” (Brock, 2014), being thinly distributed throughout the country. No Cheshire records are shown on the nbn gateway atlas; however, Judd (2010) lists this insect “post 1970” for v.c.58. There have been few sightings in Lancashire, Edmunds *et al.* (2004) reporting one at Winmarleigh Moss in 1991 as the first modern record for v.c.60. Several Heather Shieldbugs were collected on Freshfield Dune Heath in 1997 during a Liverpool Museum invertebrate survey but there were seemingly no other sightings in v.c.59 until I found an adult in the same place on 8th August 2018, followed by three immatures and an adult on 20th July 2019 (Fig. 12). All were swept from Heather *Calluna vulgaris* in a single tetrad.

Fig. 12. Heather Shieldbug, Freshfield Dune Heath

***Zicrona caerulea* Blue Shieldbug**

I have only seen the "elusive" Blue Shieldbug once: at Birkdale Green Beach on 11th May 2011 (Fig. 13). In April 2019, J. Styles found two adults in his Churchtown garden while P. Kinsella photographed one at Hightown sand-dunes in May 2019 and found another at Crosby Coastal Park in June 2020. The insect has therefore been seen in four database tetrads. There are four other records for v.c.59 on the nbn gateway atlas. This species has a wide distribution throughout Britain, being found on low vegetation in a range of habitats, where it feeds on small leaf beetles (Chrysomelidae).

Fig. 13. Blue Shieldbug

***Legnotus limbosus* Bordered Shieldbug**

The first for Merseyside was swept from low vegetation at Altcar Training Camp (tetrad SD20X) on 17th May 2019 during a *Tanyptera Project* visit. Gary Hedges found another at Halewood on 1st July. Associated with bedstraws, this small species is widespread in southern Britain but scarcer further north.

Shieldbugs that might occur on the Sefton Coast

Several other species are moving north, possibly in response to climate change, and may eventually appear on the Sefton Coast, though there are currently none mapped here in the nbn gateway atlas.

***Eysacoris venustissimus* Woundwort Shieldbug**

Associated with Hedge Woundwort (*Stachys sylvatica*), White Deadnettle (*Lamium album*) and Black Horehound (*Ballota nigra*), the Woundwort Shieldbug is widespread in southern Britain, extending northwards to Yorkshire and Cheshire. The first for Cheshire was found in 1997, Judd (2010) reporting further specimens in 2005, 2007, 2008 and 2010. He states that it should be

looked for in Lancashire. An adult was found on 12th December 2019 by Joshua Styles in his Churchtown, Southport garden (Fig. 14). However, it was in a plastic bag used to store plant material sent from Norfolk. Therefore, it seems unreasonable to claim it as a first v.c.59 record.

Fig. 14. Woundwort Shieldbug from Churchtown, Southport

***Tritomegas bicolor* Pied Shieldbug**

The Pied Shieldbug has a similar distribution to that of the Woundwort Shieldbug, also feeding on White Deadnettle and Black Horehound. It is found widely in southern and eastern England, north to Derbyshire and Yorkshire. Judd (2010) reported the first Cheshire record from two sites near Nantwich in 2000, while an isolated sighting from v.c.59 on nbn gateway came from a garden at Lowton, Wigan Borough, in May 2015.

***Eurygaster testudinaria* Tortoise Shieldbug**

Found in tall dry and damp grasslands, this shieldbug is local in southern Britain and was previously uncommon but is spreading northwards. The nbn gateway atlas shows the present northernmost record in Anglesey only about 95km southwest of the Sefton Coast.

***Odontoscelis fuliginosa* Greater-streaked Shieldbug**

A very rare species of coastal sand-dunes, there are recent British records only from Kent and Pembrokeshire but it is included as "one to look out for" in Merseyside Active Naturalists (2018) on the basis of a "possible" pre-1990 North Merseyside record mapped in Bantock (2018) for SD29. However, this hectad includes the north Wirral coast and the record is not included in the nbn gateway atlas. This shieldbug seems very unlikely to be found in north Merseyside.

***Thyreocoris scarabaeoides* Scarab Shieldbug**

This small rounded shieldbug is found locally in southern Britain on dry grassy slopes in dunes and on chalk grasslands, especially associated with violets (*Viola*). There is a "possible" old record for Sefton published by Judd (2010) as pre-1970. The nbn gateway atlas gives records for Newborough Warren and Aberffraw sand-dunes in Anglesey (1960-2008) and from Haverigg and Sandscale dunes in south Cumbria (1992-2013). This seems to be a good candidate for discovery on the Sefton dunes which lie about half way between the above localities.

***Nezara viridula* Southern Green Shieldbug**

An unlikely addition to our fauna, a late instar specimen (Fig. 15) was found in central Manchester (v.c.59) on 12th September 2019. First recorded in London in 2003 and thought to be accidentally imported on fruit and vegetables (Brock, 2014), this species is rare at present but could spread.

Fig. 15. Southern Green Shieldbug immature, central Manchester, September 2019

An extinct species

Chlorochroa juniperina

Associated with Juniper and resembling a Green Shieldbug with a white tip to the scutellum, this distinctive species is considered extinct in Britain (Bantock, 2016). The last national record was near Heywood, Lancashire (v.c.59) in 1925. It seems unlikely to be re-found.

Acknowledgements

I am indebted to Ben Deed of Merseyside BioBank and to local enthusiasts who have submitted records, namely D. Bryant, J. Jarvis, G. Hedges, N. Hunt, A. Hunter, P. Kinsella, P.A. Lockwood, D. Ney, R. Parks, J. Styles and R. Walker.

References

Bantock, T. (2016). *A review of the Hemiptera of Great Britain*: *the shieldbugs and allied families. Species status no. 26.* Natural England commissioned reports no. 190.

Bantock, T. (2018). *Provisional atlas of shieldbugs & allies*. Unpublished.

Brock, P.D. (2014). *A comprehensive guide to the insects of Britain and Ireland*. Pisces Publishing, Newbury.

Edmunds, M., Mitcham, T. & Morries, G. (2004). *The wildlife of Lancashire*. Carnegie Publishing, Lancaster.

Judd, S. (2006). Lancashire and Cheshire true bug (Heteroptera) report for 2006. *Journal of the Lancashire and Cheshire Entomological Society* 130: 58-59.

Judd, S. (2010). First Lancashire and Cheshire records of true bugs (Hemiptera, Heteroptera) with revised county checklists. *Journal of the Lancashire and Cheshire Entomological Society* 133, 134: 51-61.

Merseyside Active Naturalists (2018). *Shieldbugs of North Merseyside recorded since 1996*. Merseyside BioBank, Liverpool.

Ramsey, A.J. (2010). Recent Hemiptera records from Cheshire. *Journal of the Lancashire and Cheshire Entomological Society* 133, 134: 4-6.

Smith, P.H. (2009). *The sands of time revisited*: *an introduction to the sand-dunes of the Sefton Coast.* Amberley Publishing, Stroud.

Stewart, A.J.A. & Kirby, P. (2010). Hemiptera. In: Maclean, N. (ed.). *Silent summer: the state of wildlife in Britain and Ireland.* pp. 512-530. Cambridge University Press, Cambridge