Australian Government
Department of Agriculture and Water Resources

Guide to the identification of brown marmorated stink bug, *Halyomorpha halys*, and other similar bugs

Biosecurity

NOVEMBER 2017

Cataloguing data
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ISBN: 978-1-76003-105-3 (online)
ISBN: 978-1-76003-104-6 (printed)

Internet
Guide to the identification of brown marmorated stink bug, Halyomorpha halys*, and other similar bugs* is available at agriculture.gov.au/publications.

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Contents

Brown marmorated stink bug, *Halyomorpha halys*: a biosecurity concern to Australia

Brown marmorated stink bug (BMSB) is an agricultural pest native to China, Japan, Korea and Taiwan. It was introduced into the United States in the early 1990s, where it has become a significant invasive pest. Established populations are also reported in Canada and parts of Europe, and modelling has shown that it could successfully establish in Australia.

BMSB is a voracious feeder that damages vegetable crops and fruit and ornamental trees. It is known to feed on more than 300 hosts, including important agricultural crops, such as: apple; bean; cotton; citrus; fig; grape; peach; pear; raspberry; soybean; tomato; corn; and, some ornamental and weed plant species. The bug is not a risk to human health but it is regarded as a nuisance pest because it seeks sheltered places to overwinter such as inside homes, vehicles, machinery or sheds, often in large numbers.

FIGURE 1 BMSB aggregating. Left: in a house, Right: on a vehicle

Images courtesy T. Leskey, USDA.

The juvenile, or nymphal stages, cause the most damage. On tree fruit, feeding injury can cause malformation, such as sunken areas and corky spots as the fruit develops, and premature fruit drop. Similar damage occurs to fruiting vegetables such as tomatoes and capsicums. On maize and soybeans, feeding damage can stop seed development. Buildings and vegetation, including wild and ornamental plants, provide refuge for adults, which are a source of re-infestation for nearby crops. As with other stink bugs, this pest emits a characteristic and unpleasant odour when disturbed or crushed.

How brown marmorated stink bug can get into Australia

Brown marmorated stink bug is not present in Australia. Spread of this pest outside of its native range is usually due to assisted means, including import pathways – known as hitchhiking. The pest can be found in large numbers seeking shelter from cold weather in crevices or protected areas of imported shipping containers, vehicles, boats, caravans, machinery and personal stored items.

FIGURE 2 Left: BMSB on corn, Centre: BMSB feeding damage on capsicum, Right: BMSB feeding damage on apple

Images courtesy T. Leskey, USDA.

How to identify brown marmorated stink bug

FIGURE 3 Life stages of BMSB. Left to right: four nymphal stages (2nd, 3rd, 4th & 5th instar), adult male & adult female

Image: W. Hershberger. USDA, stopbmsb.org. Used with permission.

Adults are between 12 and 17 mm in length, with a distinctive brown 'shield' shape (see Figures 3, 5 & 19). The back of the body is variable in colour, but generally mottled with a faint reddish tinge, and distinctive black and white banding around the outer edge of the abdomen. The underside of the body is white or pale tan, sometimes with grey or black markings. A distinguishing characteristic is the alternating white bands on the last two antennal segments. The legs are brown with faint white banding (see Figure 3 & 5). Juveniles or nymphs are similar to the adults except they are smaller, ranging between 2.4-12 mm, and do not have fully developed wings. Young nymphs have a dark head and pronotum, with the abdomen orange and red with black stripes around the outer edges and down the centre (see Figures 3 & 4). Older nymphs are quite similar but often darker, with some small lateral spines around the front edge of the body, and the banding pattern on the legs and antennae beginning to appear. Eggs are laid in clusters of 25 to 30 on the underside of leaves. They are light green to white in colour, and barrel-shaped (1.6 mm high x 1.3 mm wide).

FIGURE 4 BMSB eggs and first instar nymphs

Image: W. Hershberger. USDA, stopbmsb.org. Used with permission.

Similar bugs to brown marmorated stink bug

There are a number of other species of stink bugs and related bugs that are present in Australia that could be confused with BMSB (see Figures 7–18 & 20), as well as other exotic species that are not wanted (see Figure 6). The following section provides key features of these species to help you distinguish them, as well as diagnostic information for those familiar with insect morphology.

What you can do to stop a brown marmorated stink bug incursion

BMSB poses a high biosecurity risk to Australia because of its tendency to hitchhike and its highly mobile nature. If the pest established in Australia, its broad host range and behavioural characteristics would make it extremely difficult and expensive to manage. Preventing an incursion in the first place is a high priority for government and industry, and we need your help.

Importers and associated supply chain personnel: If you receive or work around goods imported from overseas, including mail, you need to be vigilant to this and other exotic pests. If you see a brown marmorated stink bug, secure the goods to limit the movement of the pest and immediately report it to the Australian Government Department of Agriculture and Water Resources on 1800 798 636.

Producers, home gardeners and the general public: If you see a brown marmorated stink bug, or anything unusual, call the Exotic Plant Pest Hotline on 1800 084 881. This will put you in touch with the department of primary industries or agriculture in your state or territory.

SEE. SECURE. REPORT.

Halyomorpha halys – brown marmorated stink bug

Exotic to Australia; native to China, Japan, Taiwan, Korea; introduced to USA, Canada and Europe.

Adult – key distinguishing features:

Size: 12-17 mm long.

Colour: brown body with variable colouring, generally brown or ash-brown, reddish brown, greyish-tan, or brownish-yellow; white banding on the last two antennal segments; small coppery or green patches on or near the head, appearing more metallic on ventral surfaces; black and white banding around rear edge of body; underside of body is generally pale yellow, sometimes with grey or black markings.

Structure: shield-shaped body; head fairly rectangular, and relatively broad and blunt across the front; when folded the wings do not completely cover the outside edges of the abdomen.

Adult – diagnostic information:

Colour: variable, generally brown or ash-brown, reddish brown, greyish-tan, or brownish-yellow; hemelytra densely punctured with dark spots, with the corium reddish, spots may be metallic green in some areas; antennal segments brown with segment I internally, IV at the base and apex, and V at the base yellow spotted with black; connexiva with banded pattern, pale areas wedge-shaped in central third of exposed tergites, with a very thin pale line also present along distal edge of segments; body ventrally generally pale yellow.

Vestiture: legs sparsely pubescent; rest of body glabrous.

Head: generally rectangular, fairly blunt-ended at front, with jugae mildly oblique; jugae nearly or as long as tylus.

Antennae: 5-segmented.

Rostrum: reaches abdominal sternite 3.

Pronotum: calli present; anterolateral margins straight and slightly crenulated.

Thoracic sterna: prosternum flat to shallowly sulcate; mesosternum with low raised keel; metasternum flat.

Connexiva: exposed; laterotergites armed with very short blunt posterolaterally directed angles.

Nymphs – key distinguishing features:

Size: 2.4-12 mm long.

Colour: abdomen orange and red with black stripes, becoming darker with age; banding on legs and antennae appear on older nymphs.

Structure: similar to adults but without wings (see Figures 2, 3 & 4); a pair or series of small lateral spines may be present around edge of thorax.

Image: © Melinda Fawver. Used with permission.

FIGURE 5 *Halyomorpha halys*. A: dorsum, B: venter. (Quarantine Intercept BIN: 138733)

Erthesina spp. – yellow-spotted stink bug

Exotic to Australia; distributed in the Oriental and Indian subcontinental region.

There are two species in this genus: *Erthesina fullo* is restricted to the Oriental region, and *E. acuminata* is restricted to the Indian subcontinent.

Key distinguishing features:

Size: 18-23 mm long, larger that the brown marmorated stink bug.

Colour: mottled brown to blackish-brown, covered extensively with many small yellow spots; a central pale stripe running along the head and into the body; a banded pattern around the rear edge of the body.

Structure: a shield-shaped body; head long, narrow and tapering towards the front; legs with slightly flattened areas towards the feet.

Diagnostic information:

Colour: ground colour yellow, extensively punctured with black; head with bright yellow stripe around margin and a yellow longitudinal stripe usually along the midline of the head, pronotum and anterior part of scutellum; connexiva with banded pattern, pale hourglass-shaped markings in approximately central third of visible tergites.

Vestiture: dorsum glabrous; underside of head and thorax with patches of long hairs.

Head: slightly tapering towards front; jugae nearly or as long as tylus; each juga pointed in front, with a concave oblique curve to a small tooth on external margin.

Antennae: 5-segmented; relatively thin.

Rostrum: exceeds hind coxae, almost reaching 4th abdominal sternite.

Pronotum: calli present; anterolateral margins distinctly denticulate.

Thoracic sterna: prosternum flat to shallowly sulcate; mesosternum with low raised keel; metasternum flat.

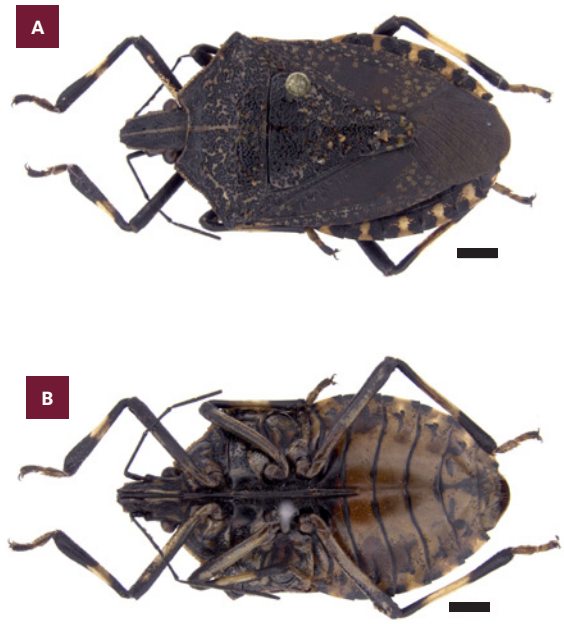
Connexiva: exposed; laterotergites armed with slightly acute angles.

Legs: anterior and posterior tibiae dilated.

© hallucygenia/Lucy Muir. <Shield bug. Erthesina fullo close-up.> 11 Apr 2012. Online image. Flickr. 18 June 2015. Used with permission.

FIGURE 6 *Erthesina fullo.* A: dorsum, B: venter. (Quarantine Intercept BIN: 184525)

SCALE BAR = 2mm



Alcaeus varicornis – acacia shield bug

Present in Australia (SA, VIC, NSW, ACT, QLD, NT, WA).

Key distinguishing features:

Size: 16-20 mm long.

Colour: mottled grey-brown with distinctive stripes on the head; dark antennae, each with 3 or 4 pale stripes.

Structure: a small spine on each side of body, two small spines on the front of the head, and several around the rear edge of the body.

Well-camouflaged on the bark of trees.

Diagnostic information:

Colour: mottled pale and dark brown; black mark on either side of midline of head extending onto distal edge of jugae; connexiva with banded pattern, pale marks containing numerous small dark spots in central half of exposed tergites.

Vestiture: dorsum glabrous, venter with long fine hairs.

Head: jugae longer than tylus and produced forward into short spines.

Antennae: 4-segmented.

Rostrum: surpasses hind coxae.

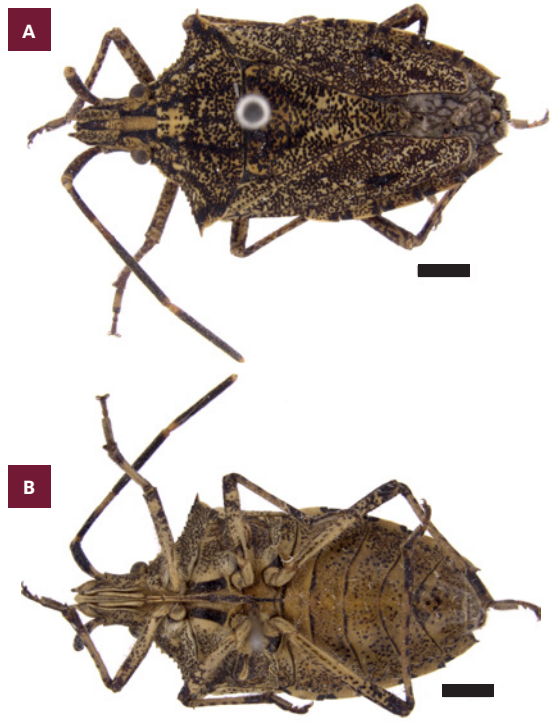
Pronotum: calli present and well developed; anterolateral margin sinuate, and serrate; posterolateral angles produced into a sharp spine.

Thoracic sterna: prosternum feebly sulcate; mesosternum with low raised keel; metasternum flattish.

Connexiva: visible; distal laterotergites armed with very small posterolaterally directed spines.

FIGURE 7 *Alcaeus varicornis*. A: dorsum, B: venter. (ANIC Database No. 20 007847)

SCALE BAR = 2mm



Anchises parvulus – golden brown shield bug

Present in Australia (SA, VIC, NSW, ACT, QLD, NT, WA), Papua New Guinea.

Key distinguishing features:

Size: 8-14 mm long.

Colour: golden-brown to greyish with dark brown pattern; antennae each with up to 5 pale/orange stripes; rear of body slightly banded around the edge.

Structure: front of head coming to a rounded point; a sharp tooth on each side of the body; rear of body appearing quite rounded, and slightly serrated around the edge.

Diagnostic information:

Colour: pale to medium brown with dark brown to black punctations; connexiva with banded pattern, pale areas in distal two-thirds of exposed tergites.

Vestiture: glabrous.

Head: jugae shorter than tylus, slightly pointed apically with rounded anterolateral margins.

Antennae: 5-segmented.

Rostrum: extending onto at least 4th abdominal sternite.

Pronotum: calli present and well developed; anterolateral margins crenulated and sinuate; posterolateral angles produced into a tooth.

Thoracic sterna: prosternum shallowly sulcate; mesosternum with low raised keel; metasternum sulcate.

Connexiva: visible; laterotergites may be armed with very short blunt posterolaterally directed angles.

FIGURE 8 *Anchises parvulus*. A: dorsum, B: venter. (ANIC Database No. 20 007848)

SCALE BAR = 2mm

Austromalaya reticulata – brown long-headed shield bug

Present in Australia (NSW, QLD, NT, WA), Papua New Guinea.

Key distinguishing features:

Size: 13-18 mm long.

Colour: mottled brown with three or four pale bands on antennae, and distinctive pale bands on legs; banded pattern around rear edge of body.

Structure: head fairly long and coming to a single point in front; each side of body equipped with a sharp spine, and rear edge of body serrated with spines.

Diagnostic information:

Colour: mottled pale and medium to dark brown with dark brown punctations; connexiva with banded pattern, pale areas mottled and mostly in distal and lateral area of exposed tergites; some specimens with orange patches on scutellum and beneath wings.

Vestiture: glabrous.

Head: jugae shorter than tylus, pointed apically; eyes prominent.

Antennae: 4-segmented (appearing 5-segmented).

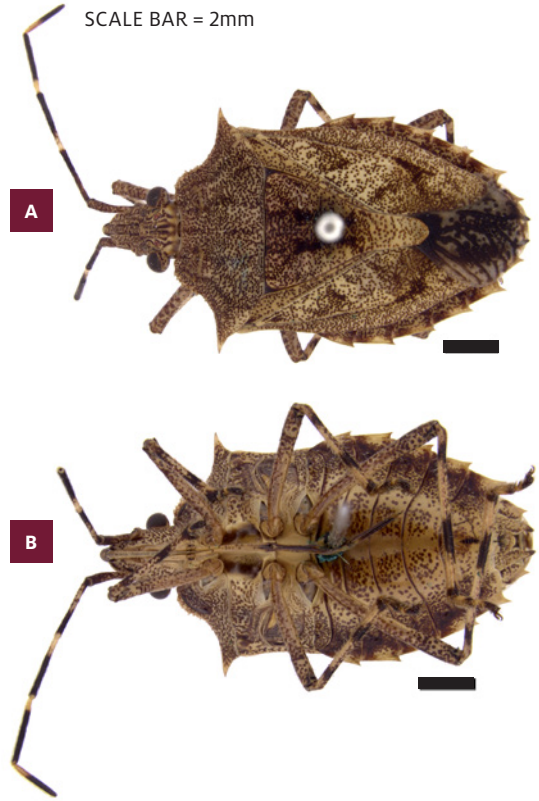
Rostrum: extending to 5th abdominal sternite.

Pronotum: calli present; anterolateral margins crenulated and sinuate; posterolateral angles produced into a sharp spine.

Thoracic sterna: prosternum shallowly sulcate; mesosternum with low raised keel; metasternum not sulcate.

Connexiva: visible; laterotergites armed with long posteriorly-directed spines.

FIGURE 9 *Austromalaya reticulata*. A: dorsum, B: venter. (ANIC Database No. 20 007849)



Bathrus variegatus – zebra shield bug

Present in Australia (NSW, QLD).

Key distinguishing features:

Size: 11-15 mm long.

Colour: pale grey or orange/brown with darker brown, metallic green and brassy mottling and markings; antennae dark with two pale bands near the ends; banded stripes around rear edge of body.

Structure: body oval with a blunt tooth on each side; head rounded in front; antennae fairly long.

Diagnostic information:

Colour: dorsally pale brown with dark brown punctations; bands or patches of metallic green on head, pronotum, scutellum and connexiva; brassy areas also often present, especially on scutellum; connexiva with banded pattern, dark markings mostly in anterior third of exposed tergites; ventrally pale brown with patches of metallic green on metepisternum and at base of fore coxae.

Vestiture: glabrous.

Head: jugae shorter than or equal in length to tylus, slightly pointed apically with rounded anterolateral margins.

Antennae: 4-segmented.

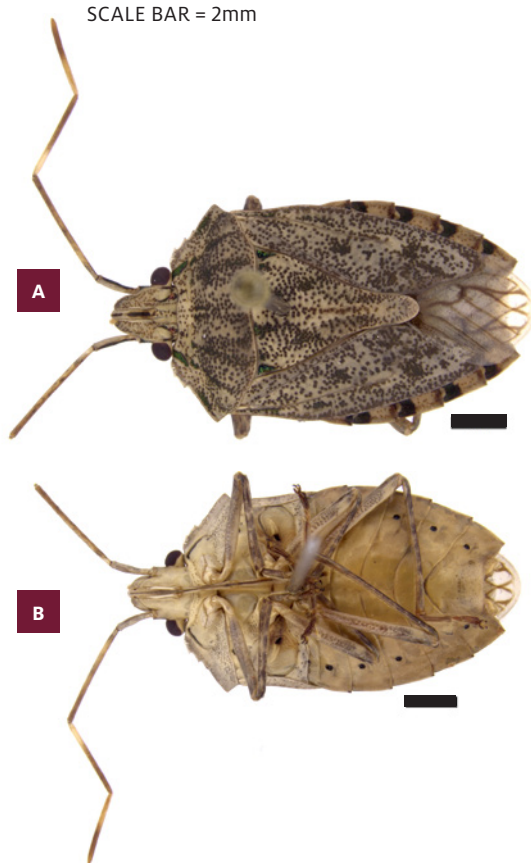
Rostrum: extending to 3rd or 4th abdominal sternite.

Pronotum: calli present; anterolateral margins crenulate and fairly straight; posterolateral angles fairly prominent.

Thoracic sterna: prosternum shallowly sulcate; mesosternum with low raised keel; metasternum flat.

Connexiva: visible; laterotergites armed with very short blunt posterolaterally directed angles.

FIGURE 10 *Bathrus variegatus*. A: dorsum, B: venter. (ANIC Database No. 20 007850)



Caystrus pallidolimbatus – small brown stink bug

Present in Australia (QLD, NT), Papua New Guinea, Vanuatu.

Key distinguishing features:

Size: 6-10 mm long.

Colour: drab tan to pinkish, without distinct markings.

Structure: body oval in shape, with fairly short antennae and legs; head broad and often curving in and down towards front.

Diagnostic information:

Colour: medium orangey-brown to pinkish, with darker punctations; connexiva subtly marked, often pale with thin darker areas at anterior and posterior edges of exposed tergites, or dark overall with a thin pale edge.

Vestiture: glabrous.

Head: broad; jugae longer than tylus and often joined and extended in front.

Antennae: 5-segmented.

Rostrum: reaching between middle and hind coxae.

Pronotum: calli present and well developed; anterolateral margins simple and straight; posterolateral angles rounded.

Thoracic sterna: prosternum deeply sulcate with margin processes; mesosternum and metasternum sulcate.

Connexiva: visible; laterotergites unarmed.

FIGURE 11 *Caystrus pallidolimbatus.* A: dorsum, B: venter. (Quarantine Surveillance BIN: S231638)

Cermatulus nasalis – glossy shield bug

Present in Australia (SA, VIC, TAS, NSW, ACT, QLD, WA), New Zealand.

Key distinguishing features:

Size: 8-15 mm long.

Colour: glossy brown to red-brown, with light and dark patches, including some banding around the rear edge of the body; a pale stripe down the middle and outer edges of the head; antennae dark.

Structure: head fairly rectangular; mouthparts quite broad and short.

Predatory on other insects.

Diagnostic information:

Colour: brassy brown to red-brown; head dark brown with pale brown central longitudinal stripe; antennal segments black except at extreme base; pronotum pale with dark brown calli; scutellum with dark brown Y-shaped area; connexiva with banded pattern, pale marks in roughly middle third of exposed tergites; ventrally pale brown with dark punctations and several large dark patches; corium of wings with distinctive large smooth dark area, two-thirds from base.

Vestiture: glabrous.

Head: generally rectangular; jugae equal in length to tylus.

Antennae: 5-segmented.

Rostrum: relatively short and thick; reaches hind coxae.

Pronotum: calli present and well developed; anterolateral margins straight.

Thoracic sterna: prosternum flat; mesosternum with raised keel; metasternum not sulcate.

Connexiva: visible; laterotergites unarmed; 3rd abdominal sternite with small rounded hump directed anteriorly.

FIGURE 12 *Cermatulus nasalis.* A: dorsum, B: venter. (ANIC Database No. 20 007851)

Dictyotus caenosus – brown shield bug

Present in Australia (NSW, NT, QLD, SA, TAS, VIC, WA), New Zealand, New Caledonia.

Key distinguishing features:

Size: 7-11 mm long.

Colour: drab brown to tan, with light and dark spots around the rear edge of the body.

Structure: body oval, very rounded at the rear; head broad and curving in towards the front; antennae and legs fairly short.

Diagnostic information:

Colour: yellowish-brown with brown punctations; apex of the 3rd, 4th and 5th antennal segments infuscate or piceous; a black fovea in each anterolateral corner of scutellum; connexiva with banded pattern, pale/white areas in approximately central half of abdominal segments, with a very thin pale line often present along distal edge of exposed tergites.

Vestiture: glabrous.

Head: broad; jugae longer than tylus, rounded and almost meeting in front.

Antennae: 5-segmented.

Rostrum: reaching between middle and hind coxae.

Pronotum: calli present but faint; anterolateral margins straight to slightly sinuate; posterolateral angles rounded.

Thoracic sterna: prosternum shallowly sulcate with very low margin; mesosternum and metasternum sulcate.

Connexiva: visible; laterotergites unarmed.

FIGURE 13 *Dictyotus caenosus.* A: dorsum, B: venter. (ANIC Database No. 20 000542)

SCALE BAR = 2mm

Omyta centrolineata – gum tree shield bug

Present in Australia (SA, VIC, TAS, NSW, QLD).

Key distinguishing features:

Size: 16-17 mm long.

Colour: brown to red-brown with distinctive central pale stripe running along head to a white spot behind the middle of the back; antennae with two pale bands near the ends.

Structure: head with a central notch in front; a blunt tooth on each side of the body; the folded wings make the rear end appear fairly long and pointed.

Diagnostic information:

Colour: brown to red-brown with dark brown to black punctations; a broad yellow longitudinal stripe extends centrally from the head across the pronotum to the apex of the scutellum; pale calli in basal angles of scutellum; connexiva with banded pattern, pale marks roughly in middle half of exposed tergites, becoming lighter and broader towards lateral edge; wing membrane with dark veins.

Vestiture: dorsum glabrous; venter with scattered long hairs.

Head: jugae longer than tylus, not meeting in front, pointed apically.

Antennae: 3-segmented.

Rostrum: extending to about the hind coxae.

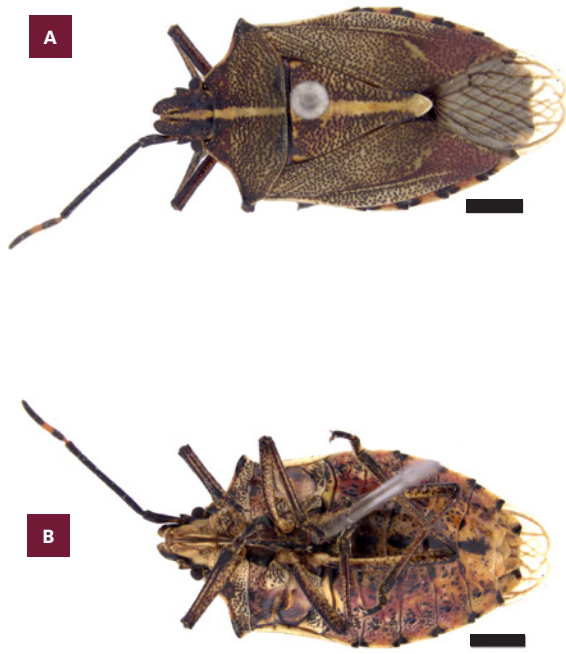
Pronotum: calli present; anterolateral margins simple and concave; posterolateral angles acute.

Thoracic sterna: prosternum shallowly sulcate; mesosternum with low raised keel; metasternum flat.

Connexiva: visible; laterotergites armed with slightly acute angles.

FIGURE 14 *Omyta centrolineata.* A: dorsum, B: venter. (ANIC Database No. 20 007853)

SCALE BAR = 2mm



Oncocoris apicalis – brown stink bug

Present in Australia (SA, VIC, NSW, ACT, QLD, NT, WA).

Key distinguishing features:

Size: 8-10 mm long.

Colour: brown or greyish, with a thin pale line running down the middle of the head and into the body.

Structure: head broadly rounded in front with a slight central notch.

Diagnostic information:

Colour: yellowish ground colour but covered with numerous deep brown to black punctations giving the animal an overall brown or grey appearance; head with greyish longitudinal stripes; head and pronotum with a central pale thin longitudinal line; scutellum with a pale apex, a small pale mark in each anterolateral angle, and often a small central pale spot on the anterior margin; connexiva mostly pale, with darker areas where segments join.

Vestiture: glabrous.

Head: jugae longer than tylus, but do not meet in front; jugae fairly rounded apically.

Antennae: 5-segmented.

Rostrum: surpasses hind coxae.

Pronotum: calli present; anterolateral margins almost straight.

Thoracic sterna: prosternum appearing shallowly sulcate or flat, without margin processes; mesosternum flat or with a very low raised keel; metasternum flat to shallowly sulcate.

Connexiva: visible; laterotergites unarmed; stridulatory vitta present laterally on abdominal sterna I and II.

FIGURE 15 *Oncocoris apicalis*. A: dorsum, B: venter. (ANIC Database No. 20 007854)

SCALE BAR = 2mm

Oncocoris geniculatus – no common name

Present in Australia (SA, VIC, TAS, NSW, ACT, QLD).

Key distinguishing features:

Size: 6-8 mm long.

Colour: mottled brown with long pale stripe running down the middle.

Structure: head is fairly broad and blunt in front, with a slight central notch.

Diagnostic information:

Colour: ground colour yellowish with mostly brown and a few black punctations; a pale yellow or orange longitudinal line runs centrally from the tylus to the tip of the scutellum; a black spot on outer and inner edge of each pronotal callus; connexiva with banded pattern, pale marks in central portion of exposed tergites.

Vestiture: glabrous.

Head: tylus almost as long as jugae, which are rounded apically, and do not meet in front.

Antennae: 5-segmented.

Rostrum: surpasses hind coxae.

Pronotum: calli present; anterolateral margins almost straight.

Thoracic sterna: prosternum appearing shallowly sulcate or flat, without margin processes; mesosternum flat or with a very low raised keel; metasternum flat to shallowly sulcate.

Connexiva: visible; laterotergites unarmed; stridulatory vitta present laterally on abdominal sterna I and II.

FIGURE 16 *Oncocoris geniculatus.* A: dorsum, B: venter. (ANIC Database No. 20 007855)

SCALE BAR = 2mm

Poecilometis strigatus – gum tree shield bug

Present in Australia (SA, VIC, NSW, ACT, QLD).

Key distinguishing features:

Size: 15-18 mm long.

Colour: mottled greyish-brown with pale bands on antennae and legs; light and dark stripes running along head.

Structure: head rounded in front; antennae and legs fairly long; the folded wings make the rear end appear a bit pointed.

Diagnostic information:

Colour: ground colour yellowish with coarse black or brown punctations and black marks, so it appears brown or greyish-brown; thorax with anterolateral margins and lateral angles narrowly pale; scutellum with the apex pale and impunctate, and pale marks in the anterolateral angles and middle of anterior edge; connexiva black with a narrow orange or yellowish margin; wing membrane brown with lighter veins.

Vestiture: glabrous.

Head: jugae almost as long as tylus, and apices obliquely rounded.

Antennae: 4-segmented.

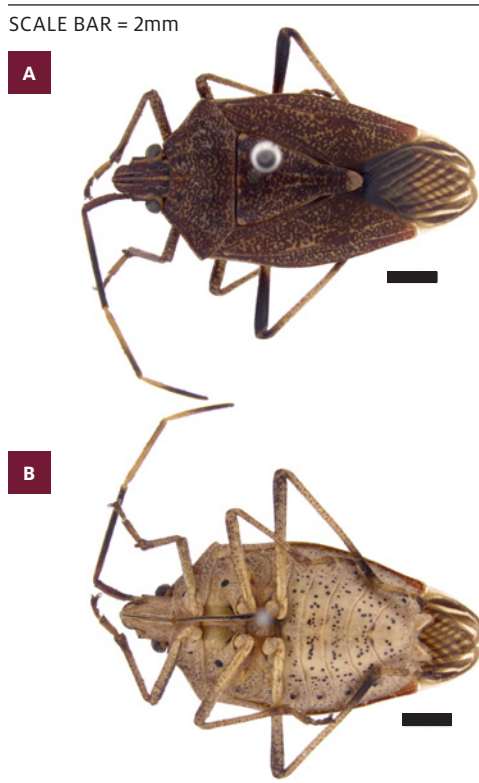
Rostrum: reaching to about apex of 3rd abdominal segment.

Pronotum: calli present; anterolateral margins angulately concave; posterolateral angles unarmed.

Thoracic sterna: prosternum flat or shallowly sulcate; mesosternum with a low raised keel; metasternum flat.

Connexiva: partially visible; laterotergites with increasingly acute angles posteriorly.

FIGURE 17 *Poecilometis strigatus.* A: dorsum, B: venter. (ANIC Database No. 20 007856)



Theseus modestus – gum tree shield bug

Present in Australia (SA, VIC, TAS, NSW, QLD, NT, WA).

Key distinguishing features:

Size: 14-16 mm long.

Colour: greyish-brown with black and pale marks; light and dark stripes running along the head; pale orange and dark bands on antennae; a white spot just behind the middle of the back, followed by a large black spot formed by the wings at the rear end; legs with pale and dark bands.

Structure: head fairly long, and coming to a rounded point in front; legs and antennae quite long.

Common in Eucalypt forests, often congregating under loose bark on trunks.

Diagnostic information:

Colour: creamy white with numerous deep brown to black punctations; head with punctations arranged in five to six longitudinal lines; first antennal segment dark exteriorly, brown punctured internally, remaining segments dark or brown, second and third narrowly and fourth and fifth broadly pale at base; lateral margins of pronotum pale; scutellum with the apex pale and impunctate, and calli in the anterolateral angles also often pale; connexiva dark with thin pale lateral edges; corium frequently diffused with pink, with lateral margins pale, and a central callus near the level of the apex of the scutellum; wing membrane with blackish veins.

Vestiture: glabrous.

Head: jugae shorter than tylus, with slightly sinuous and pointed oblique apices.

Antennae: 5-segmented.

Rostrum: reaching to at least the base of the 5th abdominal segment.

Pronotum: calli present and well developed; lateral margins depressed, narrowly marginate and not or only slightly concave; a more or less impunctate median line runs from the anterior margin to two-thirds of the way back.

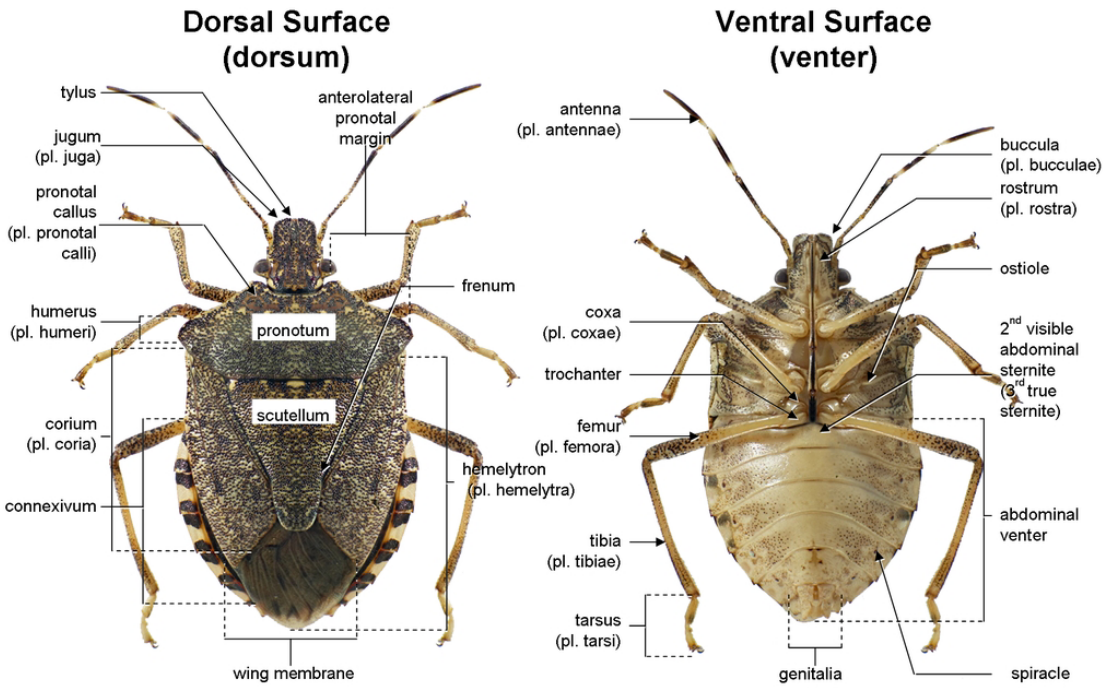
Thoracic sterna: prosternum shallowly sulcate; mesosternum with a low raised keel; metasternum flat.

Connexiva: visible; laterotergites armed with very short blunt posterolaterally directed angles.

FIGURE 18 *Theseus modestus*. A: dorsum, B: venter. (ANIC Database No. 20 007857)

SCALE BAR = 2mm

FIGURE 19 Morphology of a stink bug, illustrated with BMSB



Note that the second visible abdominal sternite is referred to here and in other keys as "abdominal sternite 2" although it is actually the third true sternite. The true sternite one is hidden beneath the metasternum.

Image: Pairero et al 2013, at: cjai. biologicalsurvey.ca. Used with permission.

Quick image reference guide

Specimens are to scale (scale bar = 2mm)

FIGURE 20 A selection of Australian native and exotic stinkbugs

A: *Oncocoris geniculatus* (NATIVE), Page 19
B: *Dictyotus caenosus* (NATIVE), Page 16
C: *Oncocoris apicalis* (NATIVE), Page 18
D: *Caystrus pallidolimbatus* (NATIVE), Page 14
E: *Anchises parvulus* (NATIVE), Page 11
F: *Cermatulus nasalis* (NATIVE), Page 15
G: *Halyomorpha halys* (EXOTIC), Page 8
H: *Poecilometis strigatus* (NATIVE), Page 20
I: *Theseus modestus* (NATIVE), Page 21
J: *Bathrus variegatus* (NATIVE), Page 13
K: *Omyta centrolineata* (NATIVE), Page 17
L: *Austromalaya reticulata* (NATIVE), Page 12
M: *Alcaeus varicornis* (NATIVE), Page 10
N: *Erthesina fullo* (EXOTIC), Page 9

Glossary of scientific terms

ANTEROLATERAL: towards the front and side.

CALLUS (pl. CALLI): a projection or elevation.

CLAVAL SUTURE: the suture of the forewing separating the clavus from the corium.

CLAVUS: in the hemelytron, the area behind the claval suture; at rest the clavus lies alongside the scutellum.

CONCAVE: hollowed out; the interior of a sphere as opposed to the outer or convex surface.

CONNEXIVUM (pl. CONNEXIVA): a sharp lateral margin of the abdomen, being a line of contact between the dorsal and ventral margins.

CORIUM (pl. CORIA): the proximal differentiated part of the forewing exclusive of the clavus and membrane.

COXA (pl. COXAE): the basal segment of the leg; the segment of the leg which joins the leg to the rest of the body.

CRENULATE: with rounded teeth (see also DENTICULATE and SERRATE).

DENTICULATE: margin equipped with small teeth or notches (see also CRENULATE and SERRATE).

DISTAL: near or toward the free end of any appendage; that part of a segment farthest from the body; opposite of proximal.

DORSAL: upper surface; opposite of ventral.

GLABROUS: hairless or bald; opposite of pubescent.

HEMELYTRON (pl. HEMELYTRA): anterior wing of Heteroptera, the basal portion of which is thickened and the apical portion membranous.

IMPUNCTATE: not punctuate or marked with punctures.

INFUSCATE: smoky gray-brown, with a blackish tinge.

JUGA (pl. JUGAE): the lobe on each side of the head anteriorly, between which sits the tylus, the boundary between juga and tylus marked by a deep depression on each side.

LATEROTERGITES: the primary plate or sclerite forming the lateral dorsal surface of any body segment.

MEMBRANE: membranous apical portion of hemelytron.

MESOSTERNUM: ventral surface of the mesothorax.

MESOTHORAX: middle segment of the thorax, which bears the front wings and the middle pair of legs.

METATHORAX: posterior segment of the thorax, which bears the second pair of wings and the third pair of legs.

METASTERNUM: ventral surface of the metathorax.

PICEOUS: black.

POSTEROLATERAL: towards the rear and side.

PRONOTUM: the dorsal surface of the prothorax.

PROSTERNUM : ventral surface of the pronotum.

PROTHORAX: first segment of the thorax, which bears the first pair of legs.

PROXIMAL: that part of an appendage nearest the body; opposite of distal.

PUBESCENT: downy; clothed with fine hair.

PUNCTATIONS: covered with punctures; small depressions on the surface.

ROSTRUM: the extended mouthparts or sucking beak.

SERRATE: numerous small acute teeth like the cutting edge of a saw (smaller than denticles – see DENTICULATE).

SINUATE: wavy, undulating, curved in an out, applying specifically to edges and margins.

STRIDULATORY VITTA (pl. VITTAE): a band of short scratch-like grooves ventrally on each side of the abdomen (usually visible only at high magnification).

SULCATE: deeply furrowed or grooved.

SUTURE: the line of juncture of hemelytra.

TYLUS (ANTECLYPEUS): the sclerite that lies between the jugae at the front of the head.

VENTRAL: lower or front surface; opposite of dorsal.

VESTITURE: covering (as of scales, hairs or spines) on an insects body.

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