

Common garden (*Helix aspersa*), common white (*Ceruella virgata*), pointed (*Cochlicella acuta*), small brown (*Microxeromagna vestita*), and white Italian (*Theba pisana*)

Alison Fattore, NSW DPI, 2024

Risk period

Table 1. The risk and monitoring periods for snail activity.

Flowering			Fruit drop			Golf ball			Colour break		Maturation	
Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	

Description

Eggs: spherical, white, 1–3 mm diameter (depending on species), soft-shelled and are laid in clutches of up to 120 below the soil surface.

Immatures: in newly hatched young, shells are soft and translucent without characteristic shell patterns. As they grow, their shells resemble the adults but are smaller in size.

Adults: the soft, slimy, grey body has a head with 2 large and 2 small antennae. The flat muscular 'foot' is used for sliding movement, aided by the release of mucous to reduce surface friction. The mucous leaves a slimy trail. When threatened, the snail's body fully retracts into the shell.

Snails are identified according to their shell characteristics:

Common garden snails (*Helix aspersa*) have a 25–40 mm diameter hard coiled shell with a characteristic tortoiseshell striped pattern (Figure 1) and no umbilicus (hole in the centre of shell).

Common white snails (*Ceruella virgata*) have a 10–20 mm diameter coiled shell that is white with a brown band around the spiral and a round, open umbilicus (Figure 2).

Pointed snails (*Cochlicella acuta*) have an 18 mm long hard shell with a length-to-diameter shell ratio >2, fawn, grey or brown (Figure 3).

Small brown snails (*Microxeromagna vestita*) have a 7 mm diameter hard brown to honey-coloured shell with a wide, round umbilicus (Figure 4).

White Italian snails (*Theba pisana*) have 10–30 mm diameter coiled hard shells, a brown band around the spiral, with a semi-circular umbilicus that is partially closed (Figure 5).



Figure 1. Adult common garden snail (*Helix aspersa*).

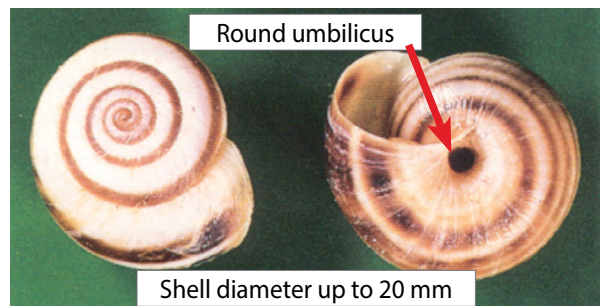


Figure 2. Common white snail (*Ceruella virgata*). Image: South Australian Research and Development Institute (SARDI).



Figure 3. Pointed snail (*Cochlicella acuta*). Image: South Australian Research and Development Institute (SARDI).

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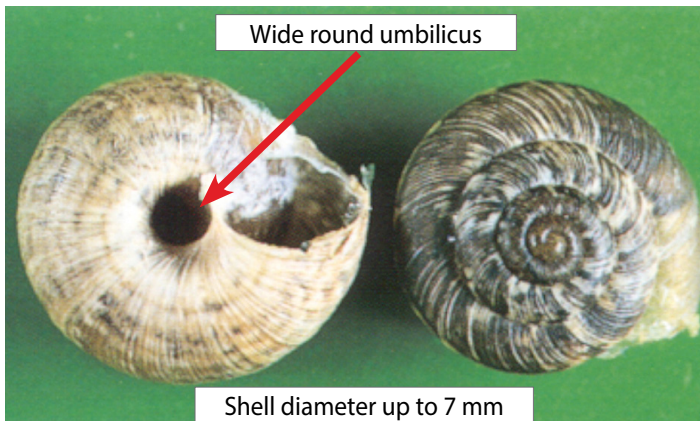


Figure 4. Small brown snail (*Microxeromagna vestita*). Image: South Australian Research and Development Institute (SARDI).

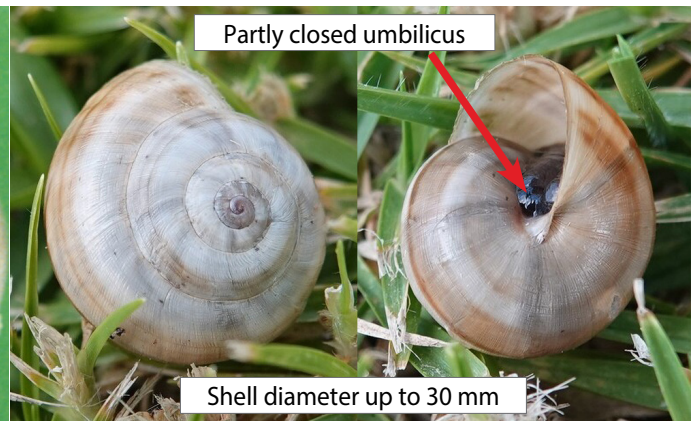


Figure 5. White Italian snail (*Theba pisana*). Images: Rebekah D Wallace, University of Georgia, Bugwood.org.

Life cycle

Individual snails are hermaphrodites, having both male and female reproductive organs. One snail can reproduce offspring. Up to 5 clutches of eggs are laid per year from autumn until spring. Eggs hatch after 2 weeks. Immature snails mature in one year and can survive for up to 5 years (Figure 6). One generation is produced annually.

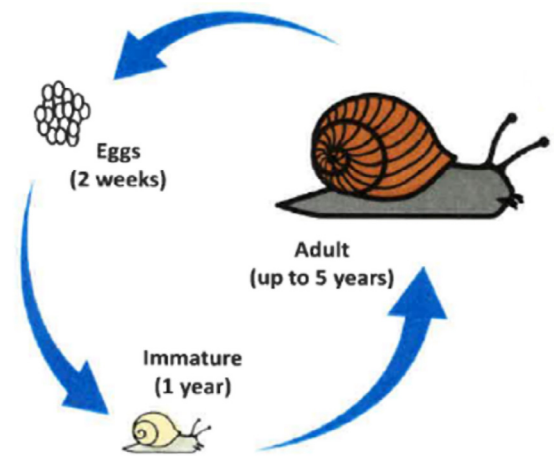


Figure 6. General snail life cycle.

Damage

The fruit rind is scarred (Figure 7) and holes can be chewed through to flesh. Leaves and twigs are scarred and skeletonised with most damage on the tree skirt. If snail numbers are high, the upper tree leaves will be damaged. Navel oranges are most likely to be affected, but all citrus are susceptible.

Risk period: March to October (Table 1).

Monitoring

Snails feed at night, early morning and during rainy, overcast weather. They are more active in cool, wet weather. During hot, dry periods, snails retract into their shell, sealing the opening with a membrane and becoming dormant (aestivate). This usually occurs from late October until late February in protected places such as tree crotches (Figure 8).

Traps: wooden boards 300 × 250 mm (with cleats at each end) placed under the skirt of several trees throughout the orchard can be used to detect numbers. Snails seek shelter and hide underneath. Count the snails under boards monthly.

Bait: apply small portions of bait in areas of previously high snail numbers and check for dead snails after a few days. This will detect snail movement and feeding.



Figure 7. Snail feeding scars fruit rind.

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Management and control

There is currently no threshold for snail control. If the damage was significant during the previous season, management will most likely be required the following season.

Biological: natural predators include birds, reptiles and parasitic flies (i.e. *Sciomyzidae*, *Sarcophaga pencillata*) that might parasitise certain snails. However, these are unlikely to reduce populations to an acceptable level.

Cultural: prune tree skirts 600–750 mm above ground to discourage snail access and prevent attacks on low-hanging fruit. Fix copper bands around tree trunks to prevent snail climbing (lasts 5 years). Inter-row cultivation of soil deters snails and reduces egg-laying sites, sheltering sites and food sources. Maintain good orchard hygiene by removing rubbish and removing tree guards as soon as practicable to reduce sheltering sites. Place field bins on bare ground or in a baited snail location. Avoid transporting snails by checking all machinery, bins and containers that enter and leave the property or packing shed.

Chemical: baits and sprays are available to reduce snail populations. Baiting from March to June around tree skirts and spraying trees with copper-based fungicides hinders snail climbing. Bait immediately after irrigation or rain when the soil is wet and snails are active. Apply bait before egg laying (autumn/winter). Consult your pest control specialist for further information on products registered for use in each state.



Figure 8. Common garden snails (*Helix aspersa*) aestivating in a tree crotch.

More information

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