Australian plague locust

Chortoicetes terminifera

This is the most economically important Australian locust because of the extent and frequency of outbreaks.

Successful breeding occurs after good rains in the Channel Country of western Queensland. Locusts then migrate on prevailing weather systems, invading adjacent agricultural areas (including southern Queensland).

Up to four generations occur each year, with eggs able to survive extended dry periods via quiescence (arrested growth), and then continue to develop following rain.

The population overwinters as eggs in the ground via a compulsory resting stage (diapause) ensuring eggs laid in autumn do not hatch until spring.

Nymphs develop through five instars and can form dense bands of up to 5000 locusts/m^2. Bands 1 km long and dense enough to be seen from aircraft flying at 800 m are not unusual. Swarms of flying adults can occur from spring to autumn.

At normal summer temperatures (28–33°C), the minimum life cycle is: egg (11 days) ==› hopper (35 days) ==› laying adult (12 days).

Life cycle

The Australian plague locust has a three-stage life cycle (egg ==› hopper (nymph) ==› adult) and requires green vegetation (hence rainfall) for successful breeding.

Batches of eggs (egg pods) are laid in the soil in holes up to 100 mm deep; holes are then filled with a froth plug.

Eggs need warmth and moisture to incubate in the soil. Under ideal conditions eggs hatch in 2–3 weeks but may remain viable in the soil for up to 12 months.

Queensland Government

The hatched locusts (nymphs) are small, sexually immature, and flightless. They progress through a number of growth stages or 'instars' before 'fledging' into the adult form.

The number of instars varies from 5–9 as does the time taken to reach maturity. Some species form dense aggregations of nymphs, known as 'bands', which can march across country in densities up to 5000 locusts/m^2.

Adults can form swarms covering several square kilometers which, under suitable climatic conditions, can migrate long distances to invade previously uninfested areas. Migrations in excess of 500 km in a night are not unusual and are associated with weather fronts.

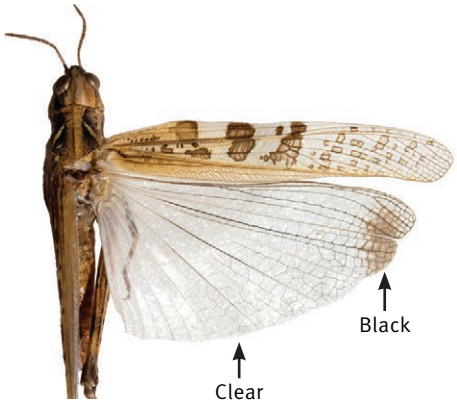
Day flight differs from migration, with locusts relocating over short-distances. As a rule, swarms flying during the day are displaced downwind and will build up along tree lines and creeks.

Migration is a survival strategy. Locust outbreak areas generally have unreliable rainfall. When locusts breed on rain, subsequent rain in the same area (needed for survival of the next generation) is not guaranteed. Locusts move (migrate) on weather fronts that are associated with rainfall events. This strategy ensures at least some insects will find green vegetation and successfully reproduce. However, when rain is widespread, the majority of locusts breed successfully, and population increase is very rapid. If this occurs for three or four generations, a plague can develop.

Description

Australian plague locust adults grow 25–44 mm long. General body colour is grey, brown or occasionally green—often with a pale stripe down the middle of the back. The hind wing has a conspicuous black spot at the tip, and the hind legs have red shanks.

Adults make short flights just above the grass, often landing side on to the observer.



Steps for identification

1. Time and place – While individuals are sometimes found outside the distribution areas shown, it will be unusual to find large concentrations.
2. Gregarious behaviour – Swarms of flying adults are likely to be either Australian plague locusts, spur-throated locusts, migratory locusts, or yellow-winged locusts. Spur-throated locusts in high densities generally roost in trees. Hopper bands will be either Australian plague, migratory, or yellow-winged locusts, or small plague grasshoppers. Spur-throated locusts do not form bands.
3. Observe adult flight behaviour
4. Size – Adult size is 25–44 mm long with males two-thirds the size of females. Look at the rear end—females have a four-pronged ovipositor for drilling and egg-laying; the male's rear end is either rounded or drawn out to a point. Nymph size is not a good guide since it varies with growth stage (instar).

Describing population density

By adopting standard descriptions for locust densities landholders can accurately describe the extent of their locust infestation. This information is important when coordinating control operations. The terms given in Table 1 are those used by the Australian Plague Locust Commission.

Table 1. Number of insects per m^2

Adults		Nymphs	
Concentration	0.5–3	Present	1–5
Low density swarm	4–10	Numerous	6–30
Medium density swarm	11–50	Sub-band	31–80
High density swarm	›50	Band	›80

Locust swarm

Economic impact/damage

A high-density swarm (›50 insects per m^2) covering 2 km^2 will contain around a billion insects, which can eat 20 t of vegetation a day. Locusts at both the hopper and adult stage can cause extensive crop and pasture damage. In Queensland, all crops can potentially be attacked, but summer crops are most at risk.

Locust damage to sorghum crops

Control

Australian plague locusts have the ability to invade previously uninfested areas and lay eggs within days. Combined with the mobility of flying swarms, this makes control particularly difficult. Optimum time for control is at the nymph stage.

The most effective method of control is on-ground spraying.

Chemical control

All chemicals for locust control, have a withholding period. Refer to the product label for recommended rates and situations for use.

For more information on registered products visit apvma.gov.au.

Aerial spraying

Landholders can undertake aerial control on their property, however aerial spraying is considered the last method for control and only considered when all other on-ground control options have failed.

Aerial spraying is also subject to meeting strict environmental and operational requirements. Terrain, environmental, occupational health and safety and other risk factors impose significant constraints and opportunities for cost-effective aerial control which are very limited. Label restrictions include buffer zones to all water sources, domestic dwellings, crops and other sensitive areas, which makes aerial spraying difficult.

Responsibility for control

Locusts are not a prohibited or restricted matter under the *Biosecurity Act 2014,* however everyone has a general biosecurity obligation (GBO) to take reasonable and practical measures to minimise the biosecurity risks associated with locusts.

At a local level, each local government must have a biosecurity plan that covers invasive animals in its area. This plan may include actions to be taken on Australian plague locusts. Some of these actions may be required under local laws. Contact your local government for more information.

Local governments may establish locust committees to coordinate landholder control efforts. Local governments also control locusts on roads, stock routes and reserves under their control if necessary.

The Australian Plague Locust Commission will only implement control measures where the commission considers locust presence an interstate threat.

What can you do?

Mark any egg beds on your land. Monitor hatchings in autumn and spring and plan a control strategy.

More information

More information is available from your local government office, visit biosecurity.qld.gov.au or the Australian Plague Locust Commission: agriculture.gov.au/pests-diseases-weeds/locusts.

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This fact sheet is developed with funding support from the Land Protection Fund.

07/23