

# Locust Bulletin

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## GENERAL SITUATION IN MARCH–APRIL AND OUTLOOK TO SPRING 2020

### Australian plague locust

### *Chortoicetes terminifera*

The locust population level remained generally low in inland eastern Australia during March, but there was a moderate increase from the previous very low numbers in parts of Queensland and New South Wales. This increase indicates background breeding in improved habitat conditions following the sequence of rainfall events since late January. Surveys have been limited because of travel restrictions.

Surveys in Queensland during March identified a small increase in locust population levels in the Central West, South Central and the Central Highlands regions. Adults were recorded at low densities in most areas and low-density, late instar nymphs were identified at two locations in the Central Highlands. Very few adults were identified in Northwest Queensland, where mixed populations of several grasshopper species were recorded at high densities. Fledging of nymphs during March and April is likely to result in moderate increases in adult population levels in several regions.

In New South Wales, adult numbers increased in the Central West and part of the Far West regions during March, following breeding in January and early February. Locusts were reported from the Nyngan and Coonamble areas in early April, but subsequent heavy rainfall prevented access to those areas until mid-April. Surveys identified medium density adults and several small swarms in the Nyngan–Hermidale area and medium densities in the Coonamble–Quambone area. The autumn breeding population has increased to medium densities in parts of the Central West, Far West and Riverina regions. Locust numbers are expected to remain at low densities in other regions.

Previous surveys in South Australia recorded no locusts in the Far North or Northeast regions. Population levels are likely to remain low during the remainder of autumn. Heavy rain in early February and early March in northern regions could have initiated sporadic egg laying, but a large population increase is unlikely during autumn.

No surveys were conducted in Victoria during March. Locusts were reported from north of Bendigo in mid-April, which could represent a more widespread moderate population increase in the North Central region as a result of migrations from New South Wales. However, the overall population level is expected to remain generally low during autumn and spring.

The outlook for the remainder of autumn is for generally low population levels in most regions. Medium density adults will be likely to persist in the Central West and limited areas of the Far West and Riverina regions of New South Wales. Populations in South Australia and Victoria are likely to remain at generally low densities. Egg-laying will continue during April and May. Although a late autumn nymph generation is possible in northern regions of Queensland, the majority of hatchings in other states will be delayed until spring due to diapause and low temperatures.

The spring outlook is for low-density nymphs to develop in several regions of Queensland and New South Wales, with medium and locally high densities possible in parts of Central West, Far West, Riverina and the Northwest Plains of New South Wales. Most hatchings in those regions will occur during September. Summer breeding has produced moderate population increases from low background levels, and a further generation of successful breeding could allow populations to increase to widespread high densities. This would not be possible until after fledging in spring and will depend on environmental conditions in summer. There is a low likelihood of widespread high-density populations during the remainder of autumn, or of region-wide nymph infestations developing during spring.

22 April 2020

## Spur-throated locust

## *Austracris guttulosa*

The summer breeding population level remains very low, but nymphs were recorded at a number of locations in the Queensland Central Highlands in late March.

Surveys in the Northwest and Central West regions of Queensland in mid-March identified very few adults of this species and low-density nymphs at only one location near Muttaborra. Surveys of the Central Highlands and South Central regions in late March identified isolated density adults. However, low-density nymphs were recorded at a number of locations north of Clermont and also in the Emerald–Springsure and Buckland Plains districts of Central Highlands Regional Council (RC) area. These were the first nymphs detected during 2019–20, although the last surveys of this region were in December. No adults or nymphs were recorded in New South Wales, Victoria or South Australia.

The nymphs recorded in the Central Highlands were at various development stages, which indicates that sporadic egg-laying has likely continued since late January in response to repeated periods of heavy rainfall. The few nymphs detected in the northern areas of Central West or Northwest Queensland may reflect the very low numbers of adults in those regions and the high populations of other species, leaving any nymphs below the level of detection. Although this species can lay multiple egg pods, the late arrival of the wet season in Queensland will limit reproductive capacity and nymphs may only develop during March–May. Fledging of nymphs will occur during April and May, and adult numbers could increase to scattered-numerous densities in the Central Highlands. This is unlikely to result in a large increase in overall adult population levels. There is a low risk of a widespread infestation developing during autumn or spring 2020.

## Migratory locust

## *Locusta migratoria*

Adults of this species were recorded at a number of locations during surveys in the Queensland Central Highlands in late March. Isolated–Scattered density adults were identified in the Clermont area of Isaac RC area and at several locations in the Emerald–Rolleston, Arcadia Valley and Buckland Plains districts in Central Highlands RC area. The adults were associated with dense tall grasses along roadsides. No nymphs were identified, but access to less densely vegetated sites was limited. No locusts were recorded during surveys in the Central West and South Central regions of Queensland. However, low numbers were recorded in the Longreach light trap on 23–24 March, indicating that low density populations may be more widespread in Central West Queensland.

The frequency with which this species was detected indicates low-density breeding occurred over a wide area during summer and a significant increase in population in the Central Highlands. It was not identified during previous surveys. Vegetation and soils in locust habitats remain favourable for localised breeding to continue throughout autumn. Gregarization and high-density populations often develop at local scales in habitats such as summer crops.

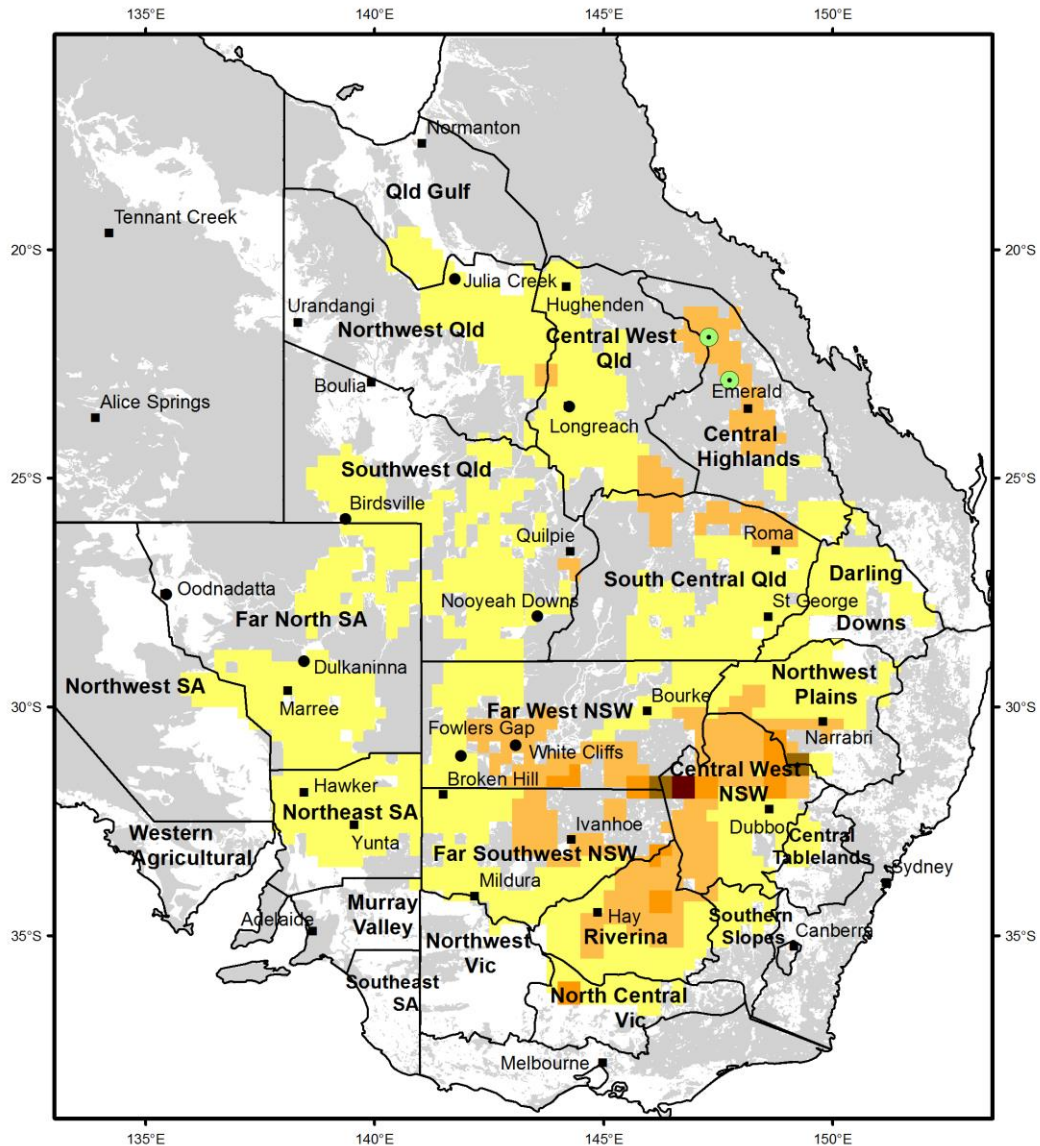
There is a low risk of a widespread infestation developing during autumn 2020. There is a moderate risk that continued breeding could result in a further population increases and possible localised high-density populations developing during spring 2020.

**It is important that any locust activity be reported as soon as possible to your local biosecurity authority, primary industries department or to the commission. A toll-free call to the APLC can be made on 1800 635 962. An answering machine is attached to this phone for after-hours calls. Reports can also be emailed to APLC at [apl@agriculture.gov.au](mailto:apl@agriculture.gov.au) or made through the website at <http://www.agriculture.gov.au/aplc>**

**Locust distribution map – *Chortoicetes terminifera***

**Australian Plague Locust Distribution**

1 March to 22 April 2020



Densities estimated for areas of locust habitat, based on surveys and reports from current and previous months  
Reference: unprojected geographical

nymph density ( /m <sup>2</sup> )		adult density ( /ha )	
● Present <5	● Numerous 5-30	■ nil-Isolated <200	■ Isolated-Scattered 200-1000
⊕ Sub-band 30-80	● Band >80	■ Scat-Numerous 1000-5000	■ Num-Concentration 5000-30,000
● APLC light trap		■ Swarms present >30,000	

**Australian plague locust****(*Chortoicetes terminifera*)****SITUATION IN MARCH–APRIL AND FORECAST TO SPRING 2020****NEW SOUTH WALES****CENTRAL WEST and NORTHWEST PLAINS****Central West, Northwest and Central Tablelands Local Land Services****Locusts and conditions**

- Locust population density increased in parts of the Central West Local Land Services (LLS) area during March, most likely following undetected regional breeding during January and early February. Adult numbers increased after fledging of nymphs in late March.
- Increased locust activity was reported from the Nyngan and Coonamble districts in early April. Previous surveys in February had recorded only occasional adults in nearby districts.
- Surveys in mid-April identified Scattered–Numerous density adults in the Nyngan–Hermidale–Nymagee–Canbelego area, along with several swarms along roadways. Scattered–Numerous density adults were also recorded in parts of the Coonamble–Quambone area.
- In mid-April, LLS received reports of egg laying by Numerous density adults near Nymagee and on several properties in the Baradine–Bugaldie area.
- Higher density locusts were recorded in areas adjacent to forest and tree lines. Wind trajectories indicate that the localised aggregation is likely the result of redistribution within NSW during late March and early April, although some migration from South Central Queensland could have contributed to the population increase.
- After repeated widespread rainfall during February, there was heavy rainfall (>40 mm) in Central West LLS and moderate falls (20–40 mm) in Northwest LLS during the first week of March. Parts of the Northwest LLS received further moderate rainfall (20–40mm) in the second and final week of March, followed by widespread heavy rainfall throughout these regions at the start of April. Pasture vegetation will remain green in most areas during the remainder of autumn.

**Forecast**

- The autumn breeding population has increased to medium densities over parts of the Central West. Breeding commenced in mid-April and will continue during May. Most egg-laying will be at low–medium densities, but aggregation and gregarious laying is likely in localised areas.
- The majority of any eggs laid during April will enter diapause and not hatch until September. Hatching of any eggs laid during May will also be delayed until early spring due to low winter soil temperatures.
- Low and medium density nymphs are likely in the Central West during spring, with some Bands likely in to develop in localised areas, particularly in the Nyngan and Coonamble districts.
- There is a low probability of immigration from other regions during the remainder of autumn, but redistribution of adults within the Central West is likely to continue during April.

**Risks**

- There is a low risk of a widespread regional infestations developing during spring. There is a moderate risk of localised high-density nymphs and some Bands developing during September and October.

**FAR WEST & FAR SOUTHWEST****Western Local Land Services****Locusts and conditions**

- The locust population remained at low densities in most areas, but increased to medium density in the Cobar, Wilcannia and White Cliffs districts in early April.
- Local Land Services reported high numbers of locusts near Cobar in early April. Landholder reports also indicated a small increase in adult numbers in other areas at that time.

- Surveys in mid-April Isolated–Scattered density adults in the Wilcannia, White Cliffs and Ivanhoe districts, with up to Numerous density in some locations. The population increase was most likely the result of local breeding in Central West and Northwest Plains regions during February and subsequent migration in late March and early April.
- The Fowlers Gap and White Cliffs light traps did not record any locusts during March.
- There was heavy rainfall (>40 mm) in the Bourke, Milparinka, Wanaaring and Cobar districts, and patchy light–moderate rainfall (<20-40 mm) with some heavy storms in the Far Southwest region during the first week of March. There was further moderate–heavy rainfall in across these regions during the first week of April. There has been a growth response of pasture vegetation in some areas.

### Forecast

- Locust numbers are likely to remain at low densities in the Far West and Far Southwest regions during April and May, and low densities in western districts and in the Far Southwest region.
- Low-density breeding will continue during April and May, with localised higher density aggregation and egg-laying possible.
- The majority of eggs laid during autumn will not hatch until September. Nymphs are likely to develop at low–medium densities in most areas, but small Bands are possible in some locations.
- There is a moderate probability of some continued redistribution of adults during April, but a low likelihood of significant migrations from other regions.

### Risks

- There is a low risk of a widespread infestation developing during spring. There is a moderate probability of localised medium-density nymphs, possibly with some small bands, developing in the Bourke, Cobar and White Cliffs districts during September and October.

## RIVERINA

### Riverina and Murray Local Land Services

#### Locusts and conditions

- The locust population remained at very low densities during March, but activity increased from early April after likely migrations from the Central West and Northwest Plains regions.
- In mid-April, LLS officers reported an increase in locust numbers from the very low population level during February and March. Numerous density adults were observed in the Narrandera and Hay districts, which are likely to represent a more widespread moderate population increase in the Riverina.
- There was heavy rainfall (>40 mm) across the Riverina during the first week of March. There was widespread moderate rainfall (20-40 mm) during the first week of April. Pasture vegetation will remain green for the remainder of autumn in some areas.

#### Forecast

- Locust numbers are likely to remain generally low during the remainder of autumn.
- Localised breeding is likely during April and May in the Riverina. Egg laying is likely to be at low densities in most areas, with small aggregations and medium-density egg laying in localised areas.
- The majority of any eggs laid during autumn will enter diapause and not hatch until spring. Hatching will commence from mid-September in northern districts to early October in the southern Riverina.
- Low-density nymphs are likely to develop in the Narrandera, Griffith, Hay, Jerilderie and Deniliquin districts during October, with Numerous and possibly Band densities in some locations.
- There is a medium probability of further redistribution within the Riverina during April.

#### Risks

- There is a low risk of a widespread infestation developing during spring.

**All locust activity should be reported to your Local Land Services or the Department of Primary Industries, NSW. A toll-free call to the APLC can be made on 1800 635 962. An answering machine is attached to this phone for after-hours calls. Reports can be emailed to APLC at [apl@agriculture.gov.au](mailto:apl@agriculture.gov.au) or sent through the web page at <http://www.agriculture.gov.au/aplc>**

<b>QUEENSLAND</b>
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**SOUTHWEST AND NORTHWEST****Bulloo, Quilpie, Barcoo, Diamantina, Boulia, Winton, Cloncurry, McKinlay and Mt Isa Shires****Locusts and conditions**

- The locust population remained at low densities in surveyed areas during March. Limited surveys in part of the Northwest region in March detected very few locusts. Previous surveys in February identified only occasional adults in the Southwest region, but there is likely to have been a moderate population increase in after some local breeding during February.
- Surveys in Winton and McKinlay Shires in mid-March identified only occasional adult locusts. High-density populations of various grasshopper species were recorded at many locations. The population levels and species composition of these populations was locally variable, but densities declined in some areas between February and mid-March.
- The Nooyeah Downs light trap recorded no locusts during March.
- There was widespread heavy summer storm rainfall (>40 mm) in these regions during the first week of March, with rainfall totals >100 mm in many areas. There was further patchy, moderate rainfall (20-40 mm) in parts of Quilpie and Bulloo Shires during 8–15 March. Pasture vegetation growth reached a peak in the Northwest region in late February and was becoming dry in some locations in mid-March. The more limited vegetation response in the Southwest has been boosted by the widespread rain in early March. Vegetation will remain green in some areas throughout autumn. Floodwaters have moved down the river channels into the Southwest, which will be followed by a green vegetation response lasting during winter.

**Forecast**

- Locust numbers are expected to remain generally low during the remainder of autumn, but sporadic breeding in favourable habitats during February and March was likely to have produced a nymph generation in parts of the Southwest region. Breeding could continue during April in some areas. Nymphs were likely to be at low density in most areas and regional adult population level is likely to have increased to Scattered–Numerous densities in parts of the Southwest during March, and could persist during April and May.
- A proportion of any eggs laid during April will enter diapause and hatch in August or September. However, a low-density nymph population could develop during late autumn in some areas.
- Populations of other grasshopper species in the Northwest region will decline during April.
- There is a low probability of any significant immigration during the remainder of autumn.

**Risks**

- There is a low risk of a widespread infestation developing during spring.

**CENTRAL WEST****Longreach, Barcaldine and Blackall-Tambo Regional Council. Flinders and Richmond Shire.****Locusts and conditions**

- The locust population remained at low densities in those areas surveyed during March. Survey access was restricted by heavy rainfall and flooding.
- Surveys in the Longreach Regional Council (RC) area and Richmond Shire in early March identified only occasional adult locusts. Medium density nymphs and high-density adults of several other grasshopper species were recorded in some locations. Surveys in Barcaldine and Blackall-Tambo RC areas in late March identified Isolated–Scattered density adults in several areas. No nymphs were detected during surveys. This moderate population increase indicates that localised breeding occurred during February.
- High-density populations of various grasshopper species were recorded at many locations.
- Low numbers of locusts were recorded at the Longreach light trap during 11–14 March.
- There was patchy light–moderate rainfall (<20-40 mm) during each of the first two weeks of March. There was a variable vegetation response to the localised distribution of heavy rainfall during February. Pasture vegetation growth reached a peak in in late February and was becoming dry by late March.

**Forecast**

- Locust numbers are likely to remain generally low during the remainder of autumn, with Scattered–Numerous density adults in some areas. Localised breeding could continue during April, with the possibility of low-density nymphs persisting during winter. A proportion of eggs laid during April will enter diapause, which will delay hatching until August.
- Nymphs are likely to develop at low densities in some habitat areas during September.
- Populations of most other grasshopper species are likely to decline during April.
- There is a low probability of significant immigration during autumn.

**Risks**

- There is a low risk of a widespread infestation developing during the remainder of autumn or spring.

**CENTRAL HIGHLANDS and SOUTH CENTRAL**

**Isaac, Central Highlands, Maranoa, Western Downs and Goondiwindi Regional Councils. Balonne, Murweh and Paroo Shires**

**Locusts and conditions**

- There was a moderate increase in locust population levels during March, but overall population densities remain low.
- Surveys during March identified Isolated–Scattered density adults in Isaac, Central Highlands and Maranoa Regional Council (RC) areas. Low-density late instar nymphs were recorded near Clermont in Isaac RC area, which indicates some local breeding in early February.
- There was localised moderate–heavy storm rainfall (20->40 mm) in these regions during the first and second weeks of March. Pasture vegetation remains green in most areas.

**Forecast**

- The locust population is likely to remain at generally low levels in these regions during autumn. Fledging of remaining nymphs could result in a further increase in adult population to Scattered–Numerous density in parts of the Central Highlands during April.
- Sporadic low-density breeding could continue during April. A proportion of eggs laid in April would enter diapause and not hatch until August. Spring hatchings are likely to produce low density nymphs in most areas.
- There is a low probability of any significant immigration during autumn.

**Risks**

- There is a low risk of a widespread infestation developing during spring.

**Locust activity should be reported to Biosecurity Queensland (Queensland Department of Agriculture and Fisheries) on 132523. A toll-free call to the APLC can be made on 1800 635 962. An answering machine is attached to this phone for after-hours calls. Reports can be emailed to APLC at [aplc@agriculture.gov.au](mailto:aplc@agriculture.gov.au) or sent through the website at <http://www.agriculture.gov.au/aplc>.**

<b>SOUTH AUSTRALIA</b>
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**FAR NORTH, NORTHEAST, NORTHWEST & WESTERN AGRICULTURAL REGION****Locusts and conditions**

- Locust numbers are expected to have remained very low during March.
- Surveys of the Far North and Northeast regions in mid-February did not detect any locusts.
- The Dulkaninna and Oodnadatta light traps did not record any locusts during March.
- There was moderate–heavy rainfall (20->40 mm) in the northern part of the Far North region during the first week of March. There was further moderate–heavy rainfall in the Far North and Northwest regions in early April. There has been a localised vegetation response in areas that received heavy rainfall.

**Forecast**

- The locust population is likely to remain at low levels during the remainder of autumn and spring. Some sporadic low-density breeding could have occurred following heavy rainfall in the Northwest region in February or the Far North region in March, but only low-density hatchings were likely and a moderate increase in overall population is possible during the remainder of autumn.
- The majority of any eggs laid during March and April will enter diapause and not hatch until early spring. Only localised, low-density nymphs are likely to develop in northern regions in early spring.
- There is a low probability of immigration into these regions during autumn.

**Risks**

- There is a low risk of a widespread infestation developing during spring.

**MURRAY VALLEY, MT LOFTY RANGES & SOUTHEAST REGION****Locusts and conditions**

- Locust densities are expected to have remained very low in these regions during March. There were no reports of locust activity.
- There was moderate–heavy rainfall (20->40 mm) in these regions in early February.

**Forecast**

- The locust population is likely to remain at very low densities during the remainder of autumn.
- The majority of any eggs laid during March and April will enter diapause and remain dormant during winter. Any spring hatching would commence in late September and October.
- There is low probability of any immigration during autumn.

**Risks**

There is a very low risk of a widespread infestation developing during spring.

**Locust activity should be reported to Biosecurity SA (Primary Industries and Regions South Australia) on the Plant Health Hotline on 1300 666 010. A toll-free call to the APLC can be made on 1800 635 962. An answering machine is attached to this phone for after-hours calls. Reports can be emailed to APLC at [apl@agriculture.gov.au](mailto:apl@agriculture.gov.au) or sent through the website at <http://www.agriculture.gov.au/aplc>.**



<b>VICTORIA</b>
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**NORTHWEST & NORTH CENTRAL VICTORIA****Locusts and conditions**

- Locust numbers are expected to have remained low during March and April. No surveys were undertaken.
- A report from near Bendigo on 14 April was confirmed as locusts at medium densities along a roadway. These most likely migrated from New South Wales during March, and could represent a more widespread moderate population increase in the North Central region. Localised egg laying is likely to occur during April and May, with some aggregation and medium-density laying possible.
- There was light–moderate rainfall (<20-40 mm) in the Northwest and heavy rainfall (>40 mm) in North Central Victoria during the first week of March. There was further widespread moderate–heavy rainfall (20->40 mm) in early April.

**Forecast**

- Locust numbers are likely to remain generally low in Victoria during the remainder of autumn. The increase in population was unexpected, given that known populations in other states were very low, but wind trajectories indicate migrations were possible from Central West New South Wales during early April, after populations increased in that region.
- The majority of any eggs laid during April will enter diapause and not hatch until October. Nymphs are likely to develop at low–medium densities in parts of North Central Victoria, with some small bands possible in localised areas.
- There is a low probability of immigration during April or May.

**Risks**

- There is a low risk of a widespread infestation developing during spring.

**Locust activity should be reported to Department of Economic Development, Jobs, Transport and Resources on 1300 135559. A toll-free call to the APLC can be made on 1800 635 962. An answering machine is attached to this phone for after-hours calls. Reports can be emailed to APLC at [aplc@agriculture.gov.au](mailto:aplc@agriculture.gov.au) or sent through the website at <http://www.agriculture.gov.au/aplc>.**

## Glossary of locust terms and density categories used in the Locust Bulletin

### Locust biology and behaviour

Term	Definition
adult	A fully winged, mature locust capable of breeding and migrating
band	Dense aggregation of nymphs, usually moving forward together
diapause	Period of dormancy induced in anticipation of unfavourable environmental conditions
egg bed	An area of soil containing many egg pods (hundreds per square metre)
fledge	Final nymphal moult to a soft-bodied adult incapable of long-distance flight
instar	Discrete stages of nymphal development each separated by a moult
laying	Female locusts depositing clutches of 20-60 eggs into the ground in froth-lined egg pods
nymph	Juvenile wingless locust. Often referred to as the hopper stage
swarm	Dense aggregation of adults, milling at the same spot or flying closely together

### Locust density categories

Where higher densities occur, a large proportion of the regional population is concentrated in very small areas with lower densities elsewhere, so the higher densities cannot be extrapolated over the area of an entire region. A range of density classes is usually found within a surveyed region.

Nymph Densities	Number per m <sup>2</sup>		
Present	1	-	5
Numerous	6	-	30
Sub-band	31	-	80
Band		>	80

Adult Densities	Number per m <sup>2</sup>		Number per hectare
Isolated	-	0.02	< 200
Scattered	0.03	- 0.1	>200 – 1000
Numerous	0.2	- 0.5	>1000 – 5000
Concentration	0.6	- 3.0	>5000 – 30,000
Low Density Swarm	4.0	- 10	>30,000 – 100,000
Medium Density Swarm	11	- 50	>100,000 – 500,000
High Density Swarm	>	50	>500,000

General density classes	Nymph densities	Adult densities
very low, occasional	Nil-Present	Nil-Isolated
low	Present	Isolated-Scattered
medium	Numerous-Sub-band	Scattered-Numerous
high	Bands	Concentration-Swarms

### Reporting locust infestations

It is important that all locust activity is reported as soon as possible to your nearest state agriculture agency office or to the Australian Plague Locust Commission.

State	Authority for reporting locusts
New South Wales	Local Land Services (LLS) or Department of Primary Industries
Queensland	Biosecurity Queensland, Department of Agriculture and Fisheries
South Australia	Biosecurity SA, Primary Industries & Regions South Australia (PIRSA)
Victoria	Biosecurity Agriculture, Department of Economic Development, Jobs, Transport and Resources

Reports to the **Australian Plague Locust Commission** can be made by:

Free call (Canberra):	1800 635 962 (24 hours)
Fax (Canberra):	(02) 6272 5074
Email:	<a href="mailto:apl@agriculture.gov.au">apl@agriculture.gov.au</a>
Website:	<a href="http://www.agriculture.gov.au/aplc">http://www.agriculture.gov.au/aplc</a>