

# Locust Bulletin

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## GENERAL SITUATION IN MARCH AND OUTLOOK TO SPRING 2018

### Australian plague locust

### *Chortoicetes terminifera*

The locust population level has remained low over most of its range in eastern Australia throughout the 2017-18 season. Only sporadic low density breeding occurred in most regions, maintaining the overall low population densities. Most areas that received rainfall during summer dried out rapidly and prolonged high temperatures are likely to have caused increased mortality of nymphs and adults. Surveys during March recorded low numbers of adults and occasional nymphs in the Central West, Central Highlands and South Central regions of Queensland. Only occasional adults were recorded in most areas of the Riverina, Far Southwest and southern Central West regions of New South Wales.

In New South Wales, surveys of the Far Southwest, Riverina and Central West regions in mid-March identified only occasional low density adults in most areas. Medium–high density adults and occasional late instar nymphs persisted in a small area of residual green habitat in the Lake Cargelligo area of the southern Central West.

In Queensland, surveys of the Central West, South Central, Central Highlands and parts of the Northwest regions identified occasional adults in most areas. Low density adults and mid-instar nymphs were identified in the South Central region in mid-March, indicating some breeding occurred in early February. Heavy rainfall in early March across most regions produced favourable habitat. Further storm rains and flooding of inland rivers will maintain green vegetation throughout autumn and early winter.

In South Australia, survey of the Northeast and Murray Valley regions identified only occasional adults. Habitat conditions are very dry in most regions and, based on previous surveys, locust population numbers are likely to have remained very low in other areas.

Surveys in Victoria in mid-March identified low density adults in the Boort–Ouyen area, but very few locusts were recorded elsewhere in the Northwest or North Central regions.

The outlook for the remainder of autumn is for population densities to remain low in most regions of inland eastern Australia. Widespread heavy rainfall in Queensland during March produced favourable habitat conditions for locust breeding, and sporadic egg laying could continue during April and May. Aggregation and high density egg laying is unlikely, given the current very low adult numbers. However, some low density nymphs could develop during late autumn and winter in Southwest, Northwest or Central West Queensland, and diapause eggs could produce localised low density nymphs in early spring. A large population increase is unlikely this late in the locust season. The majority of eggs laid in NSW, Victoria and equivalent latitudes in South Australia during March and April will enter diapause and not hatch until spring. There is a very low risk of swarms affecting any agricultural region during the remainder of autumn. There is a low risk of high density nymph infestations developing in any region during spring.

5 April 2018

## **Spur-throated locust**

## ***Austracris guttulosa***

There is a widespread low density population of this species in inland Queensland. Surveys in March recorded Isolated–Scattered density adults throughout Central West Queensland and surveyed areas of Northwest, South Central and the Darling Downs regions. Low density nymphs at various development stages were detected in Richmond and Flinders shires in northern Central West Queensland. Previous surveys recorded low density nymphs at numerous locations south of Emerald in the Central Highlands, but no nymphs were detected in March. Only Isolated adults were identified in most areas of the Central Highlands, except in the Arcadia Valley where Scattered–Numerous densities were recorded.

Heavy rainfall events in the Central West, Northwest, Queensland Gulf and South Central regions of Queensland maintained favourable habitat for continued egg laying and nymph survival. However, previously recorded adult densities were low in most areas, so high numbers of nymphs are unlikely to develop in any region. Dry conditions during February are likely to have increased nymph mortality in parts of Northwest, Southwest and Central West Queensland before the widespread rainfall in early March.

Fledging of nymphs will continue during April, with the possibility of a late cohort in the Queensland Gulf Central West and Northwest regions that would fledge in May. Young adults are replacing the current breeding population, but large population increases are unlikely. The likelihood of an overall population increase in 2018 compared to 2017 has declined.

## **Migratory locust**

## ***Locusta migratoria***

A low density population persisted in the southern Central Highlands and northern South Central regions of Queensland throughout summer and low numbers were recorded in the same areas during March. Surveys identified Isolated density adults in areas south of Emerald in Central Highlands Regional Council (RC) area and occasional adults in Banana Shire and the Maranoa and Western Downs RC areas. This species is common in these regions and rapid population increases are possible in favourable habitat. Gregarious populations can develop at local scales and are often associated with forage or cereal cropping.

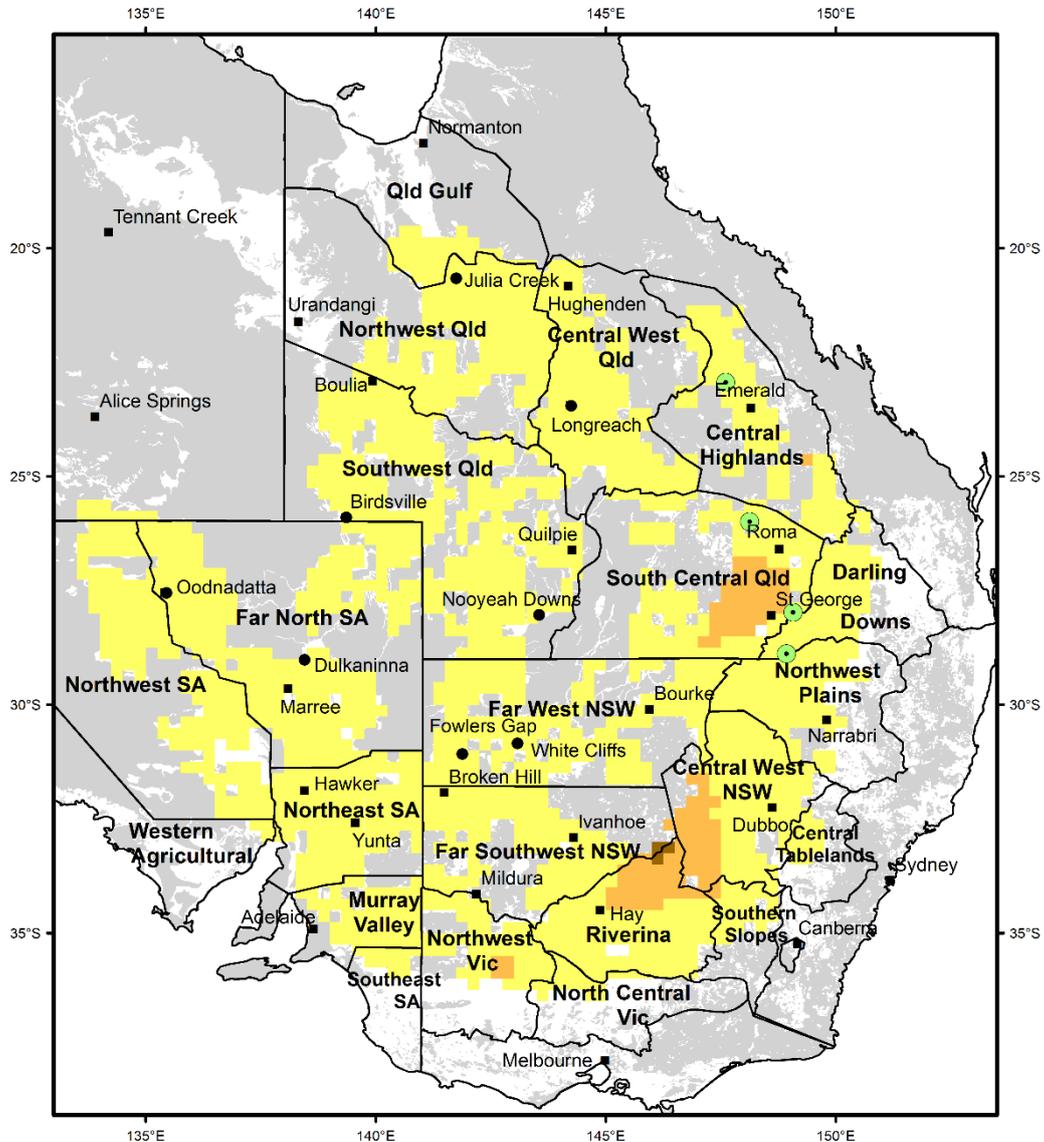
Rainfall during March in the Central West, Central Highlands and South Central regions of Queensland during March has maintained favourable soil and vegetation conditions for continued breeding. An increase in overall population level is possible during autumn. Small gregarious populations could develop in localised areas during 2018. However, there is a low risk of a widespread infestation developing during late autumn or winter.

**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 [aplc@agriculture.gov.au](mailto:aplc@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 31 March 2018



Densities estimated for areas of locust habitat, based on surveys and reports from current and previous month

Reference: unprojected geographical

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

**Australian plague locust****(*Chortoicetes terminifera*)****SITUATION IN MARCH AND FORECAST TO SPRING 2018****NEW SOUTH WALES****CENTRAL WEST and NORTHWEST PLAINS****Central West, Northwest and Central Tablelands Local Land Services****Locusts and conditions**

- The localised medium density population identified in the Lake Cargelligo area in February persisted during March. Elsewhere in the Central West Local Land Services (LLS) area, only low numbers of adults were recorded at low densities. There were no reports.
- Limited survey in the Mungindi area of Northwest LLS in early March identified Isolated density adults.
- Surveys of the southern Central West LLS in mid-March identified Isolated–Scattered density adults in the Tullamore–Condobolin and Lake Cargelligo–Hillston areas. Numerous and Concentration density adults and occasional late instar nymphs were still present at the same location north of Lake Cargelligo identified in February. This was the result of continued fledging and local redistribution to remaining green vegetation patches. Samples showed only a small proportion of females with developed eggs.
- There was light–moderate rainfall (<20-40 mm) in the Northwest and Central Tablelands LLS areas during the first week of March. Pasture vegetation is becoming dry in most areas.

**Forecast**

- Habitat conditions continued to dry out in most areas during March and there were few locust breeding opportunities. Densities are likely to remain low in these regions during autumn. As a consequence there is unlikely to be any high density nymphs developing during spring.
- The majority of any eggs laid during March and April will enter diapause and not hatch until early spring. Hatching will commence in early September in the Northwest and mid-September in the Central West.
- There is a low probability of a large population increase during autumn or spring.
- There is a low probability of immigration from other regions during autumn or early spring.

**Risks**

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

**RIVERINA****Riverina and Murray Local Land Services****Locusts and conditions**

- The locust population remained at low densities during March. There were no reports.
- Surveys in mid-March identified only occasional adults in most areas of the Riverina and Isolated–Scattered density adults in the Hillston area. No nymphs were detected.
- There was light rainfall (<20 mm) in the parts of Murray LLS area during the last week of March. Pasture grasses are dry in most areas.

**Forecast**

- Given the generally dry habitat conditions and current low population level, locust numbers are likely to remain low during the remainder of autumn. As a consequence, high density nymphs are unlikely to develop during spring.
- The majority of any eggs laid during March and April will enter diapause and not complete development until spring. Autumn breeding could result in localised low density nymphs developing during spring. Hatching will commence in late September in the north of the region and early October in southern areas.
- There is a low probability of immigration from other regions during the remainder of autumn.

**Risks**

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

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

- The locust population level remained low in surveyed areas during March.
- The Far Southwest region was surveyed in mid-March. Only occasional adults were identified in the Broken Hill, Menindee, Wentworth, Balranald and Ivanhoe districts.
- The Fowlers Gap and White Cliffs light traps recorded no locusts during March.
- There was localised light–moderate rainfall (<20-40 mm) in the White Cliffs–Tibooburra area during 21-28 March. Pasture vegetation is dry in most other areas.

**Forecast**

- Habitat conditions remained dry in most areas during March, which limited breeding opportunities and may have increased the mortality rate of any nymphs. The probability of a significant nymph population developing during spring is therefore low.
- Rainfall in late March in the Far West could have initiated localised, low density breeding in the White Cliffs area, but given the very low adult numbers, only low density nymphs are likely to result in spring. Hatching will commence in early September in the Far West and mid-September in the Far Southwest region.
- The majority of any eggs laid during March or April will enter diapause and not hatch until spring.
- There is a low probability of any immigration from other regions during autumn.

**Risks**

- There is a low risk of widespread regional infestations developing during autumn or 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****Barcoo, Bulloo, Quilpie and Diamantina Shire****Locusts and conditions**

- The locust population level is likely to have remained generally low during March.
- No survey was conducted and there were no reports.
- Sequences of high temperature (>40° C) days during January and February are likely to have resulted in increased mortality rates. The return to average temperatures in March may have allowed some successful low density breeding.
- The Birdsville and Nooyeah Downs light traps did not record any locusts during March.
- There was widespread moderate–heavy rainfall (20->40 mm) during the first week of March and further localised light–moderate falls during the second and last weeks of the month. This produced widespread favourable habitat conditions and floodwaters passing down major rivers will result in a further vegetation response during May and winter.

**Forecast**

- Habitat conditions are suitable for egg laying in many areas. This could result in some late-season locust breeding in April or May. However, the low population densities previously recorded suggest only sporadic egg-laying is likely. A proportion of eggs will enter diapause and hatch in early spring, but low density nymphs could develop in some areas during April–June.
- As floodwaters along the major river systems recede, localised favourable vegetation and soil conditions will be maintained during May and June. However, significant breeding would be unusual at that time of year in this region and there is a low probability of a large population increase during the remainder of autumn.
- There is a low probability of immigration from other regions during autumn.

**Risks**

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

**CENTRAL WEST & NORTHWEST****Longreach, Barcaldine and Blackall-Tambo Regional Council. Boulia, Cloncurry, Flinders, McKinlay, Mt Isa, Richmond and Winton Shire****Locusts and conditions**

- The locust population level remained very low during March. There were no reports.
- Survey in mid-March identified isolated density adults in the Longreach, Barcaldine and Blackall-Tambo Regional Council (RC) areas, and very few adults in Winton, Richmond or Flinders shires. Despite favourable habitat conditions during February and March, no nymphs were detected.
- The Longreach light trap recorded no locusts during March.
- There was widespread heavy rainfall (>40 mm) in the Central West and Northwest regions during the first week of March, with totals >200 mm in some northern shires. There were further moderate–heavy falls (20->40 mm) in parts of the Northwest region during 8–14 March, and in the Central West and Northwest during 21–28 March. Perennial grasses will remain green in some areas throughout April and May.

**Forecast**

- Locust population levels are expected to remain generally low during autumn. However, habitat conditions became favourable for locust breeding in both regions in March. Some sporadic egg laying is possible during April and May, but only low density nymphs are likely to develop in late autumn. A proportion of any eggs laid in April will enter diapause and hatch in late winter, while some low density nymphs could develop during April–June.
- Very heavy rainfall in early and late March in the Tambo area will produce favourable habitat conditions throughout autumn and winter, and some aggregation of the regional adult population and localised breeding is possible. There is a low probability of high density nymphs developing during spring, but low–medium densities are possible in September.
- There is a low probability of any immigration from other regions during the remainder of autumn.

**Risks**

- There is a low risk of widespread regional infestations developing during autumn or spring.

**CENTRAL HIGHLANDS****Central Highlands and Isaac Regional Council****Locusts and conditions**

- Locust densities remained generally low during March. There were no reports.
- Survey in early March identified Isolated density adults in many habitat areas of Isaac and Central Highlands RC areas and in Banana Shire. Present density fifth instar nymphs were recorded at one location near Emerald, indicating some low density breeding occurred in January.
- Several other species were recorded, including *Oedaleus australis*, the eastern Oedaleus.
- There was moderate–heavy rainfall (20->40 mm) on the margins of the region during the first week of March, and light–moderate rainfall (<20-40 mm) during the last week. Perennial grasses are likely to remain green in some areas throughout autumn.

**Forecast**

- Favourable breeding habitat areas contracted during March, but vegetation remains green in some areas. Further localised, egg laying could occur during April, but is unlikely to produce more than low density nymphs. A proportion of any eggs laid during April will enter diapause and not hatch until late August. Only sporadic low density breeding is likely at this late stage in the season and there is a low probability of a significant spring nymph generation developing.
- There is a low probability of immigration from other regions during the remainder of autumn.

**Risks**

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

**SOUTH CENTRAL & DARLING DOWNS****Balonne, Murweh and Paroo Shire. Maranoa, Western Downs and Goondiwindi Regional Council****Locusts and conditions**

- The locust population level remained generally low during March.
- Surveys in early March identified occasional adults in Maranoa, Western Downs and Goondiwindi RC areas, with mid-instar nymphs detected at one location near Mitchell. Isolated–Scattered density adults and Present density mid-instar nymphs were recorded in Balonne Shire.
- There was widespread moderate–heavy rainfall (20->40 mm) during the first week of March. Pasture grasses remain green in many areas.

**Forecast**

- Locust population levels are likely to remain generally low during autumn and spring. Fledging of nymphs during March is likely to have maintained the low density regional adult population. However, heavy rains in March produced favourable habitat conditions for breeding and further sporadic egg laying was possible during the month.
- The majority of eggs laid during March or April will enter diapause and will hatch in late August or September.
- There is a low probability of immigration from other regions during the remainder of autumn.

**Risks**

- There is a low risk of a widespread regional infestation developing during autumn or 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 [apl@agriculture.gov.au](mailto:apl@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 population levels were very low in the Northeast region during March and are likely to have remained very low in other regions.
- Surveys in the Northeast region in mid-March recorded only occasional adults in the Hawker–Orroroo, Burra-Clare, Quorn–Gladstone and Yunta areas. No nymphs were detected.
- The Dulkaninna and Oodnadatta light traps recorded no locusts during March.
- There was localised moderate rainfall (20-40 mm) in the northern part of the Northwest region during 8–14 March. Pasture grasses are dry in most areas.

**Forecast**

- Locust numbers are likely to remain very low in these regions during autumn. The very low population level identified over recent months and continued dry habitats indicate that no significant breeding was possible during March, and no significant egg laying is likely during the remainder of autumn. Therefore, there is a low probability of any more than occasional low density nymphs developing during spring.
- The majority of any eggs laid during March and April will enter diapause and hatch during spring.
- There is a low probability of significant migrations into these regions during autumn.

**Risks**

- There is a low risk of widespread regional infestations developing in autumn or spring.

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

- Locust numbers are remained very low in these regions during March.
- Survey in the Murray Valley region in mid-March identified isolated density adults and no nymphs were detected.
- There was no significant rainfall in these regions during March and most locust habitat areas remain dry.

**Forecast**

- Given the very adult low numbers identified and the dry habitat conditions, locust population level will remain low during the remainder of autumn. No significant nymph population is likely to develop during spring.
- There is low probability of any significant immigration during the remainder of autumn.

**Risks**

- There is a low risk of an infestation developing during autumn or 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**

- The locust population level remained low in surveyed areas during March.
- Surveys in mid-March identified Isolated–Scattered density adults in the Boort–Ouyen area, but no locusts were recorded elsewhere in the Northwest or North Central regions.
- A report from Swifts Creek in Gippsland in early March indicates that a locust population persisted in that area throughout summer.
- There was light–moderate rainfall (<20–40 mm) in parts of North Central Victoria during the last week of March. Vegetation in locust habitats is becoming dry in other areas.

**Forecast**

- Given the low adult population level in most areas, autumn breeding is likely to be at low densities. The majority of eggs laid during March and April will enter diapause and remain dormant during winter. Hatching will commence in early October in the north of the state and mid-October in southern areas.
- There is a low probability of any immigration during the remainder of autumn.
- There is a low probability of a significant nymph population developing during spring.

**Risks**

- There is a low risk of a widespread infestation developing during autumn or 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 [apl@agriculture.gov.au](mailto:apl@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	Dormancy in autumn laid eggs avoiding winter environmental conditions
egg bed	An area of soil containing many egg pods (up to 1,000 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 and Agricultural Services, 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.gtestov.au">apl@agriculture.gtestov.au</a>
Website:	<a href="http://www.agriculture.gov.au/aplc">http://www.agriculture.gov.au/aplc</a>