

Locust Bulletin

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GENERAL SITUATION IN NOVEMBER AND OUTLOOK TO FEBRUARY 2018

Australian plague locust

Chortoicetes terminifera

Locust densities remained low in all surveyed regions during November. Despite rainfall producing more favourable habitat conditions in many areas, only low density adults and very few nymphs were identified during surveys. Locust numbers remained low in the Central West, Northwest Plains, Riverina and Far Southwest of New South Wales, South Central and Southwest Queensland, and in the Far North, Northeast and Northwest regions of South Australia. Some low density egg laying is likely to have occurred during late October and November, so moderate increases in population from a very low base level are likely during December and January.

In New South Wales, survey of the Central West and Northwest Plains recorded low density adults and only occasional nymphs. Survey of the Far Southwest and Riverina regions in late November identified low density adults in most areas, but localised medium density young adults and occasional nymphs were recorded in the Ivanhoe district.

Surveys in Southwest, Central West and Northwest Queensland identified very few adults and no nymphs were detected. Survey in South Central Queensland in mid-November identified more consistent low density adults.

In South Australia, surveys in mid-November identified only occasional adult locusts in the Far North, Northwest and Northeast regions.

Survey of Northwest Victoria in late November identified low density adults.

In Western Australia, fledging of spring generation nymphs produced medium density adults in several areas of the Central Agricultural Region.

The outlook for summer is for population densities to remain generally low in all regions of inland eastern Australia. Localised breeding is likely to occur in habitat areas that receive heavy rainfall in December and this will result in small regional population increases. Breeding is likely to continue during summer and autumn, but given the current very low population densities there is a low risk of widespread regional infestations developing during summer, and a very low risk of swarms affecting agricultural regions across several states in autumn. The probability of a late summer or autumn nymph generation, which could result in localised dense infestations, will depend on the development of nymphs during December. Seasonal rainfall forecast models suggest an average rainfall expectation over coming months and a sequence of rainfall events during summer could result in significant population increases in autumn.

1 December 2017

Spur-throated locust***Austracris guttulosa***

There is a widespread low density population of adults in inland Queensland, with medium densities in Northwest and Central West regions. Surveys in November identified consistent Isolated–Scattered density adults in Southwest and South Central Queensland. Scattered–Numerous density adults were identified in the Richmond, McKinlay and Flinders Shires. Samples showed females were developing eggs. Occasional adults were recorded in the Far North and Northwest regions of South Australia and in Far West New South Wales.

Migrations and local swarm movements of over-wintered adults often occur during spring and early summer. The Central Highlands has not been surveyed since September, when only low density adults were recorded, and adult densities are likely to have increased as a result of redistribution and aggregation. Rainfall in recent months, particularly in the Queensland Central West, Central Highlands and South Central regions, created favourable habitat conditions for the commencement of breeding. Nymphs are likely to develop in several regions of Queensland during December. Females can lay multiple times during summer, usually following significant rainfall. Nymphs of this species do not usually aggregate to form cohesive bands, but can reach densities of 30/m² in favourable habitats.

There is a low risk of swarms developing in or migrating to agricultural regions during summer. The likelihood of an overall population increase during 2017-18 will depend on the frequency and persistence of rainfall during the northern wet season.

Migratory locust***Locusta migratoria***

Low numbers of this species were identified at one location near Taroom in South Central Queensland during November. Previous surveys in the Central Highlands identified low number of adults at several locations south of Emerald. Populations of this species are commonly found in these regions and rapid population increases are possible in favourable habitat. Gregarious populations can occur at local scales and are often associated with forage or cereal cropping.

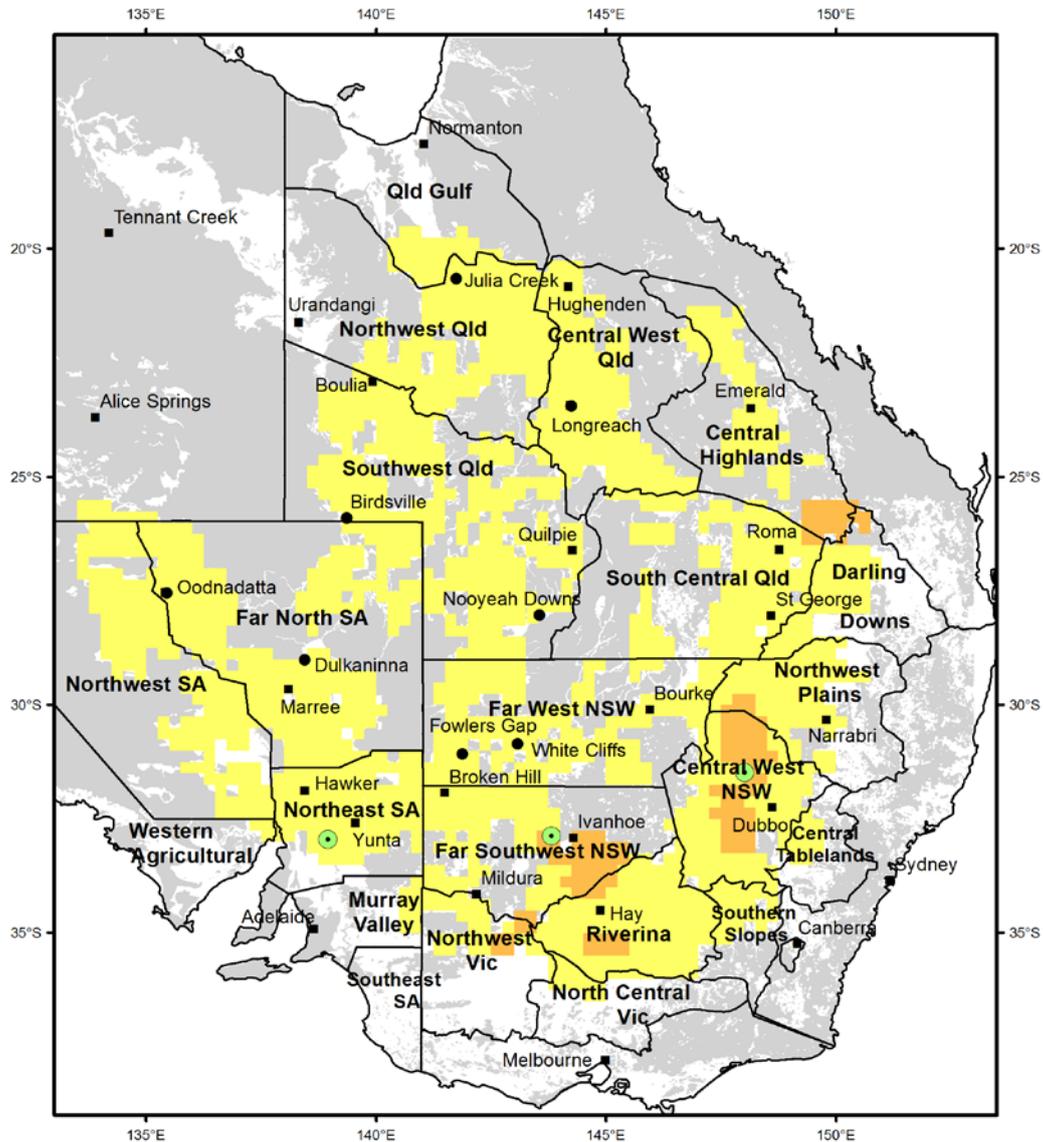
The heavy rainfall in the Central Highlands and South Central regions of Queensland over recent months produced suitable soil and vegetation conditions for breeding. Small gregarious populations could develop in localised areas of these regions during 2017-18. However, there is currently a low risk of a widespread infestation developing during summer.

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 or made through the website at <http://www.agriculture.gov.au/aplc>

Locust distribution map – *Chortoicetes terminifera*

Australian Plague Locust Distribution

1 November to 30 November 2017



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

Reference: unprojected geographical

nymph density (/m ²)		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 NOVEMBER AND FORECAST TO FEBRUARY 2018****NEW SOUTH WALES****CENTRAL WEST and NORTHWEST PLAINS****Central West, Northwest and Central Tablelands Local Land Services****Locusts and conditions**

- The locust population remained at low densities during November.
- Survey of the Central West and Northwest Local Land Services (LLS) areas in mid-November identified only occasional Isolated density adults in most areas. Isolated–Scattered densities were recorded in the Narromine–Collie and Quambone districts. Present density mid-instar nymphs were detected at one location near Warren.
- Survey of the southern Central West LLS area in late November identified Isolated–Scattered density adults in the Narromine–Tullamore area and Isolated density adults in the Condobolin district.
- There was light–moderate rainfall (<20–40 mm) in eastern areas of Northwest LLS during the first week of November, and widespread moderate rainfall (20–40 mm) throughout both regions during 15–21 November. There was heavy storm rainfall (>40 mm) in the Condobolin district during the last week of November. Pasture vegetation condition were variable, with a green response mostly in eastern districts.

Forecast

- No significant breeding is likely to have occurred during November because of the very low spring population level. Sporadic egg laying is likely during December, which will produce a summer nymph generation. Nymphs are likely to develop at Present–Numerous densities, resulting in a moderate increase in adult numbers to Numerous density is during January.
- The likelihood of a large population increase in autumn as a result of a further generation developing in late summer will be primarily influenced by the distribution of rainfall during December. Heavy rainfall forecast for the start of December will maintain suitable habitat conditions for nymph survival.
- There is a low probability of significant immigration from other regions during summer.

Risks

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

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

- The locust population level remained low in the areas surveyed during November.
- Surveys in late November identified Isolated–Scattered density adults on the Hillston, Hay and Deniliquin districts. Only occasional Isolated density adults were recorded in other areas.
- There was a report of low numbers of nymphs in the Deniliquin area in mid-November.
- There was light–moderate rainfall (<20–40 mm) in the eastern Riverina during the first and last weeks of November, followed by widespread, but patchy, moderate rainfall throughout the region during 15–21 November.

Forecast

- Improved habitat conditions in the eastern Riverina and Murray LLS areas could have initiated some sporadic low density breeding during November. Further low density egg laying is likely during December. Given the current low adult population level, nymphs are likely to develop at low densities from late December. Heavy rainfall forecast for the start of December will maintain suitable habitat conditions for nymph survival.

- Localised breeding is likely to result in a moderate population increase during December and January from the very low background numbers recorded in spring.
- There is a low probability of significant immigration from other regions during summer.

Risks

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

FAR WEST and FAR SOUTHWEST

Western Local Land Services

Locusts and conditions

- No surveys were conducted in the Far West region during November and there were no reports of locust activity.
- Survey in the Far Southwest region in late November identified Isolated–Scattered density adults and low density mid-instar nymphs in the Ivanhoe and Hillston areas. Following a report, Numerous density young adults were recorded in one small area near Ivanhoe. Only occasional adults were identified in other areas.
- The Fowlers Gap and White Cliffs light traps recorded no locusts during November.
- There was moderate–heavy (20->40 mm) storm rainfall in the Wentworth–Balranald district of the Far Southwest during 15–21 November. Pasture vegetation is drying out in most other areas of the Far West and Far Southwest regions.

Forecast

- Improved habitat conditions in the Far Southwest region could have initiated some localised breeding that would produce nymphs during December. Given the very low background population level, this is unlikely to result in a significant adult population increase in January.
- The likelihood of a large population increase as a result of a further generation developing in late summer will be primarily influenced by the distribution of rainfall during December. Without at least moderate rainfall, dry habitat conditions will limit breeding and increase the rate of nymph mortality.
- There is a low probability of any significant immigration from other regions during summer.

Risks

- There is a low risk of a widespread regional infestations developing during summer.

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 aplc@agriculture.gov.au or sent through the web page at <http://www.agriculture.gov.au/aplc>

QUEENSLAND

SOUTHWEST**Barcoo, Bulloo, Quilpie and Diamantina Shire****Locusts and conditions**

- The locust population level remained very low during November. There were no reports of locust activity.
- Diamantina, Barcoo and Boulia Shire were surveyed in early November. Very few adult locusts were recorded and no nymphs were detected.
- The Birdsville and Nooieah Downs light traps did not record any locusts during November.
- There was localised light–moderate rainfall (<20-40 mm) in parts of Diamantina, Quilpie and Barcoo Shires during 15–21 November. Pasture vegetation has become dry in most areas.

Forecast

- Habitat conditions deteriorated during November as there were no major heavy rains to initiate breeding. Given the very low population densities recorded, any breeding during December is likely to produce low density nymphs during December and January.
- Breeding opportunities resulting from rainfall during December will influence the likelihood of any significant further generation developing in late summer.
- There is a low probability of immigration from other regions during December or January.

Risks

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

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 in areas surveyed during November. There were no reports.
- Surveys of Winton, McKinlay and Richmond Shires of the Northwest region, and of Flinders Shire and the Longreach and Barcaldine Regional Council (RC) areas identified very few adults and no nymphs were detected.
- The Longreach light trap recorded no locusts during November.
- There was moderate–heavy localised storm rainfall (20->40 mm) in Winton Shire and Longreach RC area during 8–14 November. There was further moderate–heavy storm rainfall in Barcaldine, Longreach Blackall-Tambo and Barcaldine RC areas during 15–21 November, and in parts of Fitzroy and Richmond Shires in the last week of the month.

Forecast

- Locust population levels are expected to remain generally low in these regions during summer.
- Rainfall during November produced suitable habitat conditions for localised breeding. Nymphs could develop in some areas from early December and would fledge in January.
- Given the current low adult population densities, breeding during December is only likely to produce low–medium density nymphs. Fledging of nymphs is likely to contribute to a moderate adult population increase in January.
- There is a low probability of any immigration from other regions during summer.

Risks

- There is a low risk of a widespread regional infestations developing during summer.

CENTRAL HIGHLANDS

Central Highlands and Isaac Regional Council

Locusts and conditions

- Locust population density is expected to have remained generally low during November. There were no reports.
- Limited survey of the Taroom area in mid-November identified Isolated density adults.
- There was light–moderate (<20-40 mm) throughout the region during 15–21 November. Vegetation conditions are variable, with some areas of the Central Highlands RC area and Banana Shire remaining green.

Forecast

- Rainfall in mid-November created suitable soil and vegetation conditions for locust breeding, particularly in Central Highlands RC area and in Banana Shire.
- Locust population levels are likely to remain generally low during December and January. However, localised breeding in previous months could have produced nymphs in some areas. Fledging during December and January could result in localised increases in population to Scattered–Numerous densities.
- Rainfall distribution during December will influence the likelihood of further breeding and population increase during summer.
- There is a low probability of immigration from other regions during summer.

Risks

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

SOUTH CENTRAL & DARLING DOWNS

Balonne, Murweh and Paroo Shire. Maranoa, Western Downs and Goondiwindi Regional Council

Locusts and conditions

- Locust population levels remained generally low in surveyed areas during November. There were no reports of locust activity.
- Surveys in Balonne Shire and the Maranoa, Western Downs, and Goondiwindi Regional RC areas in mid-November identified Isolated density adults in most areas. No nymphs were detected.
- There was moderate–heavy (20->40 mm) rainfall in the Western Downs, Maranoa and Goondiwindi Regional Council (RC) areas, and in Murweh Shire during 15–21 November. Pasture vegetation is green in many areas.

Forecast

- Locust population levels are likely to remain generally low during December and January. However, localised breeding in response to the heavy rainfall in November could produce Present–Numerous density nymphs in some areas from mid-December. Fledging during January could result in localised increases in adult numbers to Numerous density.
- There is a low probability of significant immigration from other regions during summer.

Risks

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

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 or sent through the website at <http://www.agriculture.gov.au/aplc>.

SOUTH AUSTRALIA

FAR NORTH, NORTHEAST, NORTHWEST & WESTERN AGRICULTURAL REGION**Locusts and conditions**

- Locust population levels remained very low in these regions during November, despite favourable vegetation conditions persisting in parts of the Far North and Northwest regions.
- No locusts were detected during survey of the Cordillo Downs area in the Far North region in early November. Surveys of the Northeast, Far North and Northwest regions in mid-November recorded very few adult locusts. Present density late instar nymphs were detected at one location near Yongala.
- Surveys indicate there was been no significant spring generation or breeding in the Oodnadatta area, despite several heavy rainfall events.
- The Dulkaninna and Oodnadatta light traps recorded no locusts during November.
- There was moderate–heavy storm rainfall (20–>40 mm) in parts of the Northwest region during 8–14 November, and in the Far North during 15–21 November. There was moderate rainfall (20–40 mm) in the Northeast and Western Agricultural regions during the last week of November. Ground vegetation remained green in the Oodnadatta–Coober Pedy area during November.

Forecast

- The population level is likely to remain generally low in these regions during summer. The very low population level identified during spring and the absence of higher densities in other states limits the possibility of significant breeding or immigration. However, higher population numbers are possible in the western areas of the state and migrations could contribute to the summer breeding population in the Northwest and Far North regions in January.
- Some limited low density breeding was possible in areas that received moderate rainfall during November. Only low density nymphs are likely to develop during December.
- There is a low probability of significant migrations into these regions during summer.

Risks

- There is a low risk of widespread regional infestations developing in summer.

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

- Locust densities are expected to have remained low. No APLC surveys were conducted and there have been no reports.
- There was widespread moderate–heavy (20–>40 mm) in these regions during 15–21 November.

Forecast

- Locust population levels are likely to remain low during summer.
- There is low probability of any significant immigration during summer.

Risks

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

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 or sent through the website at <http://www.agriculture.gov.au/aplc>.

VICTORIA

NORTHWEST & NORTH CENTRAL VICTORIA**Locusts and conditions**

- Locust population levels remained low in Victoria during November.
- APLC survey in the Northwest region in late November identified Isolated–Scattered density adults in the Piangil–Ouyen area, but no locusts were detected in the Swan Hill–Kerang area.
- There were unconfirmed reports of nymphs from landholders in northern Victoria in late November.
- There was widespread moderate–heavy rainfall (20–>40 mm) throughout these regions during 15–21 November.

Forecast

- Habitat conditions are now favourable for locust breeding in Northwest and North Central Victoria. Any egg laying after the rainfall in mid-November would produce mostly low density nymphs from mid-December. Fledging of nymphs during January could result in a moderate increase in adult numbers to Scattered–Numerous densities.
- There is a low probability of any significant immigration during summer.

Risks

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

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 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 in anticipation of unfavourable 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 ²		
Present	1	-	5
Numerous	6	-	30
Sub-band	31	-	80
Band		>	80

Adult Densities	Number per m ²		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:	apl@agriculture.gov.au
Website:	http://www.agriculture.gov.au/aplc