

Locust Bulletin

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GENERAL SITUATION IN DECEMBER AND OUTLOOK TO MARCH 2021

Australian plague locust

Chortoicetes terminifera

The locust population remained at a low to medium level over most of inland eastern Australia, with some higher densities regularly detected in various parts of New South Wales and Queensland. Populations were geographically fragmented and often transient, with many exhibiting overlapping life-stages. Surveys in December identified swarms in the Riverina of New South Wales, and Southwest and South Central Queensland. Localised bands were detected in the Far Southwest of New South Wales while occasional nymphs were observed or reported across several locations in New South Wales and Queensland where consistent low to medium numbers of adults were detected by surveys. Frequent short-distance redistributions were evident in Queensland and New South Wales, but no suitable weather systems occurred to facilitate any long-range migrations. No surveys were conducted in either Victoria or South Australia, and no reports were received, but locust populations are expected to have remained at generally low levels in both States based on previous population sizes and December rainfall.

December rainfall was generally about average across much of inland eastern Australia, but above average was recorded in the north-eastern areas and a little below average in the southwest. Temperatures exhibited a similar pattern, where inland Queensland was about 1–2 degrees higher than average while the southwest was slightly below average. Localised moderate-heavy rainfall (>25 mm) was received in Miles and Moonie (3/12), Adavale and the Goondiwindi-Moree-Armidale areas (4/12), Isisford, Jundah, and Emmet (12/12), Swan Hill (17/12), Clermont and Emerald (19/12), Jundah, and the Hungenden-Winton areas (26/12), plus widespread light-heavy rainfall (10-100 mm) across much of the inland during 21-22 December. The La Niña event is likely to have peaked at a moderate level, but above average rainfall and temperatures are still expected in much of inland eastern Australia during the remainder of summer.

In New South Wales, the nymphal populations of the summer generation identified were much lower than expected from previously observed large and dense swarms despite intensive effort. Only one Low-Density Swarm was identified in the Lake Cargelligo district while consistent Isolated to Numerous-density adults were identified in the Far Southwest and adjacent north-western areas of the Riverina, with localised Present to Band-density nymphs in the Darnick district. These nymphs would have hatched from eggs laid in late November. Aerial surveys were conducted with ground verification during 07-10 December but did not confirm any significant bands in the Central West and Far Southwest regions. Frequent tropical troughs penetrated the interior of New South Wales and encouraged short-distance redistributions of adult locusts.

In Queensland, Isolated to Numerous-density adults were detected in surveys of South Central, Central West and Southwest with Concentration to Medium-Density Swarms of adults in the Cunnamulla, Windorah and Augathella districts. Only a few nymphs were identified. Disturbed weathers may have redistributed and aggregated locust adults as there were sudden appearances and dis-appearances of adult locusts in the Roma-Goondiwindi-Dalby areas in early December.

The outlook for January is for increasing locust activity, with a high likelihood of further successful widespread breeding in Queensland and New South Wales but only limited to localised, sporadic breeding in other States. It is expected that more bands and swarms will develop from January onwards and result in a larger summer population with further multiplication potential in autumn.

There is a moderate likelihood of more widespread high-density populations and region-wide infestations developing during summer and early autumn.

8 January 2021

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

Surveys in early and mid-December only detected low occurrences of Isolated–Numerous densities of adults in the South Central and Central West Queensland and only Present density nymphs in the Longreach district.

The above average rainfall and temperatures in much of the Queensland interior in December may have initiated some localised sporadic breeding. Seasonal breeding appears to be delayed by the later rainfall but low-density nymphs are still likely to appear in much of Queensland with some localised medium to high-density populations expected to occur in the Central Highlands region. Only limited breeding is likely in New South Wales and South Australia based on their very low background populations.

There is only a low risk of a widespread infestation, but the possibility exists for a region-wide infestation in subtropical Queensland developing during the remainder of summer and early autumn.

Migratory locust***Locusta migratoria***

Surveys in December did not detect any migratory locust, but the locust habitat conditions in the Central Highlands of Queensland remained reasonably favourable and recently improved further. Under the influence of the current La Niña event, localised breeding is likely to produce some low to medium density populations. High-density gregarisation is unlikely to result from the current very low background level.

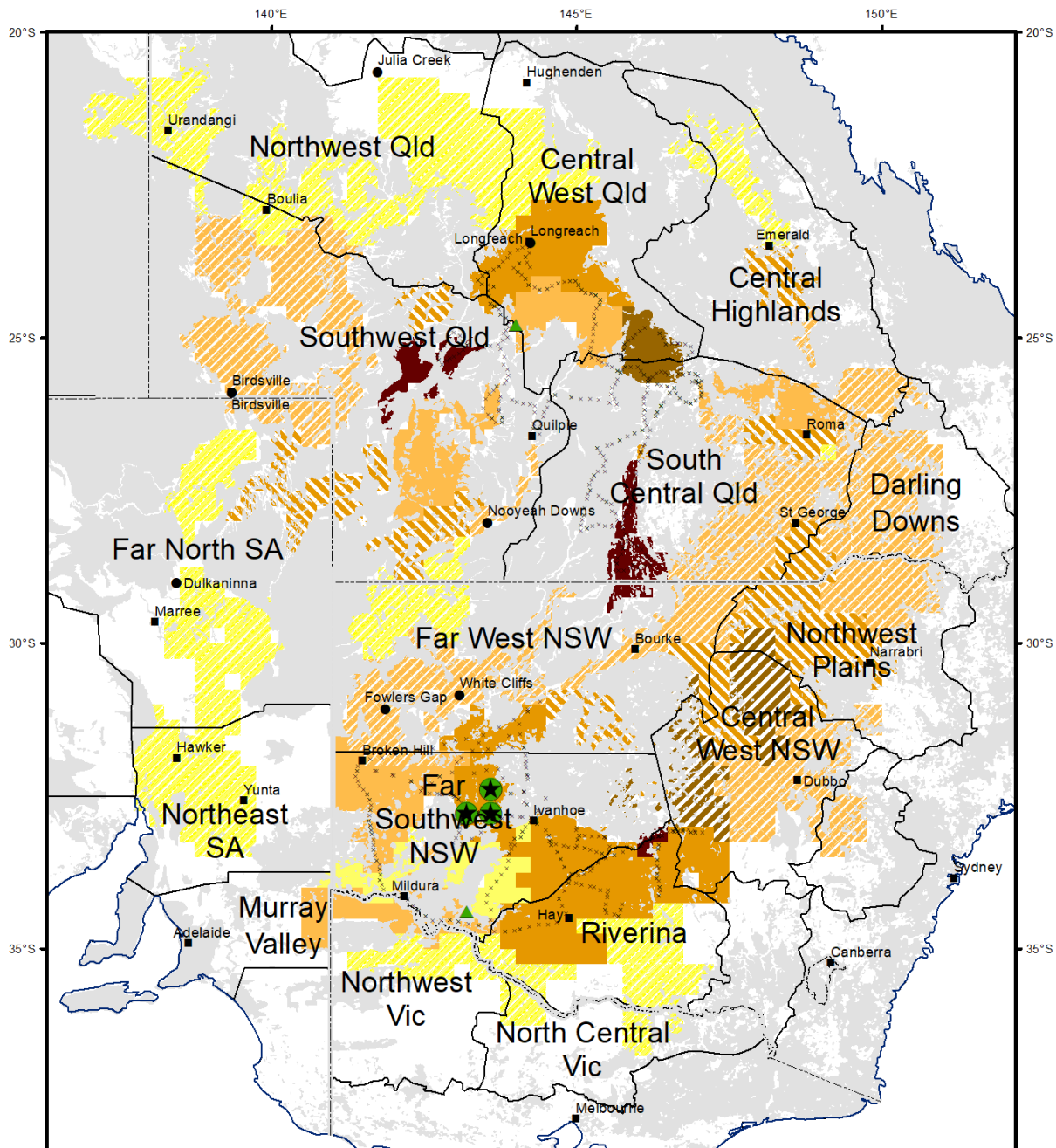
There is a very low risk of a widespread infestation developing during the remainder of summer and early autumn.

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

07 - 28 Dec 2020



Locust Habitat: Grey - unsuitable

Adult densities mapped in solid colour are based on actual surveys and observations during the month.
 Adult densities mapped in hatched colour are estimated based on previous observations and forecasts.

x: Location of ground survey conducted

Reference: unprojected geographical

Nymph Deisity (/m)		Adult Density (/ha)	
▲ Present <5	▲ Numerous 5-30	● nil-Isolated <200	■ Isolated-Scattered 200-1000
● Sub-band 30-80	● Band 80-500	■ Scat-Numerous 1000-5000	■ Num-Concentration 5000-30,000
● Dense Band >500	● APLC light trap	■ Swarms present >30,000	

Australian plague locust**(*Chortoicetes terminifera*)****SITUATION IN SEPTEMBER AND FORECAST TO DECEMBER 2020****NEW SOUTH WALES****CENTRAL WEST and NORTHWEST PLAINS****Central West and Northwest Local Land Services****Locusts and conditions**

- Ground surveys were conducted in mid-December in the Gunebang-Condobolin areas with Isolated to Low-Numerous density adults identified.
- Aerial surveys on 7 December over the Girilambone, Nyngan and Tootenham districts did not identify any bands.
- LLS officers and former APLC staff confirmed locust adult activities mainly in the Goondiwindi-Mungindi-Bingara and the Coonamble areas, and second instar bands in Warialda on 10 December and in Boggabilla on 29 December.
- This region received above average rainfall (25-300mm) in December from several rainfall events, its eastern areas received very much above average (more than double amount). Deteriorated habitat conditions were significantly improved from the second half of December.

Forecast

- The likelihood of breeding is moderate to high associated with the improved habitat conditions. Localised Numerous to Band density nymphs are likely to continue developing into late-January and swarms can also be expected to form continuously.
- There is a low probability of any significant immigration during the remainder of summer but there could be some short-distance emigration to the southwest or west adjacent areas under suitable weather conditions.

Risks

- There is a moderate risk of a widespread regional infestations developing during the remainder of summer.

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

- Intensive surveys in December detected widespread Isolated to Low-Numerous density adults in the region, lower numbers than previously observed. Localised nymphs up to Band density were only identified in the Darnick district, with only a few detected or reported instances in other locations.
- Aerial surveys were conducted during 8-10 December in the north-eastern part of the Far Southwest and did not identify any bands worthy of aerial control.
- The light traps at Fowlers Gap and White Cliffs did not capture any locusts. Frequent disturbed weathers may have encouraged some short-distance redistributions within this region.
- The UNSW insect monitoring radar at Bourke airport remains non-operational pending upgrade.
- Apart from widespread light rainfall (<15 mm) in the south-eastern areas, major rainfall event occurred during 21-22 December, but with localised moderate-heavy rainfall (25-100 mm) in the Darnick and Borrona Downs-Bourke-Brewarrina areas. December rainfall was below or much below average across much of this region, especially in the south-western part.
- Except for the Menindee-Ivanhoe-Mildura areas, pasture vegetation had been drying off over most of this region. The habitat conditions were generally improved after the 21-22 December rainfall event.

Forecast

- Locust numbers are likely to remain stable or slightly increase with some localised high-density nymphs. Swarms are expected to appear over some localised breeding areas or aggregated by favourite winds.
- There is a moderate likelihood of migration activity, a high likelihood of redistribution within this region, plus some immigration from and emigration to adjacent regions.

Risks

- There is a moderate risk of a widespread infestation developing during the remainder of summer.

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

- Surveys in the north-western part of this region identified consistent Isolated to Numerous-density adults with higher numbers in the Lake Cargelligo and Hillston districts. Early hatchings of the summer generation were identified on the 1st December in the Lake Cargelligo area.
- Aerial surveys on 8 December between Hillston and Griffith did not identify any locust bands.
- The UNSW insect monitoring radar in Hay operates 24/7 but no significant locust movement was detected in December.
- The presence of spring generation nymphs and fledglings was confirmed by LLS officers in the south-eastern part of this region.
- There was only light rainfall (<15mm) in this region in December, pasture vegetation continued drying-off. With above average rainfall forecast for the remainder of summer, habitat conditions should become slightly more favourable for the locusts.

Forecast

- Locust numbers are likely to experience a small increase with the possibility of localised bands and swarms developing in the remainder of summer.
- There is a low to moderate probability of immigration from and possible emigration to adjacent regions.

Risks

- There is a moderate risk of a widespread infestation 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 AND NORTHWEST**Bulloo, Quilpie, Barcoo, Diamantina, Boulia, Winton, Cloncurry, McKinlay and Mt Isa Shires****Locusts and conditions**

- Surveys in mid-December identified Isolated to Low-Density Swarm adults in the Windorah-Quilpie areas with higher densities in the Windorah district (Windorah-Retreat). Sampled adults seemed to be young but with some fat accumulation commenced. Only Present density 3rd and 4th instars were detected.
- Light traps in Birdsville and Nooyeah Downs were not in operation.
- December rainfall was between 10-200 mm mainly in late December, with the larger amounts received in the north.
- Pasture vegetation continued to dry-off. However as more rainfall was recently received and further rain is forecast for the coming months, vegetation conditions should become more favourable for locust survival and breeding.

Forecast

- Locust numbers are likely to increase moderately during the remainder of summer, possibly from local and immigrated populations triggered by rainfall events to breed in favourable habitats to possibly result in localised bands and swarms.
- There is a moderate probability of some immigration from adjacent areas.

Risks

- There is a low risk of a substantial widespread infestation developing during the remainder of summer with a moderate probability of some localised infestations.

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

- Limited surveys conducted in mid-November identified only Isolated to Low-Numerous density adults in the Longreach and Blackall and Tambo Regional Council areas. No nymphs were detected.
- The Longreach light trap was not in operation.
- December rainfall ranged between 10 and up to 300 mm, with much above average in the northern half and below average in the Blackall and Tambo Regional Council area.
- Pasture vegetation remained reasonably good in the Longreach Regional Council area, and subsequent fresh growth is expected as more rain is forecast in the coming months.

Forecast

- Locust numbers are likely to increase moderately with possible localised higher densities from breeding and immigration.
- There is a moderate probability of redistribution and migration in summer.

Risks

- There is a low to moderate risk of a widespread infestation, with the development of some localised infestations possible in the remainder of summer.

CENTRAL HIGHLANDS, Darling Downs and SOUTH CENTRAL**Isaac, Central Highlands, Maranoa, Western Downs, and Goondiwindi Regional Councils; Balonne, Murweh and Paroo Shires****Locusts and conditions**

- Surveys were only conducted in South Central Queensland in December with consistent Isolated to Low-Numerous density adults identified and up to Concentration to Medium-Density Swarm numbers

between Wyandra and Cunnamulla. Additional Concentration density adults were identified in the Augathella-Charleville areas. No nymphs were detected by survey.

- Numerous reports received about the sudden appearance of adult locusts in early December in the Miles-Goondiwindi areas were confirmed by Queensland Biosecurity staff.
- December rainfall was irregular, from just above 10mm in the south-western areas to nearly 200 mm in the northern part. However, much of the region received slightly below or just about average rainfall. Moderate-Heavy (25-50mm) rainfall was received on the 3 December in the Chinchilla-Moonie areas with more widespread rains in late December.
- Pasture vegetation was drying off, but habitat conditions remained good in some localised areas and are expected to improve with later and above average rainfall forecast in remainder of summer.

Forecast

- The locust population is likely to increase at low to moderate level in the remainder of summer.
- Sporadic high-density breeding could occur in some areas after significant rainfall events.
- There is a low probability of any significant immigration but a moderate probability of emigration.

Risks

- There is a low risk of a widespread 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 apl@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**

- No surveys were conducted in this region in December.
- The Dulkaninna light-trap did not record any locusts in December.
- The Oodnadatta light trap was not in operation.
- There was no locust report from this region.
- Light-Heavy rainfall (up to 50mm) was received in the only widespread event on 21 December, but the total monthly rainfall was about average.
- Vegetation was mostly drying off in most areas but improved slightly recently. With average rainfall forecast in coming months, habitat conditions should continue to deteriorate further except for the north-eastern part of Channel Country.

Forecast

- The locust population is likely to remain at a low-level during the remainder of summer.
- Some sporadic low-density breeding is possible and could result in localised low to medium density nymphs.
- There is a low to moderate probability of some immigration from New South Wales and Victoria in summer.

Risks

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

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

- No surveys were conducted during this reporting period and no locust reports were received from this region.
- December rainfall was low and below average.
- Vegetation remained dry across much of this region. As above average rainfall forecast for coming months habitat conditions can be expected to improve slightly.

Forecast

- The locust population is likely to remain at very low densities but some localised low to medium density populations are possible from sporadic, localised breeding or immigration.
- There is a low probability of immigration during summer.

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

VICTORIA

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

- No surveys were conducted in Victoria, and no locust reports were received during December.
- December rainfall total was less than 50mm, with the only moderate-heavy rainfall (25-50 mm) recorded on the 17 December in the Echuca-Swan Hill areas.
- Habitats remained dry but some improvement is expected with average rainfall forecast.

Forecast

- Locust numbers are likely to remain at low levels or increase slightly in the remainder of summer.
- There is a low probability of any immigration from adjacent areas but emigration is possible.

Risks

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

Locust activity should be reported to the Agriculture Victoria Customer Service Centre on 136 186. Alternatively, you can make a report via our online form: <https://forms.bio.vic.gov.au/public-reporting>. Please include photos where possible.

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>.

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 ²	
Present	1	5
Numerous	6	30
Sub-band	31	80
Band	80	500
Dense Band	>	500

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