



# Locust Bulletin

## GENERAL SITUATION IN SEPTEMBER AND OUTLOOK TO MID-NOVEMBER 2009

### Australian plague locust

### *Chortoicetes terminifera*

A large infestation has developed in Central West New South Wales. In late September many mid-instar hopper bands were identified in the Coonamble area. Hatchings continued throughout September and there were also early instar nymphs in many locations at the end of the month. Landholders and Livestock Health and Pest Authority (LHPA) staff have commenced ground control of hopper bands in the Collie–Quambone, Coonamble–Baradine, and Nyngan–Tottenham areas of the Central West LHPA area. Bands are expected to develop in the Tullamore–Peak Hill area and the Parkes–Trundle area of Lachlan LHPA during October. Fledging of nymphs will begin from mid-October in the Coonamble area and swarm formation is likely in late October and November. Fledging will follow in November in the Parkes–Peak Hill area.

The outlook is for high density nymphs to continue to develop in the Coonamble–Baradine, Quambone–Warren, Nyngan–Tottenham and Tullamore–Peak Hill areas during October. Migration of young adults within Central West New South Wales and to other regions could occur during November and swarms are likely to form in some areas. Adults in the Central West in September developed from over-wintering nymphs, and there could be some egg laying during October. Breeding of adults from the bulk of the population, which are currently nymphs, could occur in November and December, but will be dependent on rainfall.

In far western New South Wales high density hatching occurred at Dalmorino from 9 September, but recent surveys indicate that dry conditions have resulted in some mortality of nymphs and have reduced the risk of a large infestation. Surveys in the Ivanhoe–Menindee area identified medium density second instar nymphs in several areas.

There were medium density locusts in the Blackall–Ipswich area of Central West Queensland and low density adults in the Southwest, South Central and Central Highlands regions during September. There is unlikely to be any significant population increase before November in Queensland.

Surveys detected very few locusts in northern South Australia during September and vegetation was very dry in the Far Northeast region. Rainfall in the Northeast, Northwest and Western Agricultural regions during September will provide suitable conditions for locust breeding and a small increase in population is possible.

No significant locust activity is likely in Victoria during spring, but some low density nymphs could develop in the Echuca and Tungamah areas. Vegetation conditions are suitable for nymphal survival.

Western Australia reported hatchings and early instar nymphs in a number of locations in the Central Agricultural region, including the Southern Cross, Muckinbudin and Lake Grace areas, at the end of September. Hatching was also reported from near Salmon Gums and Jerramungup in the Western Agricultural region.

2 October 2009

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

There were several reports of swarms in the Mt Isa–Cloncurry area in Northwest Queensland during September during September. There were also swarms reported in the Winton, Dajarra, Richmond and Julia Creek areas during winter, and several reports tree damage by swarms. The Julia Creek light trap caught high numbers of locusts throughout during August and September indicating a significant population in that area. Surveys in September identified a widespread Scattered–Numerous density adult population in Central West Queensland, and mainly Isolated density adults in the Central Highlands and South Central Queensland, and the Northwest Plains of New South Wales.

The development of over-wintering swarms is common in Queensland after immature adults redistribute in late autumn. These swarms feed on tall grasses and trees during winter. There are also likely to be a number of swarms in the Queensland Gulf and parts of the Barkly Tableland at this time of year. Adults will migrate and disperse to commence breeding from the start of the northern wet season.

**Migratory locust*****Locusta migratoria***

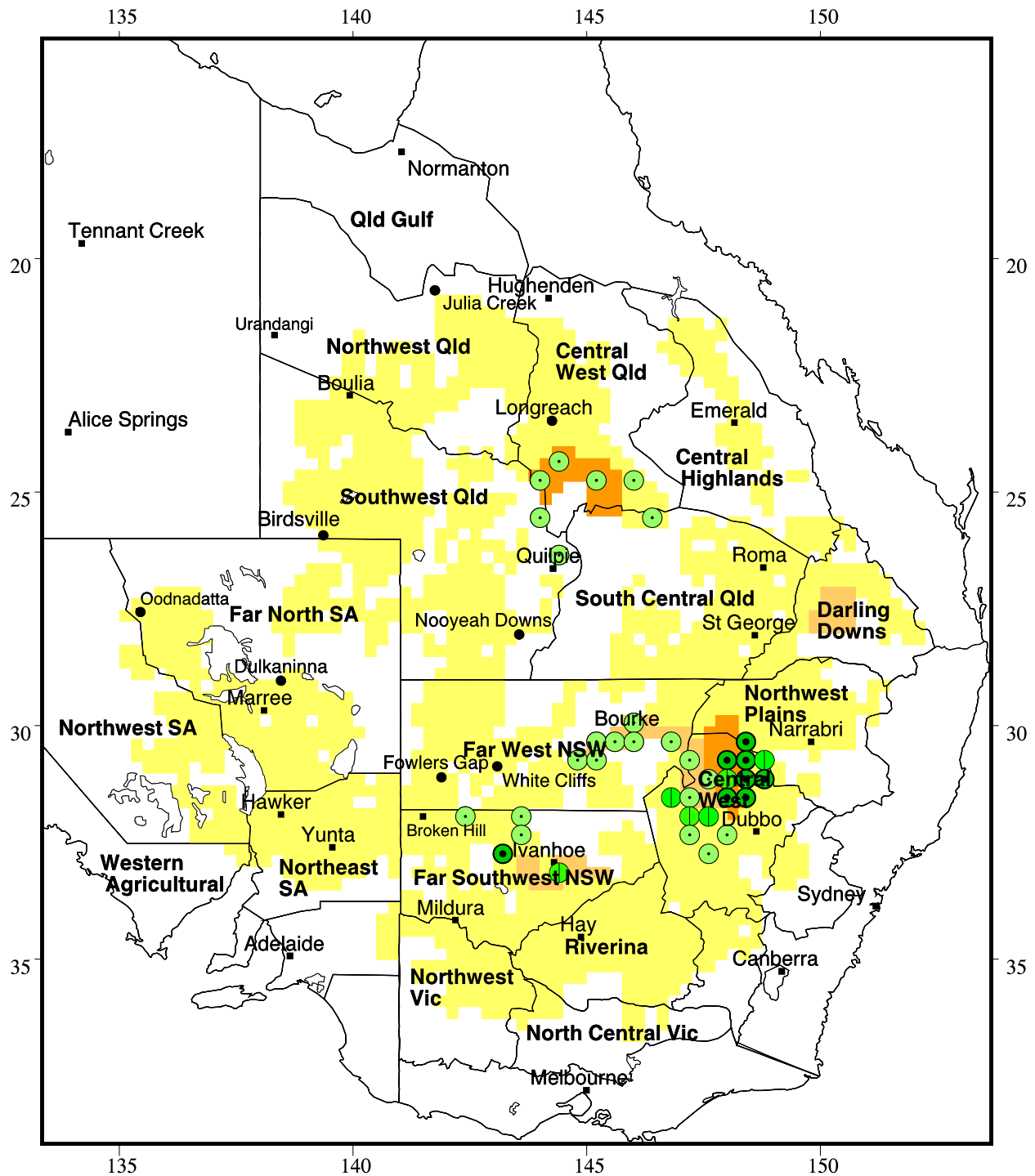
Surveys during September identified Isolated density adults at several locations around Capella in Central Highlands Regional Council area. There were occasional Isolated density adults near Goodooga in the NSW Northwest LHPA during August. Pasture conditions are generally dry in the Central Highlands and South Central Queensland, but localised breeding of the low density population could occur if moderate–heavy rainfall occurs during the forecast period.

**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 for after-hours calls. Reports can also be e-mailed to APLC at [locust.report@daff.gov.au](mailto:locust.report@daff.gov.au) or sent through the web page at <http://www.daff.gov.au/aplc>.**

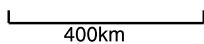
Locust distribution map

**Australian Plague Locust Distribution**

1 September to 30 September 2009



Densities estimated for area of locust habitat, based on survey and reports



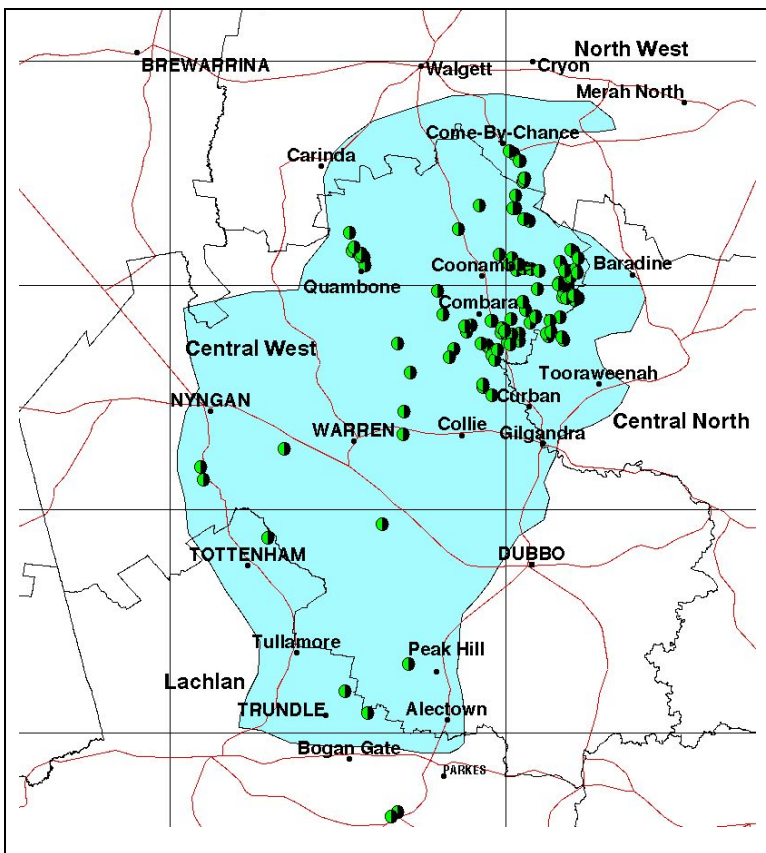
Scale: ~1:14 million  
Reference: geographic

nymphal density	adult density
● present	■ nil-isolated
● numerous-subband	■ isol-scattered
● band	■ scat-numerous
● APLC light trap	■ num-concentration
	■ SWARMS present

**Forecast hatching and development times for indicative locations.**

Location - NSW	Egg laying	Hatching	Mid-instar	Fledging
Coonamble-Quambone	10 May	28 August	16 September	10 October
Coonamble-Quambone*	25 May	15 September	27 September	20 October
Nyngan-Tullamore	10 May	6 September	23 September	15 October
Peak Hill-Parkes	24 March	30 September	15 October	5 November
Bourke-Enngonia	1 May	11 August	29 August	25 September
Ivanhoe-Menindee	26 March	9 September	5 October	24 October
Location - Qld	Egg laying	Hatching	Mid-instar	Fledging
Quilpie-Windorah	12 June	24 August	6 September	27 September
Tambo-Augathella	12 June	23 August	5 September	27 September
Location - SA	Egg laying	Hatching	Mid-instar	Fledging
Hawker-Yunta	15 April	30 September	21 October	4 November

Forecast dates are based on development models for possible egg laying of known adult populations and assuming sufficient soil moisture for direct development. Dates are estimated from temperatures recorded to the end of September and long term average temperatures at these locations. Dates indicate the start of the majority of the population entering the life stage. Hatching will continue for several weeks after these dates. \* Eggs laid after mid-May in the Coonamble area would have bypassed diapause and developed more slowly.



**Area of spring infestation in Central West NSW**

Shaded area shows the region where high density nymphs and swarms could develop at some locations during October–November. Observations of high density locusts are shown by green symbols.

NSW LHPA boundaries shown in black.

**Australian plague locust*****Chortoicetes terminifera*****SITUATION FOR SEPTEMBER AND FORECAST TO MID-NOVEMBER 2009****NEW SOUTH WALES****CENTRAL WEST****Lachlan, Central West and Central North Livestock Health & Pest Authority****Locusts and conditions**

- Hatching of eggs continued during September and a large number of small Bands were identified by landholders, LHPA staff and APLC surveys. APLC aerial surveys in late September identified many Bands in areas to the southeast and southwest of Coonamble. There are also widespread low-medium density adults throughout the Central West LHPA. Bands will continue to develop during October and swarm formation is likely late in the month.
- LHPA staff are carrying out control and coordinating the issue of insecticide to landholders affected by high density nymphs. Ground control has commenced in the Coonamble–Baradine, Quambone–Collie and Nyngan–Tullamore areas.
- APLC aerial surveys in mid-September detected small Bands at known infested locations, but further survey on 25 September identified up to 200 individual Bands. The majority of these were on properties to the east and southeast of Coonamble.
- The number of reports from the Central West LHPA increased in the second half of September and by the end of the month Industry and Investment NSW had received over 100 locust reports.
- Surveys in early September identified low-medium density early instar nymphs and occasional late instar nymphs at many locations in the Warren–Quambone, Collie–Gulgambone and Coonamble–Baradine areas. Bands of first and second instars developed at reported egg bed sites. Similar nymph age structures were identified in mid-September, but by late September Bands of mid-instar nymphs were encountered at several locations, along with Numerous density early instar nymphs in many areas.
- Surveys also identified widespread Scattered–Numerous density young adults throughout the Central West LHPA. These adults were mostly immature, but some samples showed 1–2 mm egg development in late September.
- A number of reports of early instar nymphs were received from the Baradine–Warrambungle area in Central North LHPA at the end of September and APL aerial survey on 30 September identified a number of Bands in this area.
- Hatchings were reported from the Alectown–Peak Hill area after mid-September and there were several reports of hatchings and Numerous density early instar nymphs from the Forbes area in late September.
- There was light–moderate (<20–40 mm) rainfall in the Central West and Central North LHPA, and light falls (<20 mm) in Lachlan LHPA during the first week of September. There were further light rains in Central North LHPA during 8–15 September and widespread light rains Central West and Lachlan LHPA, with local heavy falls around Peak Hill, during 16–23 September. Pasture vegetation remains suitable for nymphal survival in most parts of the region.

**Forecast**

- Hatching began in the Coonamble district during the last week of August as a result of the above average temperatures and continued throughout September. First instar nymphs were still detected during late September. Late September hatchings are likely to be the result of eggs laid in late May and June, which would have bypassed diapause and completed development more slowly.
- Hatching from egg beds in the Peak Hill–Alectown area and the Parkes–Trundle area of Lachlan LHPA will continue in early October and many Bands are likely to develop in this area.
- Aerial surveys indicated the major part of the nymph population in Central west LHPA was at mid-instar stage in late September.
- The fledglings and young adults in this region in September have developed from an over-wintering nymph population. Although this cohort represents a smaller proportion of the total population than the

mid-instar Bands, it could commence egg-laying during October, particularly if there is moderate rainfall. This would produce further hatchings in November, extending the period of nymphal infestation. Migratory activity of these early adults was indicated by a report of locusts attracted to house lights near Baradine on 17 September and further migrations are possible in early October.

- Fledging of the majority of nymphs will begin in mid-October and will continue throughout the month. There is the potential for a number of swarms to develop in the Central West LHPA area in late October and November. A proportion of the adults from this cohort are likely to migrate within the Central West, or to other regions, and could potentially breed and lay eggs during November and December. The timing of any major breeding event is likely to be influenced by rainfall in coming months.

#### **Risk(s)**

- There is a risk of localised damage to crops from hopper Bands during October and from swarms during November in the Central West and northern Lachlan LHPA.
- There is a risk of migrations of adults from the Coonamble area expanding the area of infestation during October and November, and the potential for further breeding in the region.

**Landholder reporting of nymph activity is important for organising control of the spring infestation in the Central West.**

**All locust activity should be reported to your Livestock Health and Pest Authority or Primary Industries, Industry and Investment NSW. A toll-free call to the APLC can be made on 1800 635 962. An answering machine is attached for after-hours calls. Reports can be emailed to APLC at [locust.report@daff.gov.au](mailto:locust.report@daff.gov.au) or sent through the web page at <http://www.daff.gov.au/aplc>.**

### **RIVERINA**

#### **Riverina and Hume Livestock Health & Pest Authority**

##### **Locusts and conditions**

- There were no reports of locust activity during September and no survey was undertaken.
- There was a report of low density *Austroicetes* sp. nymphs and adults at Tubbo near Narrandera in early September.
- There was widespread light rainfall (<20 mm) throughout the region during 16–23 September, and moderate falls (20–40 mm) in southern Riverina and Hume districts. Pastures are mostly dry in the Riverina, but will respond to rainfall in southern areas.

##### **Forecast**

- No significant local population is expected to develop in the Riverina during the forecast period. However, some nymphs may develop in the Narrandera–Morundah–Urana areas in early October, following limited adult activity in autumn. Any nymphs would reach mid-instar stage in mid-October and fledge in early November.
- There is the potential for immigration of adults from the Central West LHPA during October and November.

##### **Risk(s)**

- There is a low risk of some nymphs developing in parts of the Narrandera district during October.
- There is a risk of significant immigration from the large population in the Central West during October and November.

### **NORTHWEST SLOPES & PLAINS**

#### **Northwest Livestock Health & Pest Authority**

##### **Locusts and conditions**

- Bands developed on several properties in the area south of Come-By-Chance along the southern Walgett district during September and there were reports of low density nymphs from the surrounding area. No surveys were conducted in other districts of this region.
- Surveys in mid-September identified a number of Bands of second and third instar nymphs in the Hollywood–Brantwood area, southeast of Come-By-Chance. There were Numerous–Concentration

density fledgling adults and late instar nymphs on one property, and consistent counts of Scattered–Numerous density young adults in the area.

- Landholders have carried out control of Bands in the Come-By-Chance area.
- There were widespread light rains (<20 mm) during the first week of September, with moderate falls in some locations. There were further light rains in the Walgett and Narrabri districts during 16–23 September. Pastures were becoming dry in late September.

#### **Forecast**

- The infestation south of Come-By-Chance is the northern extension of the large population in the Coonamble district. Hatching began in late August and continued in September. Known high density nymphs are confined to the Hollywood–Brantwood area and landholder control and deteriorating vegetation reduced the population by late September. Fledging of nymphs will begin from the second week of October and continue for several weeks.
- The fledglings and young adults in this region in September have developed from an over-wintering nymph population. This cohort represents a smaller proportion of the total population than the nymph Bands, and there may be some migration from this area.
- Immigration of locusts from the Central West is possible during late October and November, which could produce a significant population increase and possible breeding in this region.

#### **Risk(s)**

- There is a declining risk of localised crop and pasture damage from hopper Bands in the area south of Come-By-Chance during October.
- There is a risk of immigration of locusts from Central West LHPA during late October and November.

### **FAR WESTERN**

#### **Darling and Western Livestock Health & Pest Authority**

#### **Locusts and conditions**

- There was a low density population of young adults and late instar nymphs in the Bourke–Louth–Tilpa area in Darling LHPA during September. No locusts were detected in surveyed areas of north Western LHPA.
- Surveys on 9 September identified Isolated–Scattered density young adults and consistent counts of Present density third and fifth instar nymphs in the Bourke–Louth–Tilpa area.
- Surveys in the Tibooburra, and Broken Hill areas in mid–September did not detect any locusts.
- No locusts were caught in the Fowlers Gap or White Cliffs light trap during September.
- There was widespread light rainfall (<20 mm) during the first week of September, and further light falls in the Bourke, Cobar and Wanaaring districts during 16–23 September. Conditions are dry in Western LHPA, while some green pastures and forbs remain in the Bourke and Cobar districts.

#### **Forecast**

- The young adults and nymphs in the Bourke area are likely to be the result of autumn breeding by the residual population in the area in April.
- The continuing very dry conditions in northern Western LHPA are unfavourable for the survival of any remaining nymphs or eggs from autumn layings.
- Light rainfall in the Louth area after mid-September may produce local conditions suitable for breeding and egg laying by the population, which could produce some nymphs in late October.
- The probability of a significant population in the Wilcannia–Broken Hill areas has declined as a result of continued dry conditions.
- There is a potential for immigration into parts of this region from the population in the Central West during October and November.

#### **Risk(s)**

- There is a risk of immigration of locusts from Central West NSW during November.

## **FAR SOUTHWEST**

### **Western Livestock Health & Pest Authority**

#### **Locusts and conditions**

- Survey in late September identified a low density adult population and medium density mid-instar nymphs in the Ivanhoe–Menindee area.
- Hatching of eggs occurred on Dalmorino from 8 September and there were Band density early instar at the egg bed locations in mid-September. There were also late instar nymphs near Sayers Lake at that time.
- Surveys at the end of September showed there had been some mortality at Dalmorino as a result of locally dry conditions with mostly Numerous–Subband density second instar nymphs at the site. However, second instar nymphs at Numerous–Subband density were in the Ivanhoe–Menindee area and a number of small Bands were identified near Sayers Lake and Lignum Park.
- There were light rains (<20 mm) throughout the region during 16–23 September. Pasture conditions are dry in most areas.

#### **Forecast**

- Hatching of diapause eggs in the Dalmorino area did not occur until 8 September, despite temperature driven models suggesting an earlier emergence time. Hatching could have been delayed by quiescence as a result of insufficient soil moisture to allow complete egg development, or soil temperatures may have been lower in this area than predicted. Dry vegetation conditions appear to have slowed the development of nymphs.
- Fledging of surviving nymphs in the Ivanhoe area will occur after mid-October and an increase in adult population to medium density is likely. If dry conditions continue during October, however, there could be significant mortality of nymphs.
- The late instar nymphs near Sayers Lake in early September are likely to have overwintered after hatching in autumn and produced the adults seen in late September.

#### **Risk(s)**

- There is a risk of a population increase in late October after fledging of nymphs in the Ivanhoe–Menindee area.

**All locust activity should be reported to your Livestock Health and Pest Authority or Primary Industries, Industry and Investment NSW. A toll-free call to the APLC can be made on 1800 635 962. An answering machine is attached for after-hours calls. Reports can be emailed to APLC at [locust.report@daff.gov.au](mailto:locust.report@daff.gov.au) or sent through the web page at <http://www.daff.gov.au/aplc>.**

<b>QUEENSLAND</b>
-------------------

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

- Population density remained low in this region, but localised medium density adults were identified near Budgerigar in northern Quilpie shire.
- Surveys were conducted in parts of all shires during September. There were Isolated density adults in the Stonehenge–Windorah and Quilpie–Thylungra areas in mid-September. Numerous density adults and Present density third instar nymphs were identified at one location near Budgerigar.
- No locusts were detected on survey in the Birdsville–Betoota area or the western edge of Bulloo and Barcoo shires.
- The Nooyeah Downs and Birdsville light traps recorded no locusts during September.
- There was light rainfall (<20 mm) in Quilpie Shire during the first week of September. Pasture vegetation is very dry in most areas.

**Forecast**

- The young adults in the Budgerigar area indicate that some sporadic localised hatching occurred in Quilpie Shire in early spring, possibly from diapause eggs that would have hatched during August.
- The current dry conditions in this region are unsuitable for locust breeding and there is unlikely to be any significant local population development during October.
- There is potential for significant immigration from Central West NSW during October and November.
- Moderate–heavy rainfall during the forecast period could allow egg laying by resident and immigrant locusts and result in a significant population increase.

**Risk(s)**

- There is a low risk of a population increase as a result of immigration or local population breeding during October and November.

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

- Surveys were conducted in the Longreach, Barcaldine and Blackall-Tambo Regional Council areas of the Central West region during September. A medium density population was detected in the Blackall-Tambo and southern Longreach Regional Council areas.
- Survey in mid-September identified Scattered and some Numerous density adults, along with Present density third instar nymphs in the Adavale–Blackall and Isisford–Yaraka areas. There were Isolated density adults in the Longreach–Barcaldine area.
- No locusts were caught in the Longreach or Julia Creek light trap during August.
- There was light–moderate rainfall (<20–40 mm) in parts of Longreach and Blackall-Tambo Regional Council areas during the first week of September. Vegetation is dry on most areas.

**Forecast**

- The medium density locusts in the southern Central West indicate some breeding in this region during late autumn or winter. An increase in population density is possible after fledging of nymphs in early October. Significant egg laying by this population is likely to be dependent on rainfall during October.
- There is the potential for some immigration in this region during November.

**Risk(s)**

- A small increase in population density is possible during November as result of local development or immigration.

## **CENTRAL HIGHLANDS**

### **Central Highlands and Isaac Regional Council**

#### **Locusts and conditions**

- Surveys were conducted in Central Highlands and Isaac Regional Council areas in September. Very few adult locusts were identified and there were no reports of locust activity.
- Survey in early September detected only occasional Isolated density adult locusts in the Clermont–Twin Hills area of Isaac Regional Council.
- There was no significant rainfall in this region during September.

#### **Forecast**

- Given the very low population level in the region, there is unlikely to be any increase in population before November.

#### **Risk(s)**

- No significant risks are identified for this region during the forecast period.

## **SOUTH CENTRAL QUEENSLAND & DARLING DOWNS**

### **Balonne, Murweh and Paroo Shire. Roma, Dalby and Goondiwindi Regional Council.**

#### **Locusts and conditions**

- Survey in early September identified a low density population in Murweh Shire and Roma Regional Council area. Surveys in late August detected a low density adult population in other districts. There were no reports of locust activity in September.
- Surveys detected Isolated density adults near Roma and Isolated–Scattered density adults and Present density mid-instar nymphs in the Augathella area.
- There was widespread light rainfall (<20 mm) throughout these regions during the first week of September and some moderate falls (20–40 mm) in parts of Murweh and Balonne Shires and the Goondiwindi Regional Council area.

#### **Forecast**

- Vegetation and soil conditions are mostly unsuitable for locust breeding in this region.
- Nymphs around Augathella will fledge by early October, and a small population increase in Murweh Shire is unlikely to result.
- There is a potential for immigration of adults from NSW during October and November.
- Moderate–heavy rainfall during the forecast period could result in egg laying by local or immigrant locusts.

#### **Risk(s)**

- There is a low risk of immigration from NSW during November.

**Locust activity should be reported to Biosecurity Queensland (Queensland Primary Industries & Fisheries). A toll free call to the APLC can be made on 1800 635 962. An answering machine is attached for after-hours calls. Reports can be emailed to APLC at [locust.report@daff.gov.au](mailto:locust.report@daff.gov.au) or sent through the web page at <http://www.daff.gov.au/aplc>.**

## SOUTH AUSTRALIA

### FAR NORTH, NORTHWEST, NORTHEAST & WESTERN AGRICULTURAL REGION

#### Locusts and conditions

- Surveys in the Far North and Northeast regions in mid-September detected very few locusts.
- The Dulkaninna and Oodnadatta light traps recorded no locust activity during September.
- There was light–moderate rainfall (20–40 mm) in the Flinders Ranges area of the Far North and Northeast regions, and heavy falls in the southern Northeast during 16–23 September. There were also light–moderate rains (20–40 mm) in the Western Agricultural and Northwest regions.

#### Forecast

- Surveys indicate no significant nymphal population in northern SA during spring. The very dry vegetation conditions in the Far North region are unsuitable for locust breeding.
- Sporadic low density breeding is possible in the southern Northeast, Northwest or Western Agricultural regions during October. Nymphs could appear from mid-October, but given the very low current population level a large population increase in population is unlikely.

#### Risk(s)

- A small population increase in parts of the Northwest, Northeast or Western Agricultural regions is possible

**Locust activity should be reported to Primary Industries & Resources SA (PIRSA) or to the Commission. A toll-free call to the APLC can be made on 1800 635 962. An answering machine is attached for after-hours calls. Reports can be emailed to APLC at [locust.report@daff.gov.au](mailto:locust.report@daff.gov.au) or sent through the web page at <http://www.daff.gov.au/aplc>.**

## VICTORIA

### NORTHWEST AND NORTH CENTRAL VICTORIA

#### Locusts and conditions

- Locust population density remained low in northern Victoria during September, but some nymphs could develop during October.
- There was moderate rainfall (20–40 mm) throughout northern Victoria during 16–23 September and some heavy falls in parts of the Northwest region. There were further light rains (<20 mm) during the last week of September. Pastures are green in many areas of northern Victoria.

#### Forecast

- Any eggs laid in the Echuca or Tungamah areas in autumn will hatch from early October. Vegetation conditions are favourable for nymphal development.
- There is a potential for immigration into Victoria during November.

#### Risk(s)

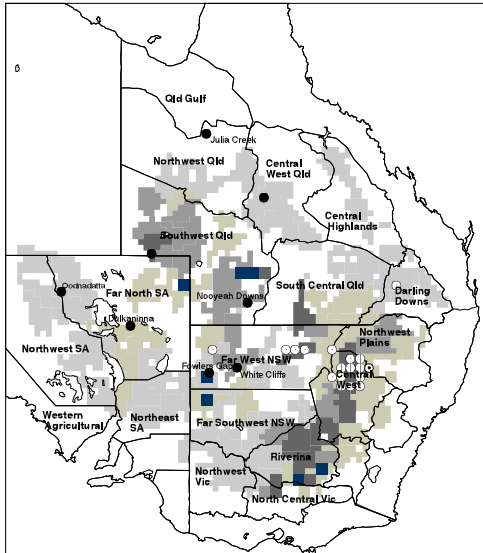
- There is a risk of immigration from NSW during October and November.

**Locust activity should be reported to the Department of Primary Industries, Victoria on 1300 135559. A toll-free call to the APLC can be made on 1800 635 962. An answering machine is attached for after-hours calls. Reports can be emailed to APLC at [locust.report@daff.gov.au](mailto:locust.report@daff.gov.au) or sent through the web page at <http://www.daff.gov.au/aplc>.**

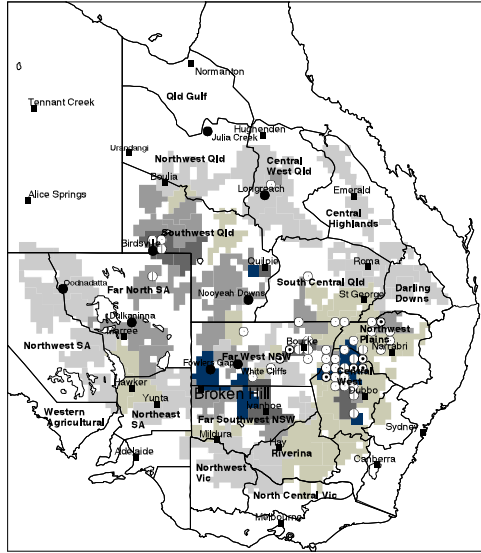
Previous distribution maps

Previous Australian Plague Locust Distributions

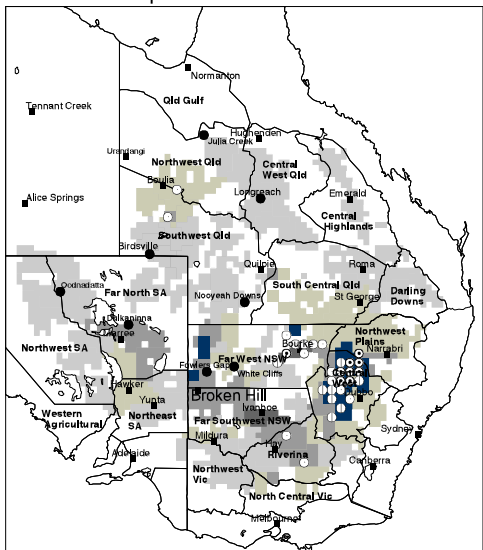
February 2009



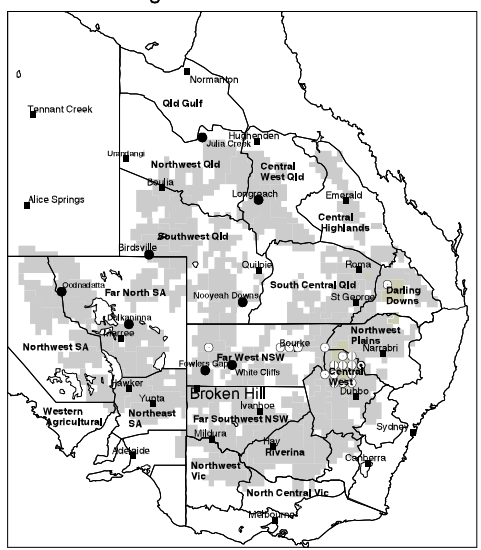
March 2009



April 2009



August 2009



Densities estimated for areas of locust habitat, based on survey and reports

nymphal density

adult density

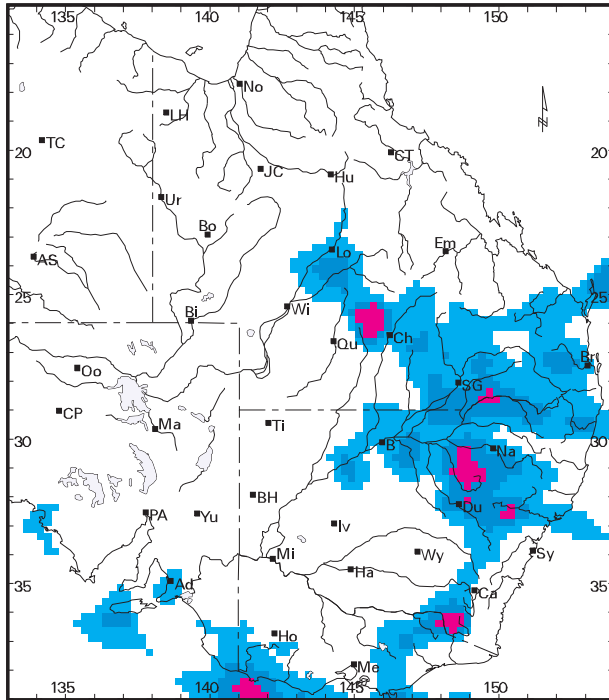
- present
- ⊕ numerous-subband
- ⊙ band

- nil-isolated
- isol-scattered
- scat-numerous
- num-concentration
- SWARMS present

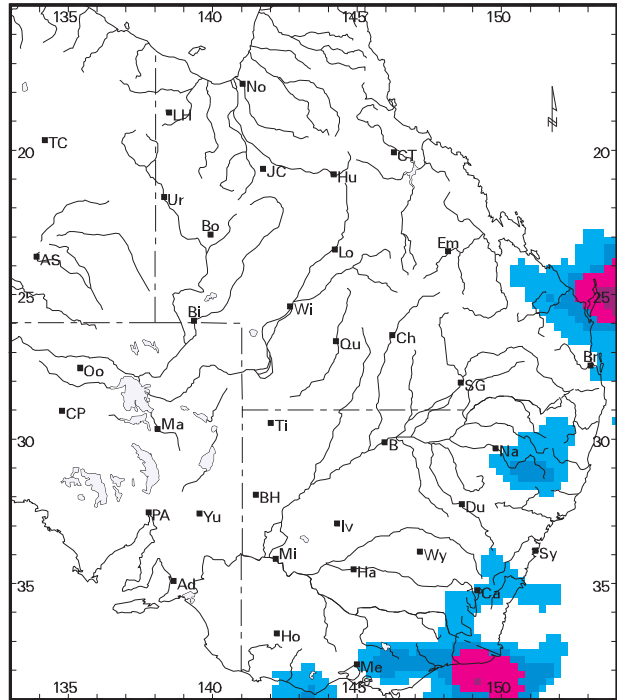
Rainfall maps

Rainfall Distribution

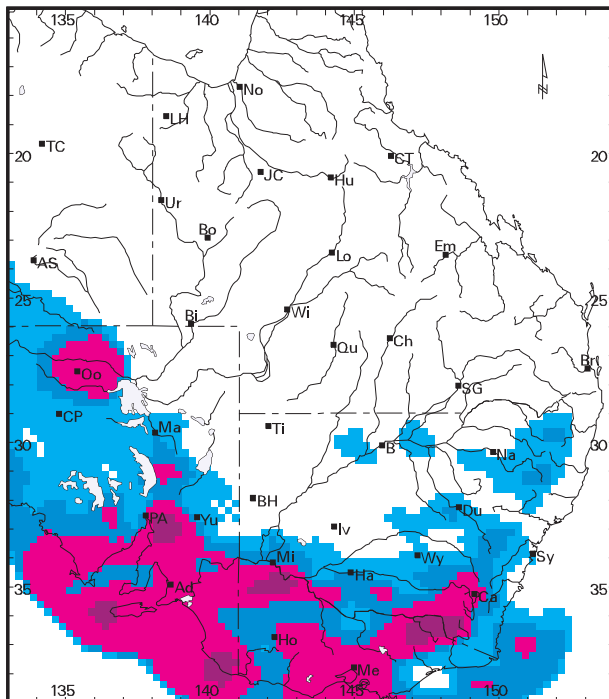
1 September to 7 September 2009



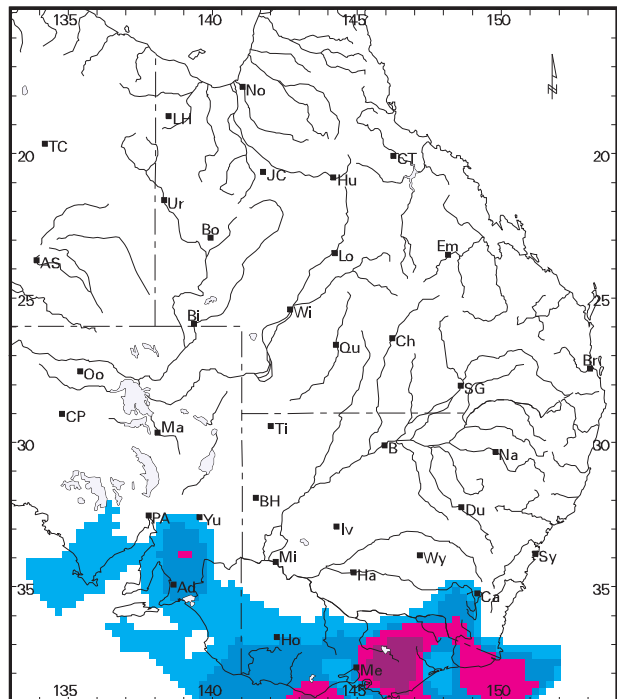
8 September to 15 September 2009



16 September to 23 September 2009



24 September to 30 September 2009



Shows major rainfall events during previous forecasting period

Source: Bureau of Meteorology - National Climate Centre (SILO)

Base: Geoscience Australia TOPO-10M  
Reference: geographic

Rainfall total to 9:00am on last day of period

- 10 - 20mm
- 20 - 30mm
- 30 - 50mm
- over 50mm

## Place name key for rainfall distribution map

### Queensland

Bo	Boulia
Br	Brisbane
Bi	Birdsville
Ch	Charleville
CT	Charters Towers
Em	Emerald
Hu	Hughenden
JC	Julia Creek
LH	Lawn Hill
Lo	Longreach
No	Normanton
Qu	Quilpie
SG	St. George
Ur	Urandangi
Wi	Windorah

### Northern Territory

AS	Alice Springs
TC	Tennant Creek

### South Australia

Ad	Adelaide
CP	Coober Pedy
Ma	Marree
Oo	Oodnadatta
PA	Port Augusta
Yu	Yunta

### Victoria

Ho	Horsham
Me	Melbourne
Mi	Mildura

### New South Wales

B	Bourke
BH	Broken Hill
Du	Dubbo
Ha	Hay
Iv	Ivanhoe
Na	Narrabri
Sy	Sydney
Ti	Tibooburra
Wy	West Wyalong

### Aust. Capital Territory

Ca	Canberra
----	----------

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

Where higher densities occur, a large proportion of the regional population is concentrated in 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

very low, occasional  
low  
medium  
high

### Nymph densities

Nil-Present  
Present-Numerous  
Numerous-Sub-band  
Bands

### Adult densities

Nil-Isolated  
Isolated-Scattered  
Scattered-Numerous  
Concentration-Swarms

## Reporting locust infestations

It is important that all locust activity is reported as soon as possible to your nearest Department of Primary Industries office or to the Australian Plague Locust Commission.

State	Authority to report locust infestations to
New South Wales	Livestock Health & Pest Authority (LHPA) or Primary Industries, Industry and Investment NSW.
Queensland	Biosecurity Queensland (Primary Industries & Fisheries).
South Australia	Primary Industries & Resources South Australia (PIRSA) (Plant Health: 1300 666 010)
Victoria	Department of Primary Industries, Victoria.

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

Free call (Canberra): 1800 635 962 (24 hours)  
 Fax (Canberra): (02) 6272 5074  
 E-mail: locust.report@daff.gov.au  
 Internet: <http://www.daff.gov.au/aplc>