



Australian Government

Department of Agriculture, Fisheries and Forestry
Australian Plague Locust Commission

February 2010

Locust Bulletin

GENERAL SITUATION IN JANUARY AND OUTLOOK TO MID-MARCH 2010

Australian plague locust

Chortoicetes terminifera

Locust distribution changed substantially in several regions of Queensland and New South Wales during January as a result of fledging and migrations of populations established at the end of November.

At the start of January many bands of mid-instar and older nymphs had developed in the Noccundra–Durham Downs–Mt Howitt area of Southwest Queensland. Fledging commenced in the second week of January. The first swarms formed at that time and continued to develop throughout the month. From mid-January migrations resulted in increased population density in parts of Central West and South Central Queensland and in the Wanaaring–Bourke–Brewarrina area of Far Western New South Wales. Sporadic swarm egg laying occurred at a number of locations in Queensland after mid-January. Swarms also developed in the Walgett–Carinda area of the New South Wales Northwest Plains and in the western Riverina, south of Balranald, in late January.

The outlook is for localised high density nymphal populations to develop in several regions of Queensland and New South Wales during February. Hopper bands are likely in the first half of February in eastern Bulloo and Quilpie Shires in Southwest Queensland, the southern Blackall–Tambo and Longreach Regional Council areas of Central West Queensland. In New South Wales hopper bands are likely to develop from mid-February in the Brewarrina–Walgett–Carinda area and possibly the Bourke and Wanaaring districts. The location of further heavy rainfall will influence where egg laying occurs in early February in both states. There is the potential for a significant widespread swarm infestation affecting several states during autumn if heavy rainfall in early February results in further egg laying.

Surveys in New South Wales during January detected low density populations in most areas, but localised high density adults developed in parts of the Northwest Plains, Far West, Central West and Riverina in late January. Population density was low in the Central Highlands, South Central and Central West Queensland, but some swarm activity was reported in the Thargomindah, Tambo–Charleville, Longreach and Quilpie areas after mid-January.

Locust density is likely to have increased in parts of northern South Australia as a result of local egg laying during December and some possible low density immigration from Southwest Queensland during January. Further immigration is possible during the first half of February, which would establish a larger breeding population in parts of the Far North and Northeast regions.

The locust population level remained low in most of northern Victoria during January, but Department of Primary Industries surveys identified a persistent medium density adult population, including late instar nymphs, in the Swan Hill area of Northwest Victoria.

2 February 2010

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

Nymphs from the initial egg laying of the current breeding season were detected in Southwest Queensland in early January and in the Central West in late January. The continued heavy rains throughout western Queensland and the Central Highlands in January will allow further breeding and the survival of nymphs already hatched. The likely outcome in terms of the overall size of the summer nymphal population and survival to fledging in autumn will be assessed after the current flood conditions subside in western Queensland to allow further surveys.

Surveys during January showed adult population densities remained at Isolated–Scattered density in Barcaldine and Blackall-Tambo Regional Council areas in Central West Queensland, but declined to Scattered–Numerous density in the Longreach area where higher densities were recorded in December. There were Isolated–Scattered density adults in the Central Highlands north of Emerald, in Murweh, Paroo and Balonne Shires of South Central Queensland and in South West Queensland. In New South Wales there were consistent Scattered density adults in the Bourke and Brewarrina districts, and occasional Isolated–Scattered density adults in the rest of the Far West and in the Northwest Plains. The light trap at Longreach caught high numbers of this species from 11 to 28 January and at Julia Creek throughout January.

Noticeable numbers of this species were also reported from the Far North region of South Australia during January and the light trap at Dulkaninna recorded low numbers of this species on several nights. Adults and some nymphs were reported from Alice Springs in mid-January.

Migratory locust***Locusta migratoria***

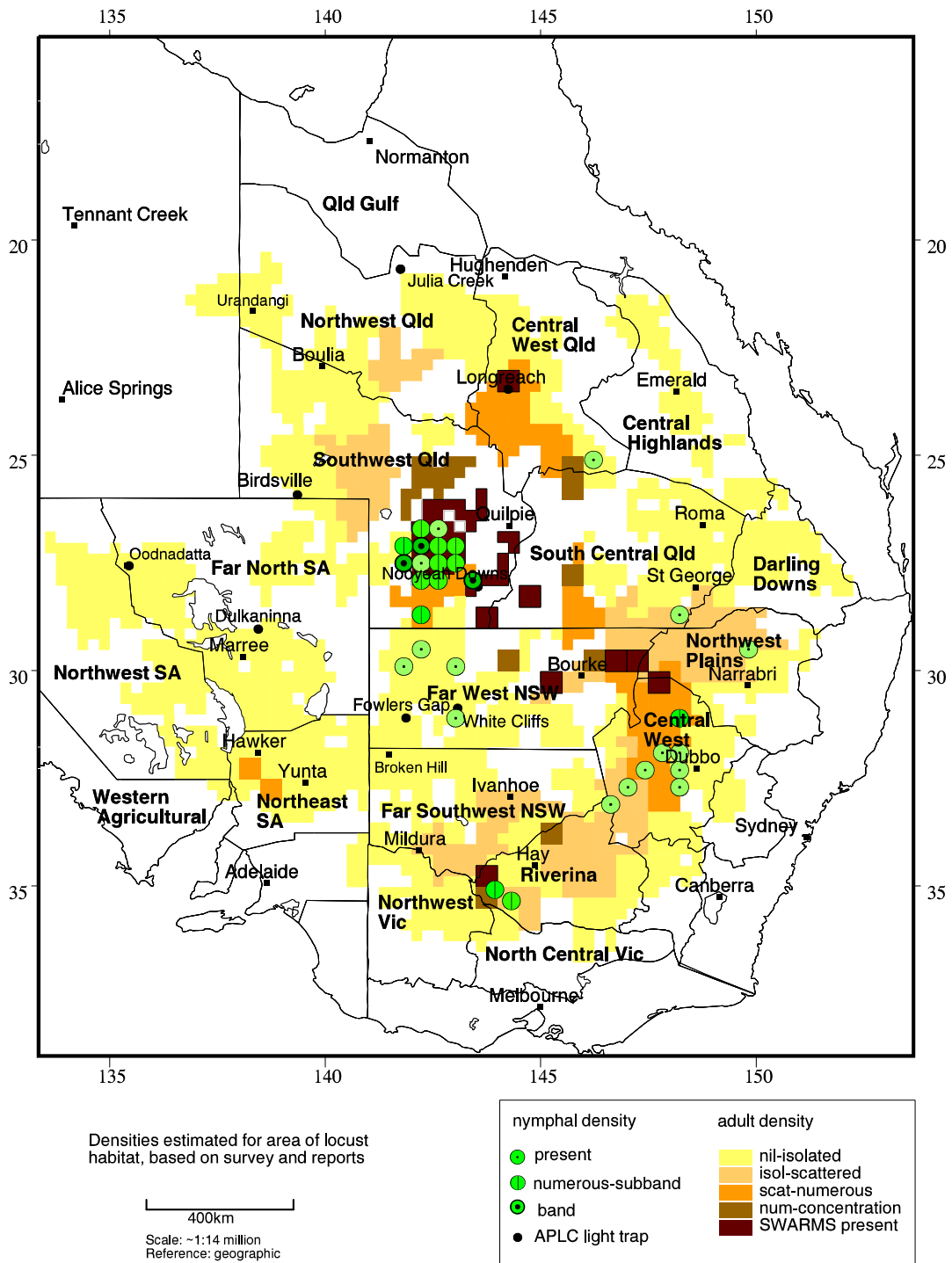
Low numbers of adults of this species were detected west of Springsure in the Queensland Central Highlands during APLC survey in mid-January. Biosecurity Queensland identified Isolated density adults in the Emerald–Capella area of the Central Highlands in early January. Summer rains in this region could result in aggregation, egg laying and the possibility of localised gregarious populations developing.

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

Locust distribution map

Australian Plague Locust Distribution

1 January to 31 January 2010



Forecast hatching and development times for indicative locations.

Location - NSW	Egg laying	Hatching	Mid-instar	Fledging
Brewarrina-Walgett	31 January	15 February	25 February	14 March
Bourke-Louth	28 January	13 February	23 February	12 March
Nyngan-Condobolin	31 January	16 February	27 February	17 March
Tibooburra-Wanaaring	6 February	20 February	2 March	18 March
Location - Qld	Egg laying	Hatching	Mid-instar	Fledging
Quilpie-Tambo	20 January	3 February	13 February	27 February
Thargomindah-Quilpie	26 January	8 February	17 February	4 March
Noccundra-Windorah	4 February	19 February	28 February	16 March
Longreach-Winton	22 January	6 February	18 February	5 March
Quilpie-Tambo	6 January	20 January	28 January	12 February
Location - SA	Egg laying	Hatching	Mid-instar	Fledging
Moomba-Marree*	6 February	20 February	2 March	17 March
Yunta*	10 January	24 January	1 February	14 February
Oodnadatta-Marree*	6 January	19 January	27 January	9 February

Forecast dates are based on development models for egg laying by known or possible adult populations and assume sufficient soil moisture for direct development. Dates are estimated from recorded and long term average temperatures. Dates indicate the start of the majority of the population entering the life stage. Expect variation around these dates as any actual egg laying will be different from the nominated dates and hatchings could extend for several weeks. *No known significant population.

Australian plague locust***Chortoicetes terminifera*****SITUATION FOR JANUARY AND FORECAST TO MID-MARCH 2010****NEW SOUTH WALES****CENTRAL WEST****Lachlan, Central West and Central North Livestock Health & Pest Authority****Locusts and conditions**

- Adult locusts remained at Scattered–Numerous densities in the Central West and Lachlan LHPA areas during most of January, but at the end of the month density increased in the northern Central West.
- Surveys in mid-January identified Scattered–Numerous density adults in the Central West LHPA and northern Lachlan LHPA areas. Present density nymphs at various development stages were identified in the Warren–Coonamble, Tomingley and the Peak Hill–Trundle areas. There were consistent Numerous density adults north of Coonamble and Isolated–Scattered density in the Condobolin–Forbes area.
- At the end of January several small swarms and areas of Concentration density adults with developed eggs were identified east of Carinda at the north edge of Central West LHPA.
- Band density nymphs were reported from north of Ootha in northern Lachlan LHPA in mid-January, and at the end of the month swarms were reported south of Nyngan.
- During the first week of January there was moderate–heavy (20–>40 mm) rainfall in the Nyngan–Coonamble area, light falls in the Dubbo area and heavy falls throughout Central North LHPA area. There were storm rains in the Nyngan area during 16–24 January and again in the last week of the month. Native pastures were green in most of the region during January.

Forecast

- Nymphs identified in January indicate that some low density egg laying occurred during December, particularly in the eastern half of Central West LHPA and northern Lachlan LHPA. Higher density egg laying occurred in at least some locations. Fledging of nymphs during January will continue to maintain a Scattered–Numerous density regional adult population during February. Some localised higher density adults could develop from higher numbers of nymphs or congregate near lucerne or native pasture.
- The high density adults near Carinda may have developed locally from locusts persisting in this region, as there were consistent Numerous density counts in the northern Central West in December and mid-January. However, their stage of egg development is similar to that of swarms further north and west, so an immigrant component of these swarms is also possible.
- Egg laying by the swarms near Carinda and other similar-aged adults is possible in early February, which could produce nymphs at Numerous–Band density in the second half of the month.
- Higher densities of adults could develop in the Lachlan LHPA area in early February after fledging of nymphs identified in January.
- There is a moderate probability of further small migrations from the Northwest LHPA during February.

Risk(s)

- There is a moderate probability that sporadic high density egg laying in the northern and western parts of Central West LHPA in early February will produce a nymphal generation in the second half of the month.

RIVERINA

Riverina and Hume Livestock Health & Pest Authority

Locusts and conditions

- Adult population density remained low in most of the region during January, but localised high density populations developed in the western Riverina in late January.
- There were several reports of late instar nymphs from the Kyalite and Moulamein–Deniliquin areas in the southwest Riverina LHPA area in mid-January.
- Survey was conducted in the western Riverina in late January and several small swarms of young adults and fledglings had developed in the Kyalite area where nymphs had been reported earlier. Scattered–Numerous density adults and Present–Numerous density late instar nymphs were found in the Barham–Moulamein area.
- Locust density was low in the Hay district, but a localised population of Numerous and some Concentration density adults, with occasional fifth instar nymphs was detected between Booligal and Hillston.
- Swarm density *Peakesia* spp. were detected in the Deniliquin–Moulamein area in late January.
- There was light (<20 mm) rainfall in the western Riverina and some moderate falls (20-40 mm) in the Kerang–Balranald area during the first week of January. Pastures in other areas are mostly dry.

Forecast

- The Kyalite population resulted from eggs laid by local adults in early December after heavy rain at the end of November. Fledging of remaining nymphs in the Deniliquin–Balranald area at the end January will produce a further increase in adult population during February. Vegetation conditions are mostly unsuitable for breeding and egg laying, but some storm rains west of Deniliquin in early January have produced localised areas of green vegetation. This population is unlikely to commence breeding before the second week of February and significant egg laying will be dependent on rainfall during February.
- Elsewhere in the Riverina pastures are mostly dry and the population is expected to remain at Isolated-Scattered densities, with only sporadic low density egg laying likely.
- Some migration to Far Southwest NSW or Northwest Victoria is possible from the Kyalite–Moulamein area during February.

Risk(s)

- There is a threat to local irrigated crops in the Kyalite area in February.
- There is a moderate probability that migratory redistribution of young adults will occur in the western Riverina in early February.

NORTHWEST SLOPES & PLAINS

Northwest Livestock Health & Pest Authority

Locusts and conditions

- Surveys in mid-January indicated a continued low adult density population in most of the region, with some early instar nymphs in the Moree–Boggabilla area. At the end of January several swarms and areas of Concentration density adults with developed eggs were identified in the Carinda–Walgett area.
- Surveys in mid-January identified Isolated–Scattered density adults in the Walgett, Moree, Northern Slopes and Narrabri districts. There were more consistent counts of Numerous density adults in the Carinda–Walgett area. Present–Numerous density early instar nymphs were detected in the Moree–Croppa Creek–Boggabilla area and near Narrabri on 21 January.
- At the end of January several swarms formed in the Carinda–Walgett area. Samples showed females were developing eggs and a high proportion of these were close to laying.
- There were heavy rains (>40 mm) throughout the region during the first week of January and further light–moderate falls (<20-40 mm) in the Narrabri and part of the Moree district during 9–15, 16–24 and 25–31 January.

Forecast

- Early instar nymphs in the Moree area indicate some breeding occurred at the end of December. Nymphs in that area will fledge in early February and a moderate increase in adult density is likely from that time.

- The high density adults in the area south of Walgett may have developed from immigrants which moved north and laid eggs at the end of November, and their offspring congregated as swarms at the end of the January. However, few nymphs were recorded in this area on previous surveys and the development stage of adults in these swarms is similar to those that appeared in the Bourke area in late January and immigration contributed to those populations.
- High density egg laying is likely in the Carinda–Walgett area in early February, following storm rains, and nymphs will appear from mid-February. Some Bands may develop in this area in the second half of February.
- Further rainfall in early February could trigger egg laying in other parts of the region, particularly if adults from the Brewarrina district move further east.

Risk(s)

- A significant increase in adult population is likely in March if swarm laying occurs in the Walgett–Carinda area occurs in early February.
- A small increase in adult population is likely in the Moree and Northern Slopes areas after fledging of nymphs in early February.

FAR WESTERN

Darling and Western Livestock Health & Pest Authority

Locusts and conditions

- Surveys in mid-January indicated that population density remained low in most areas, but later reports of swarms from Wanaaring, Bourke and Brewarrina suggest that immigration from adjacent parts of western Qld occurred in late January.
- In mid-January there were Isolated-Scattered density adults in the Tibooburra, Wanaaring and Bourke and Brewarrina areas. Occasional late instar nymphs were detected between Tibooburra and Wanaaring. Only occasional Isolated density adults were found in the Bourke area.
- Reports of noticeable numbers of locusts were received from Hungerford on 14 January, north of Brewarrina on 21 January and at Bourke on 24 January. A swarm was reported on 26 January near Wanaaring and another southwest of Bourke on 28 January.
- Survey at the end of January in the Bourke and Brewarrina districts detected a significant increase in adult numbers. There were Numerous and Concentration density adults, some developing eggs, between Bourke and Brewarrina, and mostly Scattered and Numerous density adults around Weilmoringle and Goodooga.
- White Cliffs light trap recorded low numbers of locusts from 27 January. Fowlers Gap light trap recorded low numbers on 22 and 23 January.
- The Insect Monitoring Radar (IMR) at Bourke resumed operation in early January and detected migratory activity on numerous nights during the month. The directions of migrating insects was complex, with several opportunities for movements to the south and north and possible westward movement in late January.
- There was moderate–heavy rainfall (20–>40 mm) in the Bourke and Brewarrina districts, and patchy light falls in the rest of the region during the first week of January. There were light rains (<20 mm) in the Louth area during 16–24 January, and further light rains, with some storm rains in the Brewarrina area during the last week of the month.

Forecast

- The increase in locust numbers in the northern part of the region in late January is consistent with migratory activity recorded in the large population in Southwest Qld. There may also have been some redistribution within NSW in late January. However, some eggs were laid in the Tibooburra area at the end of November, as indicated by occasional nymphs, and this may have contributed to the late January increase.
- Migration into the Tibooburra–Wanaaring area from Southwest Qld is possible in early February, but the likelihood of further significant immigration will decline during February, because the remaining adult population in that region are likely to have matured eggs by then.
- Some egg laying may have occurred in the Brewarrina area in late January. If heavy rainfall occurs in the region in early February, swarm density egg laying is likely to occur in other locations, particularly in the Bourke and Wanaaring areas. The distribution of swarms detected in late January appeared to

be localised, so any egg laying is unlikely to be extensive. This could result in high density nymphs appearing in some locations in the second half of February, followed by fledging during March.

- Further redistribution of adults in the Bourke and Wanaaring areas is possible in early February, prior to egg laying.

Risk(s)

- Swarm density egg laying is likely at some locations in the Brewarrina and Bourke areas, which will produce some nymph Bands in the second half of February. More sporadic egg laying could occur in the Wanaaring–Tibooburra area, depending on rainfall in early February.

FAR SOUTHWEST

Western Livestock Health & Pest Authority

Locusts and conditions

- Survey during January indicated a very low density population, but a small increase in density in the Balranald area.
- Survey in mid-January detected no locusts in the Broken Hill area. In late January there were Isolated–Scattered density adults to the south of Broken Hill, but very few were detected in the Wentworth area. Scattered–Numerous density adults and Present density late instar nymphs were identified in the Euston–Balranald area.
- There were lights–moderate rains (20–40 mm) in the Balranald–Oxley district during the first week of January. Vegetation conditions are becoming dry over most of this region.

Forecast

- Rainfall in the Balranald area in early January allowed nymphs to survive and complete development, producing the higher numbers in that area. Locusts in this area are part of the wider population which extends to Moulamein in the southern Riverina. The young adult stage of most of this population suggests that breeding would not have occurred following the early January rains and breeding will now be dependent on rainfall in February.
- The distribution of nymphs from early December egg laying may have been more widespread in the Balranald–Pooncarie area. Although there has been little further rainfall, any surviving nymphs could produce Scattered–Numerous density adults in February.
- Some movement of swarms from the adjacent parts of the Riverina is likely in the southern part of the region in the first half of February.

Risk(s)

- A moderate population increase in the southern part of the region is possible during February as a result of movement from the Kyalite–Moulamein area in the western Riverina.
- There is a low likelihood of immigration from the large population in Southwest Qld during early February. If high density egg laying occurs in Far West NSW in early February, the risk of immigration will increase in autumn.

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

QUEENSLAND

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

- Fledging of hopper Bands in the Thargomindah–Noccundra and Durham Downs–Mt Howitt areas in Bulloo Shire produced the first swarms in the second week of January and swarms continued to develop throughout the month. Migration activity from mid-January led to increased numbers in Quilpie and eastern Bulloo Shires and swarm laying occurred east of Thargomindah in late January.
- APLC aerial survey during 6–9 January identified a number of late instar Bands on the Wilson River floodplain west of Noccundra and around Conbar to the north of Nockatunga. Bands were also seen to the west of Thargomindah and between Durham Downs and Mt Howitt. The total area of identified Bands was not large enough to initiate aerial control and some were associated with flooded areas. Ground surveys confirmed small Bands were widespread in suitable locust habitats in these areas.
- Survey in early January identified Isolated density adults in Quilpie and eastern Bulloo Shires, but by mid-January adult numbers had increased to Numerous density in the Eromanga–Plevna Downs and Quilpie–Thylungra areas, while in eastern Bulloo Shire there were Concentration density adults near Thargomindah, and Numerous density to the southeast and east.
- Swarm density egg laying was reported by Biosecurity Qld near Toompine, north of Thargomindah on 20 January.
- High density locusts were reported at Tanbar, southwest of Windorah, in mid-January and at Hungerford on 13 January. A swarm was reported near Thylungra on 22 January.
- Survey in late January confirmed further swarm density egg laying to the east of Thargomindah. Swarms sampled in that area had developed eggs, while those near Noccundra at that time showed fat but no egg development.
- In late January Scattered–Numerous density adults and Present density mid-instar nymphs were identified in the Eromanga area.
- The Nooyeah Downs light trap recorded low numbers of locusts, some developing eggs, in early January. From 10–28 January very high numbers were caught, with a peak of over 40,000 on 12 January. These locusts were young adults with no egg development.
- There were heavy storm rains (>40 mm) in parts of Quilpie and Diamantina Shires, and moderate falls in northern Barcoo Shire during the first week of January. Further light-moderate rains fell in (20–40 mm) in the Eromanga area during 9–January and again in the last week of the month. Vegetation remains green in those areas.

Forecast

- The light trap catches, reports and adult population increases in areas outside those where Bands were identified, indicate considerable migratory activity during January. The very high numbers in the Nooyeah Downs light trap reflect nocturnal activity of the large population of recently fledged adults in the area. Analysis of wind trajectories associated with troughs during January indicates possible movements to the southeast before January 15 and to the north and northeast during 16–17 January. Further southward movement was possible during 22–26 January.
- Emigration to the eastern half of this region and to parts of Central West and South Central Queensland, and into Far Western NSW occurred during the second half of January. Further migrations are possible in early February.
- The few young nymphs detected during January surveys in areas which received heavy rainfall in late December suggest that no significant egg laying occurred immediately after heavy late December rainfall by adults remaining from the previous generation. Egg laying after mid-January was by adults which fledged during January.
- Adults sampled from swarms in the areas west of Thargomindah appeared to be at the pre-reproductive stage throughout the second half of January, which would support an interpretation of continued emigration of the older individuals from the population.
- High density egg laying is likely to have occurred in open areas along the Bulloo River from south of Thargomindah to north of Quilpie in the second half of January. Hatching from swarm egg laying, which began on January 20, will commence on 4 February and could continue for several weeks. Some localised Bands are likely to develop during February.

- Further migrations and swarm egg laying could occur in early February. Adults remaining in the Noccundra–Durham Downs area could breed locally or in parts of Barcoo or Diamantina Shire depending on the extent and location of the next rainfall event.
- Migration within western Qld or to adjacent parts of NSW or SA may continue in the first half of February.

Risk(s)

- There is a high probability that swarm density egg laying in Bulloo and Quilpie Shires will produce a localised high density nymphal generation during February.
- Further egg laying is possible in early February, which could be widespread away from flooded areas.

CENTRAL WEST & NORTHWEST

Longreach, Barcaldine and Blackall-Tambo Regional Council. Boulia, Cloncurry, Flinders, McKinlay, Mt Isa, Richmond and Winton Shire

Locusts and conditions

- Parts of the Longreach, Blackall–Tambo and Barcaldine Regional Council areas were surveyed during January. Population density remained low in most areas, but locust numbers increased in part of the southern Central West after mid-January.
- There were Isolated–Scattered density adults in the Longreach area and only occasional Isolated density adults in the Barcaldine and Blackall-Tambo areas in mid-January. Present density nymphs at several development stages were identified near Tambo.
- On 19 January a swarm, with partially developed eggs was confirmed at Longreach.
- After mid-January swarms were reported on several properties in the Listowel Valley area southwest of Tambo. Egg laying was observed by Biosecurity Qld staff on 20 January.
- Survey at the end of January identified Numerous density adults where swarms had been reported earlier, and Isolated–Scattered density adults and occasional Present density mid-instar nymphs in the area southwest of Tambo.
- The Julia Creek light trap caught low numbers of this species for several days from 16 January, and the Longreach trap from 18 to 24 January.
- There were heavy storm rains (>40 mm) throughout these regions during the first week of January, followed by patchy storm rain in the Mt Isa and Muttaborra areas during 9–16 January. During the last week of January there were further heavy rains across the northern shires and parts of Barcaldine and Longreach Regional Councils, with moderate falls in the Winton and Blackall-Tambo areas.

Forecast

- The swarm laying reported from the Listowel Valley appears to have been localised as adults were found at Scattered density in the surrounding area. Egg laying locations coincide with an area which received storm rains during 16–24 January. Migration from Southwest Qld could have brought the reported swarms into this area and to Longreach during 16–17 January. The population was low in this area prior to the reports and the few nymphs in the area indicate a much younger population.
- Hatching of eggs from January laying is likely to begin on 4 February, and some localised high density nymphs could develop in the area southwest of Tambo in mid-February.
- The mid-instar nymphs in the Tambo area indicate some egg laying occurred around the time of heavy rains in late December.
- Migration activity in mid-January may have distributed locusts more widely in the Longreach and Winton areas. Sporadic swarm egg laying is likely to have occurred in some locations in these areas and nymphs could appear by mid-February.
- Further rains in early February could result in more egg laying in the southern parts of this region.

Risk(s)

- A moderate increase in population is likely in this region from sporadic egg laying during January.
- Localised medium or high density nymphs could develop in a number of locations in southern parts of these regions during February.

CENTRAL HIGHLANDS

Central Highlands and Isaac Regional Council

Locusts and conditions

- Survey was conducted in this region in mid-January. Very few adults of this species were detected and there were no reports of locust activity. Population density is expected to remain low.
- There were heavy storm rains (>40 mm) throughout this region during 9–15 January, and patchy moderate–heavy (20–>40 mm) storm rains in the Clermont area during 9–15 January. In the last week of January there were heavy rains in Isaac and northern Central Highlands Regional Council areas, and light–moderate falls in the rest of the Central Highlands. Vegetation has responded to January rainfall.

Forecast

- Given the very low population level in the region, even with possible breeding during January there is unlikely to be a large increase in population in February or March.

Risk(s)

- No significant risks are identified during the forecast period.

SOUTH CENTRAL QUEENSLAND & DARLING DOWNS

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

Locusts and conditions

- Surveys and reports in January identified a low density adult and nymphal population in Murweh, Paroo and Balonne Shires. A few swarms were reported in the Cunnamulla–Eulo area of Paroo Shire after mid-January.
- Survey in mid-January identified Isolated–Scattered density adults in Paroo and southern Balonne Shires. A single swarm was found near Eulo on 22 January and swarm activity was also reported from north of Cunnamulla at the same time.
- Survey in late January identified low density, late instar nymphs in grassland areas west of Charleville and high densities of grasshoppers of various species in the Augathella–Charleville area.
- There was light–moderate (<20–40 mm) rainfall throughout these regions during the first week of January. Patchy storm rains fell in the Goondiwindi area during 9–15 January and in Murweh, Paroo and Roma areas in each of the last two weeks of January.

Forecast

- Mid-instar nymphs in the Charleville area in late January indicate that some egg laying occurred in late December. Further heavy rainfall in Murweh and Paroo Shires in mid-January will maintain dense vegetation which will allow locust breeding, but may also favour other species.
- There may have been sporadic high density egg laying associated with the swarm activity reported after mid-January. Nymphs could appear from the second week of February in open vegetation areas in Paroo Shire.

Risk(s)

- A moderate increase in population is likely in February with some localised high density nymphs, as a result sporadic egg laying. An increase in adult population could occur in March following the fledging of nymphs.

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 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**

- No survey was conducted during January, but a moderate increase in population level is likely to have occurred in parts of the Far North, Northwest and Northeast regions as a result of several periods of rainfall in recent months.
- The light trap at Dulkaninna recorded low numbers of locusts in early January and also at Oodnadatta in mid-January.
- High numbers of grasshoppers were reported from Arkaroola and the Gammon Ranges in late January.
- There was moderate rainfall (20–40 mm) in the eastern part of the Northeast region during the first week of January and light rains (<20 mm) around the southern Flinders Ranges during 9–15 January. There were further light rains in part of the Northwest southern Flinders Ranges during the last week of January.

Forecast

- The Numerous density adults recorded previously in the Hawker–Orroroo area had opportunity to breed at the end of November and maintain a moderate level population during January. However, there has been little rainfall in that area over the last two months and conditions became dry. Local redistribution could have allowed breeding in the Yunta area during January. Some nymphs could be present in the Yunta area in early February resulting from eggs laid after early January rainfall.
- The light trap catches suggest a population increase in northern South Australia, either from immigration or local egg laying at the end of November. The Oodnadatta and Flinders Ranges areas received some rainfall during January which may have initiated some local breeding.
- If eggs were laid following heavy rains in the Northwest or Far North in late December, resulting nymphs would be at late instar stage in early February and fledge by mid-February. An increase in adult population could result.
- Significant immigration to the Far North region from Southwest Qld is possible during early February.

Risk(s)

- A further population increase is possible in the southern Flinders Ranges area and in parts of the Far North region in February as a result of breeding by local populations.
- There is a risk of significant immigration from Southwest Qld in early February and this increase in the breeding population in the Far North and Northeast regions could produce a nymphal generation if there is moderate–heavy rainfall during February.

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

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

- Surveys by DPI Victoria in the area west of Swan Hill and south to Sea Lake in January identified a persisting Scattered–Numerous density adult population, along with low density late instar nymphs, in native pastures during January.
- Low density adults were reported from the Shepparton area during January
- There was light–moderate (<20-40 mm) rainfall in North Central Victoria, extending west to the Swan Hill area, during the first week of January.

Forecast

- While population density remained generally low in northern Victoria, nymphs in the population in the Swan Hill area indicate some low density breeding at the end of November. Rainfall in early January would have allowed nymphs in the area to complete development. This population is a similar age to that in the area south of Balranald in NSW, where nymphs fledged in late January.
- Some immigration into Northwest Victoria from adjacent parts of the western Riverina is possible during February, which would contribute to an increase in population.
- The resident population in the Swan Hill area could breed and lay eggs, depending on rainfall during February.

Risk(s)

- There is a moderate probability of some egg laying by the population in the area south of Swan Hill during February, and of some immigration from adjacent areas in NSW.

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

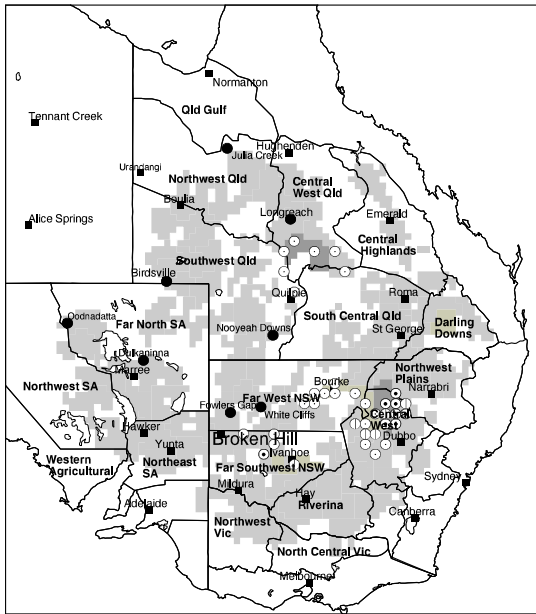
WESTERN AUSTRALIA**CENTRAL AND SOUTHERN AGRICULTURAL REGIONS**

- Updates and details of the locust situation are available from the Western Australian Department of Agriculture and Food. The Department website has locust information pages: <http://www.agric.wa.gov.au>

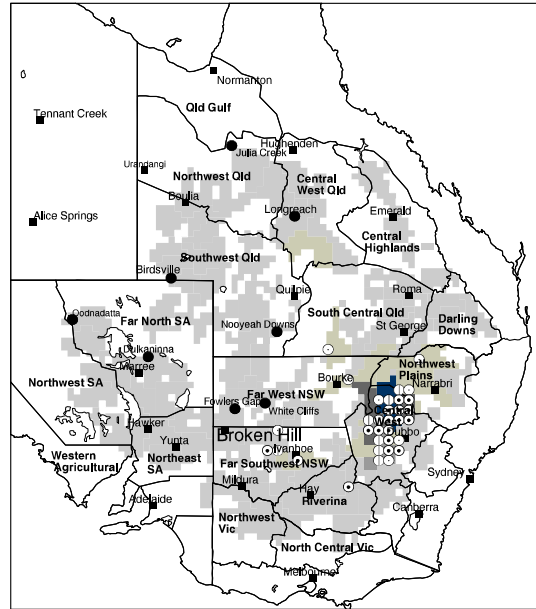
Previous distribution maps

Previous Australian Plague Locust Distributions

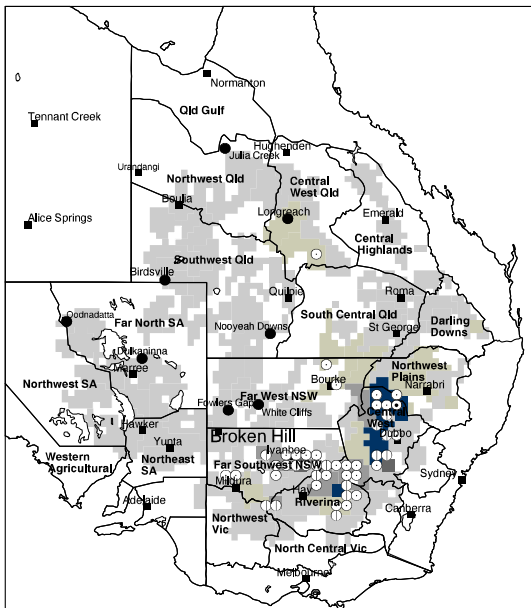
September 2009



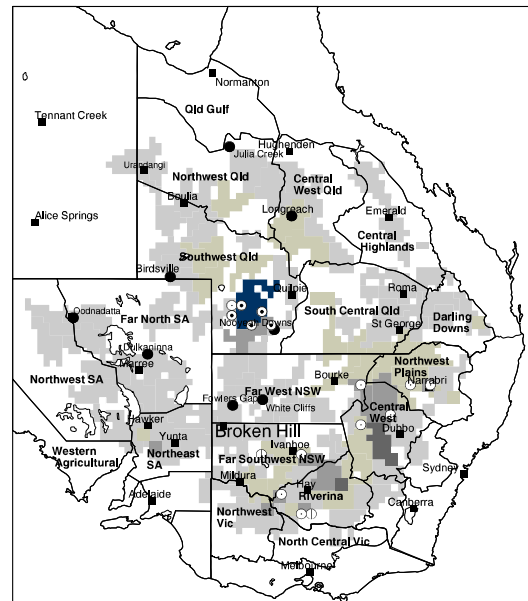
October 2009



November 2009



December 2009



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

nymphal density

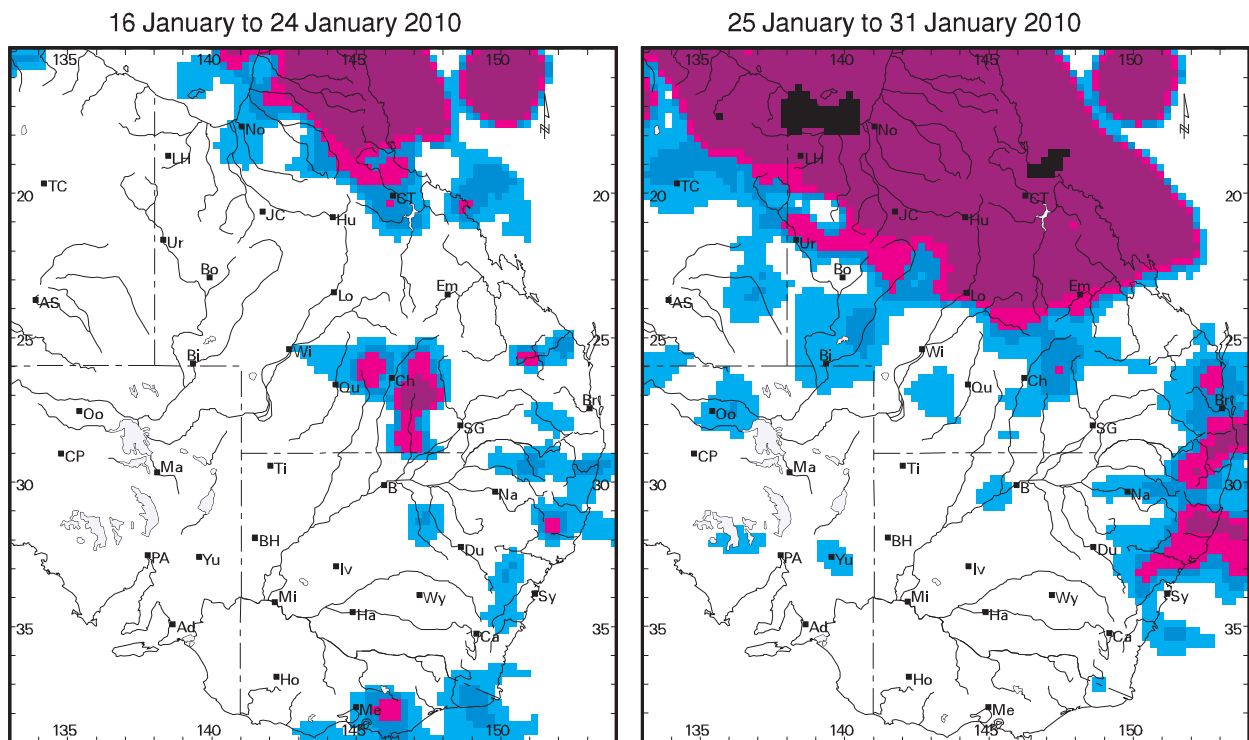
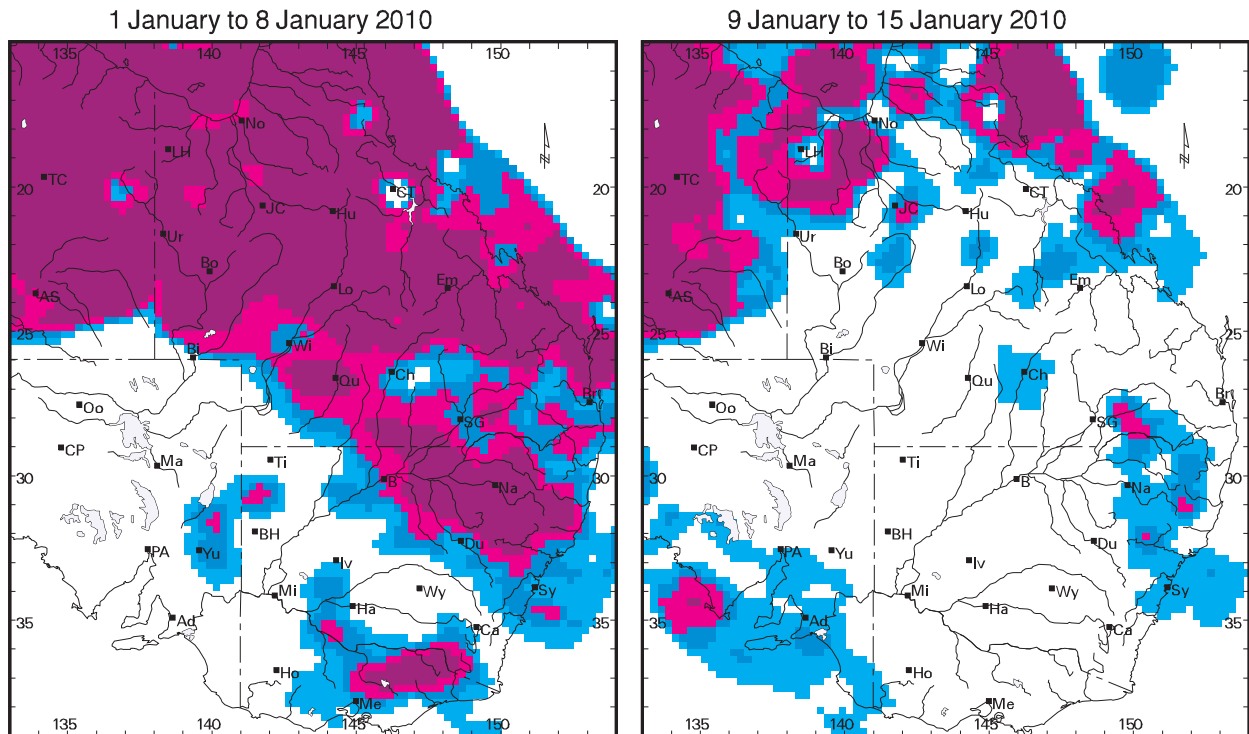
adult density

- present
- ⊖ numerous-subband
- ⊙ band

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

Rainfall maps

Rainfall Distribution

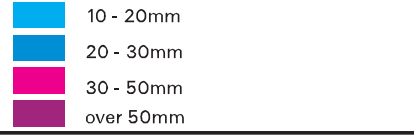


Shows major rainfall events during previous forecasting period

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



Place name key for rainfall distribution map

Queensland		Northern Territory		New South Wales	
Bo	Boulia	AS	Alice Springs	B	Bourke
Br	Brisbane	TC	Tennant Creek	BH	Broken Hill
Bi	Birdsville			Du	Dubbo
Ch	Charleville	South Australia		Ha	Hay
CT	Charters Towers	Ad	Adelaide	Iv	Ivanhoe
Em	Emerald	CP	Coober Pedy	Na	Narrabri
Hu	Hughenden	Ma	Marree	Sy	Sydney
JC	Julia Creek	Oo	Oodnadatta	Ti	Tibooburra
LH	Lawn Hill	PA	Port Augusta	Wy	West Wyalong
Lo	Longreach	Yu	Yunta		
No	Normanton				
Qu	Quilpie	Victoria		Aust. Capital Territory	
SG	St. George	Ho	Horsham	Ca	Canberra
Ur	Urandangi	Me	Melbourne		
Wi	Windorah	Mi	Mildura		

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 m²			
Present	1	-	5	
Numerous	6	-	30	
Sub-band	31	-	80	
Band		>	80	
Adult Densities	Number per m²		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-Numerous	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 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