



Locust Bulletin

GENERAL SITUATION IN FEBRUARY AND OUTLOOK TO MID-APRIL 2010

Australian plague locust

Chortoicetes terminifera

Locust migrations in the first half of February resulted in many swarms in the Far Northwest of New South Wales and some immigration into the Far North of South Australia, primarily from Southwest Queensland. Swarms also formed in the Far Southwest, southern Central West and Riverina regions of New South Wales, from fledging and migratory movements of populations within the state. Widespread heavy rains during the first two weeks of February initiated swarm egg laying in these regions. The highest intensity of egg laying appears to have occurred in the Tibooburra–Wilcannia area and hatchings were reported in late February. Many hopper bands will develop in Far West New South Wales from late February and some band development will follow in South Australia, Riverina, Far Southwest and Central West New South Wales during March. Some older, localised bands developed in the Bourke–Brewarrina area of Far West New South Wales and in the southern Blackall–Tambo and Longreach Regional Council areas in Queensland, following egg laying in late January.

The outlook is for high density nymphal populations to develop in several regions of New South Wales from late February. Bands are also likely to develop in parts of the Far North of South Australia in early March. There could be some older localised hopper bands in Bulloo, Barcoo and Quilpie Shires in Southwest Queensland, but further bands are likely to develop in March. If a high proportion of nymphs survive to fledging, there is the potential for a significant further widespread swarm infestation affecting several states during April and a risk of autumn egg laying in cropping regions of New South Wales and South Australia.

Surveys were limited by flooding in all states during early February and reports have assisted in determining the extent of infestations. In New South Wales swarms were reported in the Tullamore–Condobolin–West Wyalong, Griffith–Coolamon, Ivanhoe–Menindee, Broken Hill, Hay–Balranald and Mossgiel–Booligal areas.

In Queensland only localised bands have developed in the Central West and Southwest regions. Locust density remained low in Diamantina, Boulia and Winton Shires of the Southwest, and in the Central Highlands and South Central Queensland. APLC aerial survey of parts of Southwest and Central West Queensland did not detect a significant nymphal infestation.

Locust density increased in the Far North of South Australia, following migrations from adjacent areas of Queensland and New South Wales. Light traps at Dulkaninna and Oodnadatta reported high activity in mid-February and reports of high density adults were subsequently received from several locations in the Far North, in particular the Marree–Lyndhurst–Parachilna area. In late February locusts were also reported in the Northeast and Murray Valley regions.

The locust population level remains generally low in northern Victoria, but adults and nymphs were collected from south of Kerang and Swan Hill. There is a chance of some immigration into Northwest Victoria during March, but the immigration risk will increase in April.

1 March 2010

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

Nymphs at several development stages are widespread in inland Queensland. Present density nymphs were identified in Southwest, Northwest and Central West Queensland and reported from the South Central and Central Highlands regions. There were Numerous density nymphs in parts of Barcoo, Diamantina, Boulia and Winton Shires, and reports of higher density nymphs from near Winton and Georgetown. Nymphs have also been reported from the southern Northern Territory. Adults were widespread at Isolated–Scattered density in western Queensland during February and there were Numerous density adults in Quilpie Shire. There were consistent Isolated–Scattered density adults in Bourke–Brewarrina area of New South Wales.

Although the bulk egg laying for this season has taken place, the continued heavy rains throughout western Queensland and the Central Highlands should allow the survival of many nymphs already hatched. Fledging of early hatched nymphs from the current season may have commenced in February and fledging will increase during March and April. The likely outcome in terms of the overall size of the autumn adult population is difficult to determine, but adult numbers are again likely to be higher than average in Southwest, Northwest and Central West Queensland.

Light trap catches at Longreach and Julia Creek fell to low numbers during February after high catches in previous months. At Nooyeah Downs this species was trapped on numerous nights during February. This reflects a decline in both adult numbers and nocturnal activity of adults from last season. Low numbers of this species were also caught in the Dulkaninna and Oodnadatta light traps during February.

Migratory locust***Locusta migratoria***

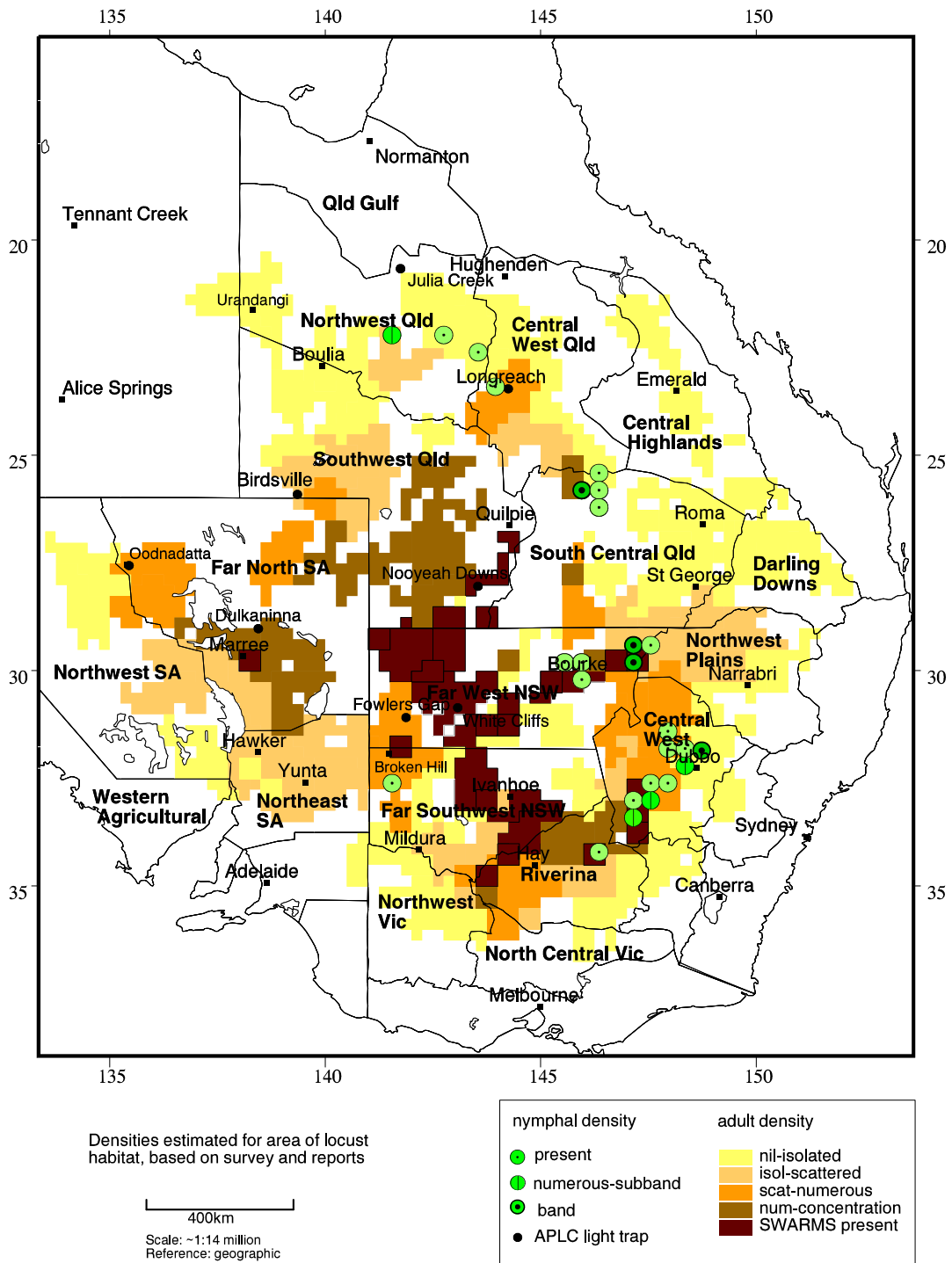
Occasional Isolated density adults were detected north of Augathella in late February. The Longreach light trap also caught low numbers of this species during February. This indicates some low level breeding has occurred in Central West Queensland during summer. Low density adults and light trap catches are common in this region during summer. Heavy summer rains could result in aggregation, egg laying and the possibility of localised gregarious populations developing in Central West, South Central or the Central Highlands of Queensland.

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

Locust distribution map

Australian Plague Locust Distribution

1 February to 28 February 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
Tullamore-Condobolin	15 February	6 March	18 March	9 April
Tibooburra-Wanaaring (early)	4 February	22 February	4 March	22 March
Tibooburra-White Cliffs (most)	14 February	2 March	12 March	31 March
Wilcannia-Louth	9 February	26 February	8 March	26 March
Ivanhoe-Menindee	15 February	5 March	15 March	2 April
Hillston-Mossgeil	19 February	9 March	20 March	7 April
Griffith-Coolamon	16 February	7 March	19 March	10 April
Hay-Balranald	14 February	4 March	17 March	8 April
Location - Qld	Egg laying	Hatching	Mid-instar	Fledging
Thargomindah-Quilpie	26 January	8 February	17 February	4 March
Noccundra-Windorah (early)	4 February	19 February	28 February	16 March
Noccundra-Windorah (most)	9 February	23 February	5 March	23 March
Longreach-Winton	22 January	6 February	18 February	5 March
Location - SA	Egg laying	Hatching	Mid-instar	Fledging
Innaminka-Marree (early)	9 February	23 February	6 March	20 March
Innaminka-Maree (most)	15 February	1 March	11 March	29 March
Oodnadatta-Marree	16 February	1 March	10 March	28 March

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. A date range is given for locations where extended egg laying is likely to have occurred.

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

- Adult locust density increased during February and several swarms formed in the western half of the Lachlan LHPA area, after the fledging of widespread medium density nymphs in the region. Sporadic egg laying occurred at the end of January in the western Central West and northern Lachlan LHPA areas, which produced some nymphs during February. Egg laying after mid-February will produce further nymphs, with Bands in some areas during March.
- Surveys in early February identified Scattered-Numerous density adults in the Central West LHPA. Present density mid-instar nymphs were identified in the Warren–Coonamble, Tomingley and the Peak Hill–Trundle areas. There were consistent Numerous density adults in the Nyngan area. In Lachlan LHPA area, swarm and Concentration density adults were identified in the Tullamore–Condobolin and Ungarie–West Wyalong areas. Most females had not developed eggs at that time and were associated with Present density fifth instar nymphs at some locations, but at Burcher samples from Concentration density females had 3 mm eggs.
- Locust activity increased in the second half of February and reports of swarms and nymphs were received from several areas. Survey identified 3-4 mm eggs in a swarm north of Condobolin and 2 mm eggs in a swarm near Ungarie on 18 February. Swarms were also reported near Rankins Springs and near Trangie. Band and Sub-band density mid-instar nymphs were reported from the Gilgandra–Rawsonville and Tullibigeal areas.
- There was also a range of grasshopper species throughout the Central West LHPA, including *Oedaleus australis* at Numerous-Concentration density in some areas.
- Most high density young adults in western Lachlan LHPA in early February developed from eggs laid following heavy rainfall in late December, but there may also have been an older cohort resulting from laying following rain at the end of November.
- There was variable moderate–heavy rainfall (20–>40 mm) in the region during the first and second weeks of February. There were light–moderate falls in eastern areas during 15–21 February.

Forecast

- A range of nymph and adult lifestages are present in the region, as a result of different timing of local populations and the number of rainfall events which produced breeding opportunities. As an example, at Burcher south of Condobolin, there were young and gravid adults, as well as some mid-instar nymphs in early February. Locust numbers are also likely to have increased in the eastern part of Lachlan LHPA.
- High density adults are likely to continue to appear locally in this region during March and sporadic egg laying may continue in favourable sites.
- Mid-instar nymphs in Central West LHPA in late February correspond with the report of swarm laying from south of Nyngan at the end of January, suggesting that layings may have been more widespread.
- Swarms in western Lachlan LHPA began laying eggs after mid-February and sporadic egg laying will continue in early March. There may also have been some sporadic earlier laying in the first week of February, which could produce nymphs in late February.
- A large nymph population is likely in Lachlan LHPA area during March. The bulk of hatchings will be in early March with fledging following in late March and April. Conditions remain favourable for nymphal survival in most areas. Any further egg laying in March will produce an increasing proportion of diapause eggs, which would not hatch until spring.
- Possible egg laying by swarms seen east of Carinda at the end of January, in northern Central West LHPA, could have produced some high density nymphs, but survey in late February detected only low densities. Any nymphs will fledge in mid-March and contribute to an autumn laying population.

- There is a moderate probability of immigration from the Darling, Far West or Northwest LHPA during late March and April.

Risk(s)

- There is a high probability that egg laying by swarms in Lachlan LHPA during February will produce a nymphal generation during March. Bands are likely to develop in some locations. More sporadic swarm egg laying is possible in Central West LHPA during March.
- Adults are likely to persist in localised high densities during March and density will increase further following fledging of nymphs in April. High density egg laying in late March or April could produce an infestation of nymphs in spring.

RIVERINA**Riverina and Hume Livestock Health & Pest Authority****Locusts and conditions**

- Adult locust activity increased after rainfall in early February as a result of fledging nymphs and subsequent migratory redistribution in the Riverina and Central West regions. Swarms were reported in the Hay–Gunbar–Maude, Binya–Weethalle and Moulamein–Balranald areas. Localised high density egg laying occurred from mid-February.
- Survey conducted in early February identified Numerous–Concentration adults in the Hillston–Booligal and Goolgowi areas, but densities were Isolated–Scattered in the rest of the Hay district and the Murray, Deniliquin and Narrandera districts. Swarms from late January remained around Kyalite.
- Following reports of swarms, surveys in mid-February identified Concentration and swarm density adults between Hay and Maude, and in the Binya–Weethalle area. The swarm near Maude showed 2–4 mm egg development, while at Binya both immature and egg bearing females were sampled from swarms.
- Egg laying was reported from near Coolamon on 16 February and both adults and nymphs from near Combanning in the Hume LHPA area. Adult densities have risen to Scattered–Numerous in the Wagga district.
- Early instar nymphs were reported from near Kyalite at the end of February.
- The Kyalite population persisted in the area south of Balranald during February, but some migration to the north and west resulted in increased adult numbers in the Balranald area. Hatchings reported in late February indicate there was an older component to the population, which was sufficiently developed to lay eggs in early February. Migration of these locusts could also have contributed to swarms reported in the Maude–Hay area.
- The increase in adult population in the northern part of this region in mid-February is primarily the result of fledging of nymphs which came from eggs laid in early December and late December, following the major rainfall events in recent months. Migration from the Ivanhoe–Hillston area could also have contributed to the population increase in the northern Riverina.
- There was moderate–heavy (20–>40 mm) rainfall in Hay and Murray districts during the first week of February, with further storms in the Hillston–Rankins Springs area in the second week. Other districts received mostly light rainfall at these times. Murray and Hay districts received further moderate falls during the last week of the month.

Forecast

- Some sporadic egg laying may have occurred around Hay before mid-February, while the bulk of egg laying in the Narrandera and Wagga districts occurred in the second half of the month. The majority of eggs are likely to hatch in the first half of March, with fledging to follow in April. Any further egg laying in March will produce an increasing proportion of diapause eggs, which would not hatch until spring.
- Elsewhere in the southern Riverina adult numbers are likely to remain at Scattered–Numerous densities during March, but the probability of immigration from the northern half of the region, and from other regions in NSW, will increase in late March and April.
- Some migration to Far Southwest NSW or Northwest Victoria is possible from the Kyalite–Moulamein area during March.

Risk(s)

- There is a high probability that a generation of nymphs, including some hopper Bands, will be produced in early March in the northern Riverina.

- There is a moderate probability of migration into the southern half of the region during late March and April. This would be primarily from northern Riverina, but immigration from other regions could also contribute to a large autumn breeding population.

NORTHWEST SLOPES & PLAINS

Northwest Livestock Health & Pest Authority

Locusts and conditions

- Surveys in February were confined to the western part of this region. Adult numbers declined in the Walgett–Carinda area after swarm activity in late January.
- Several Bands of mid-instar nymphs were reported to have been controlled in the area north of Narrabri in mid-February.
- An increase in adult activity in the Walgett area is indicated by reports in late February.
- There was moderate rainfall (20–40 mm) throughout the region during the first week of February and further moderate–heavy falls (20–>40 mm) in Walgett, Moree and Narrabri districts during 15–21 February. Light rain fell in Moree and Northern slopes districts in the last week of February.

Forecast

- Nymphs and possibly some at Band density were expected in the Walgett–Brewon–Carinda area during February, but surveys identified only occasional mid-instar nymphs. APLC aerial survey west of Brewon, however, did detect Bands on 26 February. Nymphs may be widespread in the Walgett area and would fledge in mid-March.
- An increase in adult density is likely in this region during March, possibly with some swarm formation, from both immigration of young adults in the Brewarrina area and fledging of nymphs within the region.
- Mid-instar nymphs in the Narrabri area would have fledged at the end of February and an increase in adult density to at least Numerous density is likely in the Narrabri, Moree and Northern Slopes districts.

Risk(s)

- A significant increase in adult population is possible in March from locust breeding within the region during February and possible immigration from the Brewarrina district.

FAR WESTERN

Darling and Western Livestock Health & Pest Authority

Locusts and conditions

- In early February a dramatic increase in swarm numbers occurred in the Tibooburra, Wilcannia, Broken Hill and White Cliffs districts of Western LHPA and the Wanaaring and Bourke districts of Darling LHPA. Egg laying began soon after heavy rains in early February and was reported throughout the month on many properties. First hatchings were reported from 25 February in the Tibooburra area and will continue during the first half of March. In the Bourke–Brewarrina area mid-instar Bands had developed by late February from earlier swarm egg laying at the end of January.
- APLC aerial survey during 22–26 February identified a number of Bands to the north and west of Brewarrina. A small area of Bands was also detected near Brewon, southeast of Brewarrina.
- Survey during 8–12 February identified a number of gravid and laying swarms in the Tibooburra–Milparinka and Urella–Thurloo Downs areas. Several swarms were also found in the Louth–Tilpa area along the Darling River.
- Numerous reports of swarm activity and egg laying were received from properties between Tibooburra and Wilcannia from February 8 and reports continued throughout the month. Swarms were also reported along the Barrier Highway between Broken Hill and Wilcannia from 8 February.
- First hatchings were reported from Clifton Downs and Mt Arrowsmith on 25 February and at Glen Idol near Broken Hill on 26 February.
- White Cliffs and Fowlers Gap light traps recorded low numbers of locusts during February, despite high numbers of adults occurring around the trap locations.
- The Insect Monitoring Radar (IMR) at Bourke detected large insect movements to the west and southwest during early February.
- There was widespread heavy rainfall (>40 mm) throughout the region during each of the first two weeks of February, with moderate falls in the Bourke and Brewarrina districts. There were more local heavy storms around Bourke and White Cliffs during the last two weeks of February. Vegetation conditions are green throughout the region.

Forecast

- Swarms were already present in the Wanaaring, Louth and Bourke areas during late January, but the rapid increase in swarm numbers indicates further immigration from Southwest Qld and westward movement within NSW in early February. The increase and subsequent widespread egg laying was associated with heavy rainfall in early February. The continued reports of laying activity during February indicate several pods were laid by females and therefore hatching will continue during March.
- A large number of high density hatchings is expected in the Tibooburra–Wilcannia area and many Bands will develop during March. This includes areas to the east of Tibooburra, the Wanaaring–White Cliffs, Broken Hill–Packsaddle and Tilpa–Louth areas. Fledging of nymphs will commence from the third week in March and continue into early April.
- APLC aerial reconnaissance for Bands is anticipated to commence in the first week of March and control is possible after that time.
- Swarms are likely to form in the Brewarrina district from mid-March and this could result in autumn egg laying and migration to parts of the Northwest and Central West LHPA. A larger number of swarms could be produced during late March and April in the Tibooburra–White Cliffs area. There will be an increasing risk of migration to other regions in NSW, particularly Far Southwest NSW, South Australia and western Victoria during April.
- Further high density egg laying could occur after nymphs fledge from early April and most eggs would enter diapause which would delay hatching until August and September.

Risk(s)

- There is a high probability that many Bands of nymphs will develop in the Tibooburra–Wilcannia area during March and this will be followed by swarm formation in late March and April.
- Some earlier swarm formation is likely in mid-March in the Bourke–Brewarrina area.

FAR SOUTHWEST**Western Livestock Health & Pest Authority****Locusts and conditions**

- Adult activity increased following heavy rains in early February. Survey subsequently identified swarms in the Gum Lake–Ivanhoe and Hillston–Mossgeil areas.
- Survey during 8–12 February identified consistent Scattered density adults in the Broken Hill–Menindee area, but Concentration and swarm density adults were identified between Gum Lake and Ivanhoe, and in the Hillston–Mossgeil areas. Samples showed a mixture of females with some fat and 2 mm egg development.
- There were several swarm reports from the Hillston–Ivanhoe area in mid-February. There was a swarm report from between Wentworth and Coombah in mid-February and from west of Balranald in late February.
- Moderate–heavy (20->40 mm) rains fell in the Broken Hill, Balranald and Ivanhoe districts during each of the first two weeks of February. There were further patchy light–moderate rains (20–40 mm) during the last week of February

Forecast

- The increase in adult activity is likely to have resulted from the fledging of nymphs which resulted from egg laying in late December. The nymphal population was likely to have been widespread at medium densities.
- Some emigration from swarms in the Kyalite area is indicated by swarm reports west of Balranald.
- Egg laying by swarms in the Hillston–Mossgeil and Ivanhoe–Gum Lake areas during the second half of February could produce a nymphal generation with some Bands during March.

Risk(s)

- There is a moderate probability of a nymphal population in the Ivanhoe and eastern Broken Hill districts during March and Bands could develop in some locations.
- The risk of immigration from Far West NSW will increase in late March and April.

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 apl原因@daf.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**

- Survey in Barcoo and Diamantina Shires in early February indicated locust densities remained low during February, but Bulloo and Quilpie Shires, where most swarm activity occurred in January, were inaccessible due to flooding. Small nymphal Bands were expected to develop in localised areas of this region during February following earlier reports of swarm egg laying, and nymphs were reported from one location south of Windorah. A more widespread nymphal population could develop during March.
- Ground survey was limited by flooding in western Queensland during February. APLC aerial survey during 22–25 February in Barcoo, Bulloo and Quilpie Shires did not detect any large Bands in areas where egg laying was likely to have occurred.
- Isolated–Scattered density adults were identified in Diamantina and western Barcoo Shires in mid-February, with some Numerous density adults near Birdsville.
- Adult locusts were reported as still active in the Noccundra area on 16 February.
- Swarms were reported near Eromanga and Thylungra in Quilpie Shire in early February. Survey in these areas on 9 February identified only Scattered–Numerous density adults.
- Nymphs were reported from Tenham, south of Windorah, on 17 February.
- The Nooyeah Downs caught locusts during 21–27 February and Birdsville light trap recorded low numbers of locusts during February, reflecting a decline in adult numbers and migratory activity.
- Rainfall was dominated by heavy summer storms during February. Bulloo and Quilpie Shires received heavy falls during each of the first three weeks of February, while Barcoo and Diamantina Shires received moderate–heavy falls (20–40 mm) in the last week of the month.

Forecast

- Continued heavy rainfall in the first half of February and earlier redistribution of adults from Bulloo Shire suggest that widespread egg laying was possible in all Shires in the region. Assuming egg laying activity of adults remaining in Bulloo Shire would be similar to that observed in the Tibooburra area, then intense egg laying could have occurred from early February and continued for several weeks. Hatching of eggs would have begun after mid-February and will continue during March.
- There could also be an older nymphal cohort present in various locations in this region, resulting from earlier egg laying in late January. The observed swarm laying east of Thargomindah would have produced nymphs which will fledge in early March. Swarm movements were reported in the Quilpie–Eromanga area and other locations in Barcoo and Quilpie Shires around that time, which could indicate that egg laying occurred in other areas.
- Locust density was low in Diamantina Shire in early February, but some migration and egg laying may have occurred after that time.
- Some high density egg laying in open areas along the Bulloo River in the Thargomindah area in late January may have been inundated by subsequent floodwaters. Much of the Bulloo floodplain remains flooded.
- The extent of egg laying in Bulloo Shire during February may be less than has been observed in the Tibooburra area because of widespread emigration in early February, but was likely to have been intense and continued at least in the southwestern Nappa Merrie–Naryilco area.
- This region could produce young adults continuously from late February to early April, with an associated risk of further migrations to adjacent regions.

Risk(s)

- There is a high probability that some Bands developed in this region during February, and that further Bands will develop during March. Adult population is likely to remain high in some locations during autumn and emigration to adjacent regions is likely from late March.

CENTRAL WEST & NORTHWEST

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

Locusts and conditions

- Limited survey was conducted in the Longreach and Blackall-Tambo Regional Council during February. Adult population density remained low in most areas, but Bands of nymphs developed in some locations.
- Bands of late instar nymphs and fledglings were identified on 25 February in locations in the Listowel Valley where egg laying had been reported in January. Elsewhere in the area adults were at isolated density, along with some Present density late instar nymphs.
- Nymphs were reported from Nogo near Longreach and from Isisford in mid-February.
- APLC aerial survey in the Listowel Valley area did not detect the Bands found on ground survey.
- The Longreach and Julia Creek light traps recorded no significant locust activity during February.
- Rainfall was dominated by heavy tropical summer storms during February. The southern Central West received heavy rains in the first week and second weeks of February, while other areas and the Northwest region received patchy very heavy falls during each of the last three weeks of the month.

Forecast

- The Bands in the Listowel Valley developed from egg laying in January. There were likely to be other localised Bands in the area, but limited road access and dense pastures make detection difficult. High nymph survival may be restricted to areas of more open vegetation. Fledging was in progress on 25 February and will continue into early March.
- The Bands reported near Longreach may also represent a more widespread nymph population, which will fledge in early March.
- Adult density will increase during March following fledging of nymphs from January egg laying. Some small swarms could form in the southern Blackall-Tambo and Longreach Regional Council areas.
- Autumn breeding is possible in the southern Central West and Northwest regions after adults mature during March, and could produce a localised population of nymphs.
- There is a low probability of immigration from Southwest Queensland during March and April.

Risk(s)

- A moderate increase in adult population density is likely in the Central West region from early March as nymphs complete fledging.

CENTRAL HIGHLANDS

Central Highlands and Isaac Regional Council

Locusts and conditions

- No survey was conducted in this region in February and there have been no reports.
- Rainfall was dominated by heavy tropical summer storms during February. There were heavy storm rains (>40 mm) throughout this region during 1–7 February and 15–21 February. There were further patchy light–moderate (20–40 mm) falls during the last week of February.

Forecast

- The very low population level in the region is likely to continue during autumn, even with some possible breeding after heavy rainfall during February.

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

- No survey was conducted in these regions during February and no reports were received. A nymphal population was expected to develop during February in parts of Paroo and Murweh Shires, following swarm activity and egg laying in late January.

- Access limitations due to flooding in Paroo Shire did not allow sites of reported egg laying to be checked in February.
- Rainfall was dominated by heavy summer storms during February. There was widespread heavy rainfall (>40 mm) throughout these regions during the first week of February and further locally heavy falls in parts of Roma and Murweh districts during 8–14 February. There was heavy rainfall in Balonne and Murweh Shires, and Roma and Dalby Regional Council areas during 16–21 February and patchy light–moderate (<20–40 mm) rainfall in Roma. Murweh and Paroo districts in the last week of the month.

Forecast

- Nymphs are expected to have developed in limited areas of suitable habitat in western Paroo and Murweh Shires, following sporadic swarm activity in January. Assuming some egg laying in late January, resulting nymphs would fledge in early March and an increase in adult population is likely.
- A continuing low density population is likely in other Shires and Council areas during March. However, sporadic high density egg laying was possible in late January and February and this could produce higher density adults in some areas during March.
- Immigration of adults from the Brewarrina district of NSW is possible after mid-March, following fledging of the nymphal population currently in that area.

Risk(s)

- A moderate increase in population is likely during autumn after nymphs from any breeding in January or February fledge. Higher densities are likely in Paroo and Murweh Shires, but access limitations in other districts have limited landholders ability to assess locust numbers on their properties.
- There is a low probability of significant migration from the Bourke–Brewarrina area of NSW in late March and April.

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 aplc@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**

- Locust activity increased in the Far North and Northeast regions during February. High density adults were reported from the Dulkaninna–Innamincka area following heavy rains in early February. Reports were received from the Marree–Lyndhurst and Oodnadatta–Coober Pedy areas from mid-February, and in the Hawker–Parachilna area after 20 February. Habitat conditions are suitable for locust breeding and egg laying, which could produce a generation of nymphs during March.
- No surveys were conducted because of road closures during February, but reports indicate high density adults in numerous locations.
- The Dulkaninna and Oodnadatta light traps recorded locusts from early February, with high numbers during 13–18 February. High numbers were caught again at Oodnadatta from 21 February.
- Reports of up to swarm density locusts were received from Dulkaninna and Innamincka on 12 February, and from Mt Barry and south of Marree on 18 February. Numerous density locusts were reported from the Parachilna area of the southern Flinders Ranges. and as far south as Quorn on 22 February. Locusts were reported as congregating in drainage areas.
- Low numbers of adults were reported as having been present in the Quorn area for several weeks.
- There was very heavy rainfall in the Moomba-Marree area of the Far North region during each of the first two weeks of February, with light–moderate falls in the Flinders Ranges. The northern Flinders Ranges area received further moderate rainfall (20–40 mm) during the last week of February.

Forecast

- The increase in adult population is primarily the result of immigration from adjacent areas of Far West NSW and Southwest Qld during the first half of February. The reporting of adults appearing progressively across the Far North soon after swarm numbers increased in the Tibooburra area of NSW would support this. However, the increase may have included a component of locusts from local populations of a similar age from within South Australia, due to similar timing of rainfall in late November in the Far North region.
- Egg laying by high density locusts could have commenced as early as 9 February in the Innamincka–Cordillo Downs or Dulkaninna–Clifton Hills areas of the Far North. Early hatchings could begin in late February and nymphs reach mid-instar by early March. Laying is likely to have occurred after mid-February in the Marree–Lyndhurst and Oodnadatta areas, with hatching at the start of March and fledging following at the end of the month.
- While most reports have identified adult locusts appearing over several days, the report of low density adults in the Quorn area could indicate a persisting population in the southern Flinders Ranges area.
- Egg laying is likely to be concentrated along drainage lines and flooded areas and subsequent nymphal populations will be localised in these areas. Nymphs could develop at Band density in favourable habitats in the Far North and Northeast regions during March.
- Widespread fledging of nymphs during the second half of March will produce an increase in adult population and the possibility of some swarm formation. There would be a subsequent risk of migration to areas further south in South Australia, including the Western Agricultural, Murray Valley and southern Northeast regions during April.
- Significant immigration into the Far North and Northeast region from western NSW could also occur during late March and April.

Risk(s)

- A significant nymphal population is likely to develop in the Far North region during March, resulting in a large increase in adult densities from late March.
- There is a risk of significant southward migration from the Far North region in late March and April and an additional risk of some immigration from western NSW into the Northeast region at that time.

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 apl@daf.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 in February identified a persisting Scattered–Numerous density adult population.
- Low density adults and nymphs were reported from near Boort, south of Kerang, in mid-February.
- There was light rains (< 20 mm) across northern Victoria during the first week of February. There were some moderate falls (20–40 mm) in North Central Victoria during the last two weeks of the month.

Forecast

- While population density remained generally low in northern Victoria, nymphs in the population south of Kerang indicate some low density breeding.
- Some immigration into Northwest Victoria from adjacent parts of the western Riverina is possible during March.
- The risk of immigration into northern Victoria will increase during April after fledging of nymphal populations in NSW.

Risk(s)

- There is a moderate probability of some immigration from NSW in late March and April.

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

WESTERN AUSTRALIA

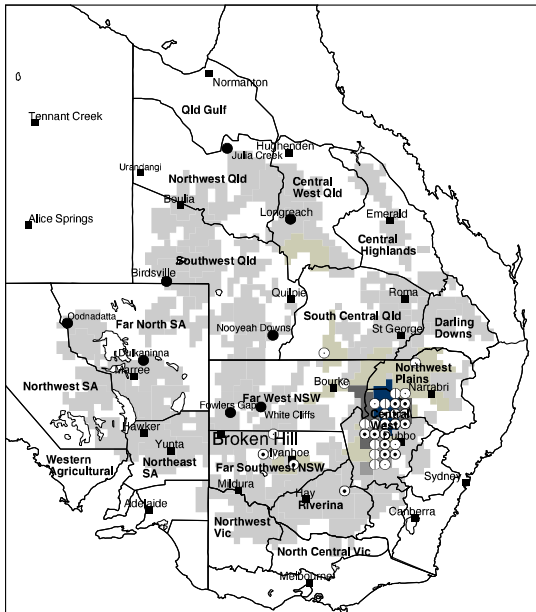
CENTRAL AND SOUTHERN AGRICULTURAL REGIONS

- 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>

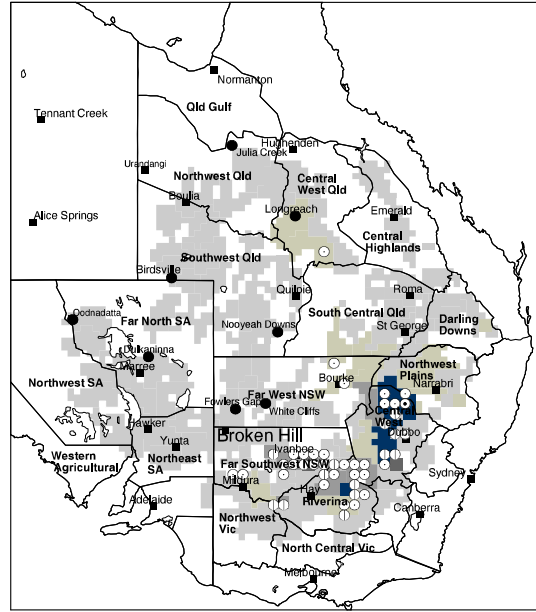
Previous distribution maps

Previous Australian Plague Locust Distributions

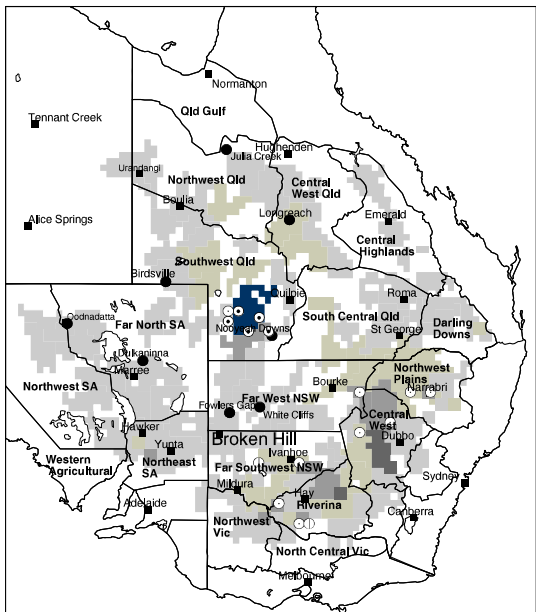
October 2009



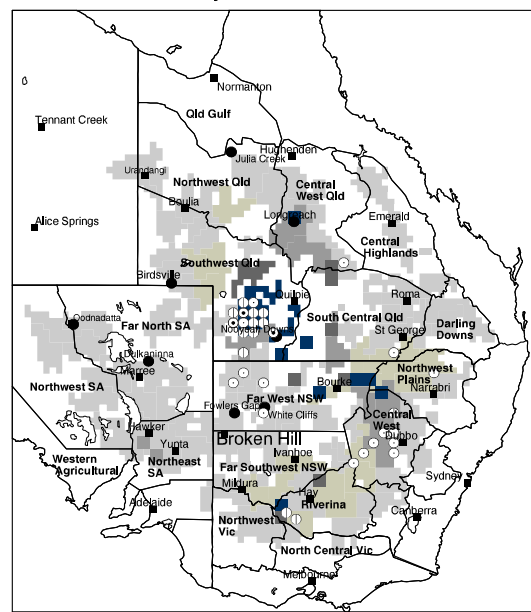
November 2009



December 2009



January 2010



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

nymphal density

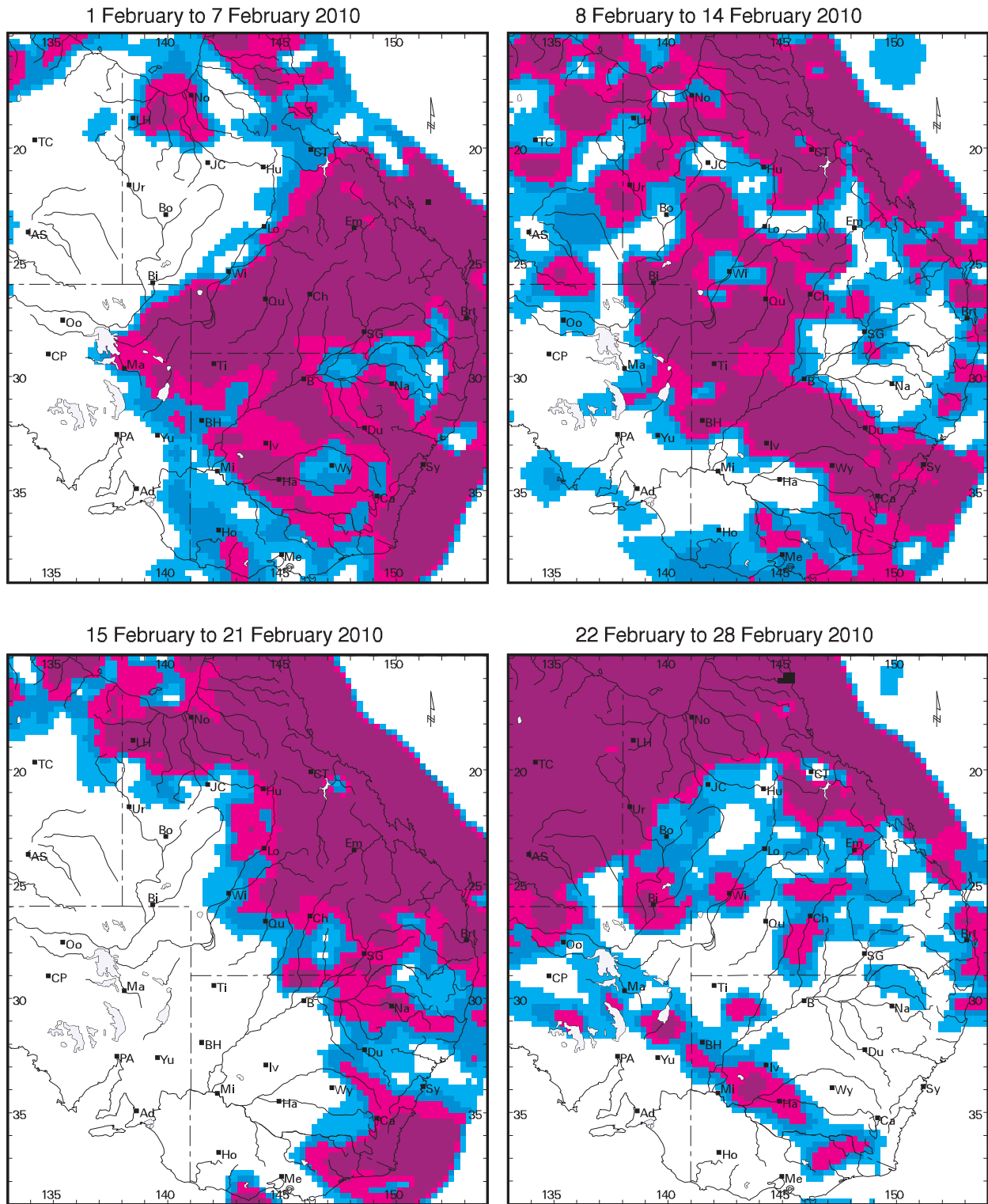
adult density

- present
- ⊙ numerous-subband
- ⦿ band

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

Rainfall maps

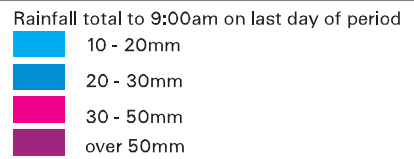
Rainfall Distribution



Shows major rainfall events during previous forecasting period

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

Base: Geoscience Australia TOPO-10M
Reference: geographic



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: apl@dapf.gov.au

Internet: <http://www.daff.gov.au/aplc>