

Surveillance and reporting of locusts

Authorised by (DPI)	Deputy Director General Biosecurity & Food Safety	Authorised date (DPI)	16/07/2015
Authorised by (LLS)	Senior Executive Team	Authorised date (LLS)	01/06/2015
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1. Application / Scope

- This procedure assists NSW Department of Primary Industries (NSW DPI) and Local Land Services (LLS) personnel and associated agencies to prepare for a locust outbreak including resourcing, training, monitoring, and surveillance.
- A planned coordinated response by land managers, control agencies and other stakeholders will provide the most effective and efficient locust control response.

2. Abbreviations / Definitions

- APLC: Australian Plague Locust Commission
- GPS: Global Positioning System
- LCC: Local Control Centre
- LLS: Local Land Services
- NSW DPI: NSW Department of Primary Industries
- Nymphs: Immature stages of locust development before insect reaches adulthood
- Outbreak: Population that reaches band (hoppers) and then swarm (adults) density but the locusts fail to reproduce
- Plague: A situation in which swarms propagate themselves, i.e. high population densities persist for many generations of locusts
- Population: Group of interbreeding individuals at a particular time and location
- SCC: State Coordination Centre
- Swarm: An aggregation of migrating adults (typically used to describe flying locusts)
- WHS: Work Health and Safety

3. Resources / Equipment

- Electronic tablets
- Forms
- Global Positioning Systems (GPS) equipment to accurately determine and communicate the position of locust activity
- Locust information and insecticide use information sheets
- Maps of areas affected by locusts including locations of previous egg beds

4. Warnings

- Refer to the following safe work method statements for Work Health & Safety (WHS) issues:
 - *driving vehicles*
 - *property visits*
- Visiting properties may involve biosecurity restrictions particularly for organic or specialised enterprises. Refer to the risk assessment - *Maintaining biosecurity entering and exiting*

properties.

- Collection of locusts in the field may involve WHS risks – refer to the risk assessment - *Collection and examination of locusts.*
- Personnel performing ground surveillance may operate in remote and/or isolated locations requiring a risk assessment approach to tracking their location. Refer to the procedure *Monitoring location of field personnel.*

5. Procedure

Planning and coordinating a successful locust control program involves early detection of insect activity. Refer to the policy *Locust response – Management* for the details on responsibilities in control, surveillance and monitoring of locusts.

5.1 Preparations

5.1.1. LLS Preparations

LLS and NSW DPI personnel are required to maintain an inventory of spray equipment and supplies and make it available for use when requested. Resources may include:

- insecticide related equipment including personnel protective equipment, insecticide boom sprays, insecticide application equipment, spray nozzles, misters, wind meters, GPS units
- supplies of the leaflet 'The Australian Plague Locust, Landholder Control Strategies for NSW' and the SAFEMEAT brochure 'Plague locusts, wingless grasshoppers and livestock residues'.

LLS will ensure that sufficient insecticide is available at LLS depots. Insecticide should be managed according to the *Insecticide Management for Locusts* procedure.

LLS should ensure that all equipment used by the LLS or loaned to landholders for locust control activities is serviced and in good working order. Landholders must also be instructed or trained in the safe use of such equipment, and provided with the manufacturer's operating manual and procedures. The *Landholder Consultation Record* should be signed by people borrowing equipment stating they have been instructed in its safe and correct use.

LLS personnel should ensure:

- a. landholders are aware of the threat posed by locusts in their area by way of information meetings, field days, community meetings, local media and letters to landholders
- b. landholders in their area are familiar with the identification of all stages of locusts
- c. landholders identify, mark (with a physical marker such as a painted peg or flagging) and monitor locust egg-beds on their property and report locust activity to the LLS
- d. ground spray contractors are engaged and inducted.

Insecticide users have an obligation to read and comply with insecticide labels and permits and to comply with legislation ensuring only qualified people apply insecticide. This is the responsibility of the landholder.

5.1.2. NSW DPI preparations

During the period before an expected locust outbreak NSW DPI will:

- determine the forecast for the upcoming locust season, in consultation with the Australian Plague Locust Commission (APLC)
- ensure that LLS are aware of the locust forecasts for their region
- ensure the leaflet 'Australian Plague Locust, Landholder Control Strategies for NSW' and the SAFEMEAT brochure 'Plague locusts, wingless grasshoppers and livestock residues' are up-to-date and available
- ensure adequate insecticide is available and supplied to LLS as requested
- if required, organise for tests on insecticide stocks to determine their efficacy
- prepare and distribute appropriate media and educational material to ensure

landholders are equipped to prepare for the forecast locust outbreak, in cooperation with LLS and the APLC

- provide appropriate training programs for LLS and NSW DPI personnel to ensure that personnel fully understand the program strategy, recommended locust control methods and related environmental, health and safety issues
- ensure adequate information is current and available
- ensure LLS have appropriate equipment serviced and ready for the locust campaign
- maintain relationship with NSW Rural Fire Service State Air Desk (NSW RFS SAD)
- identify and map sensitive sites in conjunction with Office of Environment and Heritage
- if required, issue a joint letter with LLS to targeted landholders advising that authorised officers may enter their land to inspect for the presence of locusts under Section 164 of the *Local Land Services Act 2013*.

5.1.3. Training

Training is essential for all personnel involved in locust control. Personnel will be allocated to specific roles related to their training, skills and experience.

LLS and NSW DPI should arrange for their respective personnel to be trained.

Training consists of:

- locust information workshops (face-to-face and/or online)
- mentoring by spending time in the field in their own LLS region or another LLS region if locust activities are being undertaken.

5.2 Entering private land

- In order to enter private land to carry out a function of the Act, personnel must be authorised under the *Local Land Services Act 2013*.
 - Section 164 for authority to enter
 - Section 172 for authority to carry out control
 - Section 173 notice of entry to the occupier
 - Section 173 (2) does not allow the notice of entry and the entry to occur on the same day
 - Section 141 for the issue of an individual Eradication Order
- In situations where the occupier of the land cannot be found or refuses to give approval, entry, inspection and treatment may occur, but only with the prior authorisation of the LLS and State Controller.
- Where a landholder has provided oral or written objections to the entry or to the treatment, those objections must be considered by the State Coordination Centre (SCC) and accommodated if it is possible to do so without compromising the overall success of the control program.
- Treatment, without notice to or without approval by the occupier, should only proceed in situations where the treatment of the locusts is crucial to the overall success of the control program. The reasons for a decision to treat in the absence of consent must be documented by the SCC.
- An Order has been issued under the *Plant Diseases Act 1924* authorising entry onto land to conduct locust survey work by APLC staff only.

5.3 Surveillance

In the first instance public and private landholders/managers are responsible for locating locusts on their properties. LLS, NSW DPI and APLC personnel will also conduct locust surveys.

Ground surveillance conducted by LLS/NSW DPI/APLC personnel should be targeted, planned and pro-active by:

- recording landholder reports
- contacting by phone neighbours of affected landholders and other landholders in the general area to check for activity (if not already reported)
- recording negative findings.

The extent of nymph populations should be identified by walking or driving across the area and taking GPS waypoints or noting structural or geographic features at the extremities.

Maps or GPS data should be used to record the location size, density and stage of nymph populations.

Ground surveys and searches should also be undertaken to confirm aerial surveillance (when conducted).

Aerial surveillance is conducted by APLC. NSW DPI coordinates aerial surveillance according to the procedure *Aerial control of locusts*.

LLS personnel should assess the locust situation and request aerial support if required. Aircraft contractors and aircraft will be assigned according to the *Locust response - Control policy* and *Emergency management – Use of aviation policy*.

5.3.1 Egg-beds

- Inspect all reports of suspected egg-laying to determine whether eggs are present.
- Monitor all known or suspected egg-beds, and other areas where previous activity of locusts has occurred when soil temperature and moisture levels rise to initiate hatching.
- Dig (to a minimum depth of 10 cm) for signs of eggs. If no eggs are present, the locusts may have been 'test-drilling' the area. This area may still be important as egg laying may have occurred nearby.
- Mark egg-bed with a painted peg or flagging and record the latitude and longitude (Lat/Long) coordinates. Record directions to locate the site.

Personnel should refer to the APLC for a likely time of hatching from locust laying sites and monitor the area for signs of locust hatching.

5.3.2 Nymphs and Adults

- Inspect hatchings, nymphs and adult locusts prior to issue of insecticides.
- During times of high activity, not all reports may be inspected prior to insecticide issue. Refer to procedure *Insecticide Management for Locusts*.

5.4 Reporting

- It is a landholder's legal responsibility under Part 10, Sections 142 and 143 of the *Local Land Services Act 2013* and the associated current Pest Control Order to immediately report and control pest insects on their land.
- Landholders must report activity to their LLS.
- Record the information on the *Plague Locust Report* form and send in a timely manner to NSW DPI and APLC.
- LLS collate and summarise daily information from *Plague Locust Report* forms and enter into an information management system.

Note: Latitudes and longitudes must be recorded clearly and consistently as degrees and decimal minutes (e.g. -33°17.156' 149°6.334'). Alternatively, decimal degrees may be used but must be clearly defined (e.g. -33.28593° 149.10557°).

5.5 Post Control Check

Post control checks allow an evaluation of the effectiveness of the spraying technique (particularly of contractors) and assessment of any off-target impacts, particularly important for aerial control. Post control checks are used to investigate any complaints regarding insecticide efficacy and environmental effects. Post control checks are conducted by spray contractors, land managers, LLS or the Local Control Centre (LCC) depending on who conducted the spraying.

Post control checks are conducted as follows.

- Entering approximately 72 hours after the target area is sprayed or after the period stipulated on the label/permit (except *Metarhizium*). Adult locusts may move away from an area after being sprayed so the effectiveness of the spraying can be difficult to determine.
- Checking for quick kills (that is, locusts dying within six hours) as it may indicate overdosing.
- Driving through the treated area, sensitive areas and the buffer zones (particularly for aerial control).
- Recording observations on *Post Control Check* form. Non-target mortalities should be recorded and samples collected for testing for residues.
- Inform the LCC or MBES at the relevant LLS immediately if problems are identified. A Technical Specialist must review application techniques. The calibration of the spray unit/aircraft, the age and condition of the insecticide and all other factors must be checked. Until the problem is rectified, no other spraying should take place. High numbers of locusts may indicate reinfestation of the treated area.

If significant numbers of locusts are present 72 hours after spraying, the insecticide label or permit should be consulted to determine the minimum period before any respraying should be undertaken.

Metarhizium (eg Green Guard ®) will take up to 2 weeks to kill locusts depending on temperature, as it is a fungal bio-control agent and so is generally only used on nymphs and not adults.

6. References

Policy

- [TI-O-171 Locust response - Control](#)
- [TI-O-173 Locust response – Insecticides](#)
- [TI-O-172 Locust response - Management](#)

Procedures

- [Aerial control of locusts](#)
- [Ground control of locusts](#)
- [Insecticide management for locusts](#)
- [Monitoring location of field personnel](#)

Forms

- [Chemical storage inventory and order form](#)
- [Landholder Consultation Record](#)
- [Plague Locust Report form](#)
- [Post Control Check](#)

[Safe Work Method Statements](#)

- [Driving vehicles](#)
- [Property visits](#)

Risk assessment

- [Collection and examination of locusts](#)
- [Maintaining biosecurity entering and exiting properties](#)

Information

- [Australian Plague Locust, Landholder Control Strategies for NSW](#)
- [Plague locusts, wingless grasshoppers and livestock residues](#)

Legislative Acts and Regulations

- [Local Land Services Act 2013](#)

- [Pesticides Act 1999](#)
- [Plant Diseases Act 1924](#)
- [Work Health and Safety Act 2011](#)

7. Revision History

Version	Date	Section	Details
1	31 Oct 08		For approval
2	18 Aug 09	All 4 5.2, 5.4.1, 5.4.2 5.7.1 5.7.3	Update NSW DPI to NSW DPI; insert table of contents Inclusion of SWMS, risk assessments, monitoring procedure Clarify role of APO/PDO Detail on ground surveillance requirements Add section on Post Control Check
3	16 Aug 10	2, 5.4.2 2, 5.1, 5.3 6	Update APO/PDO to NSW DPI extension personnel Remove reference to PIDF Update references
4	14 May 15	All	Reformat and review, LLS and <i>Local Land Services Act 2013</i> .

Contact Officer: State Emergency Coordinator

8. Appendices

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