

Subcommittee on National Plant Health Surveillance

SNPHS Reference Standard

Development and Approval of National Surveillance Protocols for Plant Pests

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Part 1 Development and approval of National Surveillance Protocols for plant pests

1 Purpose

The purpose of this Subcommittee on National Plant Health Surveillance (SNPHS) Reference Standard (Reference Standard) is to guide authors in developing a surveillance protocol. It also describes the process for the protocol to be accepted as a National Surveillance Protocol (NSP).

A surveillance protocol is a technical reference guide for conducting surveillance on a specific plant pest or group of plant pests. It includes information on surveillance methodology, pest biology and taxonomy, identification and sample processing.

The Reference Standard may be used across all jurisdictions and national plant biosecurity surveillance programs including those undertaken by industry, government and the community, (regardless of whether approval as a NSP is required).

This Reference Standard provides a mechanism to ensure that contemporary science and surveillance practices are applied and all relevant information is included in a consistent manner across all surveillance protocols. NSPs contribute significantly to achieving a coordinated plant health surveillance system that meets national and international requirements.

NSPs will be used for all national surveillance programs and their use is also encouraged for all other relevant surveillance activities conducted by governments and industry in Australia. A surveillance protocol is the first point of reference for developing surveillance plans.

2 Scope

This document contains:

- Section 1 - Development and approval of National Surveillance Protocols (NSPs) for plant pests - Reference Standard overview
- Section 2 - Development and approval of National Surveillance Protocols (NSPs) for plant pests – guidelines and template
- Section 3 - National Surveillance Protocol approval process (for the Protocol to become a NSP)
- Appendices – Includes checklists for protocol development and the approval process

The Reference Standard guidelines provide the broad principles for the structure and development of a NSP. These Reference Standard guidelines do not provide specific detail around surveillance design and statistical rationale but rather the broader concepts of surveillance design. Statistical rationale will vary significantly depending on the surveillance objective, pest and type of surveillance being conducted. Where required this information should be included in the surveillance plan.

Guidelines on information to include in a NSP are provided in the Surveillance Protocol Template in [Section 2](#). For a protocol to become a NSP, it must go through an approval process as described in [Section 3](#).

The NSP should be easy to read, well-structured and with an adequate amount of detail to enable readers to understand the surveillance purpose and methodology. Authors should follow the content

template in Section 2 below and additional content and sub-headings may be included as required. In developing the content of the NSP, relevant sourced information and documents should be referenced. This may include relevant information informing the conduct of surveillance that may be held in any existing National Diagnostic Protocols. Surveillance protocols that are prepared in accordance with the instructions can be considered for approval as a NSP.

A surveillance protocol Includes information and/or reference to:

- Why the surveillance is required
- Scope
- Pest biology/ecology relevant to surveillance
- Risk/pathway analysis
- Surveillance methodology
- Data recording
- Diagnostic considerations

All relevant documents and templates that may need to be used to develop Surveillance Plans should be referenced and added as an appendix in the Surveillance Protocol.

The Surveillance Protocol does not contain;

- Statistical calculations to assist with surveillance planning as this is highly variable. Please note there may be mandatory requirements for some pests that need to be considered or noted.
- Site/area specific information (however, regional differences may be referred to as requiring consideration when developing Surveillance Plans).
- Information that is to be included in Surveillance Plans

The Surveillance Plan includes further information specific to location and surveillance implementation, such as:

- Survey/site/region specific objectives
- Survey design and proposed statistical analysis
- Logistics
- Resources
- Operational groups for delivery
- Mapping, data collection requirements etc.
- Implementation plan
- Survey timeframe (could be a once-off project or an annual occurrence)
- Quantity of effort required to meet objectives
- Training requirements
- Sites that will be targeted to detect the pest as per guidelines in the Protocol

Part 2 National Surveillance Protocol Template

This section provides a template and instructions for developing a NSP. All instructional information, starting at Number 1 below, should be removed once all information for the specific protocol has been completed.

Text can be provided as dot points where appropriate for ease of reading. References can be used in the event that further detail may be required. The inclusion of relevant photos is also encouraged.

The audience for the protocol (who will be using it for what purpose?) should be carefully considered. The audience may include operational managers, third parties or industry. The main purpose of this document is to enable readers to develop surveillance plans that are specific to the surveillance requirements, purpose and location to be surveyed. The surveillance Protocol should provide all the information, options as well as identifying issues or gaps for the reader to consider when developing a plan.

Ensure that species and genus are clearly stated throughout the document. Common names can also be included. However, do not use common names alone unless the species is clearly defined in the first instance for the purpose of this document. Plain English should be used throughout the document. When using less common terms, define them in Table 1. Definitions and terminology.

Before commencing development of the NSP, Read the entire template and ascertain which sections you would start on first. You can then revisit section to add content as more requirements or gaps become apparent.

1 Cover page

The cover page is a standardised template cover as shown in Appendix 1

2 Scope/ rationale

This section must cover both sections a) and b) below:

- a) The biosecurity reason for conduct of the surveillance, including decisions that the surveillance may influence (such as, market access requirements, area freedom etc. This section should include a rationale as to why the pest/s should be targeted for surveillance and the objective of that surveillance. A single NSP may cover groups of pests rather than a single pest, provided the surveillance required across the group is similar. Any minor differences across the group must be clearly defined. If there are major differences, consider writing separate protocols.
- b) This section must clearly state which of the three types of surveillance defined below is to be carried out, along with the associated surveillance objectives and methodology. One or more surveillance types may be relevant. This section is to be short and succinct.
 - Detection surveillance:** conducted in an area to determine if pests are present (or absent). Often used as a tool to determine pests status on identified high risk pathways from neighbouring countries and through international trade and passenger movements can also can be used to inform a risk analysis on potential pathways.

- **Delimiting surveillance:** conducted to establish the boundaries of an area considered to be infested by or free from a pest. It determines the extent of plant pest incursions to inform emergency responses and other management arrangements.
- **Monitoring survey:** an ongoing survey to verify the characteristics of a pest population. Often used to determine status of an existing pest population from previous detection and/or delimiting surveys that were conducted.

3 Background/introduction

This section provides background information on the pest, including information that is relevant to the surveillance methodologies that may be applied. This section should summarise the impact of the pest, its world distribution/geographical information, native ranges, status of the pest in Australia (e.g. exotic, regulated or established), and control and management methods. The correct scientific name of the pest (including internationally recognised synonyms) should be introduced here along with other common names if applicable. The information may be obtained from various sources including The Plant Health Australia website and the Centre of Agriculture Bioscience International (CABI) website.

The priority of the pest and potential to eradicate it at various stages on the invasion curve also to be covered here.

For example the type of surveillance conducted on each area of the invasion curve might be;

Prevention = Surveillance for early detection at the border or off-shore surveillance activities.

Eradication = Surveillance to detect if a pest has been eradicated or not to assist with for example, pest freedom claims

Containment = Delimiting surveillance to determine if a pest has been contained and the extent of the containment.

Asset based protection = Surveillance to assist with control measures and determine level of abundance of a pest to, for example; aiming to protect agricultural production and environmental or public assets.

However consideration needs to be given to prioritising or targeting the surveillance activities to where they are most effective and efficient. Consideration may also need to be given to what inspections and general surveillance already occur and their effectiveness in order to prioritise targeted surveillance activities. Keep in mind that some of this will vary in different regions and it may need to be indicated that it needs consideration when developing a surveillance plan.

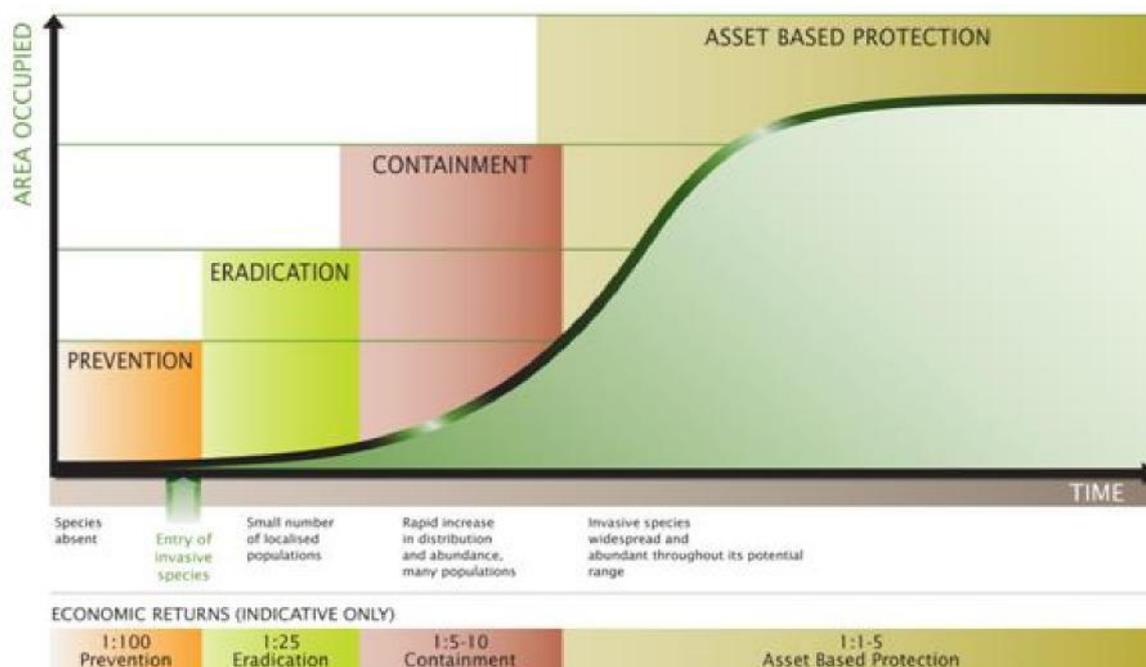


Figure 1 Generalised Invasion Curve Showing Actions Appropriate to Each Stage

Source: Department of Economic Development, Jobs, Transport and Resources, Victoria

This section can include information on other surveillance protocols relevant to the pest and how they are related to this protocol. Information provided here should be clearly referenced. See <http://plantbiosecuritydiagnostics.net.au/sphd/sphd-reference-standards>.

4 Research and development

This section can be brief and is aimed to provide insight into the ability to undertake surveillance and meet surveillance outcomes. This section might identify and explain knowledge, knowledge gaps and risks in regards to basic biology, climate modelling (including climate change) trapping techniques and efficacy, research in biological controls and use of citizen science.

5 Definitions and terminology

The section defines the abbreviations, acronyms and the important terms used in the NSP. The terms provide a standardised language and create a common understanding of terms among reviewers and surveillance providers. Some terms may have alternate definitions in other contexts.

Table 1 Definitions and terminology

Term/abbreviation	Definition

6 Pest risk profile and pathway analysis

This section should include general information that is relevant to surveillance on pathway analysis, including entry, establishment and spread potential such as agricultural practices or the movement of good, people etc. affecting rate spread. Specific aspects of the pest risk profile that impact on surveillance should be clearly stated. Any risk analysis that has been completed previously is to be researched and referenced, including relevant Priority Pest Surveillance Requirements (PPSR) (contact SNPHS Secretariat for further information). The Surveillance Table in Appendix 2 can also be used to identify risk pathways and target the surveillance accordingly.

Considerations to surveillance should include:

- What are the consequences of pest entry or establishment?
- Is it a serious pest elsewhere?
- Do we grow the appropriate host?
- Are effective control measures available?
- Does the risk area have the vector?
- Is the climate suitable to support the pest?
- What are the current offshore, border and onshore control measures including quarantine/climatic/physical barriers for pest entry? What are the risks of these parameters changing?
- What are the primary pathways of pest incursion and spread, including actual movement along such pathways? What are the secondary pathways and minor pathways?

7 Pest biology and ecology

This section details the aspects of pest biology that affect surveillance. Include references where relevant should more detail be required by the reader.

Information should be sourced from SPHD Diagnostic Protocols and then other DAWR Pest Risk Profile information in the first instance. The documents used are to be included in the reference section. Consider including the following information to enable surveillance planning and implementation. Clearly and briefly state specific aspects that impact on surveillance. Reference may be made to the appropriate SNPHDs Diagnostic Protocol for each of the headings below.

- **Detection and identification** – Describe commonly used detection and identification methods including morphological, serological and molecular methods at each stage (insects), to the extent that is required for surveillance methods. Examples may include for the purpose field triage of samples, field diagnostics, sample selection and preparation.

- **Lifecycle** - Briefly describe the life cycle including rate. Rate of development, number of generations/infection cycles per year, obligate alternation between hosts etc.
- **Habitat** - Briefly describe the preferred habitat and relationship between the pest and abiotic factors. Describe survival in adverse conditions and records of adaptability if relevant. Examples include the effect of seasonal/temperature variation on developmental stages, spread of the pest and its vectors. This will also include microclimatic and regional differences that affect the life cycle of the pest and the way the pest may behave.
- **Transmission** – If relevant, briefly describe the characteristics of transmission and dissemination of the pest or disease (e.g. vectors).
- **Vector(s) or vectoring capacity** – If relevant, list vectors for the pest and disease, or list pests and diseases for which the subject of this NSP is a vector. Detail the vectors' lifecycles and their status in Australia.
- **Movement** - Briefly describe the natural means of movement, natural vectors, speed and range of dissemination.

8 Host range and part of host affected

This section should contain information on the host range of the pest. Host range should be entered in list format. For long host lists, only hosts at family level can be included here with a detailed host list provided as an appendix. This section includes a clear description of the host-pest relationship. Host specificity for certain developmental stages and specific aspects of host range that impact on surveillance should be clearly stated.

- Primary hosts - List major or minor hosts; naturally affected or under artificial conditions, cultivated or wild etc. Describe the nature of the host range e.g. polyphagous, mainly on one plant family, specific to a single species etc. (Use semi-colons between names, full stop at end only if sentence)
- Secondary hosts (use semi-colons between names)
- Other host/susceptible species (if any) (use semi-colons between names)
 - Plant parts affected e.g. leaves; stems; trunk; roots; fruit (use semi-colons between names)
 - Plant stage affected e.g. mature plants; young plants; seedlings; seed (use semi-colons between names)

9 Pest damage/ symptoms/ disease expression

This section should describe signs and symptoms of the pest damage, including/pathogen, the plant parts affected, and specific symptoms/ damage on each major host species that will be targeted during a surveillance program. Clear photographs depicting the damage and symptoms are helpful for detection and field identification of the pest. Include any dormant periods and the time of year when symptoms/ damage are most easily seen. Consider describing minimum training and expertise required to enable detection that may assist in writing a surveillance plan. Provide details of any symptoms which can be confused with other biotic or abiotic factors and how to differentiate between them.

10 Surveillance methodology

Descriptions are provided below for sections that make up surveillance methodology (see also Table 2 in appendix). Existing surveillance requirements that may occur in pest specific contingency plans should be identified and referenced.

10.1 Survey locations

This section should provide the areas, habitats, and hosts that should be surveyed for detection of the targeted pest and its vectors. Selection of survey locations should be based on risk pathway analysis and establishment potential (biology and habitat of the pest, vectors and the hosts).

10.2 Surveillance methods

This section should describe the available techniques for surveillance and their relative strengths and weaknesses, identifying which techniques are best for early detection, pest status/area freedom and delimiting surveillance as per section 2b. Some examples of surveillance techniques include visual inspection, trapping, sweep netting and sample collection. The application of each technique for surveillance should be detailed e.g. which hosts should be sampled or what trapping regime should be used. This section may also outline surveillance methods that are not to be used and the reasons. Surveillance methods that were identified in the Scope and Background/Introduction should be covered here, such as early warning, delimiting, areas freedom, monitoring etc.

10.3 Survey timing and frequency

Frequency may or may not be explicitly included due to changes in risk, programs and responsibilities however, it can be discussed in general for example about, increasing or decreasing surveillance for reliable detection outcomes.

Consideration should be given to;

- Seasonality and biology of host, pest and vector e.g. fruit fly trap clearances in the Torres Strait increases from monthly trap clearances **to fortnightly trap clearances during the 'wet summer season' due to host plant fruiting patterns and more active movement pathways** (prevailing wind conditions) from near neighbour countries.
- The surveillance objectives (early warning, early detection, monitoring, delimiting, plant pest status/ area freedom.)
- Preservation and integrity of collected specimens e.g. timing and frequency of sampling and traps checks may be weather dependent to avoid deterioration of samples. If multiple pests are being targeted in one surveillance effort, consideration must be given to the least stable species. Refer to the relevant Diagnostic Protocol for details in relation to the specific pest.
- Previous surveillance activities
- Risk pathways
- Risk profile
- Resourcing

10.4 Surveillance design

This section should provide suitable evidence to support the surveillance outcome. Refer to PPSRs, where they exist (contact SNPHS Secretariat for further info). Surveillance intensity can be evaluated

according to a statistical design where appropriate. It should quantify the effort required to meet objectives. Consider including options that can be implemented under different resourcing requirements.

10.5 Sample handling

This section should provide a detailed description of procedures, sample collection and subsequent handling of samples. Clear guidance on sampling procedures is critical for the effectiveness of detection methods and diagnostic procedures. Sample handling includes sample/specimen collection, labelling (for traceability and uniqueness), transport, allowable timeframes from collection to laboratory (to ensure quality of samples) and storage. Refer to the relevant Diagnostic Protocol for details in relation to the specific pest.

This section should also provide information on appropriate hygiene practices that should be followed while handling samples to reduce cross contamination and biosecurity issues.

Reference should be made to the relevant Diagnostic Protocol sections and the SPHD Reference Standard No.2 (SPHD RS No 2) Development of National Diagnostic Protocols – Procedures for Authors. Please pay particular attention to Section 9 - Diagnostic Procedure to Support Surveillance. This information is available at <http://plantbiosecuritydiagnostics.net.au/sphd/sphd-reference-standards>.

11 Record keeping

This section should provide directions to record a surveillance activity in accordance ISPM 6: Surveillance and the Plant Health Surveillance National Minimum Dataset Specifications (NMDS) to ensure a nationally consistent approach to collation of surveillance information. This should also include detailed instructions on site/ sample/trap ID numbering & naming conventions.

The National Minimum Dataset Specifications provide specific instructions about how each field in the NMDS is to be filled in for different scenarios and surveillance types. Examples can be provided on how fields should be filled in to ensure consistency for a specific NSP.

Table 2 Surveillance Table

Triggers for NSP document review

This section should describe the triggers for the review of the NSP. Triggers include:

- Changes to market access or market access surveillance requirements relevant to the NSP
- Technological advances in surveillance and/or diagnostic techniques relevant to the NSP
- New research that indicates weaknesses in current practices relevant to the NSP
- New significant pathways identified or changes in Pest Risk Analysis relevant to the NSP

12 Triggers for NSP document review

- Changes to market access or market access surveillance requirements relevant to the NSP
- Technological advances in surveillance and/or diagnostic techniques relevant to the NSP
- New research (refer to research section) that indicates weaknesses in current practices relevant to the NSP
- New significant pathways identified or changes in Pest Risk Analysis relevant to the NSP

13 Contact and further information

This section should include any information required on pest/host expert details included with sufficient detail i.e. titles, contact details and position.

14 References and resources

In this section include references cited in the NSP. Any documents used to obtain the information within the surveillance protocol must be referenced. This includes scientific publications, published surveillance procedures and manuals, web sites and personal communications.

Use the Harvard reference style (as used by [Austral Entomology](#)).

Any documents that may be useful for developing Surveillance Plans can also be added

15 Appendices

Appendices are to be used to provide essential information relevant to the NSP.

Part 3 National Surveillance Protocol Approval Process

1 Introduction

This section describes the steps involved in creating a surveillance protocol, from development to review and endorsement of a NSP by Plant Health Committee (PHC) (see Figure 2).

2 Identify priorities

SNPHS identifies government priorities for development of new NSPs or review of existing NSPs. These priorities are listed in the annual SNPHS work plan reported to PHC.

Specific industries or other stakeholders may have additional priorities and can use this Reference Standard as the basis of developing surveillance protocols. However, for a surveillance protocol to be accepted as an NSP, then the industry must submit the draft protocol to SNPHS through the secretariat and the process from Part 3 is applied.

3 Nominate and select authors(s)/ reviewers

The process for the nomination and selection of authors and reviewers is outlined below.

- 3.1 An author may be nominated by SNPHS or can volunteer with SNPHS endorsement
- 3.2 SNPHS nominates an evaluator to check the draft Surveillance Protocol.
- 3.3 SNPHS considers all nominated experts for the peer review process and endorses them as appropriate. This can be done either out-of-session or in-session depending on the timing of upcoming meetings and urgency of request. Endorsement of experts is by majority vote of SNPHS members. The SNPHS Chair makes the final decision.
- 3.4 Nominated peer reviewers must include:
 - An expert on the pest (such as diagnostician/s)
 - A surveillance practitioner
 - A biometrician
 - A market access expert (if relevant)
- 3.5 SNPHS Secretariat advises the author of the timeframe for completion and style and content requirements as per this Reference Standard.
- 3.6 The author keeps SNPHS Secretariat informed of the progress of Surveillance Protocol.
- 3.7 The SNPHS Secretariat keeps the author informed in relation to the review of the Surveillance Protocol.
- 3.8 SPHD are also given the opportunity to comment at the review stage

4 Quality check

The author submits a draft Surveillance Protocol to the SNPHS Secretariat. An appointed nominee evaluates the Surveillance Protocol for style and content using the checklist in Appendix 2

The nominee either;

- 4.1. Returns the Surveillance Protocol to the author with comments for further work before resubmission; OR
- 4.2. Accepts the draft Surveillance Protocol as suitable for peer review. The Protocol and the checklist are then supplied to SNPHS to organise and pass on for the peer review.

The SNPHS Secretariat negotiates and determines timeframes for the evaluation and any further work that is required by the author before resubmission.

5 Peer review

Approved draft Surveillance Protocols are peer reviewed by a SNPHS nominated expert or group.

Surveillance Protocols are to be reviewed against the checklist outlined in Appendix 2 and the peer review report in Appendix 3. The outcomes of the peer review process are recorded in the peer review report.

- 5.1 If the Surveillance Protocol does not pass peer review, it is rejected and either returned to the original author for review and submission; or forwarded to another author to undertake the review.
- 5.2 If the peer review process confirms that the information in the Surveillance Protocol meets the requirements specified in Appendix 2 and 3, the protocol is accepted. Surveillance Protocols accepted by peer review will be submitted to SNPHS for final review.

6 SNPHS final review

The secretariat will send to all protocols accepted in the peer review process to SNPHS for final review and endorsement. The outcomes of the SNPHS review are recorded in the peer review report.

- 6.1. If the peer review report does not accept the Surveillance Protocol, it is rejected and returned to the author for review and submission.
- 6.2. If the Surveillance Protocol is accepted by the SNPHS final review the SNPHS Secretariat will send it to PHC for endorsement.

7 PHC endorsement

The secretariat will send to PHC for endorsement. Once endorsed by PHC the Surveillance Protocol becomes a NSP.

The author(s) and peer reviewer(s) of a NSP will be acknowledged in the acknowledgements and on the front page.

The NSP will be published on the SNPHS website.

8 Review NSP

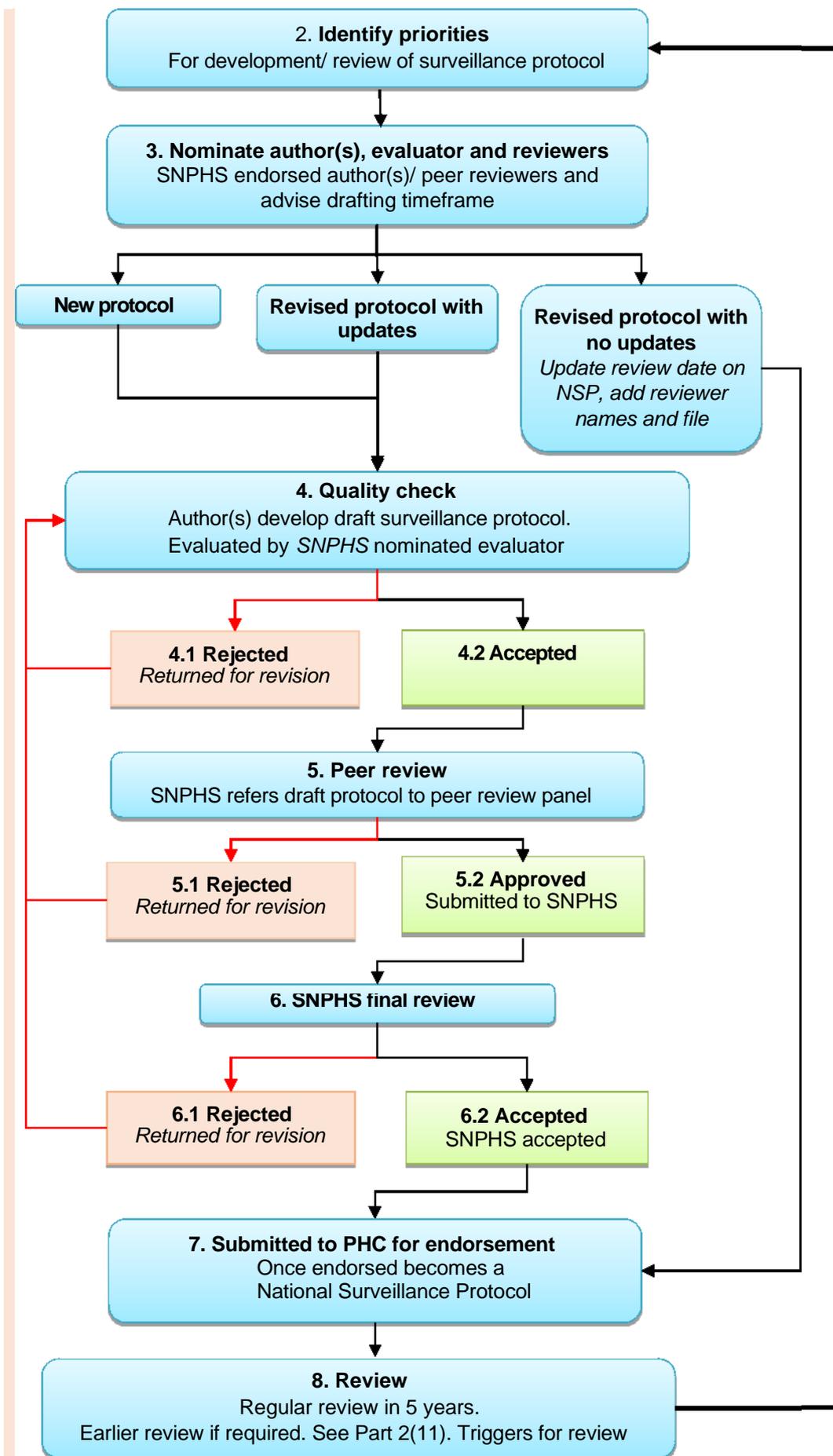
All endorsed NSPs should be reviewed for currency every five years, or earlier if required (see section 11).

SNPHS will appoint nominated expert(s) to conduct the review.

- 8.1 If the nominated expert(s) recommend updates to the NSP, the review process will recommence with the appointment of an author and follow the same process outlined in sections 2-7 (see Figure 2).

8.2 If the nominated expert(s) recommend no updates are required in the NSP, the NSP is updated with the review date, saved on the website and reviewed in another 5 years.

Figure 2 Process for acceptance of a National Surveillance Protocol



9 Bibliography

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APPENDIX 1: COVER SHEET

Subcommittee on National Plant Health Surveillance

National Surveillance Protocol

for

Name of Surveillance Protocol

VERSION NUMBER	Draft Version:
STATUS ISSUE DATE	
NEXT REVIEW DATE	
LAST REVIEWED REVIEWERS	
AUTHOR/S	

APPENDIX 2: Surveillance Table

Surveillance Table

This table can be used as a quick reference. If the element is not applicable to the Surveillance Protocol, write N/A and describe why not. Refer to instructions and information in Section 9 to fill out this table.

Note: Establishment location categories used in the Qualitative Surveillance Framework Assessment.

9.1 Establishment Within	9.1 Establishment Location Description	9.2 Surveillance methods	9.3 Survey timing and frequency	9.4 Surveillance design	9.5 Sample handling (considerations)	10 Recording
Ports Vicinity	Within the vicinity of first port of call airports and seaports, including biosecurity monitoring zones within 400 m and on host plants immediately beyond this area.					
Approved Arrangement Vicinity	Within the vicinity of Approved Arrangement facilities, including those which hold nursery stock, agricultural products and general goods.					
Northern Australian Border	Northern areas that are exposed to natural spread, traditional trading or illegal movement pathways from near neighbour countries.					
Transport Hub	In the vicinity of areas where imported goods may be held temporarily and pests may escape, including insect dispersal, soil borne diseases and timber pests and where there is a major capacity for further distribution.					
Wholesale/ Retail/Storage	In the vicinity of areas where imported goods may be unpacked or held and pests may escape, including insect dispersal, soil borne diseases and timber pests.					
Urban	Residential areas where pest establishment locations are associated with the end points of distribution, including					

	hitchhikers on baggage, personal effects, illegally imported nursery stock and illegally imported agricultural products.					
Peri-Urban	Non-commercial agricultural areas where pest establishment locations are associated with the end points of distribution, mainly for illegally imported nursery stock and illegally imported agricultural products.					
Tourist	Tourist accommodation areas and transit areas where pest establishment locations are associated with hitchhikers on baggage and illegally imported agricultural products.					
Environment	Areas which are predominantly covered by native vegetation that provide the resources for pests to build up unobserved permanent populations.					
Commercial Agriculture, Forestry and Plant Production	<p>Commercial agricultural, forestry and plant production areas where pest establishment locations are associated with hitchhikers on agricultural machinery, agricultural inputs such as fertilisers or components of potting mix, illegally imported nursery stock and seed-borne pests.</p> <p><i>Additional comments – further breakdown may be required for a protocol e.g.</i></p> <p><i>Orchard</i></p> <p><i>Plantation</i></p> <p><i>Paddock</i></p> <p><i>Protected cropping/glasshouse</i></p> <p><i>Each may need descriptor (size/type etc.) if this affects the protocol</i></p>					

APPENDIX 3: EVALUATION CHECKLIST FOR NSPs

In addition to this checklist, refer to the instructional template supplied (Part 2) to ensure all required information is covered. Evaluators should submit this checklist to the Author and SNPHS along with the Draft Protocol (edits indicated with track changes).

Protocol name

Version number

Date		Evaluation Check OR Peer Review (please circle)	
Evaluation Check/Peer Review lead by			
Section	Query	Y, N or N/A	Comments/ Recommendations
1. Cover page	Has a cover page been provided in the correct format?		
2. Scope/ rationale	Clear reason for why the pest should be targeted for surveillance?		
3. Background/ introduction	Purpose identified?		
	Succinct and to the point?		
	Clear information on pest impact, world distribution/geographical info, native range?		
	Feasibility of surveillance?		
	Pest amenable to surveillance and relevant surveillance methodology for the pest available?		
4. Definitions and terminology	Compliant with relevant international (e.g. ISPMs) and national guidelines?		
5. Pest risk profile	Clear pathway analysis of risk of entry, establishment and spread?		
	Details of offshore, border and onshore control measures?		
6. Pest biology and ecology	Clear considerations for surveillance articulated? Adequate information on pest biology? Adequate information on host range?		
7. Host range and part of host affected	Clear considerations for surveillance articulated?		

8. Pest damage/ symptoms/ disease expression	Adequate description of pest damage/disease expression?		
	Pest images are clear, accurate and referenced?		
9. Surveillance methodology			
9.1 Survey locations	Surveillance locations clearly defined?		
9.2 Survey methods	Surveillance methods are in accordance with best practice?		
	Strengths and weakness of methods outlined?		
	Application technique detailed?		
9.3 Survey timing and frequency	Covered and based on biology and seasonality?		
9.4 Surveillance design	Sufficient evidence to support the surveillance outcome?		
	Surveillance intensity and statistical design evaluated where required?		
9.5 Sample handling	Detailed Information on sample handling?		
	Instruction on Specimen ID and labelling?		
	Information on required storage temperatures, transit times and secure transport?		
9.6 Recording	Clear reporting and data recording guidelines?		
	Meet NMDS requirements?		
	Detailed instructions on sample/trap ID and numbering?		
	Instruction on what to fill in in fields for consistency?		
10. Triggers for document review			
Table 2. Surveillance table	Filled out accurately and in full table		
11. Identified possible risks, issues and knowledge gaps			
12. Contacts for further information	Pest/host expert details included with sufficient detail?		
13. References	Relevant References Included?		
	Is it in the Harvard style?		

14. Appendices (if any)	Relevant Appendices included?		
Overall	DAWR Online and Print Style guide followed?		
	Contents page Included and correct?		
	Pages numbered?		
	Version number updated		
	Review date added/updated		
	Standardised/approved cover page and template?		
General comments	Any sections above that should be removed?		
	Any sections not mentioned that should be included?		
	Any other recommendations to the Author and/or reviewers?		
Recommendations	Minor edits required then review.		
	Needs more work before review.		
Surveillance Protocol accepted and ready for peer review			

Name Position Signature

Name Position Signature

Name Position Signature

Lead Evaluator/Peer reviewer

Name Position Signature

APPENDIX 5: GLOSSARY OF TERMS

Acronyms and abbreviations

IPPC	International Plant Protection Convention
ISPM	International Standard for Phytosanitary Measures
NMDS	National Minimum Dataset Specifications
NSP	National Surveillance Protocol
PHC	Plant Health Committee. A Standing Committee of the National Biosecurity Committee. PHC develops national health policy, capacity and capability in Australia
PPSR	Priority Pest Surveillance Requirements
SNPHS	Subcommittee on National Plant Health Surveillance. SNPHS is a subcommittee of PHC
SPHD	Subcommittee on Plant Health Diagnostics. SPHD is a subcommittee of PHC
DAWR	Department of Agriculture and Water Resources (Commonwealth)

Glossary

Peer Review Panel	A working group of plant health surveillance professionals and technical experts from appropriate disciplines, including entomologists, plant pathologists, botanists and nematologists. Appointed by SNPHS and responsible for the technical assessment of a surveillance procedure/protocol through the approval process outlined in the SNPHS Surveillance Protocol Reference Standard S No.3 aiming for approval & endorsement as an NSP.
Nominated Experts/ Peer Reviewers	Individual members of the Peer Review Panel appointed for technical assessment of a newly drafted Surveillance Protocol or Nominated Experts as appointed by SNPHS to conduct a review on an existing NSP.
Author	The person(s) that drafted or reviewed the NSP for consideration and agreement by SNPHS.
Nominated Evaluator	A nominated evaluator assists the author/s to check the Draft Surveillance Protocol style and content, prior to it being submitted to the Peer Review Panel, for it to be considered as an NSP.
Delimiting Surveillance	Conducted to establish the boundaries of an area considered to be infested by or free from a pest.
Detection Surveillance	Conducted in an area to determine if pests are present (or absent).
Monitoring Survey	An ongoing survey to verify the characteristics of a pest population.

International Standard for Phytosanitary Measures (ISPM)	An international standard adopted by the Conference of FAO, the Interim Commission on Phytosanitary Measures or the Commission on Phytosanitary Measures, established under the IPPC.
SNPHS Reference Standard	A PHC endorsed document approved by SNPHS stipulating the agreed principles, terms and conditions for the production of EPP related documents. Usually referred to as SNPHS RS No.X.
Surveillance Design	Process of assessing the surveillance requirements to address a range of surveillance objectives in order to better mitigate the risks on identified pest pathways. Surveillance design may include a suite of documents that precedes (and includes) a National Surveillance Protocol, related specific surveillance plans and any related specific work instructions.
Surveillance Work Instruction/ Standard Operating Procedure	
Surveillance Prioritisation	Process of determining the pests that should be considered further for surveillance, based on the potential biosecurity benefits that surveillance can support.
Plant pest	Any species, strain or biotype of plant, animal or pathogenic agent injurious to plants or plant products [FAO, 1990; revised FAO, 1995; IPPC, 1997]
Host range	Species capable, under natural conditions, of sustaining a specific pest or other organism.
Vector	A carrier of an infectious agent.