Northern Ireland Rapid Response Contingency Plan for Asian Hornet

(Vespa velutina nigrithorax)

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NIEA Northern Ireland Environment Agency
www.daera-ni.gov.uk

An Agency within the Department of
Agriculture, Environment and Rural Affairs
www.daera-ni.gov.uk

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Introduction

1. This plan sets out the Department's response to the potential arrival and spread of the yellow - legged or Asian Hornet *(Vespa velutina)* in Northern Ireland (NI). For ease, the pest will be referred to as the Asian Hornet in this document.

   The Northern Ireland plan has been developed by the Invasive Non Native Species (INNS) Team in the Northern Ireland Environment Agency (NIEA) in consultation with the Forest Service Bee Health Inspectorate of the Department of Agriculture Environment & Rural Affairs (DAERA) and by adapting the GB plan which was developed by the Animal and Plant Health Agency (APHA) in consultation with the Department for Environment Food & Rural Affairs (DEFRA) & the Great Britain Non-Native Species Programme Board (GBNNSPB).

2. The plan provides details of the organisations that will be involved in the response, alongside the governance, roles and responsibilities. It also describes how these teams and organisations will work together and the actions that will be taken as part of the phased approach by response.

   It is for the use of staff from the Department of Agriculture Environment and Rural Affairs (DAERA), the Agri-Food and Biosciences Institute (AFBI) and the Northern Ireland Government.

3. Serious or significant invasive pest species such as the Asian Hornet require strategic level plans developed at a national level describing the overall aim and high level objectives to be achieved and the specific response strategy to either eradicate or contain an outbreak to minimize the impact on an important sector.

4. The purpose of a Species Specific Contingency Plan is to ensure a rapid and effective response to an outbreak of the species described.

5. This plan fits into a wider role managing types of incidents pertaining to DAERA's responsibilities under NI legislation and DAERA's overarching emergency response procedures for incidences such as Foot and Mouth Disease, Epizootic diseases, and Plant Health Pest contingency plans.

6. Contingency planning and outbreak management starts with the anticipation and assessment of potential threats, includes preparation and response and finishes with the withdrawal of specific response procedures.

Prepare: Anticipate

- Collating and appraising sources of information and intelligence about the Asian Hornet.

Prepare: Assess

- Identifying concerns and the preparation of plans
- Setting outbreak objectives

Prepare: Education and Awareness

- Ensuring staff and stakeholders are familiar with the Asian Hornet

Response

- Working to either contain or eradicate, including work to determine level of success.

Response: Review

- Assessing the outbreak response to ensure that the plan remains to be the best option and it is on track to deliver the agreed objectives.

Recovery to new normal:

- Establishing business as usual, either when the response strategy has been effective or when the response is not considered to be feasible, cost efficient or beneficial.

Scope

7. The Contingency Plan describes how DAERA, AFBI and NI Government will respond if the Asian Hornet is discovered in Northern Ireland or deemed to be in an area in Ireland where cross border action is required. Bee Health Policy is devolved in NI and is the responsibility of DAERA Plant Health Inspectorate Branch (PHIB). Similar plans to this are available in England/Wales and Scotland. DAERA, the NI and Ireland Governments (IG) work cooperatively with DEFRA and the devolved administrations and will openly share key information during an outbreak.

Objectives

8. The aims and objectives of the plan are to protect the Northern Ireland and Ireland honey bee populations from the Asian Hornet by:

   - Detecting its presence as soon as possible;
   - Intercepting and taking steps to reduce the likelihood of establishment;
   - Eradicating any outbreak if considered practicable;
   - Containing and controlling an outbreak, if field evidence suggest that it is well established in a defined but limited geographical area;
   - Establishing long term management for the sector to implement where eradication and control is no longer possible due to the number and extent of outbreaks;
   - Providing assistance to the beekeeping industry, pest controllers and local authorities in the form of training and identifying providers to undertake pest and disease control.

Prepare: Anticipate, Assess and Educate

9. Details of the work undertaken to anticipate, assess and prepare for Asian Hornet are outlined in Annex 5.

10. The Great Britain Non-Native Species Secretariat has shared with us a pest risk analysis that the National Bee Unit (NBU) produced based on the evidence available at the time. The outbreak in France was particularly taken into consideration. The NBU also carry out a risk - based Exotic Pest Survey (EPS) to check hives for the presence of exotic pests, such as the Asian Hornet and Small hive beetle.

    DAERA Bee Health Inspectorate in Northern Ireland also carry out an annual survey for notifiable diseases, undertake follow up enforcement after disease confirmation and undertake documentary checks on imports of queens.

Working with stakeholders inspectors undertake monitoring activities to detect quarantine organisms such as Small Hive Beetle and monitor for INNS such as Asian Hornet. DAERA Bee Inspectors, who operate on a seasonal basis, are responsible for the supervision of control and elimination of disease outbreaks.

Sentinel apiaries sited at high risk points (such as ports and airports) and at other points throughout the country and their beekeepers regularly check for the presence of pests.

DAERA Bee Inspectors carry out a risk based programme of apiary visits, inspecting colonies for signs of pests and disease.

11. DAERA provide information on the Invasive Species Ireland website about the Asian Hornet and there is a recording facility at CEDaR where sightings can be reported. When a new record is entered, an email alert is generated to the Invasive Non Native Species team in the Northern Ireland Environment Agency (NIEA). This enables them to initiate the contingency plan protocols.

    The mobile phone app (Asian Hornet watch) available from Apple and Android app stores, also generates an email alert to this team, so recorders in NI can also use it.

    DAERA Bee Inspectorate also present bee health advice at training courses and workshops for beekeepers which includes advice on how to spot bee pests such as the Asian Hornet. Information on the distribution of Asian Hornet, its biology and life cycle and how to monitor it is detailed in Annex 4

12. The Asian hornet is an invasive non-native species and is subject to the powers and controls within the Invasive Alien Species (Enforcement and Permitting) Order (Northern Ireland) 2019.

    - Regulation (EU) 1143/2014 on Invasive Alien Species (IAS) requires Member States to have Rapid Response protocols to be in place by each Member State for those high risk species included on the list of Species of Union Concern (the Union list). Asian Hornet is on the Union list;
    - Northern Ireland also has a Strategy for the Sustainability of the Honey Bee in place which is also led by DAERA's Plant Health Inspection Branch (PHIB);
    - An Invasive Alien Species Strategy for Northern Ireland was published in 2013 and the Implementation Plan was revised and updated in 2017;
    - DAERA, AFBI, Department for Infrastructure Roads and Rivers are all partner organizations and their existing control activities are included in the All-Ireland Pollinator Plan.

Response

This section sets out how the response to an outbreak will be managed; initial actions following a suspect sighting;

- actions on confirmation;
- how we review the on-going response;
- how we recover to the new business as usual position (either after eradication or on the introduction of a management plan).

Command and Control

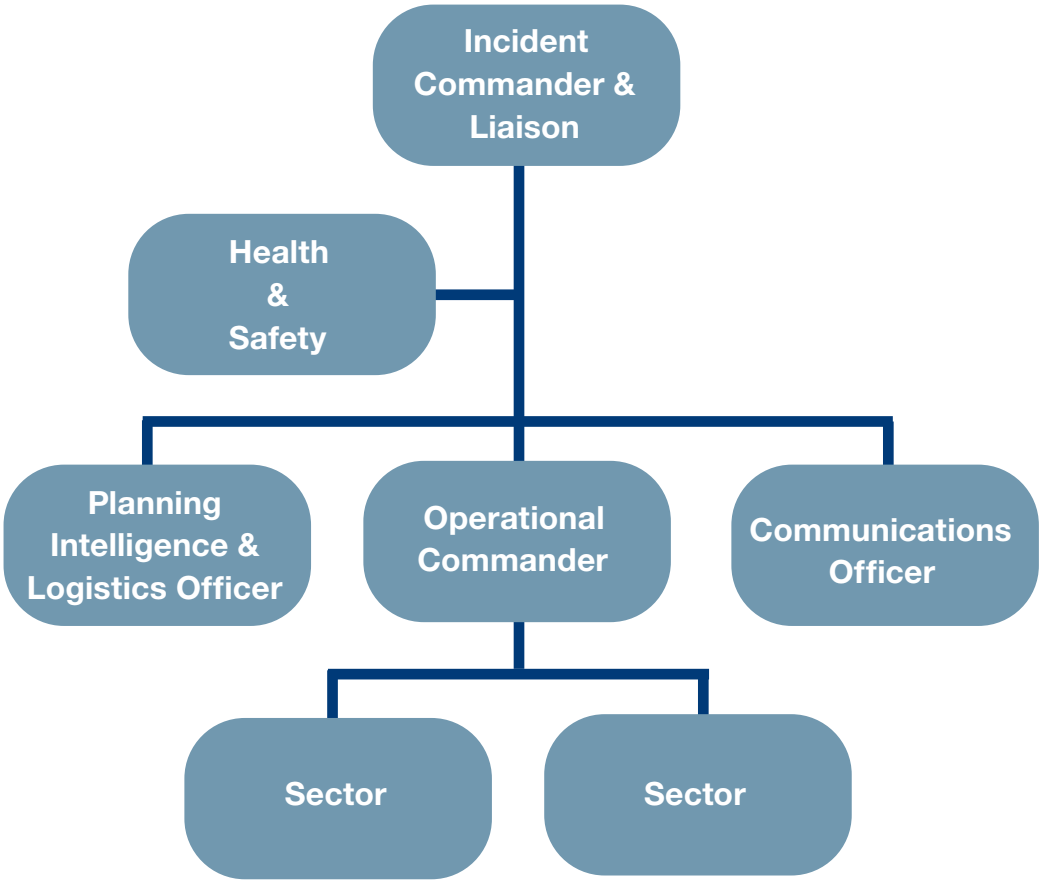
13. The response to Asian Hornet (like any other bee pest) incursion will be controlled using a Strategic, Tactical and Operational Command Structure;

- ***Strategic Command*** - Incident Management Team (IMT). The IMT is responsible for overall policy of command and control;
- ***Tactical Command*** - DAERA Plant Health Inspection Branch (PHIB). PHIB is responsible for planning and coordination of actions determined at a strategic level;
- ***Operational Command*** - Local Disease Control Centre (LDCC). The LDCC is responsible for implementing inspections in the field and Operational Guidance.

Figure 1 Example of Operational Command Structure

14. At the onset or as the invasion develops the Incident Commander may choose to delegate the responsibility for managing some or all of the management functions due to the need for deployment of resources beyond initial response, regionalisation, an increase in complexity, scale or risk. The incident management structure may resemble Figure 2.

Figure 2 Example of Tactical Command Structure



15. Flexibility and proportionality in the delivery of the response is important. For a small outbreak it may not be necessary to establish all the structures required for a major outbreak. Most of the activities and functions described in the response structures will still need to be delivered, but there may be variations in the way this is achieved.

Official Action on Suspicion

Identification information

16. Information on how to identify an Asian Hornet is available in Annex 3 and at: https://invasivespeciesireland.com/species-accounts/potential/terrestrial/asian-hornet

17. Sightings should be reported to NIEA, ideally using the report form online at https://www2.habitas.org.uk/records/ISI or via the Invasive Species Ireland (ISI) website - Report a Sighting. Recorders in Northern Ireland can also make use of the Asian Hornet watch app which is available to download for Apple or Android.

Please include photographs if possible with your records.

Triggers/Alerts

18. Suspected sightings/alerts might be generated from a number of different sources including from industry or the public and might be received through a number of routes, including:

- Members of the public can report suspected sightings of Asian Hornet through the ISI and CEDaR websites along with using the Asian Hornet app (Android or Apple);
- Sightings by any other means must be passed to NIEA Invasive Non Native Species team no later than one working day after the notification;
- Beekeepers may consider reporting suspected sightings directly to the PHIB bee inspectors, who must in turn forward the information to the NIEA team at their earliest convenience.

Initial Investigation/Reporting

19. In the event of a credible suspected finding, DAERA staff from PHIB, AFBI and NIEA will be tasked to carry out the following immediate investigative actions:

a. Members of PHIB bee inspectorate team will travel to the location.

I. If adult insects are found to be present, these will be used to confirm or rule out the identification of Asian Hornet, both by the bee inspectors on site and the diagnostic team at AFBI. If a partial nest, larvae and/or dead insects are found, these will be sent to AFBI laboratory at Newforge Lane, if necessary, by courier, for next day delivery.

II. If no insects or nests are present at the time of arrival on site, the inspector will conduct a survey of the immediate vicinity of the sighting (radius 500m) to seek out suspect insects on the wing and/or nest (s).

b. To consider circumstantial evidence that the suspect sighting is likely to be genuine, PHIB will use their bee register of beekeepers to establish proximity of the suspect sighting to beekeeping activities and proximity to entry risk points (e.g. freight depots, airports, seaports). A note of caution would be based on some previous outbreaks in GB, reports should not be discounted solely on the absence of an entry risk point.

c. Wherever possible the person (s) who made the report will be interviewed in order to obtain additional circumstantial evidence to allow the report to be confirmed or discounted (e.g. level of expertise in identification and quality of evidence (e.g. photos) submitted).

20. PHIB will report all investigations to the head of bee health policy in DAERA and Regulatory & Natural Resources Policy Division (RNRPD) within 1 day.

21. The head of Bee Health Policy in DAERA will alert other members of the Incident Management Team (IMT). The head of RNRPD will also alert policy team members involved in the strategic response. Ministers will be informed and press lines prepared with a view to liaising with colleagues in DEFRA who are lead partners in EU Regulation issues.

Official Action on Confirmation

On confirmation of an Asian Hornet finding, the following actions described will be undertaken and the following command structures and procedures will be put in place.

Strategic

Confirmation of finding in Northern Ireland

22. DAERA's Bee Health Policy team will set up an **IMT** meeting.

23. The IMT meeting will be chaired by the Senior Responsible officer **(SRO)**, in this case Director of Plant Health DAERA. The Strategic Incident Commander **(SIC)** will be responsible for preparing material for the meeting and acting upon recommendations arising from it. The **SRO** for the incident will appoint the **SIC**, who will be the DAERA Plant/Bee health Policy lead, and they will communicate the appointment to all persons and agencies involved in the outbreak. The **SIC** will take responsibility for managing all the strategic activities relating to the outbreak. The **SRO** for the outbreak will attend any ministerial meetings required.

24. The IMT meeting will also include the DAERA Press office, director of DAERA Plant Health, Chief Scientist NIEA, Head of DAERA Non-Native species policy, finance (relating to resource requirements) and others deemed appropriate.

Specific activities for the IMT meeting will include:

- Establishing a 'battle rhythm' for the outbreak;
- Developing recommendations as necessary for Ministers on strategic direction of response and control policies based on scientific advice from AFBI and PHIB and Director of Natural Environment Division;
- Considering impacts of the outbreak;
- Agreeing communication and stakeholder engagement plans.

25. A Strategic Incident Team **(SIT)** will be established (the DAERA Bee/Plant Health Policy team and, where necessary additional policy volunteers).
The Plant/Bee Health Policy Team will form the foundation of the **SIT** and will be led by the **SIC**.

26. The roles of the Strategic Incident Team include:

- Maintain outbreak records/documents (e.g. action list, core brief, event brief, lessons identified);
- Provide updates to the DAERA Press Office and agree media handling plans with colleagues in DEFRA on a UK wide basis;
- Set-up and provide the secretariat for IMT meetings, circulating agendas, taking a note of the meeting, circulating and commissioning actions, etc.;
- Liaison with PHIB/AFBI/NIEA directors;
- Monitor impacts.

Immediate actions:

- Once established the Strategic Incident Team will liaise with PHIB/AFBI directors, DAERA Natural Environment Division (NED), NIEA, and DAERA's Legal and Communications Directorates regarding legislative requirements, commissioning expert advice and the dissemination of information to the public, NI beekeeping organisations and other stakeholders, including Irish Government (IG).

Tactical

27. The Head of PHIB will initiate actions to rapidly establish whether the outbreak is isolated or widespread. The head of PHIB will ensure deployment of Bee Inspectorate staff to the Local Disease Control Centre(s) (LDCC) at the outbreak areas(s). A summary of the initial actions to be taken during an outbreak is illustrated in Appendix 2.

28. Specific activities will include:

- Providing daily information reports and technical advice to the IMT as the outbreak develops;
- Securing and deploying appropriate staff resources, equipment and facilities in the LDCC and field and laboratory services (PHIB, NIEA & AFBI)
- Coordinating information about the outbreak and dissemination of technical and advisory material to stakeholders/beekeeping associations and other interested parties;
- Liaising with stakeholders, national beekeeping associations on operational matters and local associations who may be able to contact keepers to facilitate inspection arrangements;
- Implementing further beekeeper training programmes through the PHIB inspectorate and other staff and using appropriate nominated trainers in local associations;
- Financial management and recording of resource (through DAERA finance);
- Ensuring all PHIB, NIEA and AFBI staff have the required training, including media where appropriate.

Operational

29. PHIB will establish an LDCC near the site(s) of the outbreak and, where necessary because of logistics, a Forward Operating Base (FOB).

30. The LDCC's primary role will be to:

- Direct and co-ordinate response measures, including determining areas and apiaries on which to concentrate surveillance, allocation of apiary searches and use of appropriate pest controls as per PHIB/AFBI directors;
- Provide regular local contact and support for personnel working in the field;
- Maintain telephone contact with and provide incident progress information to PHIB/AFBI directors;

- Provide up to date information to local beekeeping associations;
- Liaison with NIEA Wildlife/INNS Team colleagues with responsibility under EU Regulation for coordinating nest destruction;
- Provide reports on outcomes of searches to PHIB/AFBI.

Planning

31. The Tactical Commander will set out specific actions for the outbreak, taking into account where the hornet was found (urban, rural, wooded), responsibilities for taking forward the action and local 'battle rhythm' (taking into account the 'battle rhythm' set by IMT). The actions will be agreed by the IMT.

32. On receipt of the report (s) from the LDCC, PHIB will make an assessment on whether it is an isolated outbreak which may be contained. It will then make a recommendation for the **SRO** and **IMT** meeting to take place where confirmation will be made that eradication should be attempted.

    N.B. 'Isolated' means that Asian Hornets have only been found in a very limited number of sites in a restricted geographical area and that the data produced from follow up searches shows a high probability of success of eradication.

Surveillance and Inspection

33. PHIB will define the size of the search areas and priorities.

34. Teams of PHIB bee inspectors and NIEA Wildlife/Invasive Species Team officers, or those nominated as, deployed to the outbreak area (s) will be based from, and their work coordinated by, the LDCC. They will rapidly establish the extent of the outbreak and, if possible, its source. They will also establish if there are further nests in the restricted area and the likelihood of any nests further afield. Other DAERA/AFBI officers may be called upon to help locate nests.

35. The initial response is likely to concentrate on visiting food sources (apiaries for protein and nectar forage sites such as ivy. To gauge the extent of the outbreak and narrow the search for the nest(s). Where no hornets are seen at apiaries, traps may be left to check that Asian Hornets are not visiting the hive(s).

36. Follow- up inspections will be completed based on any information gathered by this process. Risk analysis and modelling will be an integral component of the emergency searches to predict potential spread from the point of entry and assist with targeted inspections.

37. An inspection report (blank forms will be available on DAERA website) will be submitted to PHIB after each inspection. Each nest, when identified and destroyed, will be notified to PHIB who will update the IMT.

Establishment of Demarcated Areas (Surveillance Area)

38. On confirmation of an outbreak, an infected area around the location of the original outbreak site will be agreed by DAERA/NI Government. The boundaries of the surveillance area will be precisely defined by the PHIB inspectorate and it will be published on the DAERA website under Bee Health and others as thought to be appropriate.

39. Based on current knowledge of the dispersal of Asian hornet, the surveillance area will initially cover a minimum 20km radius and may be altered and enlarged as circumstances change. Inspections will initially be prioritised as agreed in the action plan. The surveillance area will remain in place until a decision is taken on the extent of the outbreak and whether or not eradication has been successful and should continue. If necessary, depending if/where further nests are found, the area will be extended.

Movement restrictions

40. There will be no restrictions put on the movement of bee hives during an outbreak.

Trace forward/backwards

41. Asian Hornet is unlikely to spread within GB, NI and Ireland from movements of bees during the beekeeping season. The policy on tracings will be decided as part of the actions agreed by the IMT meeting.

Pest Management Procedures

42. To aid detection of further nests, a number of registered beekeepers within the 5km area (as identified through the DAERA voluntary beekeepers registration database) will be supplied with suitable traps to deploy in their apiaries, along with guidance on trap use and instructions on how to report Asian Hornet sightings. See Appendix 3 Guidance note ‘Monitoring for Asian Hornets in Sentinel Apiaries’.

Decontamination/Disposal

43. On discovery of any Asian Hornet nest this will be destroyed and removed. DAERA PHIB inspectors will be responsible for overseeing the process; Contractors nominated by DAERA wildlife officers (who have been trained in Asian Hornet nest destruction and who are equipped with necessary specialist equipment including long poles to access nests at height and thermal imaging devices to reveal active nests in concealed locations) will be responsible for the chemical destruction of each nest and its subsequent removal.

    Powers of entry are available to NIEA officers and those they nominate under Regulation 15 of the Invasive Alien Species (Enforcement and Permitting) Order (Northern Ireland) 2019. The Enforcement and Permitting Regulations set out the penalties and related enforcement actions for non-compliance with the prohibitions contained at Article 7 of the EU Regulation.

Laboratory Diagnosis

44. Suspect Asian Hornet samples or photographs of suspect Asian Hornet from Bee Inspectors, beekeepers, the DAERA INNS team at the NIEA, or other members of the public, will be sent to AFBI for confirmatory identification by their entomologists and, if necessary, samples can also be verified by FERA entomologists in GB. All reports will be recorded and collated by NIEA & CEDaR.

External Communications and Correspondence

The official spokesperson for interviews with the media will be agreed at the first meeting of the IMT meeting. Any request for a press interview will be sent to the DAERA Press Office.

Notification

Asian Hornet is notifiable under Regulation (EU) 1143/2014: The Non-Native Species Secretariat (NNSS) will make the required notification on NI's behalf as it is a Member State (UK wide) obligation.

Stakeholders

45. Local beekeeping groups and associations and the Bees Wasps and Ants Recording Society (BWARS) will be informed and consulted for advice as required by the IMT meeting. Other stakeholders will be kept informed of developments. Academic institutions, specialist pest control experts or government departments overseas with specific expertise in Asian Hornet, will also be consulted if necessary.

Irish Government & UK devolved administrations

46. For cross-border outbreaks, all relevant Irish Government (IG) departments will be included in the IMT meeting, but otherwise will be kept informed of any outbreaks in NI. Regular updates will be provided to Defra, Welsh Government and Scottish Government.

Communications with beekeepers

47. The PHIB bee inspectorate train NI beekeepers to help them manage incidence of Asian Hornet in their apiaries. In the event of a confirmed Asian Hornet incursion, all registered beekeepers and beekeeping associations will be informed via an email alert.

    NIEA Non-Native Invasive Species Team will share the spread of advice/guidance with the wider stakeholder community (e.g. the Bees Wasps and Ants Recording Society (BWARS), Ulster Beekeepers Association (UBKA), The Institute of Northern Ireland Beekeepers (INIB), animal health field officers, veterinary officers, allotment associations, garden centres, pest control companies, local authorities/councils ports authorities etc.) to raise awareness.

General public

48. Information on the outbreak will be made available on the DAERA and Invasive Species Ireland websites.

Immediate area of outbreak

49. LDCC will provide information to people within the immediate area of the outbreak, including information from NI Public Health sources. As there has now been a human toxic shock incident confirmed in GB, after an Asian hornet sting, warnings to the public in this area must be highlighted

Media

50. External communications will be coordinated through the DAERA Press Office.

Review

50. As the situation develops, the PHIB inspectorate will update the advice regarding the viability of eradication to the IMT meeting. It may be necessary to extend the surveillance area to contend with outbreaks that spread slowly in an attempt to further slow them down and contain them geographically. The SRO and IMT meeting will

consider revised advice and decide if a change in focus is required from eradication to containment or management of the pest.

Recovery

51. Response procedures laid down in this plan will continue until the Asian Hornet is eradicated or the decision is taken that the hornet cannot be eradicated and a management plan which aims to contain the hornet is introduced.

Post-eradication - surveillance

52. PHIB bee inspectors along with NIEA INNS team will revisit the affected areas, and place neighbouring apiaries under close surveillance (with monitoring traps in place), for at least one year. The length of time under which affected areas will remain under increased surveillance and the level of surveillance will be highly dependent on the time of year that the initial incursion was detected:

    - If a nest is found and destroyed early in the year (e.g. May), when Asian Hornet nests are extremely unlikely to have released queens, then the likelihood that eradication will have been successful is high - therefore the timescale for surveillance could be reduced;
    - If a nest is found and destroyed later in the year (e.g. October), when Asian Hornet queens are likely to have been released into the environment, then the likelihood that undiscovered nests and overwintering queens will exist is high - it is therefore vital to continue monitoring for new nests throughout autumn, winter and into the spring, summer and autumn of the following year to support the eradication objective.

53. The duration of continued surveillance must be long enough to confirm continued freedom of Asian Hornet. The period of surveillance will be determined by PHIB and agreed with the SRO and/or the IMT meeting.

Moving from eradication to containment

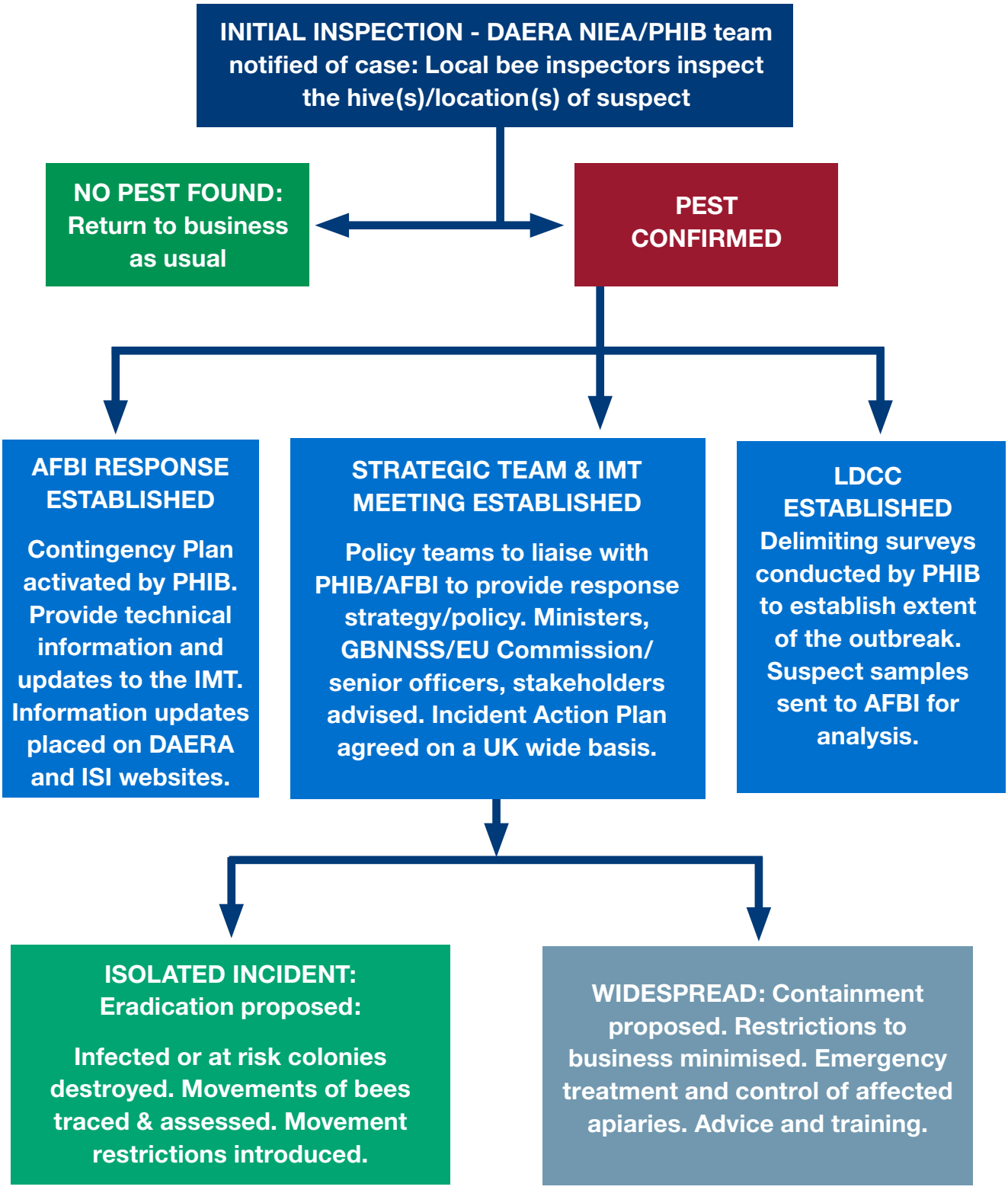
54. In the event that an outbreak proves to be established and widespread, the IMT meeting, taking the advice of the PHIB bee inspectorate, may advise the Ministers that eradication as a control method no longer remains practicable. If Ministers agree, a policy of containment will be implemented. Depending on the extent of the outbreak, the shift from eradication to containment may be very swift. The lifting of surveillance area(s) will be considered by the IMT meeting in the light of the extent and spread of the outbreak(s). This decision will be coordinated with the Devolved Administrations (DA's). The PHIB bee inspectorate will then concentrate its efforts on providing technical advice

and training services for beekeepers, pest controllers and local authorities to recognise Asian Hornet and put in place pest management methods to reduce its impact on colonies. Longer term management options for dealing with the pest will be considered by the IMT meeting. A communication strategy will be developed to ensure that internal colleagues and external stakeholders are informed of any changes to the response approach.

Evaluation and Review of Plans

55. Field exercises test bee health contingency plans for exotic threats every year (Asian Hornet, *Tropilaelaps* mite or Small hive beetle). In addition strategic elements of the plans will be tested biennially. Lessons identified in both exercises will be fed into an annual review of plans undertaken jointly between PHIB, NIEA and AFBI scientists. This review will also include lessons identified from other outbreaks.

Appendix 1: Summary of Actions Following a Credible Sighting



Appendix 2: Incident Management Team

Incident Commander - Plant Health Director

1. One Incident Commander will be appointed to take overall responsibility for managing all activities related to an outbreak. The Operational Incident Commander is usually appointed by the Control Authority or Incident Management Team (IMT).

2. The Incident Commander is formally delegated and the appointment is communicated and understood by all persons and agencies involved with the outbreak.

3. The role of the Operational Incident Commanders is to:

   - Assess the extent of the invasion, the number of resources and risks;
   - Prioritise objectives;
   - Develop and implement the plan taking into account SOP's and OG;
   - Communicate and control the plan;
   - Evaluate effectiveness of the plan.

4. In addition, the role of the Tactical Incident Commander is characterised by the need for one or a combination of:

   - Deployment of resources beyond the initial response;
   - Dividing the invasion in sectors or regions;
   - Establishing functional sections due to its complexity.

5. The role of the Strategic Incident Commander is to:

   - Establish a framework for the overall management of the invasion;
   - Establish a policy within which the Tactical Incident Management Team(s) will work;
   - Determine and record strategic objectives;
   - Provide resources, or set limitations on resources;
   - Prioritise the demands coming from Tactical Incident Commanders;
   - Ensure clear lines of communication;
   - Undertake appropriate liaison with other agencies and stakeholders;
   - Plan beyond response.

6. The Operational Incident Commander will approve, implement and monitor the Incident Action Plan.

Operational Commander - Head of Plant Health Inspection Branch

7. The operations function is responsible for the implementation of strategies and the management of all activities and resources assigned to the Operations Section that are used to resolve the outbreak.

8. The Operations Commander has overall responsibility for:

- Establishing and managing an Operations Section, if necessary, for large and complex species invasions;
- Managing resources allocated to the Operations Section;
- Managing resources allocated to resolve the rapid response;
- If delegated by Incident Commander establish and review H&S procedures;
- Ensure effective communication of the Incident Action Plan, Situation Reports and intelligence gathered from the IMT to operational staff.

9. The complexity of the invasion may require the Operations Section to be split into units allowing for greater specialisation. These units may include a:

- Investigations unit - Tracing, surveillance and sampling activities. Responsible for identifying how a species entered, where it has spread and proving freedom from the species establishing;
- Infested premises operations - All activities to eradicate or contain the species;
- Forward command posts - Establishing local command posts. If established these will report directly to the Operations commander;

Planning Officer Chief Scientist of Biodiversity and Conservation Science Unit

10. The planning function is responsible for evaluating & analysing intelligence, developing potential objectives & strategies, preparing & disseminating of plans and the collection and maintenance of resource allocation.

11. The Planning Officer has overall responsibility for:

- Establishing and managing a Planning Section, if necessary, for large and complex invasions;
- Preparing and delivering the plans and strategies required to eradicate or contain the invasion;

- Maintaining a management system to register all resources requested, allocated to or released from the invasion;
- Assemble, maintain and provide outbreak information.

12. The complexity of the invasion may require the Planning Section to be split into units allowing for greater specialisation. These units may include a:
    - Plans unit - Develops and documents the Incident Action Plan, and any supporting plans, needed to deal with the invasion;
    - Resources unit - Gathers, maintains and presents information on invasion resources. This unit should include resource management, resource tracking and demobilisation;
    - Management support unit - Provides administrative and document management services.

Intelligence Officer

13. The Intelligence function will generally be undertaken by an Intelligence unit within the Planning section. However the Incident Commander in liaison with the Planning Officer may decide that the complexity or scale of the species invasion requires a separate Intelligence section.

14. The Intelligence function is responsible for the collection & processing of information and the Common Operating Picture. Appendix 11.

15. The Intelligence Officer has overall responsibility for:
    - Establishing and managing an Intelligence Section, if necessary, for large and complex invasions;
    - Collecting information on the current and forecast situation;
    - Processing that information into timely, accurate and relevant intelligence;
    - Organising and displaying that intelligence in a form that is relevant and accessible
    - Ensuring that critical intelligence needs are met and a Common Operating Picture is shared to support decision making, planning and monitoring the invasion

16. The complexity of the invasion may require the Intelligence Section to be split into units allowing for greater specialisation. These units may include a
    - **Situation and Analysis unit** - Collects, analyses and organises situation information and data for the Common Operating Picture ensuring it is current and relevant. Provides advice to the IMT, senior managers and stakeholders including regular Situation Reports.

- **Modelling and Predictions unit** - Using modelling tools to predict invasion developments and potential outcomes of actions to feed into the planning process;
- **Mapping unit** - Provide mapping information with relevant supporting documentation;
- **Subject Matter Advisers unit** - SMA are delegated by the Incident Commander or the appointed Officer, for example the Intelligence Officer to:
  - Communicate professional and technical (e.g. scientific, policy and regulation) advice in reply to a incident;
  - Ensure that professional and technical advice is fully considered in the Incident Action Plan;
  - Ensure that professional and technical advice is being used effectively in strategy and tactics as well as operationally.

Investigating Officer

17. The complexity, scale or nature of the invasion may require the establishment of an Investigations function with responsibility for identifying how an invasive species entered, where it has spread and proving freedom from the invasion.

Logistics Officer

18. The logistics function is responsible for obtaining and maintaining human & physical resources, facilities, services and materials.

19. At a small invasion the Incident Commander may deliver the logistics function but, if necessary, a Logistics Officer may be appointed with overall responsibility for:

- Establishing and managing a Logistics Section, if necessary, for large and complex invasions;
- Managing those activities necessary to provide logistical support during the invasion.

20. The complexity of the outbreak may require the Logistics Section to be split into units allowing for greater specialisation. These units may include a:

- Supply unit - acquire and distribute equipment required;
- Facilities unit - To obtain and manage necessary facilities and accommodation e.g. Portable welfare units.

Finance Officer

21. Normally a unit within the Logistics Section the complexity, scale or nature of the outbreak may require the establishment of a Finance Section.

22. The Finance function is responsible for the management of contracts & procurement, payments, account records and time records.

23. The Finance Officer is responsible for:

    - Establishing and managing a Finance Section, if necessary, for large and complex outbreaks;
    - Managing those activities necessary to provide sound financial management during the outbreak.

24. The complexity of the invasion may require the Finance Section to be split into units allowing for greater specialisation. These units may include a:

    - Accounts unit - Accounts of purchases and to manage contracts;
    - Financial Monitoring unit - Collect cost data, performing cost-benefit analysis and providing cost estimates for the invasion.

Communications Officer

25. The Communication function is responsible for the provision of clear, accurate and targeted information to the appropriate audiences.

26. The Communication Officer is responsible for:

    - Informing and coordinating DAERA and government information;
    - Identifying early any issues of interest to the media and the public in liaison with the DAERA Press Office;
    - Managing communications with the media (which are likely to be extensive for a high profile invasion) and assist policy colleagues with key messages, deliver timely, integrated communications advice to Ministers;
    - Providing key messages to staff and liaise with local Communications teams;
    - Communication with all affected stakeholders. For each significant incident of an invasive species invasion it is important that there are effective, timely and accurate communications targeted for the affected importers, nurseries, grower, private landowners, farmers, landscapers and amenity sectors, other affected stakeholders including across government, the public and the media. Appropriate communications

tools including online and social media will be used to assist in influencing behaviours to reduce the impact and spread of the species infestation and to provide accurate, timely updates on the latest situation.

27. The complexity of the outbreak may require the Section to be split into units allowing for greater specialisation. These units may include a:

- News and Media unit - Developing materials for use in media briefings, obtaining the relevant approval for media releases, informing media and conduct media briefings, consider and oversee appropriate use of social media, arranging for tours and other interviews or briefings as requested and obtaining media information that can be useful to incident planning and management;
- Web and Social media unit - Posting information relating to the incident onto Plant Health Directorate area of the Forest Service website Helpline unit and the Invasive Species Ireland website - Supervising and facilitating the establishment and maintenance of a helpline, as a source for stakeholder information. Such helplines may be internally hosted or outsourced to another organisation or commercial provider;
- Stakeholder engagement unit - Relates to the affected stakeholders including the local community. This may involve engaging with individuals either directly or indirectly affected, as well as affected industries and their member organisations;
- Internal Communications unit - Working with the Planning Sections Communications Planning unit to develop and ensure staff receive timely, appropriate and accurate information on the outbreak including staff lists, with responsibilities, and the Incident Action Plan.

Appendix 3: How to Identify an Asian Hornet

ASIAN HORNET - *Vespa velutina*

What is an Asian hornet?

An invasive non-native hornet, originally from Asia. It is a highly aggressive predator of our native insects, especially honey bees and other pollinators. It was accidentally introduced to France in 2004, before spreading rapidly throughout Western Europe reaching Great Britain in recent years. We wish to take steps to avoid it having a chance to establish in Northern Ireland, so the cooperation of members of the public to report possible sightings is vital.

What does an Asian hornet look like?

Key features are the almost entirely dark abdomen, except for the 4th segment which is totally yellow (see images above) and the bright yellow leg tips. Size ranges from 17 to 35mm.

Where might I see it?

It may be seen in and around flowers, soil, timber and fruit, especially those of foreign import, as they may hide amongst them. It will actively seek out bee hives and may be seen in suburban areas or anywhere populations of bees are present.

NIEA Northern Ireland Environment Agency
www.daera-ni.gov.uk

An Agency within the Department of Agriculture, Environment and Rural Affairs
www.daera-ni.gov.uk

INVESTORS IN PEOPLE

For further ID guidance & information check out the Invasive Species Ireland website - www.invasivespeciesireland.org

Makes very large distinctive secondary nests, often found in tall trees (image below left) but primary much smaller nests have, in some locations, been found in eaves of buildings (image below right).

What can I do?
Report it immediately by options 1,2 or 3

If you suspect that you have seen one, try to take a clear image to submit along with your record

1 **Telephone**

Invasive Non-Native Species (INNS) Team on: 028 9056 9629

2

Download the **Asian Hornet Watch App** at major App Stores.

3 Submit a record via CEDaR online recording: www2.habitas.org.uk/records/ISI

Although superficially similar to the European Hornet *Vespa crabro*, the Asian Hornet is not easily confused with any other species. Key points to note:

- The Asian Hornet is slightly smaller; queens measure up to 30mm long; workers up to 25mm. The European Hornet, *Vespa crabro*, queens measure 25-35 mm; workers are 18-24mm.
- The Asian Hornet has a dark brown or black velvety body (thorax) - image below right. Crucially, the Asian Hornet has just one yellow stripe on the 4th abdominal segment whereas *V. crabro* has a much more 'stripy' yellow abdomen (image below left).
- The lower sections of Asian Hornet's legs are yellow; it is sometimes called the 'yellow legged hornet'.

For further ID details, see: https://invasivespeciesireland.com/species-accounts/potential/terrestrial/asian-hornet

- FERA produced an article on 'mistaken identities' which covers other insects which may be confused with the Asian Hornet: http://www.nationalbeeunit.com/downloadDocument.cfm?id=850

- European Hornet *(Vespa crabro)*

- Asian Hornet *(Vespa velutina)*

- European Hornet abdomen

- Asian Hornet abdomen

Appendix 4: Preparation: Anticipation, Assessment and Education

Anticipate and Assess

1. The yellow-legged or Asian Hornet (*Vespa velutina nigrithorax*) is an exotic predator of honey bees (and other beneficial insect species).

2. Globalisation and international trade in diverse commodities around the world has increased the risks of importing exotic honey bee pest threats into the UK. An updated Pest Risk Assessment (PRA) for Asian Hornet was completed in July 2011, and the evidence basis for this PRA was updated in April 2014. The main risk pathways were identified as:

   a. Natural spread of the pest itself by flight.

   b. Movement of wood, wood products and bark (which provide suitable harbourages for hibernating inseminated Asian Hornet queens).

   c. Movement of man-made goods that provide suitable harbourages for hibernating inseminated Asian Hornet queens (e.g. ceramic pottery associated with garden trade and tourist camping equipment).

   d. Movement of soil associated with plant trade (harbourage for hibernating inseminated Asian Hornet queens; potentially nesting stages in soil).

   e. Fruit imports (e.g. grapes) (could transport adult Asian Hornets using fruit as food source).

   f. Movement on freight containers and transport vehicles themselves (harbourages for hibernating inseminated Asian Hornet queens; could also carry worker hornets).

   g. Movement of honey bees: queens and packaged bees (workers) for the purposes of trade (could transport adult Asian Hornets).

3. Of the above seven pathways transport of hibernating queens on traded goods (pathways 2 - 6) is considered to be of high importance; pathway 1 natural spread by the pest itself and pathway 7 movement with traded honey bees is considered to be least likely incursion pathway.

4. The Asian Hornet is native to Northern India, China, the Indo-Chinese peninsula and Indonesian archipelago. The climatic conditions of continental Asia where they are found are similar to those of Southern Europe.

5. Asian Hornets were first officially recognised in France in 2004, having been found in Lot-et-Garonne Department, southwest France. It is believed to have been accidentally imported with Chinese merchandise from Yunnan.

6. By the end of 2006, the Asian Hornet was present throughout Aquitaine in the departments of Lot-et-Garonne, Gironde and Dordogne. By 2015 it was well established in France covering at least 430,000 square kilometres, most predominantly in the west and south-west and outbreaks have been reported in Spain, Portugal, Italy, Germany and Belgium. This indicates that both Northern Ireland and Ireland would have suitable climate for the Asian Hornet to establish.

7. For any outbreak in Northern Ireland (or Ireland) the first objective would be eradication; however this will only be possible in isolated incidences where there are a limited number of incursions in a limited geographical area. In other circumstances, where eradication is impractical because of the number of incursions, the aim would be to slow the spread to other areas and impact through nest destruction and apiary management.

Assess - Surveillance

Exotic Pest Survey

8. DAERA Bee Inspectors carry out a risk based programme of apiary visits, inspecting colonies for signs of pests and disease. However, bee inspectors cannot manage to visit every beekeeper each year and beekeepers should therefore regularly check their bees for signs of brood disease themselves.

   They also encourage beekeepers to register their hives and locations on to the voluntary DataBees facility which assists the PHIB inspectorate with pest and disease control, tracing introduction and spread and allowing them to immediately alert registered beekeepers of disease or pest outbreaks.

   Due to their behaviour, Asian Hornets are likely to be spotted at any inspection site if they are present in the vicinity. PHIB inspectors will target ‘high risk’ apiaries which will include apiaries near ports, freight terminals or airports or those belonging to bee importers. When identified, new high risk points will be highlighted on DataBees ‘(the database for beekeeper voluntary registration).

9. Those apiaries identified as ‘at risk’ are targeted and regularly inspected. Each apiary has a ‘risk score’ calculated mathematically from its proximity to risk sources. Surveillance is targeted at high scoring apiaries and large numbers of these apiaries are inspected annually. If an exotic pest is detected/suspected, then apiary inspections will be concentrated in the area around the apiary, and search patterns adjusted using GIS and tracings information. DAERA PHIB inspectorate also carry out random EPS inspections as an element of their surveillance programme.

Sentinel apiaries

10. Some beekeepers in Northern Ireland will be specifically monitoring their honey bee colonies for exotic pest species on behalf of DAERA PHIB inspectorate.

Educate:

Identification information

11. Information on how to identify an Asian Hornet is available in Annex 3 and on the Invasive Species Ireland website at: https://invasivespeciesireland.com/species-accounts/potential/terrestrial/asian-hornet

    To improve the likelihood of early detection, the Department will continue to raise public, beekeeper and other stakeholder awareness about this invasive species through species alerts and ID/Identification sheets. The public are asked to report suspect sightings to them via: https://www2.habitas.org.uk/records/ providing a photograph and details of location. Or they can use the iRecord App or Android App both of which instigate email alerts directly to NIEA staff.

12. Submitting photos

    - If possible, take a range of pictures.
    - Provide details of your location
    - Show the pest in context as well as close up shots.
    - “Postage stamp” sized photos aren’t much help.
    - Very high resolution pictures can be a problem to e-mail and store.
    - Smart phones have the benefit of being handy and now often produce great images and the Asian Hornet watch app can add a GPS coordinate.
    - But in the end - please send the picture; something is better than nothing at all.

13. DAERA provide training for beekeepers via their own PHIB bee inspectors, CAFRE campus and AFBI including advice on bee pests and diseases, how to identify them and what to do.

Appendix 5: Anticipation and Assessment

1. This section highlights activities, processes and governance that ensure that threats are anticipated and assessed.

Invasive Species Risk Analysis

2. Risk analysis is the overall process of using evidence to assess the threat posed by a Non-Native species, evaluate management options and communicate the results to inform decision making. In GB & NI, risk analysis comprises: hazard identification (horizon scanning), risk assessment, risk management and risk communication.

3. Risk analysis is a structured, science based process that helps provides the rationale for implementing management measures. It is also used to manage uncertainty, helping decisions to be made when scientific information is incomplete. Evidence used to complete risk analysis can be qualitative or quantitative using evidence ranging from published scientific literature, to grey literature, to expert judgment. For more information Vanderhoeven *et al* (2017) provide a useful discussion on risk analysis, its uses and components.

4. Traditionally risk analysis comprises (at least):

   - hazard identification (in GB & NI provided by horizon scanning), used to identify species likely to be a threat;
   - risk assessment, used to assess the likelihood and severity of the threat;
   - risk management, used to evaluate management options;
   - risk communication, the means by which the results of risk analysis are summarised and accurately communicated.

Horizon Scanning and Risk Assessment

Horizon Scanning

A horizon scanning exercise conducted in 2014 identified the top 30 Non-Native species likely to become invasive in Britain, including the Asian Hornet. At the time of the exercise none of the listed species were established.

A horizon scanning process was followed up in Ireland in 2017 and a paper was published in 2018 detailing the selection of the top 40 species on the horizon for the island of Ireland.

The main pathways of importance are:

I. Natural spread of 'Invasive Non-Native Species (INNS).

II. A number of commodities which are imported into GB and Northern Ireland/Ireland also provide suitable harborages for hibernating inseminated Asian Hornet queens;

- Wood, wood products and bark;
- Man-made goods (e.g. ceramic pottery associated with garden trade) soil associated with plant trade; and
- Freight containers and transport vehicles.

III. Fruit imports (e.g. grapes) could also transport adult hornets using fruit as food source.

IV. Given the wide range of commodities and pathways involved, it is unlikely that it will be possible to intercept all potential incursions of the Asian Hornet into the UK and Ireland.

V. Areas where winters are milder (in particular Southern Irish counties), open areas near water, near ports and airports are the most likely locations for harboring overwintering queens.

VI. Current researchers predict that many countries in Europe including GB, NI and Ireland are climatically suitable for establishment of the Asian Hornet.

VII. The Irish climate is similar albeit colder than France. There is also an abundance of available habitat and prey.

VIII. The species arrived in France in 2004 and is now common across large areas of Europe. Recently there have been multiple outbreaks in Britain and it is now widespread in the Channel Islands.

Although extensive eradications were carried out in GB, it is possible Asian Hornets could reappear in GB and arrive in Northern Ireland.

Therefore members of the public alongside the nation's beekeepers are urged to report any suspected sightings.

Risk assessment

Non-Native Species Risk assessment - Asian Hornet *(Vespa velutina)*

The NBU conducted a Non-Native Species risk assessment, which identified several pathways for the introduction of the Asian Hornet into England.

The Invasive Species Ireland project also produced a risk assessment how it might enter the island of Ireland.

The Non-Native Species Programme Board in GB commissioned FERA's National Bee Unit (NBU) to undertake a Non-Native Organism Risk Assessment for the Asian Hornet. This peer reviewed assessment is available at: https://secure.fera.defra.gov.uk/nonnativespecies/downloadDocument.cfm?id=643

NIEA, in partnership with the Plant Health Inspection Branch of DAERA will be adhering to the GB risk assessment.

The report concluded that Asian Hornet is a medium impact and medium risk overall. The Risk assessment summary is as follows.

Entry	**Very likely**
Establishment	**Very likely**
Spread	**Rapid**
Impacts	**Moderate**
Conclusion	**Medium**

Based on the NBU's risk analysis, the NNSPB concluded that it was unlikely that methods could be deployed to reduce the risk of the Asian Hornet's entry to the UK and recommended instead that measures be put in place to initially intercept and prevent establishment of the hornet moving to longer term management if this is no longer possible.

Appendix 6: Roles & Responsibilities - Key Posts in DAERA

Preliminary assessment

Job Title
NICPHO (CE Forest Service)
Incident Commander (Plant Health Director)
Deputy Incident Commander (Head of PHIB)

Incident Management Team (IMT)

Function	Job title	Organisation
Incident Commander	Plant Health Director	DAERA (Forest Service).
Operations Commander	Head of PHIB	DAERA (Forest Service).
Planning, Intelligence & Logistics Officer	PHIB/NIEA	Forest Service/NIEA.
Investigations Officer	Head of Inspectorate (PHIB), AFBI Entomologist & Principal Scientific Officer BCS	Forest Service/AFBI/NIEA.
Communications Officer	Head of Non-Native Species Policy Branch	RNRPD.

Communication Activities

Action	Responsibility
Develop key contacts list	PHIB Bee inspectors, NIEA & NIBI (for beekeepers).
Develop FAQs	NIEA INNS Team/PHIB Bee inspectors/AfBI Entomologist.
Develop guidance notes on detection & control	NIEA INNS Team/PHIB Bee inspectors/AfBI Entomologist.
Develop Press lines	DAERA Non-Native Species Policy Team (RNRPD), DAERA Media Officer.
Alert key contacts, including presentations to pest control groups, etc.	DAERA Non-Native Species Policy Team (RNRPD), NIEA INNS Team.
Distribute posters/leaflets	NIEA INNS Team & PHIB Bee inspectors.
Alert sentinel apiary beekeepers with specific trapping guidance	PHIB Bee inspectors/NIEA INNS Team.
Draft text for pest controllers	PHIB Bee inspectors/NIEA INNS Team.

Suspected Arrival

Increase communications in the region Responsibility	
Re-issue alerts	NIEA INNS Team.
Trapping advice to beekeepers	PHIB Bee inspectors/NIEA INNS Team.
Advice to pest controllers	PHIB Bee inspectors/NIEA INNS Team.
Advice on locating nests to pest controllers and Bee Inspectors	NIEA INNS Team.

Confirmed Sighting

Agree and issue Press Release	DAERA Non-Native Species Policy Team (RNRPD), DAERA Media Officer in consultation with DEFRA/ APHA/FERA Press Offices.
Re-issue alerts as above	NIEA INNS Team share with IG - NPWS & NBDC Ireland.

Appendix 7: Rapid Response Failure - Moving to Longer Term Management

Agree and issue Press Release	NIEA/PHIB with RNRPD & DAERA Media Officer in consultation with Defra/APHA/FERA and Defra Press Offices.
Provide advice to beekeepers, other stakeholders	NIBI/NIEA/PHIB NPWS & NBDC Ireland as appropriate.

Appendix 8: Asian Hornet Factsheet

Distribution of Asian Hornet

- Date of Asian Hornet coming into France - 2004.
- Haxaire *et al*, Bul Soc Entomology Fr 2006 111:194.
- Asian Hornet distribution map can be found at www.brc.ac.uk/irecord/

Key Facts

- Although there are many species of hornet in Asia, *Vespa velutina nigrithorax* has become known as the Asian Hornet or yellow legged hornet. It is an invasive Non-Native species from Asia. It was first recorded in France in 2004, thought to have arrived in a container of pottery from China through the port of Bordeaux. It is now present in 4 Member States (MS): France (since 2003/2004), Spain (since 2010), Portugal (since 2012) and Italy (since 2013).
- Establishment in 2 further MS remains uncertain: a flying male was recorded in Belgium in 2011 but no confirmed sightings since - it is not believed to be established; only recently it was recorded present in Germany (August/September 2014) - no data on establishment available yet.
- Based on observations of invasive populations in both France and South Korea, *Vespa velutina* shows a preference for peri-urban/urban locations, although it has established in both urban and rural environments.
- The Asian Hornet is not considered to be established in the UK. There is concern that it could fly across the Channel from northern France, or arrive via trade in commodities such as wood and wood products, goods (e.g. ceramic pottery), soil for the plant trade and fruit. Freight containers and transport vehicles could also harbour the hornet.
- It is the view of recent authors who have completed climate-matching studies that GB is climatically highly suitable for the establishment of *V.v. nigrthorax* (Rome *et al*., 2009, Villemant *et al*., 2011a; b). If an incursion is left undetected, the hornet is likely to spread rapidly, with likely impact being higher in the south of the country.
- It is known that hornets can fly dozens of kilometres in one flight, with certain weather conditions (wind direction) assisting natural spread. The invasion in France spread at approximately 100km per year (Monceau *et al*., 2014). The Asian Hornet only flies during the day time, unlike the European Hornet, which can fly at night. (360000 square km).

- The Asian Hornet is a proven predator of social wasps and bees, including and specifically honeybees. This hornet also predates a wide variety of other beneficial insect species, including unmanaged pollinators (e.g. other Hymenoptera, hoverflies). For references see Rome *et al*., 2011; Villemant *et al*., 2011b.

- Hornets predate on honeybees by hawking in front of beehives, catching single bees 'on the wing'. They then fly to a suitable place, e.g. nearby tree branch, remove the bees head, wings and legs, and then take the thorax and abdomen back to their nests to feed the developing brood. The predation places the honey bees under huge stress, reducing their ability to forage, with impacts on the colony performance and honey yields. If a honey bee colony becomes sufficiently deprived of workers, hornets can enter the hive, feed on the honey and remove the brood.

- The Asian Hornet is smaller than the European Hornet (Asian Hornet queens are up to 30mm in length; workers up to 25mm).

- Asian Hornet should not be confused with the giant Asian Hornet, *Vespa mandarinia*, which is not known to be present in Europe.

- 'This hornet stings and stings have been known to cause toxic shock. DO NOT approach or disturb an active nest.

- The life-stage of the Asian Hornet that poses the greatest risk of entry is a newly-mated queen; one such inseminated female can found an entire colony comprised of several thousand offspring. Nests are very large, and can comprise six thousand individuals (Villemant *et al*., 2011). In autumn, the nest will focus on the production of potential queens (on average 350) and male drones, which will mate with the queens. The mated queens will overwinter and leave the workers and males to die before winter. The following spring, the fertilized founder queens will begin the production of a new colony.

- DAERA PHIB plans to operate a Sentinel Apiary programme in Northern Ireland, similar to that in GB. It concentrates on apiaries which are in both 'at risk' and random areas to maximise the likelihood of detection. Beekeepers at these apiaries will monitor their colonies for exotic pest threats to honey bees, including the Asian Hornet, on behalf of the DAERA Bee inspectorate.

Appendix 9: Monitoring for Asian Hornets in High Risk Areas

The Asian Hornet is an aggressive predator of honey bees and other beneficial insects. It has recently arrived in mainland Europe following an accidental introduction to France, and is now also present in Spain, Portugal, Germany, Majorca, Switzerland, Belgium and Italy. A similar invasive population of Asian Hornet has established in South Korea. Adult Hornets are highly mobile; the rate of spread across France has been approximately 100km/year and there is now great concern that this exotic insect could establish in the UK. This sheet explains the trap design and provides the protocol for trap surveillance.

How to best monitor for the Asian Hornets arrival

Our monitoring trap has been specifically designed to help beekeepers monitor for the arrival of the Asian Hornet. Unlike other commercially available traps, ours is not a killing trap and therefore any non-targeted insects which might get caught can be released. In order to help you make this trap design, we have created a trap making video which can be found on our YouTube channel:

https://www.youtube.com/watch?v=CR6MUekAjMo

Instructions on how to make this trap can also be found on the Asian Hornet pages of BeeBase

Trap design

Briefly, the trap comprises a modified plastic fizzy pop bottle with a removable base where the bait is placed in. An inverted bottle neck creates the entrance to the trap. A black correx lid is then attached above the inverted neck to deter the hornet from flying up through the entrance funnel and to help concentrate the odour of the bait around the trap. Adult Hornets that are attracted to the bait will fly to the trap, crawl down through the bottle neck funnel, and become confined within the capture chamber from which they are unable to escape.

What bait to use

At the end of hibernation emergent hornets have a raised energy requirement and prefer sweet foods. In early spring such resources are comparatively rare in the environment, so this means that sweet baits are highly attractive for the first captures of Asian Hornet queens. French beekeepers often use a mixture of beer and sugar for this purpose. Other effective baits include sweet mixtures of wine, sugar, cassis, and water. You can also by proprietary brands of hornet (wasp) trap bait from many garden centres and home improvement retailers. At the height of the beekeeping season, when predatory worker hornets are seeking high protein foods, consider adding raw meat or fish to the bait mixture.

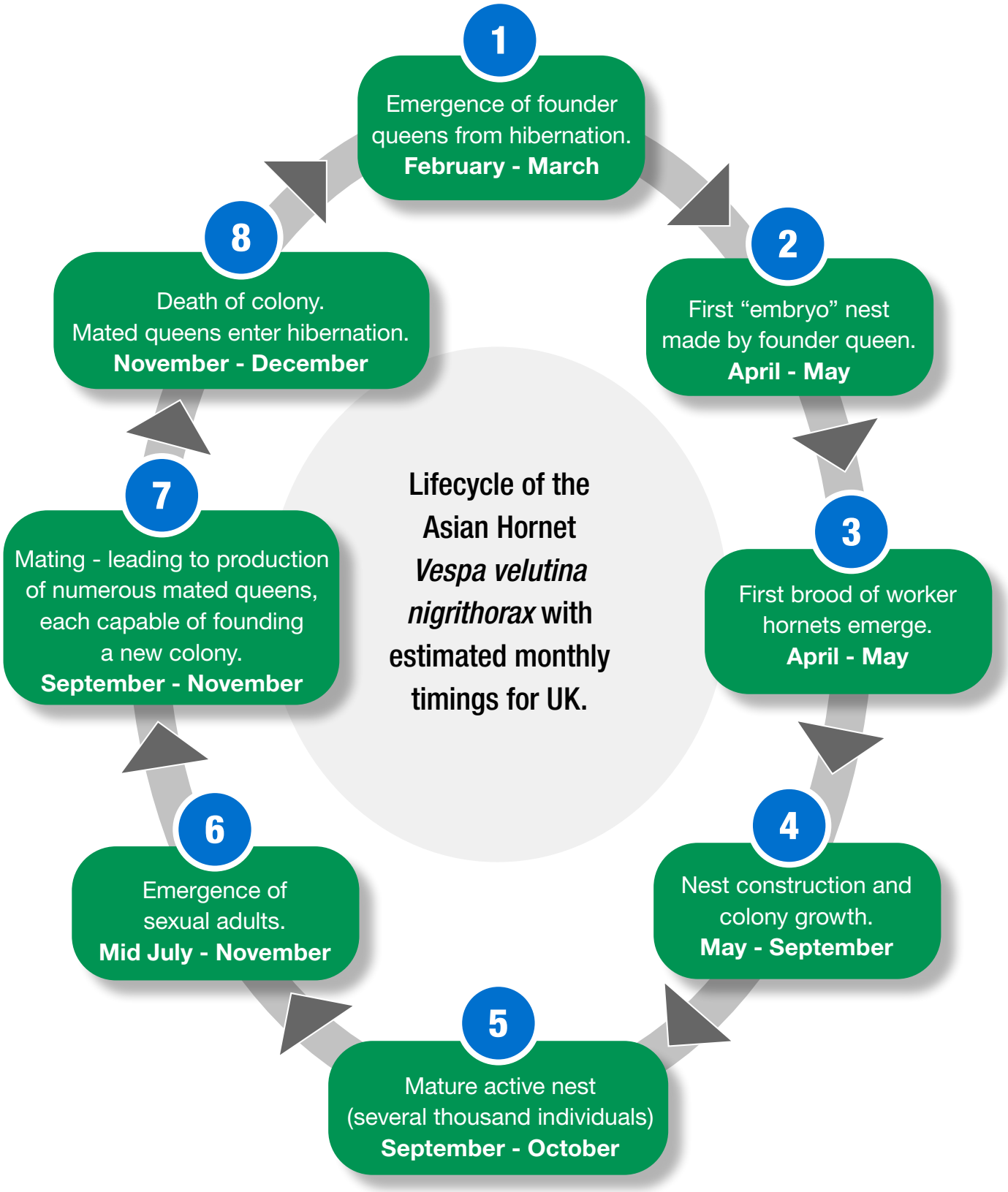
For convenience, you have been provided with a supply of a proprietary brand of sweet liquid bait known to be effective against *V. crabro*. Following the product instructions, pour approximately 150 ml bait (to a depth of approx. 3 cm) into the moat of the trap. Cover with the mesh insert and replace the trap lid. Bait needs to be regularly replaced (weekly). Top up with water if necessary.

Where to hang your trap

Hang your trap on a hive stand or in nearby trees around your apiary, at the height of a person.

As soon as you receive the trap, please bait it and hang it as soon as possible after receipt. The figure below shows the lifecycle of Asian Hornets, with estimated timings for the UK (based on observations in France). Adult Hornets will be on the wing throughout the beekeeping season, but on warm days mated queen hornets may emerge early from hibernation. Equally, adult workers and (especially) mated queens may continue to fly late into autumn. Trapping is thus likely to catch Asian Hornets on the wing from February until November.

Lifecycle of Asian Hornet



How to check the trap

- Visually inspect your trap as often as possible - ideally daily.
- Each time you visit your trap, you need to take a clear sealable freezer bag with you.
- Never remove the lid without first checking the contents of the capture chamber.
- With the lid still on, carefully inspect the contents of the capture chamber.
- If you are completely satisfied that there are no Asian Hornets in there, then open the lid to release the entire catch (see 'How to identify the Asian Hornet' below).
- If you suspect that you may have caught an Asian Hornet, put the trap into the freezer bag and seal tightly.
- If possible, take a photograph of the specimen.
- Place the bag containing the trap into a domestic freezer.
- Immediately report your sighting by either using the Asian Hornet app or submit your record online at www2.habitas.org.uk/records attaching a copy of a photograph if you have one. If you do not have access to email, please report your sighting to the NIEA Invasive Non - Native Species team by phone: 028 9056 9558
- After 12 hours in the freezer, remove the trap lid
- Immediately place the suspect hornet in one of the small sample tubes.
- Put your apiary details on one of the labels provided in your kit and affix to the sample tube.
- Submit the sample to the AFBI laboratory for identification.

Appendix 10: Incident Action Plan for an Asian Hornet Invasion

Operational/Tactical/Strategic **Incident Action Plan** (Delete as appropriate)
Outbreak title (Construct a title to describe response to invasive species and year)
Location (Who is IAP for? Dependant on command level and location e.g. National or Sector 1, 2, 3)
Situation (Provide a description of the current situation and an indication of future trends, if available. Maps and graphs may be attached to illustrate key points)
Current
Predicted
Outbreak Objectives (Specific objectives needed to fulfil the strategy for the invasive species)
Overall invasion objectives
Objectives for this operational period and/or location
Alternative objectives
Response (Specific actions needed to fulfil the objectives)
Command, Control & Co-ordination

Management structure (Include IMT structure, reporting lines, functional managers/ teams, contact lists)
Liaison (Detail liaison arrangements with stakeholders, LRF, DA's etc.)
Communications (Media plans, data structure, internal communications, COP, Battle rhythm etc.)
Health & Safety (Site assessments, PPE requirements, hazards, mitigations)
Resources
Staff (Staff available, needed, location, skills required, contact details)
Equipment (Equipment lists, locations, quantity)
Accommodation
Supporting documentation (Any additional maps, tables or diagrams)

Prepared by	**Approved by**

Appendix 11: Situation Report Template

SITUATION REPORT

Invasive species:

Subject: Date/Time:

Sit Rep from: (Team/Function)

Sit Rep to:

Report number:

Current situation/progress since last report:
Current action/action since last report:
Issues outstanding:
New issues:
Support required:
Next Sitrep:
Distribution:

Appendix 12: Briefing Template (SMEACS format)

Situation	Describes what has happened and perhaps what has been done. Maps and other GIS products can be useful in describing the current situation.
Mission	Describes what is to be achieved. This may include the response objectives appropriate to the level at which the briefing is being delivered.
Execution	Describes how the response objectives are to be achieved. It will include instructing groups or individuals to undertake specific functions or tasks. A briefing will generally explain what needs to be done, not how to go about doing it. Execution may be expressed in terms of: • General Outline • Groupings and tasks • Coordination Instructions
Administration and Logistics	Describes the administrative and logistical arrangements required to undertake the allocated functions or tasks. At a higher level this may include transport, accommodation and catering arrangements for all involved, where at a lower level it may include details on how to obtain stationery or the forms required for a specific task.
Command and **C**ommunication	Describes clearly the chain of command and communication arrangements for the response. Organisational charts and diagrams can be useful to convey this information.
Safety (if included)	Describes the H&S, PPE, biosecurity requirements and safety hazards relevant to the level of briefing being conducted.
Questions	Conclude the briefing by seeking and answering questions from those being briefed.

Appendix 13: Common Operating Picture Template

SITREP number:	
Date:	**dd-mm-yyyy**
Time (24hrs):	**xx:xx hrs**
Lead Official:	
Email:	
Tel:	
Alternative contact:	
Email:	
Tel:	

This Situation Report provides key information and data on the present situation. It has been validated by the IMT. The information contained herein can be disseminated to other agencies as necessary - where clarification is required the lead official should, in the first instance, be contacted.

New information is highlighted in **RED**

1. Department key issues

2. Key issues for COP

Contents

3. Current situation

Ad hoc information will be required on issues/concerns in the following areas:

Plant Health - Details of impact on Bee Health

Transport - Road and rail disruptions

Tourism - Details of impact on local/regional tourism industry

Community - Details of local issues, safety etc.

Business issues - Businesses affected

4. Operational response
5. Resources and readiness
6. Forward look
7. Political/policy
8. Media/communicating
9. Manpower and staffing issues
10. Other information not covered elsewhere

Appendix 14: Glossary

AFBI	Agri-Food & Biosciences Institute
APHA	Animal and Plant Health Agency
BeeBase	NBU beekeeper and apiary database and website
BWARS	Bees Wasps and Ants Recording Society
CEDaR	Centre for Environmental Data and Recording
DAERA	Department of Agriculture, Environment and Rural Affairs
DAs	Devolved Administrations (Scottish Government, Welsh Assembly and Northern Ireland Assembly)
Defra	Department for Environment, Food and Rural Affairs
EC	European Commission
EPS	Exotic Pest Survey
EU	European Union
Fera	Fera Science Ltd
GB	Great Britain
GB-NNSIP	GB Non-Native Species Information Portal
GIS	Geographic Information System
IAS	Invasive Alien Species
IG	Irish Government
INNS	Invasive Non-Native Species
IMT	Incident Management Team
INIB	The Institute of Northern Ireland Beekeepers
ISI	Invasive Species Ireland
LDCC	Local Disease Control Centre
MS	Member States
NBDC	National Biodiversity Data Centre
NBU	National Bee Unit (GB)

NIEA	Northern Ireland Environment Agency
NNSS	Non Native Species Secretariat
NPWS	National Parks and Wildlife Services
PHIB	Plant Health Inspection Branch
PPE	Personal Protective Equipment
RNRPD	Regulatory and Natural Resources Policy Division
SA	Sentinel Apiary
SRO	Senior Responsible Officer
UBKA	Ulster Bee Keepers Association
UK	United Kingdom

Northern Ireland Environment Agency
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Department of Agriculture, Environment and Rural Affairs
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