



Department
for Environment
Food & Rural Affairs

Defra Group Personal Biosecurity Guidance



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1st Edition (2022)

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Summary

The Defra Group Personal Biosecurity Project aims to raise awareness of the importance of personal biosecurity in curbing the introduction and spread of pests, diseases, parasites, and other harmful invasive non-native species (from here on referred to collectively as 'biosecurity threats').

Personal biosecurity refers to the measures taken by an individual to minimise the risk of introducing and spreading biosecurity threats via potentially contaminated clothing, personal equipment, and tools.

This guidance document has been produced as part of the project and sets out the detail of the minimum standard of personal biosecurity that all staff, contractors, and volunteers working on behalf of the participating Defra group organisations should adhere to when carrying out fieldwork or are otherwise at risk of coming into contact with biosecurity threats through their activities.

This guidance is intended to provide a broad overview of the basic personal biosecurity measures that should be carried out in order to reduce the risk of introducing and spreading biosecurity threats across the wide range of environments that Defra group staff, contractors, and volunteers may encounter.

It is not intended to supersede any existing, more comprehensive biosecurity guidance currently provided by the relevant regulatory organisation overseeing a particular environment or biosecurity threat. Participating organisations without existing biosecurity guidance are free to tailor this guidance to make it more comprehensive to suit their needs. If this guidance is tailored, the measures set out within should be used to provide a baseline for the minimum standard of biosecurity to be adhered to.

Foreword

Our natural environment is under threat from pests, diseases, parasites, and other harmful invasive non-native species. Over the years we have witnessed the unfortunate implications that these threats can have in all corners of our countryside. From foot and mouth in cattle to ash dieback in trees, these pests and pathogens have a huge economic and biological cost. We must all take responsibility for our own personal biosecurity to reduce the risk of biosecurity threats spreading, and to safeguard the landscapes that we love.



The Government highlighted enhancing biosecurity as one of its key targets in the 25 Year Environment Plan. We will protect our wildlife, livestock, plants and trees by reducing the risk of introducing new biosecurity threats. To prevent their introduction and spread, we have progressively strengthened regulations and targeted our resources to minimise the chance of environmental threats from entering the UK. In recent years, we have developed strategies for Plant Biosecurity, Non-native Species, Aquatic Animal Health and Wildlife Health. These follow a risk-based approach founded on world leading scientific research, combined with vigilant surveillance and inspection regimes.

Protecting our borders is of vital importance, and we all need to make sure we play our part. Defra staff, contractors and volunteers all need to ensure that if they have any risk of coming into contact with biosecurity threats, they adhere to appropriate biosecurity standards. By implementing simple but necessary personal biosecurity measures at a Defra-wide level, we will increase our ability to protect our farmland and natural environments, as well as set an example for stakeholders and members of the public to follow.

Thank you for your support in this campaign.

A handwritten signature in blue ink that reads "Richard Benyon." The signature is written in a cursive style and is positioned above a faint, light blue rectangular stamp.

Richard Benyon

Parliamentary Under Secretary of State for Rural Affairs and Biosecurity

Introduction

Pests, diseases, parasites, and other harmful invasive non-native species have been introduced to the UK from around the world and numbers continue to grow each year. The impacts of these biosecurity threats are felt across a wide range of important habitats where native plants and animals, along with livestock and crops, are harmed through disease, predation, and increased competition for resources.

Once new biosecurity threats are introduced, it can be extremely costly or even impossible to eradicate them. They also impact on the economy through damage to natural resource and infrastructure. The problems caused by invasive non-native species currently cost the UK on average £1.7 billion every year to manage.

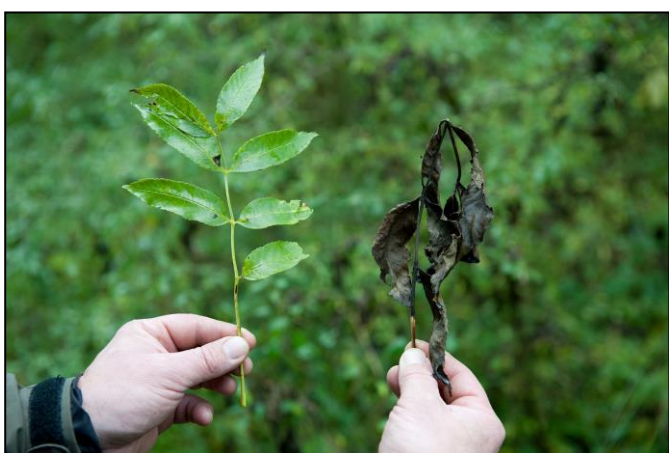


Figure 1 It is predicted that the fungal pathogen *Hymenoscyphus fraxineus* (commonly known as ash dieback) will cost the UK economy approximately £14.8 billion in clean-up costs, replacement costs, and lost ecosystem services. (Source: Forestry Commission)



Figure 2 In 2017 the Environment Agency removed over 1,000 tonnes of floating pennywort (*Hydrocotyle ranunculoides*) – initially introduced to the UK as an ornamental pond plant – from the Rivers Cam, Ouse, and Thames to prevent it from clogging up vital waterways. (Source: GBNNSS)

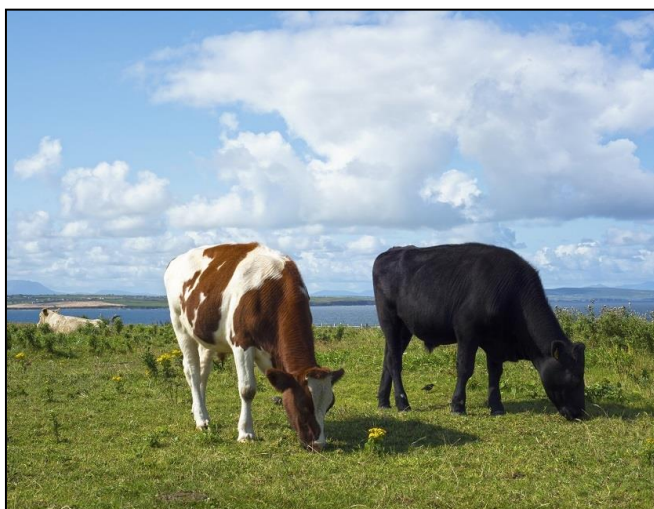


Figure 3 The foot and mouth disease outbreak in 2001 cost the public and private sectors approximately £8 billion to eradicate (Source: Animal Plant Health Agency).



Figure 4 Japanese knotweed is extremely difficult to eradicate and can cause structural damage to roads and houses by growing through asphalt and concrete. This can lead to significant delays and costs to development, estimated at £150 million a year. (Source: GBNNSS)

Biosecurity threats can easily be introduced to the UK and spread between sites via the movement of infected plants, animals, or contaminated material, including water, organic material, and soil. This movement may be via natural pathways, such as through watercourses, wildlife migration, or wind dispersal, but more frequently it is a result of human activity, for example the movement of contaminated clothing, tools, or other personal equipment. Human-assisted pathways can spread biosecurity threats much further and faster than natural pathways. It is important to carry out appropriate personal biosecurity measures whether or not any outbreaks have been reported as their presence may not always be apparent, especially in the early stages.

We can reduce the risk of introducing and spreading biosecurity threats by carrying out appropriate biosecurity measures. In this document, **personal biosecurity** refers to the measures taken by an individual to minimise the risk of introducing and spreading biosecurity threats via potentially contaminated clothing, personal equipment, and tools.

Biosecurity is one of Defra's top environmental issues, but we must now all ensure that by biosecurity we not only mean protecting our environment at a national level, but at a personal level as well.



Figure 5 Killer shrimp (*Dikerogammarus villosus*) is a highly aggressive aquatic predator regarded as one of the most damaging invasive species in Europe. Killer shrimp can be easily transported between locations on angling equipment and in damp clothing and boots. (Source: Environment Agency)



Figure 6 Himalayan balsam (*Impatiens glandulifera*) - introduced as an ornamental plant - now widely outcompetes native flora in ecological sensitive areas such as riverbanks. Dieback of extensive stands in the winter can also leave riverbanks vulnerable to erosion. In 2003, the Environment Agency estimated it would cost £300 million to eradicate Himalayan balsam from the UK entirely, this estimate is likely to be considerable higher now. (Source: GBNNSS)

Biosecurity measures

The following measures provide the **minimum standard** of personal biosecurity that should be followed by individuals conducting fieldwork, or who are otherwise at risk of encountering biosecurity threats through their work activities. These measures aim to prevent biosecurity threats from being introduced to or spread between sites. The key below identifies which measures apply to different groups.

User key:

- Staff
- Contractors
- Volunteers

Prior to arrival

- **Determine visit necessity** ●●

For most occasions, access to a site will be essential for the needs of your organisation; however, consider if the task can be effectively achieved by another manner such as a virtual meeting. This would remove the biosecurity risk entirely.

When visiting a site, do you have to access areas where contact with potentially contaminated material is more likely (e.g., areas containing livestock or a known biosecurity threat)? Can you conduct your activity whilst avoiding these areas?

Volunteers: The volunteer manager will determine whether your assigned site visits are necessary on your behalf.

- **Plan site visit order** ●●○

If visiting multiple sites in one day can you plan the order of the sites to ensure those that pose the greatest biosecurity risk are visited last? (Such as those known to host biosecurity threats, or where contact with potentially contaminated material is more likely.)

If the site you are carrying out your task in is large, is it possible to plan a route to avoid areas that pose a greater biosecurity risk (such as known presence of an invasive plant) or ensure they are visited last?

- **Contact the site owner** ●●

Where possible and appropriate, contact the landowner or land manager to enquire if they are aware of any biosecurity risks present on their land or site that you should be aware of. This enquiry should be conducted in the same way as you would when enquiring about health and safety considerations whilst preparing a site-specific risk assessment.

If the landowner or land manager has identified a biosecurity risk, such as the presence of a non-native invasive species or the location of livestock grazing in certain areas, seek additional advice.

See 'Annex A: Participating organisations further information'.

Volunteers: The volunteer manager might make contact with the site owner on your behalf, or may provide you with a landowner letter to negotiate any necessary access to private land.

- **Complete a pre-visit biosecurity risk assessment** ●●

Carry out a pre-visit biosecurity risk assessment, either included as part of a wider site or activity risk assessment or separately, considering all the biosecurity risks and threats that may be present. This should be based on a combination of existing site information alongside the mitigation measures set out in this document or your organisation's own biosecurity guidance, where available.

See 'Biosecurity risk assessment' section for further information.

Volunteers: The volunteer manager may complete a pre-visit risk assessment to the best of their abilities on your behalf.

- **Prepare a biosecurity kit** ●●○

Ensure access to a biosecurity kit, whether this is a personal kit or a collective 'pool' kit held at a yard or office. This must contain all of the equipment necessary to implement the minimum standard of biosecurity on every site visit for your planned day's activities.

See 'Equipment' section for further information.

Volunteers: If you do not have access to a portable biosecurity kit, you must ensure you have access to facilities that enable you to carry out appropriate biosecurity measures at home, such as a water supply, stiff brush, and an area to dry your equipment.

- **Arrive clean** ●●○

Ensure all transportation and personal equipment, including boots and clothing, is clean so it is visually free from any potentially contaminated material, dry and ideally, disinfected before arrival to each site.

On site

- **Find a biosecurity base** ●●○

Find a location on or near site that is suitable for parking your vehicle and for carrying out appropriate personal biosecurity measures on arrival and departure. This should ideally be on hard-standing and at least 10m away from a water course.

Determine if it is essential for your vehicle to leave a firm surface (such as a track or road) to undertake your work activities. If you do need to use your vehicle to enter a site try to stay on a firm surface and avoid off-roading.

Volunteers: If you do not have access to a portable biosecurity kit your supervisor

should establish a base that will allow you to carry out biosecurity measures on site. If you are lone working and do not have access to a portable biosecurity kit, you should locate a similar base at home and always arrive clean at your next site.

- **Carry out a dynamic risk assessment** ●●○

You will already have completed a pre-visit risk assessment, but on arrival are there any biosecurity risks present that were not already identified? If so, implement any mitigation measures. **See 'Risk assessment' section for further information.**

- **Keep hands clean** ●●○

With the Covid-19 pandemic we have all learned the importance of personal biosecurity to reduce the risk from disease. Remember to clean hands (soap and water, cleansing wipes, hand sanitiser etc.) on completion of a site visit.

- **Leave clean** ●●○

Ensure all footwear and personal equipment which has come into contact with potentially contaminated material is visibly clean before leaving each site using a brush, boot pick, and clean water supply, ideally followed by application of an appropriate disinfectant (further guidance on disinfectants can be found on the Defra Biosecurity Hub: www.nonnativespecies.org/personalbiosecurity).

If it is necessary to wear specific personal protective equipment (PPE) for biosecurity purposes:

- Single-use clothing and shoe covers must be disposed of on completion of a site visit, either by being left with the owner or securely bagged up in a clinical waste bag and disposed of at an approved receiving facility.
- Cotton boiler suits and coats must be securely bagged after use for re-laundering at 60 °C using a biological detergent before use on a new site.

All PPE and equipment must be stored in a dry, well-ventilated area after cleaning and be thoroughly dry before its next use.

Further information about environment specific biosecurity considerations, such as the Check Clean Dry campaign for riparian environments, can be found in '**Annex A: Participating organisations further information**'.

Volunteers: If you do not have access to a portable biosecurity kit, you must ensure your footwear and personal equipment is cleaned and dried at the earliest opportunity, and always before conducting your next site visit.

- **Report threats** ●●○

If a priority biosecurity threat dealt with by another organisation is spotted on a site visit, record and report it where possible (see Annex A for details) – the sooner new outbreaks are identified, the sooner they can be dealt with. Ideally the landowner should also be made aware of the finding.

It is very important to adhere to the above personal biosecurity measures on all site visits as outbreaks of biosecurity threats may not always be apparent, especially when in the early stages.

Biosecurity risk assessment

It is essential that biosecurity risks are considered when planning fieldwork or any activity that may otherwise involve coming into contact with biosecurity threats. Before conducting a site visit, the site itself and the activities being carried out on site should be assessed for potential personal biosecurity risks. For any threats identified, suitable mitigation measures should be implemented. Any biosecurity measures should proportionately reflect the risk involved, be practical and be relevant to the type and scale of the work being carried out.

It is easiest and most time-efficient to include an assessment of the biosecurity threats within your organisation's standard site risk assessment process, however a separate biosecurity risk assessment can be created if desired (See Annex B: Example biosecurity risk assessment). A dynamic risk assessment should also be carried out on arrival to a site in case there are any threats present that were not identified during the initial risk assessment.

A biosecurity risk assessment does not make recommendations on how to control or eradicate biosecurity threats. It assesses how opportunities for the introduction and spread of these threats can be mitigated.

When operating in an area with a known biosecurity threat, individuals should adhere to the measures set out by the relevant regulatory organisation. The specific guidance given by the regulatory organisation for the specified threat should take precedence over the guidance given in this document. Biosecurity should however form part of any standard operating procedure, and just because a biosecurity threat is not known to be present should not prevent at least the minimum personal biosecurity measures referred to in this document from being carried out.

See Annex B: Example biosecurity risk assessment for further information.

Equipment

This equipment list details the items that should be included within a personal biosecurity kit in order to implement the minimum standard of biosecurity set out within this guidance.

Essential items

Biosecurity kits should contain the following items as standard:

- Container or bucket large enough to immerse a boot in
- Adequate water supply for your daily tasks
- Long handled, stiff plastic bristled brush
- Boot pick or a tool to remove debris from in between boot treads
- Cleansing wipes/soap and water/hand sanitiser



Figure 7 An example of a basic personal biosecurity kit used to clean hands, boots, and clothing.



Figure 8 Basic personal biosecurity kits being used by a someone visiting a farm (left) and some leaving a woodland (right).

Additional items

Certain roles may require individuals to also carry the following additional items within their biosecurity kits:

- Disinfectant (further guidance on disinfectants can be found on the Defra Biosecurity Hub - www.nonnativespecies.org/personalbiosecurity)
 - Equipment for disinfectant application, for example a hand sprayer.
 - Appropriate PPE for using disinfectants e.g., gloves and eye protection (always consult disinfectants' MSDS before use).
 - Container with a lid to prevent disinfectant degrading through direct sunlight, dirt, rainfall, and evaporation.
 - Appropriate storage facility for the container holding the disinfectant. E.g., if the disinfectant is flammable it will need to be securely stored in an airtight container identified with a flammable hazard symbol.
- Portable pressure washer (useful for cleaning larger equipment)
- Suitable personal clothing and protective clothing
 - General reusable items include waterproof outerwear and footwear which can be easily cleaned and, when appropriate, disinfected between premises (e.g., wellington boots or walking boots that have easily cleaned treads).
 - Specialist items may include disposable boiler suits and overshoes, or cotton boiler suits or coats.

It is important to make sure enough supplies of protective clothing, water and disinfectants are available to cover the activities for the day in case these are not available on any of the sites visited.

Multi-threat sites

It is highly likely that multiple environments or biosecurity threats may be encountered when carrying out fieldwork or activities where individuals are at risk of coming into contact with biosecurity threats. Therefore, it is important that a holistic approach to personal biosecurity is adopted in such situations.

This guidance provides a broad overview of the minimum standard of biosecurity that should be adhered to by staff, contractors, and volunteers working in any environment. It is not uncommon that multiple threats or environments will be encountered during a site visit. Individuals must act in a biosecure manner considerate of all the environments entered.



Figure 9 Examples of multi-threat sites: Accessing water to remove Japanese knotweed (*Fallopia japonica*) from a riverbank (plant and aquatic) (top left); Walking across a field containing livestock to access trees for survey (animal and plant) (top right). Walking across fields and an estuary en-route to a bird colony for nesting survey (marine and farmland) (bottom left). Undertaking a litter pick across a site (riparian, woodland, parkland) (bottom right).

Annex A: Participating organisations further information

Organisation	Target biosecurity threat	Contact	Further information
Animal and Plant Health Agency	Animal	Full list of APHA contacts	APHA homepage
Animal and Plant Health Agency (Plant Health and Seeds Inspectorate)	Plant; Tree (Horticulture)	planthealth.info@apha.gov.uk	PHSI webpage
Animal and Plant Health Agency (National Bee Unit)	Honeybee	nbu@apha.gov.uk	NBU homepage
Broads Authority	No specific target	Broads Authority – Contact Us	BA homepage
Centre for Environment, Fisheries, and Aquaculture Science	Aquatic; Marine	Cefas contact	Cefas aquatic animal health webpage
Drinking Water Inspectorate	No specific target	Drinking Water Inspectorate – Contact Us	DWI homepage
Environment Agency	Aquatic	enquiries@environment-agency.gov.uk	EA homepage Check Clean Dry
Forest Research	Tree	Forest Research – Contact Us	FR homepage
Forestry Commission	Tree (Forests; parkland)	biosecurity@forestrycommission.gov.uk	FC Homepage FC Keep It Clean
GB Non-native Species Secretariat	No specific target	nnss@apha.gov.uk	GB NNSS homepage GBNNSS Biosecurity resources

Organisation	Target biosecurity threat	Contact	Further information
Joint Nature Conservation Committee	No specific target	JNCC Contact Points and Enquiries	JNCC homepage
Marine Management Organisation	Marine	info@marinemanagement.org.uk	MMO homepage
National Forest Company	No specific target	National Forest - Contact Us	NFC homepage
Natural England	No specific target	Natural England - Contact Us	NE homepage
Rural Payments Agency	Animal	health.safetyunit@rpa.gov.uk	RPA homepage

Annex B: Example biosecurity risk assessment

SITE SPECIFIC BIOSECURITY RISK ASSESSMENT			
Task /Activity /Item:			
Location:			
Personnel exposed:			
Person(s) conducting Assessment:			
Reference Number:		Date:	

SEVERITY RATING	LIKELIHOOD RATING	RISK MATRIX							
		Likelihood							
			1	2	3	4	5		
1 Introduction of biosecurity threat, unlikely to establish or spread.	1 Could happen but probably never will.	Severity	1	L	L	L	L	L	Acceptable - additional controls where required/ensure existing controls are maintained
2 Introduction of biosecurity threat that may establish and require temporary measures and minor costs to remove.	2 Not likely to occur in normal circumstances.		2	L	L	L	M	M	
3 Introduction of biosecurity threat that establishes, spreads further and requires long-term management and financial costs to remove.	3 May occur at some time.		3	L	L	M	M	M	
4 Introduction of biosecurity threat that permanently establishes and spreads in the wider environment requiring ongoing intensive measures and financial/social costs to mitigate its impact.	4 Expected to occur at some time.		4	L	M	M	H	H	Risk must be reduced before work starts. High level of supervision and monitoring required for the task.
5 Introduction of unmanageable biosecurity threat that establishes and spreads in the wider environment causing catastrophic impacts to native species/agriculture/aquaculture/animal or human health at great financial/social cost.	5 Expected to occur regularly under normal circumstances		5	L	M	M	H	H	

Biosecurity risk	Risk Rating Pre-control			Mitigation measures (e.g., cleaning kit or redirecting access route to avoid biosecurity threat)	Risk Rating Post-control			Implementation requirements (e.g., access to a personal biosecurity kit)
	Severity	Likelihood	Risk Rating		Severity	Likelihood	Risk Rating	
Footwear carrying potentially contaminated material (soil, leaf litter, other organic material).	3	4	M	Clean footwear of all visible potentially contaminated material using water and a brush. Spray cleaned footwear with an appropriate disinfectant.	1	1	L	Access to a suitable personal biosecurity kit. Training on the use of appropriate disinfectants.
Potential contact with livestock of unknown health status to reach site.	4	4	H	Redirect access route to avoid entering premises with livestock.	1	1	L	Map of area surrounding site visit.
Collecting samples from watercourses inhabited by killer shrimp (<i>Dikerogammarus villosus</i>).	5	5	H	Clean equipment, including nets and PPE, of all potentially contaminated material using clean water and a brush. Leave equipment to dry thoroughly before next use.	1	1	L	Access to a suitable personal biosecurity kit. Access to an area in which equipment can be securely left to dry.

*A blank copy of this form can be found on Defra Biosecurity Hub - www.nonnativespecies.org/personalbiosecurity

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