



SEARS  
natural  
scotland  
SCOTTISH GOVERNMENT

# Biosecurity guidance for SEARS staff



## WHAT IS SEARS?

Scotland's Environmental and Rural Services (SEARS) is a partnership of eight organisations providing rural and environmental services for Scotland's rural communities. The SEARS partners aim to provide their shared customers, Scotland's rural land managers, with a more efficient and effective service by:

- coordinating when they need to contact and visit land managers
- providing easy access to information and advice
- providing a consistent and responsive service
- delivering a service which focuses on the needs of land managers.

### The SEARS partners are:

Animal Health

Cairngorms National Park Authority

Crofters Commission

Forestry Commission Scotland

Loch Lomond & The Trossachs National Park Authority

Scottish Environment Protection Agency

Scottish Natural Heritage

Scottish Government Rural Payments and Inspections Directorate

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## SECTION 1

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### **BIOSECURITY – GOOD PRACTICE GUIDANCE**

Good biosecurity practice refers to a way of working that minimises the risk of contamination and the spread of animal and plant pests and diseases, parasites and non-native species.

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### **WHO NEEDS TO FOLLOW THIS GUIDANCE?**

This guidance has been produced specifically for SEARS staff and is for all SEARS staff who enter rural land including estate land, farms, crofts, woodland, plant nurseries,

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aquaculture units, lochs and rivers. Contractors working for us must also follow the same biosecurity practices.

The guidance does not have any legal standing and as such cannot be imposed upon non-SEARS staff or members of the public. It is hoped however that the guidance can be adopted by non-SEARS organisations as best practice or as part of their own work procedures.

This guidance is designed to help identify and minimise risks, it cannot cover every eventuality and in some situations complying with specific

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requirements will be difficult in practice. In such circumstances you should consider the disease risk and take reasonable precautions to maintain satisfactory biosecurity.

### WHY IS BIOSECURITY IMPORTANT?

Good biosecurity practice helps prevent disease outbreaks and the spread of pests and diseases. Many species of plants and animals, including fish and shellfish, are susceptible to a range of diseases and pests, some of which are notifiable under animal health, fish health and plant health legislation.

Outbreaks of certain animal and plant pests and diseases can have a severe financial impact on the agriculture, forestry, aquaculture and angling industries. They can cause economic hardship, lead to animals suffering and have a major impact on other sectors such as food processing and tourism. For example, the 2007 foot and mouth disease outbreak is estimated to have cost the Scottish livestock sector and allied businesses over £35m, while in 1999 the impact of infectious Salmon

Anaemia in Scotland was estimated at £38m. The spread of endemic disease, while less newsworthy, can have a significant impact on individual businesses and on the welfare of their livestock. Annex A provides some examples of specific pests and diseases relating to animals, fish and plants.

The agriculture, horticulture, forestry, aquaculture and angling sectors welcome good hygiene and biosecurity practice by SEARS staff.

### WHY CARRY OUT BIOSECURITY PRACTICES?



You cannot always see disease-causing agents, plant pests, parasites and non-native species. While visiting, you or your contractors can pick them

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up and carry them on your clothing and footwear, and on vehicles and equipment to other locations.

A major outbreak can also impact significantly on you and your contractors' work if your movement into the countryside is restricted, your fieldwork and inspections are stopped, or you receive extra work to respond to a crisis.

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## WHERE IS BIOSECURITY RELEVANT?

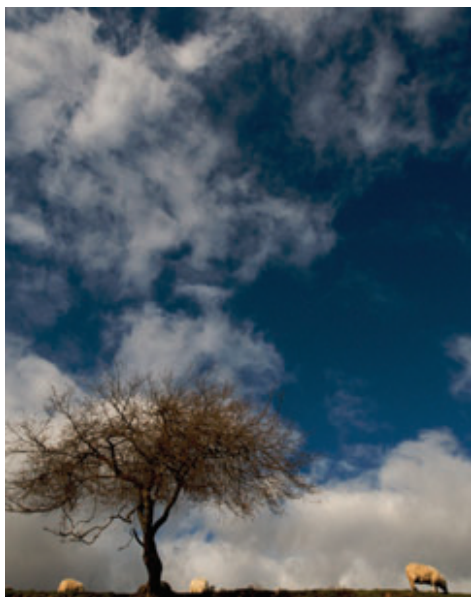
Biosecurity is important when you enter any farmland, or other premises like fish farms where there is a risk of spreading pest or disease. This includes all agricultural land (including grassland and arable / horticultural crops), hill ground, moorland that carries stock, farm steadings, woodlands and rivers, lochs and aquaculture units.

It is important that you are aware you might be up-stream of a fish farm if you are entering a watercourse.

Staff sometimes view biosecurity as a burden and, in certain cases, it does involve extra work. However, this guidance demonstrates that for most low risk visits very little, if any, extra

effort is required. This guidance should help you decide the appropriate level of biosecurity control you need to carry out.

If, from intelligence or during a site visit, an outbreak of any exotic or notifiable animal or plant disease / pest is suspected, the relevant authority must be informed at the earliest opportunity. The risk assessment undertaken at the outset of the visit should be reviewed and biosecurity measures amended accordingly.





## HEALTH AND SAFETY CONSIDERATIONS

There are several zoonoses (diseases capable of being transmitted between animals and humans) that may be of risk to humans including, for example Lyme Disease, Leptospirosis, E Coli O157 and Salmonella. Good hygiene practice will significantly reduce the risk of contracting or spreading a zoonosis. The [HSE website](#) has further information on zoonoses.

In addition, there are also health and safety considerations relating to the use of disinfectants. You should be aware of the health and safety

requirements for handling and using disinfectants and disposal of potentially contaminated clothing or equipment. Employers have a responsibility for the health and safety of their staff while at work and as such must ensure that they carry out an appropriate risk assessment and protect both employees and others who may be exposed by complying with the [Control of Substances Hazardous to Health Regulations 2002 \(CoSHH\) \(as amended\)](#). All Line Managers and staff have a responsibility to make themselves, and first time users, aware of the relevant CoSHH assessments for the chemicals used.

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### When using disinfectants, staff should:

- Read the instructions on the packet and take note of safety information
- Use products according to manufacturers' instructions.
- Avoid contact with eyes and skin.
- Wear eye protection and gloves when handling concentrated disinfectant.
- When using powder concentrate in soluble sachets, immerse the sachet under water to avoid inhalation of dust.
- Do not mix with other chemicals.

### First Aid Measures

When using disinfectants always make sure you have a suitable supply of clean water or eye wash fluid readily available:

- In the case of skin contact wash off immediately with plenty of water.
- In case of contact with eyes, including any splashes, rinse IMMEDIATELY with plenty of water and seek medical advice.





## SECTION 2

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### RISK OF PEST AND DISEASE SPREAD AND LEVEL OF BIOSECURITY CONTROL

The risk of spreading pests or disease between different locations is influenced by:

- the extent and reason for the visit
  - the type of premises
  - the proximity to fisheries, crops, livestock or areas where livestock have access
- 

- if there are any current pests or diseases present or restrictions applied to premises.
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SEARS staff need to enter rural land, water bodies and premises for different reasons and collectively they carry out a wide range of tasks that present differing risks of spreading pest or disease. Section 2 categorises visits in terms of the risks they pose and describes the precautions you should take to minimise them.

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**Table 1** describes four levels of biosecurity control and indicates when you should practise each level. Level 1 control covers the lowest risk activities; Level 4 covers the highest; used where a notifiable disease outbreak has been declared or identified on the premises.

**TABLE 1 LEVELS OF BIOSECURITY CONTROL AND THE TYPES OF VISITS ASSOCIATED WITH THEM**

#### Level 4 Biosecurity Control

- Visit during an animal, fish or plant pest / disease outbreak
- Restrictions may be applied to location
- Surveillance for plant pests (including pests / diseases of trees)

**Example:** Animal Health staff dealing with a notifiable disease outbreak on a farm

#### Level 3 Biosecurity Control

- Direct contact with animals or fish
- Inspections at aquaculture units

**Example:** SGRPID staff carrying out cattle ID checks

#### Level 2 Biosecurity Control

- No direct contact with livestock
- Visit to farmland, fish farm shore base, plant nurseries or woodlands where livestock have access
- Visits to areas of the farm steading where livestock may be present

**Example:** SEPA staff entering farmland to access a sampling point

#### Level 1 Biosecurity Control

- No livestock present on premises
- Visit to office or farmhouse only, clean yard, garden centre, potato stores or egg packing stations
- Visit to woodlands

**Example:** SNH staff meeting with farmer at farmhouse to discuss management agreements



## LEVELS OF BIOSECURITY CONTROL

The level of biosecurity control you should practise will vary from simply ensuring footwear is clean (level 1), to disinfecting footwear (level 2), to wearing appropriate personal protection clothing which, together with any contaminated equipment, can be thoroughly cleaned and disinfected (level 3), to seeking specialist advice and possibly needing official authorisation before entering a location under restrictions (level 4).

The following sections describe what you need to do under each level of control before and after each visit. Depending on the specific circumstances, you may need more rigorous controls, for example many intensive livestock farms have their own specific biosecurity requirements.

### LEVEL 1 BIOSECURITY CONTROL – LOW RISK

This is the minimum level of biosecurity control you should practise when entering any premises on business. As in Table 1 this standard of control is **normally** sufficient when staff visit farmhouses, offices, woodlands, garden centres and clean areas of farm steadings where livestock are not present.

- Ensure footwear is clean (visually free from soil and debris). If necessary brush or wash in soapy water
- Ensure vehicle is kept clean and, in particular, remove any accumulated mud
- Make use of any facilities provided at the premises to clean footwear if required by the site or land manager
- Keep access to a minimum, do not access areas unnecessarily and if practical do not take vehicles onto premises and keep to established tracks
- Respect any notices or instructions

## LEVEL 2 BIOSECURITY CONTROL

If you are entering farmland or parts of a farm steading where livestock may be present or crops grown, the risk of spreading disease increases and you need to take some extra precautions in addition to those listed on [page 9](#).

This level also applies if you visit fish farm shorebases or you inspect nurseries and plants. Where possible you should plan visits involving plants and plant material to inspect high grade stocks before lower grade material, to reduce the risk of transmitting plant pests or diseases.

- Clean and disinfect footwear (See [section 3](#) for guidance on disinfection) before and after the visit.
- If your vehicle has entered an area where livestock have access, ensure the tyres and wheel arches are adequately cleaned and disinfected.



## LEVEL 3 BIOSECURITY CONTROL



If you will be coming into direct contact or physically handling livestock or fish or carrying out sampling or inspections at fish farms, the risk of coming into contact with pathogens or infected material increases. You must wear appropriate protective clothing which can be easily disinfected or disposed of to minimise the risk of carrying any disease to other premises. In fresh water situations when working in waterbodies dealing with potential disease, parasites or **non-native invasive species**, it is good practice to clean and disinfect all relevant equipment when working between catchments. Take care to avoid transporting any non-native invasive species between waterbodies.

- Ensure that footwear and vehicles are clean and disinfected as required before and after visits (see [section 3](#) for guidance on disinfection)
- Wear appropriate protective clothing which can be either disposed of after the visit or adequately cleaned and disinfected
- Any equipment or other items used should be appropriately disposed of or cleaned and disinfected after the visit. Such equipment may range from needles to survey boats.

## LEVEL 4 BIOSECURITY CONTROL – HIGH RISK

Different biosecurity arrangements may be necessary particularly if there is an exotic notifiable animal disease / plant pest or disease outbreak. If that happens, you should seek advice on how to proceed from the organisation responsible for dealing with the case.

An outbreak of an ‘exotic notifiable’ animal disease is where the Chief Veterinary Officer has confirmed the presence of disease, for example foot and mouth disease or Newcastle disease.

If the site is under specific disease control restrictions or notifiable diseases are known to be present, always follow the advice of the lead organisation.

**For plant pest and disease outbreaks or plant pest surveillance work, before you visit a site, you should seek advice from:**

- The Scottish Government Horticulture and Marketing Unit on **0300 244 9864** for plant health issues not relating to woodlands.
- The Forestry Commission Plant Health Service on **0131 314 6414** for forestry related matters.

**For advice on fish diseases, contact:**

- Marine Scotland Fish Health Inspectorate on **01224 295525**.

**For advice in relation to animal disease, contact:**

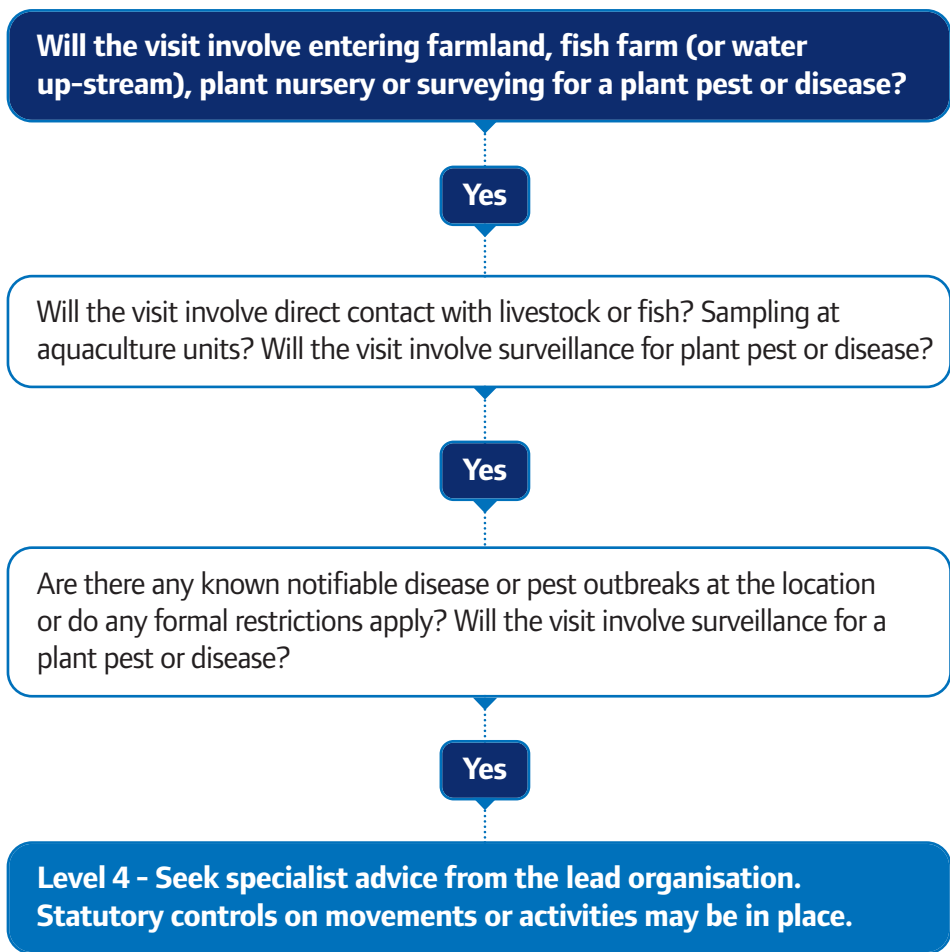
- Scottish Government, Animal Health and Welfare on **0300 244 9808**.

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## BIOSECURITY CONTROL – QUICK REFERENCE GUIDE

**Chart 1** provides a ‘look up’ guide to help you decide on the appropriate biosecurity controls.

### CHART 1 BIOSECURITY CONTROL – QUICK REFERENCE GUIDE



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No

Office, woodland  
(no livestock present),  
farmhouse, garden  
centre or clean yard only

**Level 1** biosecurity control applies. Footwear should be clean, normally no requirement to disinfect

No

**Level 2** biosecurity control applies. Clean and disinfect footwear

No

**Level 3** biosecurity control applies. Wear appropriate protective clothing and thoroughly cleanse and disinfect all contaminated non-disposable clothing and equipment

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## SECTION 3: GENERAL BIOSECURITY PRINCIPLES

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As outlined in [section 2](#), the level of biosecurity control will vary from visit to visit. The kit you need will also vary but some basic biosecurity principles apply in all situations.

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### PLANNING THE VISIT

It is good practice to discuss the visit with the occupier or manager beforehand particularly if you will be in direct contact with livestock or sampling at fish farms. However, sometimes that is not possible, for example, if you are carrying out an unannounced cross

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compliance inspection or investigating certain pollution incidents.

#### When planning the visit:

- Try to clarify the following points with the owner / manager before you visit unless it is unannounced:
    - Will water be available? If required ask to have some water provided or carry a small supply
    - What parking facilities exist?
    - If premises have high health status, do they apply their own additional controls?
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- Are the premises under any restrictions?
- Where are livestock located?  
Maybe agree a meeting place
- Try to establish if the visit will involve entering water upstream of a fish farm
- Ensure all your equipment is clean and serviceable
- Restrict the equipment taken onto the premises; take only what you need

## PERSONAL BIOSECURITY

At low risk visits (level 1) you are likely to need only minimal biosecurity kit. This may be just suitable footwear which you can clean easily.

Situations involving level 2 biosecurity and above will involve adequate cleansing and disinfecting of footwear at least.

## BIOSECURITY KIT FOR CLEANSING AND DISINFECTION

The actual clothing you use will depend on the tasks you need to carry out, the type of premises, the environment, the weather conditions etc. All protective clothing should be capable of being disinfected unless it is disposable.

If cleansing and disinfection is likely, you should carry the necessary equipment; see the following suggestions:

- Plastic storage box
- Small supply of water (approx 5L)
- Approved disinfectant
- Boot tray or bucket
- Eye protection
- Protective gloves
- Hard brush
- Hoof pick
- Means of applying disinfectant, for example brush or a portable sprayer
- Hand sanitiser / wipes and paper towels
- Selection of re-sealable bags
- Bag ties



## CLEANSING AND DISINFECTION PROCEDURE

All staff visiting farm land, or premises where there is a possibility of contamination should carry appropriate disinfecting kit. A list of approved disinfectants can be found on the [Defra](http://disinfectants.defra.gov.uk/Default.aspx?Location=None&module=ApprovalsList_SI) website [http://disinfectants.defra.gov.uk/Default.aspx?Location=None&module=ApprovalsList\\_SI](http://disinfectants.defra.gov.uk/Default.aspx?Location=None&module=ApprovalsList_SI)

### Marine Scotland Science Disinfection Guide

[http://www.marlab.ac.uk/FRS.Web/Uploads/Documents/Disinfectionguidev\\_4.pdf](http://www.marlab.ac.uk/FRS.Web/Uploads/Documents/Disinfectionguidev_4.pdf)

Some disinfectants can be harmful particularly if inhaled or in contact with skin and you should wear appropriate protective equipment such as gloves and eye protection

when making up the disinfectant mixture. Please follow the manufacturer's recommendations for use and the [CoSHH](#) risk assessment instructions for the products you use.

## PREPARATION AND USE

Mix and prepare the disinfectant in the open air or in a well-ventilated area; you can do this on location or in advance. Make sure you adhere to the dilution rates stated by the manufacturer.

Disinfectants are particularly toxic to aquatic ecosystems and, if not managed properly, risk polluting the water environment. To minimise any pollution risk from run-off or splashes of washings and disinfectant, you should carry out the disinfection process on a well vegetated flat area at least 10 metres away from any surface water drains, watercourses, springs or wells.

Disinfectant is most effective at killing microbes when applied to a clean surface. Make sure surfaces to be disinfected are clear of mud, soil, faeces etc by first washing in a water bath or hosing down if necessary.

Once clean, spray the boot / sole or equipment with disinfectant solution until it runs off. Alternatively, dip boots in disinfectant. Work the solution in using a hand-held brush, brushing away from the face and eyes and ensure any minimum contact times are adhered to.

You should then rinse off the disinfectant solution with clean water before drying, making sure you do not allow disinfectants or washings to enter any clean surface water drain or watercourse and follow any advice contained within the product label and materials safety data sheet.

Please refer to the manufacturer's instructions when disposing of concentrated or diluted disinfectant.

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## VEHICLE BIOSECURITY

Your vehicle should be clean prior to each visit. This does not mean it needs to be completely washed or 'show room clean', just that it is free from any animal faeces and accumulated mud. Please pay particular attention to the tyres and wheel arches.

Consider where you park the vehicle and ideally park off site if you can.



Where you cannot park off site, try to park on a hard standing and avoid any areas of contamination. For example, run-off from livestock pens, slurry and so on, or areas where livestock can access.

**NB:** *While the picture shows vehicles parked away from livestock areas note that the run-off from the steading as shown in the picture, could potentially contaminate the vehicles.*

If using an off-road vehicle, try to avoid driving through fields that have, or have recently had, livestock in them or where manure or slurry has been recently spread.

Efforts to keep the vehicle clean and avoiding areas where livestock have access will minimise the need to use disinfectants. If disinfectants are used

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rinse or wash the disinfected areas with clean water once the recommended contact time (see product label) has passed. Ensure that any run-off does not enter any watercourses or surface water drains.

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### **EQUIPMENT BIOSECURITY**

Equipment includes anything taken onto the site to allow you to carry out your task. Make sure all equipment is clean and fit for purpose and that any equipment likely to become

contaminated is capable of being cleaned and disinfected after the visit (unless disposable).

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### **SPECIAL CIRCUMSTANCES**

The procedures described in [section 3](#) should be sufficient to deal with the majority of routine visits to farms, farm land, woodland etc, but certain sites have specific requirements.

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## INTENSIVE PIG OR POULTRY SITES

Some commercial poultry and pig units have particularly stringent biosecurity standards. This is an industry rather than statutory requirement and a breach of these standards may significantly impact on the farm business. The owner may require you to have been free from contact with the species for up to five days before you start work. Showering in and out of the premises and using protective clothing provided is not uncommon. In these circumstances SEARS staff and contractors must keep a record of their visit or site work.

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## AQUACULTURE / FISH FARMS

There are many serious contagious diseases of fish which can threaten both farmed and wild stocks. As a precaution, to minimise the risk of transmitting disease, you must follow disinfection procedures when you visit fish farm premises.

The same basic biosecurity principles which apply to farmland also apply to fish farms and aquaculture units

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but you may need some extra equipment and have to take extra precautions to further reduce the risk of spreading disease:

- Try to find out the disease status of the fish farm before you visit. If possible avoid sites with notifiable diseases
  - If requested, use personal protection equipment supplied by the operator
  - If you use a survey boat, you may need equipment such as a pressure washer, hose pipe and electrical cable to clean it afterwards
  - See Annex B for the procedure to disinfect survey boats
  - When sampling, try to begin sampling downstream and work upstream
  - Exercise particular care when working at a fish farm intake in view of increased risk of disease transmission at this point.
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## RANGER-LED WALKS

Where SEARS staff take members of the public onto farmland such as, for example, on Ranger led walks, the member of SEARS staff should exercise the appropriate biosecurity controls as described in this document. In most circumstances this is likely to be limited to cleaning and disinfecting footwear. Members of the public are not required to follow this guidance, however if practicable, they should be invited or given the opportunity to do so.

Where single excursions or visits will be crossing farm boundaries, it is recognised that it will not normally be possible for staff to disinfect footwear before entering each farm. In such circumstances staff should ensure they clean and disinfect footwear at the beginning of the visit and at the end.

As a minimum, members of the public are expected to follow the guidelines stated in the [Scottish Outdoor Access Code](#) in regards to responsible access to the countryside.

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## OTHER GUIDANCE

Codes of Recommendations for the Welfare of Livestock: Animal Health and Biosecurity – Scottish Executive, 2002  
<http://www.scotland.gov.uk/Resource/Doc/47007/0017624.pdf>

Scottish Outdoor Access Code  
<http://www.outdooraccess-scotland.com/default.asp?nPageID=26>

Marine Scotland Science Disinfection Guide  
<http://www.scotland.gov.uk/Topics/marine/Fish-Shellfish/FHI/healthpractice>

A Code of Good Practice for Scottish Finfish Aquaculture  
<http://www.scottishsalmon.co.uk/dlDocs/CoGp.pdf>

Control of Substances Hazardous to Health Regulations 2002 (as amended)  
[http://www.hse.gov.uk/foi/interalops/fod/oc/200-299/273\\_20.pdf](http://www.hse.gov.uk/foi/interalops/fod/oc/200-299/273_20.pdf)

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## ANNEX A - BACKGROUND INFORMATION ON SPECIFIC DISEASES

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### ANIMAL DISEASES

**Avian influenza** is a highly infectious disease of birds caused by an Influenza type A virus. The disease in birds can manifest itself in a number of different forms ranging from relatively mild to severe. Certain wild birds, particularly waterfowl, commonly carry the milder forms. It can be zoonotic. The best defence is a high level of awareness and good biosecurity.

**Bovine tuberculosis** is an infectious and contagious disease of cattle

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caused by the bacterium *Mycobacterium bovis*. Human beings and a wide range of mammals are also susceptible to this bacterium. Airborne exposure through close contact is considered to be the main route of infection in cattle. Cattle are subject to a compulsory eradication programme, the two main elements of which are free tuberculin skin testing and routine post mortem meat inspection.

**Brucellosis** is an infection in cattle caused by the bacterium *Brucella abortus*, which can also cause a disease in humans known as “Undulant Fever”.

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The infection in cattle causes abortion or premature calving of recently infected animals. Cattle coming into contact with an infected animal around the time of calving may also become infected.

**Classical swine fever (CSF) / African swine fever (ASF)** are highly contagious viral diseases of pigs. Infected animals suffer clinical forms of the disease and mortality rates can be high. They pose a severe threat to animal welfare and affect productivity. ASF and CSF can be

transmitted over long distances via contaminated materials or meat products. The last CSF outbreak in the UK was in 2000.

**Foot and mouth disease (FMD)** is caused by a highly infectious virus. Cattle, sheep, pigs, goats and deer are all susceptible. FMD can be spread by direct contact with an infected animal; airborne spread from an infected animal; infected material carried on vehicles' tyres and wheel arches and on machinery; people (eg on hands, hair and clothing) and equipment.







**Newcastle disease** is a highly contagious viral disease of birds. As with avian influenza, it can be of low virulence showing only mild symptoms. Virus-bearing material can be picked up on shoes and clothing and carried from an infected flock to a healthy one. The virus can survive for several weeks in a warm and humid

environment on birds' feathers, manure and other materials. Possible routes of transmission therefore include contact between poultry and also through movements of contaminated vehicles, equipment, manure, feed and water. During October / November 2006, Newcastle disease was confirmed in East Lothian.

**Swine influenza** in pigs is an acute, highly contagious, respiratory disease that results from infection with type A influenza virus. H1N1 is the most commonly found serotype but other subtypes include H3N2, H1N2. Swine influenza is not a notifiable disease (i.e. a disease that has a high impact on productivity or serious zoonotic consequences) because it causes transient infection with low mortality in pigs.

**For further information on the above and other specific animal diseases refer to the [Animal Health](#) section of the [Scottish Government website](#).**

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## FISH DISEASES

**Gyrodactylus salaris** is a parasite, less than half a millimetre in size, which infects salmon, trout and some other types of fish in fresh water. The parasite occurs naturally in the Baltic rivers of Finland and Russia. Some years ago the disease was accidentally transferred to some rivers of the west coast of Sweden and Norway and severely impacted the wild Atlantic Salmon stocks in over 40 rivers.

**Infectious Salmon Anaemia (ISA)** is an infectious viral disease of Atlantic Salmon. The disease was first reported in Norway in 1984, but has since been reported in Canada, the USA, the Faroe Islands, Chile, Ireland and Scotland. The most recent outbreak in the UK occurred in Shetland in January 2009.

### Further information:

[ISA – Scottish Government website](#) and the [Code of Practice to Avoid the Introduction of Gyrodactylus salaris to GB](#)





## PLANT AND FORESTRY PESTS AND DISEASES

**Phytophthora ramorum** and **P. kernoviae** are serious fungus-like pathogens that damage a range of ornamental and native plants and trees and are subject to eradication measures in Scotland.

**Phytophthora ramorum** has caused extensive damage to trees and native plants in parts of the USA. It has also been found in a number of European countries, mostly on shrubs. Since 2007, *P. ramorum* has been found in

shrubs in a small number of sites, most of which are historic gardens, in the west of Scotland.

**Phytophthora kernoviae** has only been found in the UK, Ireland and New Zealand. It has been found to cause damage to a number of trees including beech and English oak and also extensive death of *Vaccinium myrtillus* in Cornwall. In 2008 *P. kernoviae* was found in shrubs in a few historic garden sites in the west of Scotland and infected *V. myrtillus* at one site.

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**Pseudomonas syringae** pathovar *aesculi* (Horse Chestnut Bleeding Canker) has, in recent years, been isolated and identified in Britain. To try to understand better the incidence and spread of this disease a nationwide survey was carried out in 2007, which indicated that one third of rural and one half of urban horse chestnuts are symptomatic.

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**Dothistroma septosporum** or Red band needle blight, caused by the fungus *Dothistroma septosporum*, has been found on a range of conifer species in Great Britain. Pine species are by far the most common hosts, with Corsican pine and Lodgepole pine being the main species affected in Scotland, although it has been found on Scots pine which appears to be more resistant to the disease than the former species.

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**Clavibacter michiganensis subsp. sepedonicus (Potato ring rot)** is a serious bacterial disease of potatoes which is listed as a quarantine organism in the EC Plant Health Directive and is notifiable in the UK. It is spread mainly in infected planting material, but can survive on surfaces and in debris.

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Further information on plant and forest pests is available on the **Plant Health** section of the **Scottish Government** website and the **Forestry Commission** website.

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## ANNEX B - DISINFECTION OF MARINE SURVEY BOATS

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After each visit to marine fish farm sites, the survey boat and its equipment, survey equipment and personal protection equipment (PPE) are thoroughly cleaned and disinfected at the fish farm base, and / or upon returning to the office.

While in open water away from any sites, the boat (the deck and hull above the water line), equipment and survey equipment are hosed down with seawater to remove any residual sediment and organic material. Everything is then sprayed with disinfectant.

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### Disinfection on site

Before coming ashore, the boat is hosed down with seawater to remove any residual sediment and organic material.

The boat is winched onto its trailer and parked in a suitable location. All survey equipment is removed from the boat and spread out on the ground. The PPE is also spread out on the ground if there is nowhere suitable to hang it.

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The boat's hull, bilge area, deck and fixed equipment (anchor, winch etc) are thoroughly sprayed with disinfectant, which is allowed to drain and dry. All survey equipment (grabs, sieves, etc) and PPE (dry suits, rubber boots, waterproofs etc) are also disinfected.

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### **Cleaning and disinfection on return to the office**

Prior to disinfection, the boat's hull, deck and fixed equipment (anchor, winch etc) are scrubbed and pressure-washed with fresh water to remove any residual sediment and organic material. Any bilge water should be pumped out. Disinfectant is then added to the washer, sprayed over the boat and left to dry.

All survey equipment and PPE are cleaned and disinfected by the same method as the boat, except that they are also given a final rinse with fresh water.

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### **Disinfection against ISA**

Firstly, the boat's hull, deck and fixed equipment (anchor, winch etc) are scrubbed and pressure-washed with fresh water to remove any residual sediment and organic material. Any bilge water should be pumped out. Detergent is then added to the washer, sprayed over the boat and left for a minimum period of 20 minutes; this is to break down any fats and oily material. This is followed by disinfectant being added to the washer, and the boat sprayed again; this is left to dry.

All survey equipment and PPE are clean and disinfected by the same method as the boat, except that they are also given a final rinse with fresh water.

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