3 Safety in Conservation Work

3.1 Introduction

The purpose of this section is to provide practical advice on safety precautions for conservation work, and guidance on the problems likely to arise in different habitats found in the UK.

This section first covers some general issues which commonly arise in conservation work - lone working, emergency procedures, young persons, and work parties. For each issue, there is discussion on the problems likely to be encountered, the principal legal requirements involved, and practical solutions. Note that the law always refers to an employer in the masculine only, and this is followed throughout.

The section then covers a range of different habitats, and sets out the main precautions to be followed when working in these environments.

The information provided must of necessity be general, given the wide range of conditions encountered, and the wide variety of work undertaken. Managers and staff will need to consider the advice given, and adapt it to suit their own circumstances and situations. In any case, the guidance which follows must be supported by instruction and training provided by individual organisations for their own staff and volunteers.

3.2 Lone working

Lone working is a common occurrence in countryside work. You may often be required to work alone without close or direct supervision. Lone working does not just involve work in remote locations; it can also take place where other persons are in close proximity but out of sight or contact. Conversely, the problems associated with lone working are also applicable to small groups working in remote locations.

Employers are responsible for ensuring the health and safety of their staff and volunteers whilst they are at work, including those occasions when they are working alone. The immediate responsibility for the safety and health of a member of staff (or volunteer) working alone will rest with the line manager (or supervisor). This responsibility includes the assessment of risks arising before and during the course of the work, the organisation of the work to incorporate effective reporting and emergency procedures, and the provision of suitable equipment. Individual lone workers also have a responsibility to act in such a way that they do not jeopardise their own safety, or the safety of their colleagues and emergency services personnel.

3.2.1 Situations where lone working is unacceptable

Legal requirements

There is no general prohibition on working alone. However, specific legal health and safety requirements stipulate that at least two people must be involved in certain work activities, as part of a safe system of work. Those activities likely to be relevant to countryside work (including building work undertaken by countryside staff) include:

a) entry into and work in confined spaces
b) work on a ladder which cannot be secured and which requires footing:
c) erection, alteration or dismantling of scaffolds, which requires immediate supervision:
d) work on or near live electrical conductors.

Non-statutory requirements

In addition, there are many countryside work activities where lone working is likely to involve unacceptable risks to individuals. In many cases, these activities will be covered by an organisation's generic risk assessments, which will specify that at least two persons must be involved. These activities might include:

a) any work (other than workshop maintenance) with chain saws;
b) tree climbing and tree surgery;
c) use of tractor-mounted winches;
d) use of mobile access platforms;
e) work on cliff or quarry faces where climbing or abseiling is involved;
f) entry into caves and disused mines;
g) initial entry into, survey and initial work on derelict and dilapidated buildings and structures;
h) roof inspection work on buildings of unknown integrity;
i) work in excavations;
j) use of products containing aluminium phosphide, sodium cyanide or similar for control of rabbits and moles;
k) the use of rifles to fire darts containing immobilising drugs for animals;
l) controlled large-scale burning of vegetation (not bonfires);
m) boat work in offshore and tidal waters, and lakes;
n) diving operations with self-contained underwater breathing apparatus;
o) various activities carried out by persons undergoing training under direct supervision, e.g. the operation of woodworking machines.

This list is not exhaustive, and individual organisations may carry out other activities which should be added. However, for the activities above, lone working is considered to be unacceptable, not only for staff and volunteers, but also for contractors working on an organisation's property.

3.2.2 Work activities where accompanied working is recommended

The following activities involve a significant level of risk, and while it is recognised that accompanied working will not always be achievable, it should be planned for, and realised as far as practicable:

a) deer culling (but not deer stalking), and deer butchery;
b) work on cliffs and in quarries where climbing and abseiling are not involved;
c) field work in hazardous environments, e.g. marshes, tidal mud flats, mountains;
d) work in extreme weather conditions;
e) use of all-terrain vehicles;
f) boat work in sheltered waters;
g) work on or near water;
h) use of mobile and fixed circular saw benches;
i) manual handling of large, heavy or bulky objects;
j) roofwork (maintenance and inspection);

k) investigation of incidents of suspected theft or break-in, or situations where confrontation can be expected.

3.2.3 Risks associated with lone working

After taking account of the activities listed above, there remain many situations where staff and volunteers conventionally work alone, for example:

- wardens, rangers and foresters, during their routine work;
- recruiters, information staff and car park attendants;
- office managers and advisers;
- office conservators, field survey workers, archaeologists.

The most significant risk arises from the potential for any accident, however it is caused, to have more serious consequences due to difficulties in communication and obtaining emergency assistance. In extreme cases, the lack of assistance could lead to a serious injury becoming a fatality. Two examples of accidents illustrate this point.

A warden on a fixed-term appointment was using an all-terrain vehicle to assess work for the following day, after his colleague had left the work site at the end of the afternoon. While driving up a steep bank, the vehicle hit a tree stump and overturned on top of the warden, who sustained a badly fractured pelvis. He was able to reach his alarm whistle, and was fortunately found about an hour later by a member of the public. Shortly after, he was also located by the warden, investigating his failure to return to base.

A forester continued working in the late afternoon after his colleague had finished work for the day. He was working unaccompanied, wearing full protective clothing, using a chain saw to fell a large tree. As it was felled, it caught another standing tree, which caused the butt to strike the forester, fracturing both his legs. He was found some 20 minutes later by a walker who heard his shouts.

For both men, their discovery by members of the public was fortuitous. The extent of their injuries, and the likelihood of shock and hypothermia, suggest that either could have died if emergency assistance had not arrived within a relatively short time.

Personal safety

There are increased risks to lone workers in some circumstances from aggressive behaviour and violence. Those whose work involves cash handling, prevention of theft from or damage to property, or enforcement of by-laws, for example, are likely to be at greater risk when working alone. Routine work involving tenants, neighbours or members of the public may on occasions become confrontational. Women working alone may also be subject to increased risks from assault, and although evidence suggests that actual incidents in the UK are comparatively few, the perception of risk is significant. However, the subject of violence is not included within this section. There are several HSE publications which deal with the issue of violence to staff.

3.2.4 Precautions for lone working

Five main principles apply:

1. The member of staff or volunteer should be capable of undertaking the work required without assistance.

2. The lone worker should be fully aware of the hazards involved and the risks to which he/she is exposed.

3. The lone worker should know what to do in an emergency, unforeseen or difficult situation.

4. Another person should know the whereabouts of the lone worker, the nature of his/her work, the planned time of return, and the action to be taken if the lone worker fails to return.

5. The risks from lone working at particular sites should be assessed in accordance with each organisation's procedures for risk assessment.

Specific precautions which require detailed consideration

1. The need for proper planning of the work, including identification of potential hazards, and assessment of weather conditions, forecasts and physical conditions in the area.

2. The need to take account of the capabilities and health of the individual, and to ensure that medical conditions or allergies (e.g. severe asthma, allergy to wasp stings) are considered before deciding whether lone working is acceptable.

3. The adequacy of previous training, and the extent of the experience of the lone worker in the method of work or the use of specific items of machinery and equipment.

4. The provision of suitable equipment for the work, e.g. access equipment to minimise the risk of falling from height; other tools and equipment of such size, weight and design that they can be safely carried, handled and operated by a person working alone.

5. The provision and use of suitable means of communication (see section 3.2.5).

6. The provision of appropriate first-aid and survival equipment.

7. The creation and testing of emergency procedures which cover:

   - the means by which the lone worker can summon assistance;
   - the means of raising the alarm by others in the event that the lone worker fails to return by the designated time;
   - the action to be taken to deal with foreseeable emergencies.

8. The level of supervision or monitoring required for the lone worker.

3.2.5 Communication and alarm systems

The provision and use of such systems is an integral part of a safe system of work, rather than the sole precaution. The range of available communication systems is increasing, including mobile telephones, private mobile radios (i.e. hand-held and car-mounted radios, but not CB radios), and lone worker alarm transmitters. The most important limiting factors are the extent of coverage and their reliability in typical countryside environments. Mobile telephones have better coverage in urban areas, but are often less effective in remote upland areas. Portable radios often have limitations in areas of steep valleys or high mountains, and at coastal properties. Lone worker alarms with 'man down' capabilities are monitored by control centres for a price. Training must be given for any equipment given to the lone worker.

Reporting procedures

Many organisations (e.g. the Environment Agency, Natural England, Natural Resources Wales) undertaking work in the countryside have developed their own reporting procedures. Ideally, these are organised through a staffed 24-hour control centre - however, this may not be practicable for many organisations. Some organisations use what is termed a "buddy" system, whereby essential details are left with a nominated "buddy" - either a colleague, a partner at home, or another responsible person. It is essential that buddies, particularly those who are not staff members, are fully conversant with the procedure.

Recommended reporting procedures for countryside and field survey staff undertaking lone working

1. Information should be left with a responsible member of staff (or volunteer), partner or other nominated person. Information should include:

   - the nature of the proposed work;
   - work locations, including OS grid references where appropriate;
   - the mode of travel to and from the area of work;
   - a description of the vehicle including registration number;
   - the departure time, and the estimated time of return.

2. As far as practicable, any changes to these details should be communicated to the nominated person.

3. If the lone worker fails to return or to contact the nominated person within an agreed time of his/her estimated return time, the nominated person should contact another designated member of staff (e.g. the lone worker's line manager) so that decisions can be taken on appropriate action, including, where necessary, the involvement of the emergency services and/or mountain rescue team.

3.2.6 Further information and references

HSE leaflet INDG69 - *"Violence at work – a guide for employers"*.
HSE leaflet INDG73 (rev3) - *"Working alone - Health and Safety guidance on the risks of lone working"*.
HSE booklet HSG133 - *"Preventing violence to retail staff"*.

Suzy Lamplugh Trust pocket card - *"Personal safety"*.

Peter Davies and Jim Loxham - *"Repairing upland path erosion"*. Lake District National Park Authority / National Trust / English Nature, 1996. Chapter 6 includes a section on lone working, and an example of a lone working risk assessment form devised by English Nature.

3.3 Emergency Procedures

3.3.1. Introduction

Even with pre-planning and good management procedures, there will inevitably be occasions when emergencies arise. If all existing risk assessment procedures are in place and followed, (e.g. health and

safety audits, environmental audits, fire risk assessments etc.), these will reduce the potential for emergency situations. However, emergencies will still occur, sometimes as a result of events beyond our control and sometimes due to the failure of our own precautionary measures.

In the UK, we have become accustomed to having such good public emergency services that we often fail to plan or train adequately for emergency situations, and it is not until such time as a disaster occurs that we are awakened from our complacency. When serious emergencies occur, a co-ordinated effort by all parties, not just the emergency services, may serve to mitigate the consequences.

The objective of any emergency procedures is to enable staff to:

a) ensure the prompt involvement of the emergency services

b) help sustain life and prevent further injury to any person until the emergency services arrive

c) take action to contain any hazardous situations

d) prevent access by staff (including volunteers) and the public to hazardous areas and/or situations

e) prevent or minimise damage to property

f) prevent or minimise damage to the environment.

3.3.2. Range of foreseeable emergencies.

a) Countryside or other outside fire (including fire on adjoining land).

b) Fire in buildings.

c) Accidents or serious illness involving staff, volunteers or visitors.

d) Incidents which may potentially lead to serious injury, particularly to visitors e.g. stuck whilst climbing cliffs, cut off by rising tide, buried under cliff fall.

e) Effects of adverse severe weather conditions - e.g. fallen trees, landslips, flooding, snowdrifts.

f) Pollution incidents (e.g. oil spills).

g) Chemical contamination.

h) Unexploded bombs or shells.

i) Bomb threats and other security related incidents.

j) Serious criminal activity (e.g. vandalism).

3.3.3. Legal duties

The Health and Safety at Work Act 1974 places general duties on employers to ensure the health and safety of employees and others who may be affected by their work activities. The Management of Health and Safety at Work Regulations 1999 expand on this duty by requiring employers to implement, amongst other things, emergency procedures. Regulation 8 in particular requires employers to:

a) establish procedures to be followed in the event of serious and imminent danger to persons at work;

b) nominate a sufficient number of competent persons to implement those procedures in relation to the evacuation of persons at work from premises;

c) ensure that employees do not have access to areas restricted on grounds of health and safety unless they have received adequate instruction.

Regulation 10 requires employers to provide their employees with comprehensive and relevant information on any safety procedures which are established under (a) above.

3.3.4. Preparation of Emergency Procedures.

Each site (whether it be reserve or office) should have a written set of procedures to deal with foreseeable emergencies.

It is not intended to lay down a format for this document. The document must be workable and kept as simple as possible, whilst at the same time remaining comprehensive and easily readable.

In preparing the procedures, there should be full liaison with the local emergency services.

The procedures must be made available to staff and volunteers likely to be involved in dealing with an emergency, with training given not only to staff but also to volunteers where appropriate.

Where appropriate, the procedures should be explained to visiting groups (e.g. work parties, residential volunteers) and visiting staff working at the location. Prompt sheets containing important information which should be passed to the emergency services when they are called out, should be prepared and kept at suitable positions (e.g. alongside telephones).

The emergency procedures should be practised on occasions.

The procedures should be reviewed annually. Also, after any emergency situation, there should be a debrief and the procedures revised if necessary.

The procedures should also include measures for sites to protect important plant or animal life and their habitats. High risk areas should be identified and high risk periods of the year defined.

The following points may need to be considered in the preparation of emergency procedures - an ideal method of presentation may be in the form of a check-list:

a) The roles and responsibilities of key members of staff and volunteers

b) Equipment needed for any emergency. This might include such things as:

first aid kits, fire beaters, fire extinguishers, rescue equipment, tools etc. but will be dependent on the location and the type of emergency being considered.

c) Communications equipment, visabilty. hand-held V.H.F radios, mobile phones, location of nearest telephones etc.

d) Personal protective equipment (PPE) for staff and volunteers.

e) Transport to be used in any emergency (e.g. Land Rover, ATV - remember the need for training users prior to any emergency).

f) Availability and location of First Aiders.

g) Response times of emergency services to your site.

h) Access points and routes. If the site is large and complex or if there are similarly named sites in the vicinity, the use of map references would be very useful, as would a copy of the map of the area with this information highlighted.

i) Location of emergency water supplies for fire-fighting. Provision of firebreaks both natural and man-made.

j) Locations of any special hazards, e.g. high-voltage power transmission lines, bogs etc.

k) The need for regular liaison with emergency services and the possibilities of allowing these services to practise emergency situations at your site, perhaps with the involvement of your staff.

l) Locations of sensitive plant or animal life, and/or their habitats, which may be affected by oil or chemical pollution.

m) The need for liaison with neighbouring land owners and/or tenant farmers.

n) Which staff to notify in the event of an emergency.

o) Which external organisations to notify in the event of an emergency, e.g. Environment Agency.

p) Reporting and investigations following an emergency situation.

q) The need to provide warning notices to prevent public access during periods of pollution or high fire risk.

3.3.5. Post Emergency

It is important that lessons are learnt from any emergency situation which may occur. It is therefore important that line managers should receive a report containing details of the emergency and the actions which were taken as soon as possible after the event. Any failings in the emergency procedures should be identified and recommendations for changes should be made.

The need to report an injury or dangerous occurrence under the Reporting of Injuries, Diseases or Dangerous Occurrences Regulations 2013 should be considered (see Section 1.10). Your own organisation's procedures for internal reporting of accidents and dealing with insurance claims should also be followed.

It will also be essential to check the safety and integrity of all bridges, fencing, trees, buildings etc., that may have been damaged during an emergency. It may be necessary to involve specialists (e.g. Building Surveyor, Land Agents, tree surgeons).

3.4 Young Persons

Conservation work is increasingly popular with young people, both voluntary and as paid employment. This section deals with two areas. In 3.4.1, the safety considerations for the employment of people under 18 are outlined, as some legislation sets minimum ages, and imposes requirements for supervision and training in these circumstances. Section 3.4.2 outlines the checks and supervision requirements when an organisation wishes to involve children. Later sections look at practical outdoor work and educational activities, and explain the specific criteria for running adventure activities.

3.4.1 Employment of people under 18

As well as the requirement to meet the provisions of the Health and Safety at Work Act etc., specifically section 19 of the Management of Health and Safety at Work Regulations 1999 cover young persons. They require employees to take into account the lack of experience of young persons and prevent certain types of work. A risk assessment should be carried out, or an existing one to be amended, to ensure any risks to a young person are identified and addressed before the young person starts work. In doing this, the following must be taken into account when deciding what work can be done by young persons, and what precautions are needed to ensure their safety:

- the age and relative inexperience of the young person;
- their physical capability and limitations;
- the way in which the workplace is laid out, and the work processes are organised;
- the nature of any likely exposure to biological, chemical or physical agents.

The results of this risk assessment must be explained to them, and if they are under 16, the results must be made available to their parents or legal guardians before they are employed. There is a general requirement to take account of the nature and abilities of any group when drawing up a risk assessment (see Section 3.5), which this specific requirement complements.

Commonly under 16's come to organisations for work experience placements. The same H&S responsibilities apply in these situations, though providing the risk assessment to the school placing the person with you is likely to be sufficient.

No person under 14 can be employed, and there are prohibitions on some work activities for young people under 18. These are:

Circular saw. No person under 18 can use a woodworking machine such as a circular saw unless he/she has successfully completed an approved course in its use, or is undergoing training under the direct supervision of a competent trainer.

Tractors. No person under 14 can operate any tractor, though most organisations set a minimum age of 16 for any machinery use. A tractor test, which can be taken at 16, is required before driving on the public highway. For any other machinery being taken onto the highway e.g. dumper trucks or other farm machinery, the minimum age is 17, and requirements for supervision and training must be followed.

3.4.2 Involving children

A child is defined as being under 18 according to the Childrens Act 1989 and 2004 and Working Together to Safeguard Children. The latter paper puts an emphasis not only on preventing abuse but also an adults responsibility to report concerns they may have from signs of abuse when interacting with children. This puts a moral, and in the case of **direct supervision**, a legal duty of care on the organisation.

It is important that any organisation working with, or involving, young people, takes steps to minimise the opportunities for abuse to take place as well as train the leaders in spotting signs and symptoms of abuse with the knowledge of what to do if they have concerns. Abusers look for situations in which they can gain access to children, but they do not appear different from the rest of society, and do not come from one particular class, group or sex. An abuser is most often known to the child, and it is from a position of trust that most abuse starts.

When involving children, and this can include taking them on work experience placements, the child's welfare must be paramount. The following are recommended as minimum standards:

- Establish and work to a code of practice for all contact and involvement with children and young people.
- Train all employees in Safgeguarding
- Wherever possible, work with parents, teachers, carers and other organisations to involve children.
- When parents are involved with a group, the responsibility for the **behaviour and discipline** of the children should lie with them.
- In **all** circumstances, except in an absolute emergency, groups of children must be led by **two or more adults.**
- Except in the case of absolute emergency a single adult must not be left in the company of a single vulnerable person.
- **Written consent from a parent or guardian** must be gained for all those under 16, and must cover -
    - their presence with you;
    - what they are doing;
    - agreement for emergency medical treatment for the child;
    - if any crewbus or minibus likely to be used has no seatbelts, permission for the child to ride in it.

All people expected to work regularly and frequently in a direct supervisory role with children (i.e. without parents or a host organisation present) must complete a Discolsure and Barring Service check (DBS). They must also complete a **job application form**, be interviewed for their suitability to carry out such work and provide references. These references must be followed up regarding this suitability.

A form of identification which includes a photograph, e.g. passport, must also be viewed to check details provided on the application form.

The name and telephone number of an **independent person** to whom an appeal can be made if they feel concerned or have been subject to abuse must be made available to all children with whom staff come into contact on more than the odd occasion (i.e. more than once a fortnight).

Appointments to a long term post involving direct supervision are subject to a **probationary period** of 6 months. The date for the review of the probationary period should be set on appointment and the review should include an assessment of the person's ability and commitment to prevent the abuse of children and vulnerable people.

3.4.3 Further Guidance

Working together to safeguard children, Ref: DFE-00130-2015

3.5 Work Parties and Visitors

3.5.1 Introduction

This section is concerned with visiting work parties, and work parties which are recruited and directly managed by the host organisation or site manager. Throughout the section the term 'site manager' is

used generically to cover any organisation or person who hosts such a work party on a site they have some control or ownership of.

The overall responsibility for the safety of work parties on countryside sites lies with the site manager. Under Section 3 of the Health and Safety at Work Act 1974, an employer has a duty towards those people not in his employ, but who may be affected by his work activities. If a work party comes from another organisation e.g. a company using the activity as part of its management training, that company retains its own duties towards their employees as normal.

The use of work parties to carry out a variety of practical conservation projects is a common occurrence for many countryside organisations. These include competent and trained volunteer groups; schools and youth groups; scouts, guides etc.; student placements; armed forces; community based groups; special interest groups and trainees on Government schemes. Each group will have different abilities and skill levels, and will require a project matched to these. The group's motivations for taking on the project will vary, and the role of both the leader and/or site manager will be to maintain the group's morale and ensure safety on site.

Most groups forming work parties on countryside sites will not be employed directly by the site manager, but come to them on a voluntary or contract agreement. Where a group is receiving some payment for the work being undertaken, e.g. travel and overhead costs, and is providing all its own tools, equipment and leadership, then they can be treated in a similar way to a contractor. However, purely voluntary groups do not have the same statutory duties as an employer, and may not have the experience or knowledge to undertake risk assessments. This does not obviate the need for the site manager to carry out their own risk assessment, to check that they are competent to do the work being asked of them, and to ensure that they have taken account of all safety matters in planning for the project.

Where the group is relying on the site manager to provide leadership and instruction, that organisations' own safety policy and practices should be used to set standards of safety on site.

In all circumstances it is advisable to ensure that suitable and sufficient insurance - both public liability and personal accident - is available to cover this type of work.

3.5.2 Safety Leadership

With any group, regardless of its size or make-up, it will be important to establish appropriate responsibilities before starting work. The leadership role will be vital in ensuring the safe and effective working of the group. This leadership may come from within the group if they have sufficient practical skills and abilities, from the site manager if the group is completely inexperienced or has been directly recruited by that site manager, or a combination where the site manager provides practical leadership and the group provides 'discipline' (most likely with school groups etc.).

It is important that the leader of any practical activity is competent to do so. If the site manager is relying on the group to provide the leader, he/she needs to check that this person has tackled this type of work before, that they are competent in leadership skills, that the group has a good safety record and that the leader fully understands the safety requirements of the work and site.

In all circumstances, before any work is started:

- a risk assessment should be completed, taking into account the nature and skills of the group being asked to carry out the work e.g. a task considered to be low risk for an able-bodied group of young adults may present a higher risk to a group of young children or adults with learning disabilities.
- a leader should be identified as responsible for site safety co-ordination and instruction.
- information on site hazards should be made available to this leader.

- clear leadership roles should be agreed between the group and the site manager, covering a safe system of work and the safe use of tools and equipment.
- a plan for dealing with emergencies should be agreed.
- appropriate first-aid cover should be available.

At the start of any practical project, the group should be briefed on the following:

- the reasons for the work being done
- the site, its history and development
- the work to be done that day and any targets to be achieved in the period
- the safe ways to carry out the work, e.g. instruction in correct felling techniques by hand
- the tools to be used during the project, and any limitations on what can be used, by whom and where
- what, if any, machinery and powered equipment will be used and by whom
- any other users of the site e.g. visitors, walkers, site staff, contractors
- what first-aid arrangements are in place and what to do in the event of an accident
- what PPE is required for any particular work activity and where to obtain it
- the plan for the day e.g. breaks, finishing times

With any group, it is important to match the work to the abilities of the individuals within it. Jobs should be rotated wherever possible to ensure everyone has an opportunity to experience a range of activities. This may require frequent instruction and reminders of safe techniques and use of tools. If new tools or work are introduced during the day, then further instruction should be given to those involved.

Many groups are not used to regular outside physical work. Targets should be set, recognising the group's experience and fitness level. Group leaders should monitor the group to ensure no-one is working beyond their capabilities, and that safety instructions have been fully understood and implemented. In most workplaces, the new members of staff are those most at risk, as they are likely to be unfamiliar with the workplace and its hazards. With most work parties this is even more so, as each group comes onto a particular site for a limited period of time. Site managers have a responsibility to inform each group of the hazards likely to be present on the site, as even a repeat visit by a particular group may contain some new individual members who do not know the work and site.

3.5.3 Project planning

If you are organising a work party on your site, it is important to get a clear agreement of responsibilities and roles prior to the group starting work. If the work party is an external group, invite the organiser to visit the site beforehand to agree the work, their and your responsibilities. If the work party is one directly recruited to the site, all the safety planning is likely to be done by the site manager. In either case the following list should aid the preparation for the safe involvement of a work party. There needs to be clear agreement on:

- who is responsible for the site and work risk assessments
- who is responsible for any other assessments e.g. manual handling, COSHH
- what level of insurance cover is required and who is to provide it
- where any vehicles can be parked
- safe access points
- who is to provide first aid personnel and equipment
- who is to provide tools
- who will instruct in the safe use of tools
- who will instruct in the working practices
- what the emergency procedures are
- what powered equipment is needed and who will provide and use it

- what chemicals are needed and who will provide and apply them
- who will estimate for and order any materials
- what safety standards are acceptable, e.g. safe working distances between individuals, action in the event of unsafe or unacceptable behaviour
- how the site should be left at the end of work
- the location of any bonfires, and what arrangements are in place for ensuring they are left safe at the end of the working day
- how to deal with any visitors to the site
- what will be done with any surplus materials at the end of each working day

Specific safety points for individual work types are covered in later sections of this manual, and in other publications - see further guidance.

3.5.4 Further guidance

TCV E - Handbooks - a range of titles with practical guidance for planning work activities. Titles include:

Woodlands, Tree Planting, Fencing, Footpaths, Sand Dunes, Drystone Walling, Hedging, Urban Conservation, Tools Maintenance, Hands-On Conservation Pack.

3.6 Habitats

The following sections describe the range of hazards and common precautions for work in a broad range of habitats. Each section can be read alone, and this will lead to some duplication of information between sections. The sections are aimed at people unfamiliar with work in the particular habitat, or those who are planning for their staff or volunteers to work in them for the first time.

3.6.1 Mountains, Moorlands and Uplands

When compared with the mountain and upland areas in mainland Europe and elsewhere in the world, the uplands and mountains of Britain are small and of low altitude. However, their climate and terrain make them just as dangerous as any other mountain range.

Deaths and injuries occur each year, mainly because people do not appreciate the dangers, take reasonable care or learn how to deal with potential danger. Conducting field work in the uplands will therefore always involve a greater risk than most other habitats.

The first part of this guidance covers work in the period from the spring through to the autumn period and would also be applicable to moorland and some upland areas in winter conditions. Work in mountain areas in the winter requires quite specific skills and training (e.g. the use of crampons, ice axes and more advanced navigation skills) and some advice is given in the last part covering winter work.

1. Spring through to Autumn

The main hazards are:

Terrain

a) Slopes Grass or heather slopes can be extremely slippery when wet
Loose rocks on slopes can be dangerous for persons working on slopes, and if dislodged can be a hazard for others working below.

Loose scree can be especially dangerous.
On uneven ground there is the possibility of stumbling, and in this terrain and on gradients (both ascents and descents), your walking speed will be reduced.
Steep ascents make considerable demands on fitness and are very wearing on knees and legs.

b) Distance Walking long distances may make considerable demands on stamina, and if this is across difficult and steep terrain it may mean that you will be out in possibly inclement conditions for a long time.

c) Navigation It is important that you always know where you are. This can be particularly difficult away from paths and tracks, especially in relatively featureless terrain, and may be compounded by reduced visibility.

Weather: These areas can be subject to sudden changes in weather conditions:

Cloud cover can lower to give reduced or nil visibility; rain, snow or sleet squalls can blow up very quickly, and increases in wind strength can significantly reduce temperatures due to wind chill factor at any time of the year.

As you gain altitude the temperature reduces and wind speed increases. This is compounded by lack of shelter.

Strong to gale force winds, common in mountain areas, reduce walking speeds, make increased demands on stamina and can blow a person over.

Bright sunlight, particularly over lying snow, can be a significant hazard if it makes it more difficult to perceive other hazards. There are also health hazards associated with bright sunlight (both summer and winter).

Insects: Midges, mosquitoes and flies can be a real problem to countryside staff working outdoors in the summer months, particularly in the early morning and late in the evening.

Working in Mountains or Upland Regions

Working in mountains or upland regions should never be treated lightly. Do not climb alone (see Section 3.2.1), without the necessary permission or without proper training and equipment. Take care when scrambling on rough or rocky ground and scree. Steep slopes of grass, earth or rock can be dangerous.

The aim should always be to minimise risks.

When working in mountain and upland areas, it is essential that the work or route for the day is planned well in advance. Leave a copy of your work plan or route with a responsible person at your work place, home or neighbour together with a time at which you expect to return, so that in case of an emergency the alarm can be raised. Do not forget to report in when you return, or let your colleagues if you plan to extend your expected return time.

The mobile telephone network is gradually expanding in Great Britain although coverage in upland and remote areas is still very patchy. Unless you know that there is phone coverage in the area where you are working, do not rely on a mobile telephone as a means of summoning help in case of difficulties. Hand-held V.H.F transceivers also rarely work in upland regions as they rely on line of sight for contact between stations. Portable satellite communications equipment may be appropriate with Global Positioning Service (GPS) but can be expensive.

The weather in Britain's upland regions is far less predictable than in most other places. It is advisable to check the weather forecast before setting out. Meteorological Office forecasts are as accurate as possible but paint a broad picture. They are available via apps and the internet and by phone. Intelligent interpretation of radio or television weather forecasts will also be useful.

Local land features may produce weather disturbances so check local forecasts if they are available. Take note also of any warnings or advice issued by local organisations connected with the mountains. It is worth remembering that in general the weather forecast is almost always correct when there is a prediction of bad weather. It is safer to assume that the worst conditions will occur.

It is important that before working in mountain or upland regions some core skills are learnt and mastered. These should include navigation, survival techniques, first aid, leadership, lone working procedures and the practice of pacing and timing travel in this type of terrain. It is also important that if working in poor visibility navigation legs are kept short and your position is regularly checked.

It is also important that staff working in mountain or upland areas maintain an adequate level of fitness. This will:

a) reduce the time spent in hazardous areas
b) reduce the risk of an accident happening
c) add to the enjoyment of working.

Essential Equipment

When working in upland areas field staff should carry the following equipment:

Whistle

Map of area preferably to a scale of 1:50,000 or better, preferably waterproof.

Good compass (e.g. Silva type)

Torch and spare batteries and bulb

First-aid kit

Survival bag

Watch

Penknife

Insect repellent

Sun block cream

Each person must carry sufficient food and drink for the likely duration of his or her work period, plus emergency rations, in the form of high-energy food, such as chocolate. Any medication required for a medical condition should also be carried.

A rucksack should be carried, containing spare clothing for use in adverse weather or emergency situations. This would include items such as woollen gloves, socks, spare sweater, anorak/cagoule and overtrousers, if these are not being worn.

Clothing and footwear

The increase in hill walking and other outdoor recreation has led to masses of equipment and clothing being available. Fashions change and are not always for the best. Ask for advice from friends, colleagues and in specialist shops. Outdoor magazines often carry reviews of clothing and equipment

Clothing should:

Be flexible

Be warm/cool as necessary
Be windproof
Keep you as dry as possible

More layers of clothing will be needed on the torso than on the legs as it is more important to protect the torso.

Top/torso:

Wear a base layer of material that wicks moisture away from the skin. This keeps the skin dry and hence avoids the cooling effect of evaporating sweat or water. In itself this layer need not be warm. NB. Cotton tee shirts are not suitable for this purpose.

On top, have available to wear 3 layers, to add warmth but allow for flexibility. Fleece-type jackets are now almost universal. They do not absorb water and dry quickly which are both major advantages. When selecting a fleece choose one with windproof qualities.

Finally, the outer shell layer should be:

Windproof
Breathable
Waterproof

It should have a drawcord at the waist and a built in hood. Gore-tex© fabric is excellent, but alternatives are available.

Legs

In most conditions, (i.e. outside the winter period) a single layer should prove adequate. Cotton jeans or similar should be avoided. Close fitting, nylon track suit bottoms (e.g. Ron Hill Tracksters) are very light, comfortable, moderately windproof and dry quickly. In cold conditions, long johns should be worn in addition (same material as base layer on torso).

Over trousers

These should have the same qualities as an outer shell jacket. Look for ones with long leg zips to make them easy to put on over boots.

Gaiters

These add warmth to your feet - needed in the winter. Useful in wet conditions in the summer, otherwise not essential.

Boots

Modern styles are very comfortable. Choose a model which is adequate for your needs and frequency of use. If only for summer use, a fairly light pair would be adequate; avoid heavier pairs designed for winter walking with crampons attached. A sharply defined heel is important to minimise the risk of slipping.

Hat

A hat is essential all the year round. In cold wintry conditions a balaclava-type hat is recommended.

Gloves

A single light pair is useful in summer. In spring, autumn or wintry conditions an additional pair of over mitts will be needed.

Goggles

For lying snow or snow storms, goggles (of a type which filters out UV light) should be worn and these should be carried in case the weather deteriorates.

2. Winter period

In winter conditions the main hazards in addition to those mentioned earlier are:

Snow Lying snow can either be loose and powdery or wet and heavy. Both types create their own hazards. Loose or powdery snow can easily be whipped up by strong winds and can lead to "white-out" conditions, particularly when combined with fresh falling snow. It can also be stirred up by man-made conditions (e.g. the down-wash from helicopter rotor blades).

Wet snow can be easily compacted by the passage of people and vehicles, and if it freezes it can form extensive areas of ice which can be a significant hazard.

Snowdrifts are often very deep and if not compacted can easily engulf a person. They could also be hiding other hazards such as loose rocks or scree. There is always a threat of avalanches where deep snow or drifts are disturbed by either the weather or other factors, e.g. the passage of a vehicle such as a "Snowcat".

Ice Frozen hard packed snow can easily turn to ice and will be a significant hazard.
Water courses and streams may freeze and then become concealed by fresh fallen snow.

In winter, the uplands and mountains are particularly dangerous, and field staff should be constantly aware of changing weather patterns.

In snow, navigation is difficult, and movement requires greater stamina and skill:

Keep to recognised routes and avoid the possibility of stepping into snow-covered hazards.

Avoid crossing frozen or snow-covered rivers, lakes or ponds.

In the event of very bad weather, return to the work base or to a lower altitude. If caught in a blizzard or lost, find temporary shelter and use a survival bag until conditions improve.

Be constantly on the look out for symptoms of hypothermia (see Section 2.4.1).

While skis can provide a useful means of transport in upland areas, they also involve additional hazards and **should not be used without adequate training or experience.**

Extra equipment recommended for this period:

Ice-axe

Crampons

Hot drink

Further Guidance

Langmuir, E (1984). "Mountaincraft and Leadership". Cordee
Barton, B and Wright, B (1985). "A Chance in a Million ?" Scottish Avalanches. Cordee.
Moran, M (1988). "Scotland's Winter Mountains. The Challenge and the Skills". David and Charles.
Barry, J and Jepson, T (1988). "Safety on mountains". British Mountaineering Council.

3.6.2 Working in Woodlands and Forest

Special problems exist in wooded areas, principally because of the restricted visibility and difficulty of movement. It is probably easier to become lost, more difficult to find a missing person and takes longer to get people out, than in other environments. Work in woods and forests can be more tiring, and it should be planned with this in mind.

This section applies to field staff working in extensive woodland and forest areas such as the upland coniferous forests of the UK. However, some elements will be relevant to the smaller blocks of woodland found in lowland Britain.

The main hazards are:

- Modern forestry techniques are hazardous and complex and involve machinery and equipment, aerial rope ways for timber extraction, chainsaws, etc. Operators may be unaware of your presence.
- If walking through trees, there is the possibility of whiplash from branches, especially if more than one person is in the group.
- The risk of fire in woodlands can be extremely high in dry weather. A fire in woodland can travel faster than a person can run.
- Falling branches, trees and debris in gales or high winds.

Precautions to take:

- It is always advisable to carry a map of the area (1:25,000 scale is best) together with a good compass, a whistle, mobile phone or radio, and a first-aid kit.
- Always obtain permission from the owners or managers of woodlands and forests beforehand.
- Report to the local owner's office before entering the area and comply with any instructions given or with bylaws which may affect you.
- Leave details of your proposed work area and route either with the office or with another responsible person (e.g. spouse, neighbour) giving estimated time of return. Ensure that you report back on your return.
- While working in a wooded area, it is advisable to keep your position and direction constantly in mind; it is all too easy to become disorientated. If you become lost, backtrack rather than go on in the hope of finding a landmark.
- Areas where growth is dense, or the ground is obscured, should be avoided if at all possible; so should areas of scree. If more than one person is walking through trees extra care must be taken to avoid the whiplash of branches. In forests, rocks, fallen trees and other obstacles frequently will have a covering of moss which can be slippery when wet. If climbing or descending slopes, support from vegetation should be used with caution as it may not be as firm as it first appears.
- Do not climb forest observation towers or deer high seats unless prior permission has been given and then only when accompanied.
- Do not light fires, discard cigarette ends carelessly or leave anything like broken glass which may cause a fire.
- It is advisable not to enter woodlands or forests during periods of gale or storm force winds due to the dangers of falling branches, trees or other debris.

- If your work requires you to climb trees, do not do so unless you have been trained to do so safely, have the correct climbing equipment and are accompanied by a second person who is trained in rescue techniques. If ladders are used then the correct ladder techniques must be employed.

- Park vehicles off the main track ways and access roads, but do not block smaller access routes, rides (clear areas between blocks of trees), firebreaks, fire access points or emergency water supplies.

- Always turn vehicles round before parking, so that they are ready to drive off immediately should an emergency situation arise.

- Do not take a vehicle beyond its capabilities, particularly off-road.

- If using a four-wheeled drive vehicle, ensure that you are aware of its limitations and preferably have received training in driving off-road vehicles.

3.6.3. Agricultural Land

This section is aimed at giving advice to staff who are visiting and unfamiliar with working on agricultural land. Staff who are engaged in more practical management activities, for example livestock handling, fencing, tractor work etc., will find advice for these activities later in this Manual.

Under most conditions agricultural land may be considered to be a low risk environment for countryside staff to work in. However, staff should remember that most farming activities are nowadays very mechanised, and that this often involves the use of large and dangerous machinery. The accident rate in agriculture is very high with a significant proportion of accidents involving visitors to the countryside.

The hazards on agricultural land generally fall into three categories:

3.6.3.1. Physical hazards

Livestock: Cows with calves at foot can be very protective of their young, and can and do charge intruders into the field. Similarly, untethered bulls in fields can be dangerous. Many agricultural holdings keep dogs either for working purposes or as guard dogs, and these should always be treated with caution, no matter how friendly they look. Occasionally you may come across holdings keeping geese as "guards", and these too can cause problems to the unwary or timid.

Machinery: agricultural machinery is getting more sophisticated and larger with an emphasis on doing the work ever faster. There are therefore increased risks of injuries, such as being struck by vehicles, or becoming entangled with moving parts of machinery.

Farmyard structures: Hazards exist from unfenced slurry or silage pits, ponds, grain silos and stores. Stacks of hay and straw can present a hazard from their stability. Barbed wire can give cuts and grazes while electric fencing can give the risk of electric shock.

Electricity: high voltage electricity cables crossing the land can be a hazard to some countryside activities, as can the risks of electric shock from fences and electrified netting. Underground services including cables can present hazards, particularly when fencing.

Predator control and shoots: many predators are controlled in the countryside by the use of either poisons or by shooting. This is particularly the case on agricultural estates where winter shoots may be significant in income generation.

Terrain: the terrain on agricultural land can give rise to a variety of hazards. Farm tracks and land can often be muddy leading to increased risks from slips, trips and falls. In the summer months, tall dense stands of growing crops or other vegetation can cause problems with both mobility and vision. In the winter months, low lying farmland can easily flood following rainfall, and this itself can cause risks to health and safety, particularly if staff are unfamiliar with the terrain.

Weather: the weather in some areas can change rapidly, even on some areas of low lying land, but more particularly in hill areas. Winter weather conditions can bring the attendant risks from snow and freezing conditions, whilst good summer weather can produce strong sunshine, risks of heat exhaustion and UV exposure.

3.6.3.2. Chemical hazards

Many chemicals are used in agriculture, some of which are toxic or harmful to humans. The greatest risks are from pesticide spraying operations and from poisons used to control predators. Residual amounts of pesticides and other chemicals may be present for some time after spraying has been completed.

3.6.3.3. Biological hazards

There is a small risk of contracting zoonotic diseases whilst working on agricultural land. In the summer, there is a higher risk of insect bites and stings, particularly horseflies, while ticks may be encountered at any season. There are also risks of contracting some occupational diseases such as tetanus and leptospirosis (see Section 2.2).

General precautions to take:

- Always obtain permission from the landowner, or his agent or tenant before entering any agricultural land.
- Check with landowners to ascertain whether there are fields containing livestock which may cause safety problems, and avoid these wherever possible. In most cases, farmers keep such livestock away from public rights of way.
- Exercise caution when approaching dogs on agricultural land. The advice in Section 3.6.7 should be followed.
- Keep well clear of all working agricultural machinery. If you need to speak to the driver/operator of a working machine, attract their attention from a safe distance and indicate that you wish to approach the machine. Only approach when the driver/operator indicates that it is safe to do so.
- Extra care should be exercised when working round farm holdings, steadings etc. You should keep away from slurry or silage pits which may contain areas of deep liquid. Grain stores and silos should be avoided. If you need to cross a fence line, do so by using a gate or stile, otherwise great care should be exercised if it is necessary to cross a barbed wire or electric fence.
- When working in the countryside, particularly with any tall or high equipment, always check for the presence of overhead high voltage electric or telephone cables.
- Before going out onto agricultural land, particularly at dawn and dusk, check with the landowner to see if any predator control work is taking place. If during the game shooting season, check for areas where this is likely to take place.
- Many pesticides used on agricultural land have as part of their condition of approval a stipulated period of time in which livestock and humans should not enter a sprayed area. These exclusion periods can range from 7-21 days. If you suspect that the area over which you wish to work has been sprayed, you should check with the landowner, tenant etc. to find out the exact product(s) used. If possible, you should read the chemical label or obtain a copy of the product safety data sheet to find out if any exclusion period exists for that product(s). A further source to check is the UK Pesticide Guide, which is published annually.
- Follow the advice in Section 2 for precautions to take for occupational diseases, zoonoses, insect stings and bites etc.

- Many farm tracks and fields may necessitate the use of wellington boots. You should always ensure that you have the correct protective clothing for the type of terrain and for the weather forecasted at the time.

- If working alone, the procedures outlined in Section 3.2 should be observed.

- It is always advisable to carry a map of the area (1:25,000), together with a good compass, a whistle or other means of communication and a first-aid kit.

- Park vehicles off the main track ways and access roads, but do not block smaller access routes. Always turn vehicles round before parking, so that they are ready to drive off immediately in an emergency. Do not take a vehicle beyond its capabilities, particularly off road. If using a four-wheeled drive vehicle, ensure that you are aware of its limitations and preferably have received training in driving off-road vehicles.

- Care should be taken not to start fires on agricultural lands. Particularly vulnerable are hay and straw stacks, stubble fields and growing crops in periods of dry weather. Ensure that all smoking materials are carefully extinguished, or better still, avoid using them in vulnerable areas and at times of high fire risk.

Further Guidance

The UK Pesticide Guide. Published annually by the British Crop Protection Council.
Agricultural Information pages on the HSE website.

3.6.4 Waterways and Wetlands

This section covers advice for countryside staff working in, on or near to rivers, all freshwater habitats including bogs, mires, swamps, fen and carr. (NB. tidal rivers and waterways are covered in Section 3.6.5).

With the exception of shallow ponds and ditches, all work close to freshwater should be regarded as containing risks because of currents, submerged objects and muddy or slippery edges. In some situations, work near to fast flowing rivers, weirs and locks, and all activity at night should be considered to have extensive risks.

Wet, unstable and boggy areas occur widely. These may range from small areas of boggy ground adjacent to rivers and streams which may be encountered suddenly or unexpectedly (flashes), to much larger areas of mire or peat bog where the dangers are more obvious. Field workers in such an environment must be fully aware of the risks involved. Whenever possible, field workers should avoid entering or walking through boggy areas, and should find an alternative "drier" route round.

Sudden changes in weather can produce hazards. Heavy rainfall in narrow river valleys can lead to sudden increases in water levels and increases in the speed of water flow. Rainfall many miles away from a floodplain, where rain may not have fallen itself, can catch out the unwary. Gales and very strong winds can bring down branches from trees - be especially careful of Crack Willow trees (s*alix fragilis*) in these conditions. Prolonged heavy rainfall and strong winds in late summer/autumn when trees are still in full leaf can bring down large trees.

Lone working is a common feature of field work in these habitats, sometimes in very remote locations.

Hazardous substances are occasionally used, particularly for the control of waterside vegetation. Although the range of pesticides which can be used on or near water is restricted, there are still risks to countryside staff where they have been used.

Several occupational diseases are associated with working in these habitats. Perhaps the most significant is Weil's disease or leptospirosis. There are also higher risks in summer months from insect stings and bites, especially horseflies and mosquitoes (see Section 2 for fuller details).

The most dangerous type of unstable wet ground is the bog land normally associated with the uplands of Britain. Typically such bogs consist of a mat of saturated vegetation with a deep layer of peat underneath. Large areas may be classified as a "quaking bog", a floating mat of vegetation which sways and moves when walked upon. The surface of quaking bogs can easily be broken and, if breached, can close over the victim. As a general rule, field staff should stay off areas of sphagnum moss, which are normally light green in colour.

Any work in reedbeds can produce particular hazards. There are often hidden channels which have grown over with reed, and "soft spots" which can produce slips/trips/falls. Deer and other animal tracks can produce some very deep areas of mud and water. The vegetation in reedbeds is sharp (reed, sedge and Juncus leaves) and cuts to hands and forearms can occur. Movement through reedbeds, particularly in the summer months when the reed is in leaf, can be dangerous. The vegetation is tall, dense and it is easy to become disorientated, especially in large reedbeds.

Staff working in water should be aware of and consider the following hazards before commencing work:

- uneven and unstable beds of lakes, ponds or rivers, in which there may be submerged obstacles or pot holes which could lead to slips, trips and falls.
- areas of deep water
- fast flowing currents
- drowning
- ice
- hypothermia
- adverse weather

When using boats, the principal hazards are:

* drowning, due to:
  - falling overboard
  - capsize or sinking
  - collision with another boat or fixed object
  - falling between boats, or between boat and landing stage

* trapping or crushing limbs, fingers:
  - between gunwale and other objects
  - while working with ropes

* contact with moving engine parts

* trips, slips within the boat, or while embarking/disembarking or loading/unloading

* strains or kickback of engine starting mechanism

* strains while rowing

* hypothermia

* contact with fuels and oils

* fire in the boat

Blue-green algae are natural inhabitants of many inland waters. They are found in suspension and attached to rocks and other surfaces at the bottom of shallow waters and along the edges of lakes and rivers. For reasons that are not yet fully understood, bloom and scum forming blue-green algae are capable of producing toxins. These toxins have caused the death of wild animals, farm livestock and domestic pets. People have suffered rashes following skin contact, and illnesses have occurred when blue-green algae have been swallowed.

Electric fishing is an essential and effective technique for fishery management and research purposes in lakes and rivers, but the mixture of electricity and water makes it a high risk activity.

Under the Electricity at Work Regulations 1989, electric fishing falls into the category of working near live conductors and, therefore, suitable precautions must be taken to prevent injury, which would include receiving appropriate training.

Electric fishing is a specialist activity which, if undertaken by competent persons using properly designed and tested equipment, can be carried out with the minimum of risk.

Precautions to take:

Field workers should be equipped with sufficient protective clothing for the tasks in hand, for the time of year and weather conditions. It should be remembered that large open areas of water are often exposed and can be much colder than other areas. Protective footwear should be worn, e.g. wellington boots or thigh waders. A second person must be present if chest waders are being used because of the risk of the waders filling with water.

Many of the precautions required will take into account the size of the water body, terrain and time of year. However, when working on rivers or next to lakes field staff should:

Always take note of the currents, water flow etc. Remember the stillest waters are often the deepest.

Choose a gently shelving bank when climbing into or out of water. It is always easy to slip on steeper banks etc.

Do not walk on ice, it may not be as strong as you think and may give way without warning.

When working by a major water course, have a buoyancy aid or lifeline near by. If the water is flowing swiftly enough to carry a person away, have an additional safeguard in place, e.g. a rope or chain hanging downstream slightly above the water. An approved safety harness, belt or lifeline must be worn and securely anchored when working next to a weir, spillway or outfall. Adequate training and supervision must be given to all personnel involved, who must be advised where higher risks could occur.

The major causes of drowning are:

inadequate supervision

inability to swim or inexperience of swimming in rivers.

inability to save life or to give artificial respiration

the absence of life jackets or other life-saving equipment

irresponsible behaviour

stepping into holes or sudden changes of depth when wading in rivers.

If working in water regularly, a current anti-tetanus vaccination is essential (see Section 2.2.1). Additionally field staff should be aware of the dangers of Weil's disease (see Section 2.2.3) and other biological and chemical pollution. Adopt a high standard of personal hygiene and treat any cuts and abrasions immediately with waterproof dressings.

Many pesticides have as part of their condition of approval a stipulated period of time in which livestock and humans should not enter a sprayed area. These exclusion periods can range from 7-21 days. If you suspect that the area over which you wish to work has been sprayed, you should check with the landowner, tenant etc. to find out the exact product used. If possible, you should read the chemical label or obtain a copy of the product safety data sheet to find out if any exclusion period exists for that product. A further source to check is the UK Pesticide Guide, which is published annually.

Areas of peat may be saturated and considerably deeper than they appear. When working in such areas, field workers should:

carry a stick or pole to probe the ground ahead

not attempt to cross a bog or mire alone.

If you find yourself sinking, try to:

stay calm and not panic

if wearing a rucksack, take it off

spread body weight by lying flat on your back on the surface

try to get support by grabbing hold of some tussocks of vegetation

try to get legs free and lie horizontally

try to reach firm ground as fast as possible

use your rucksack or similar item as a float or support.

If working alone, the procedures outlined in Section 3.2 should be observed.

Follow the advice in Section 2 for precautions to take for occupational diseases, insect stings and bites etc.

If the work in these habitats entails using a boat the following should be observed:

Boats must be serviceable in open water and must be fitted with duck boards which should be kept clean and as dry as possible.

Boats must not be used unless staff have received adequate training and instruction. Helmsmen should be familiar with the water body and must be aware of the location of any underwater obstructions, position of shallows, sandbanks etc.

Boats must not be overloaded with tools and equipment. Allow for the number of passengers to be carried. Loads and passengers must be correctly balanced to reduce risk of overturns.

When underway, all passengers should be seated and must wear buoyancy aids (to BS EN 395).

Boats should be held steady when any passengers are boarding or alighting to reduce risk of overturns.

If working in a remote situation, adequate communication procedures should be considered.

Further Guidance:

TCV Handbook. Waterways and Wetlands
Environment Agency. Code of Practice for Electric Fishing
RoSPA. Water Safety for Children and Young People Code

3.6.5. Coastal and Off-Shore (including cliffs and crags).

The activities undertaken by field workers in these areas will range through survey and monitoring, litter picking, vegetation control, maintenance of paths, fences, stiles, and managing public access. For these practical management activities please refer to the appropriate sections later in this manual. This section contains advice for activities in all tidal water areas, including estuaries, salt marshes and tidal rivers, together with various types of shoreline. With any of these, the use of boats may be involved.

Some seashore and inter-tidal areas, such as sandy beaches, will have few risks, but rocky shores, exposed headlands and extensive inter-tidal areas, mudflats, sands and salt marshes will present a range of risks which need to be understood, and appropriate precautions taken.

In tidal water areas the main hazards are:

- being cut off by incoming tides
- quicksand
- uneven and unstable and often slippery vegetation on salt marshes
- deep gullies and pools which have overhanging and undercut sides.
- slippery rocks
- fast currents
- drowning
- hypothermia
- adverse weather:

  gales
  heavy rain
  mist and fog
  freezing conditions

- items washed up on the shoreline e.g. chemicals, munitions and sometimes drugs.
- marine creatures found in shallow water, especially in the summer months.

When using boats, the principal hazards are:

- drowning, due to:

    falling overboard
    capsize or sinking
    collision with another boat or fixed object
    falling between boats, or between boat and landing stage.

- trapping or crushing limbs, fingers:

    between gunwale and other objects
    while working with ropes

- contact with moving engine parts
- trips, slips within the boat, or while embarking/disembarking or loading/unloading
- strains or kickback of engine starting mechanism
- strains while rowing
- hypothermia
- contact with fuel and oils
- fire in the boat

Lone working is a common feature of field work in these habitats, sometimes in very remote locations.

The principal hazards on cliffs and crags, both natural (e.g. sea cliffs or mountain crags) and man-made (e.g. quarries) are:

* slippery vegetation

* undercut or loose material

* unstable cliff faces (e.g. sand, chalk or limestone)

* being struck by falling material

* falls from height

* being cut off by incoming tide

* "drowning" or being buried by falls of sand or rocks.

Precautions to take:

Before working in such an environment, field staff should consider the following:

Check local tide times. Make any adjustments for British Summer Time (BST), GMT and local variations. Local tide tables are published throughout the UK.

Check the weather forecast or the shipping forecast. Many local BBC Radio stations serving coastal regions also broadcast weather forecasts for the area provided by the Coastguard.

Consult maps, charts and local sources of information and knowledge such as the Coastguard, local fishermen etc., to identify danger areas such as quicksand.

Do not go out onto extensive inter-tidal areas alone. Beware of rising tides. Stop work and return to the high water mark when the tide turns, taking care not to be cut off. In some areas the tide comes in faster than a person can run. If a gale is blowing, and sometimes after a gale, the height of the tide may be higher than predicted in published tide tables.

When working on estuaries and inter-tidal areas, always beware of quicksand. In the unfortunate event of walking into quicksand, use the following techniques to get yourself out:

call for help from companions or others near by

stay calm and do not struggle

do not lift the feet, attempt to shuffle out

spread the body weight by lying down

use swimming motions to help move out of the area

If it is a companion who gets caught, advise them to take the precautions outlined above. Do not put yourself at risk of becoming a victim, but consider employing the following techniques to assist:

if practicable, try and ease the person towards firmer ground by securing them to a length of rope or wading pole, or getting them to hold on to a pole.

if appropriate summon the emergency services by mobile phone, VHF radio or by using a distress flare.

It is possible that the victim may suffer exposure and shock as a result of such an experience. In such situations, stop work immediately and return to seek help. Further guidance can be found in Section 2.4.1.

Take particular care on mudflats. Use a mud sledge to carry equipment or samples, and a wading pole to test the depth of water and mud in creeks.

On extensive shores subject to fog and mist, it is easy to become disorientated. Always carry a compass. It is also advisable to carry a watch and hand flare which should be used to attract attention in emergencies. It is also useful to carry a VHF radio or a mobile telephone if appropriate.

Wear sufficient protective clothing and suitable footwear. At certain times of the year, exposure is a major hazard. Follow the advice in Section 2.4.1 for exposure, taking particular note of the section on sunburn, which can be a particular problem.

Beware of any strange or unusual objects which have been washed up on the shore, such as chemical drums, canisters etc. Do not touch them but report immediately to the Coastguard or police. In Northern Ireland, contact the police or the army.

The advice in Section 2.2.6 about injuries from marine creatures should be followed.

Work off-shore will generally require the use of a boat. The following general precautions should be noted:

No person should take a boat out in tidal waters unless they have received adequate training and instruction and their level of competence has been assessed. Suitable training courses for boats in tidal waters are run by the Royal Yachting Association and marine colleges.

The boat should be maintained at all times in a seaworthy condition. The engine should be maintained in accordance with the manufacturer's instructions. Distress flares and other safety equipment should be replaced before their expiry date. Records of maintenance and inspection should be kept.

Check present and future tide, river and weather conditions; check craft (particularly for water, oil and fuel leaks), fuel level and safety equipment before each journey.

Between sunset and sunrise, all craft are required to display appropriate navigation lights.

If long journeys have to be made, or journeys in adverse conditions, a responsible person on land should be notified of departure, expected arrival time and safe arrival.

The boat handler should explain safety procedures to passengers before starting the journey. Passengers should remain seated during the journey. In an emergency, passengers must follow instructions given by boat handlers.

The following items of equipment must be carried in the boat:

- alternative means of propulsion, e.g. oars;
- compass;
- hand pump;
- bucket or other baling device;
- anchor and rope;
- lifebuoy and rope;
- towing rope;
- boat hook;
- waterproof torch;
- navigation lights;
- fog warning device;
- fire extinguisher;
- distress flares;
- first-aid kit.

The following items of equipment are recommended to be carried:

- VHF marine radio;
- tool kit;
- spare fuel.

Lifejackets:

- must be worn by all boat handlers;
- should be of a type which does not hamper movement (e.g. those which inflate automatically on immersion);
- should be available for all passengers;
- must be CE marked and meet ISO12402 standard.

Clothing:

- boat handlers should wear suitable warm clothing, and footwear with good grip;
- brightly coloured waterproof suits should be provided for all boat handlers.

Working on cliffs and crags may often involve no more than a steep walk or scramble and thus only requires general outdoor wear including stout shoes/boots with good gripping soles. However, these areas are invariably subject to extreme weather conditions, and appropriate clothing and equipment needs to be carried/worn.

The main precautions to observe are:

Beware of slippery vegetation on cliff edges

Do not lean over or stand too close to the edge

Beware of undercutting or loose material

On unfamiliar territory, consult local information sources e.g. Coastguard or Climbing Clubs.

Get any necessary permission from land owners and ask about any particular risks or dangers: obey any health and safety instructions given to you by the owners of such areas, e.g. quarry companies.

If working near to steep cliffs, beware of falling rock. If you are using a geologist's hammer to collect samples of rock, wear suitable eye protection.

Rock Climbing

Field workers should not attempt to rock climb unless specifically required to do so. This activity is dangerous and should never be attempted alone, without first receiving appropriate training and without suitable climbing equipment.

Climbing and the techniques involved are beyond the scope of this manual. Any field workers who may need to undertake rock climbing should consult their line manager and receive appropriate training from a recognised body before undertaking such work.

Beaufort No.	Wind	Nautical speed (knots)	Indications at Sea
0	Calm	less than 1	Sea mirror smooth
1	Light air	1 - 3	Small wavelets like scales, no foam crests
2	Light breeze	4 - 6	Waves short but more pronounced, crests have a glassy appearance and do not break
3	Gentle breeze	7 - 10	Foam has glassy appearance - not yet white
4	Moderate breeze	11 - 16	Waves are longer, many white horses
5	Fresh breeze	17 - 21	Waves now pronounced and long white foam crests everywhere
6	Strong breeze	22 - 27	Larger waves form, white crests more extensive
7	Near gale	28 - 33	Sea heaps up, wind starts to blow foam in streaks
8	Fresh gale	34 - 40	Height of waves increases visibly; also height of crests. Much foam is blown in dense streaks
9	Strong gale	41 - 47	Height of waves increases visibly; also height of crests. Much foam is blown in dense streaks
10	Storm	48 - 55	High waves with long overhanging crests, great foam patches
11	Violent storm	56 - 63	Waves so high that ships within sight are hidden in troughs; sea covered with streaky foam, air filled with spray
12	Hurricane	above 64	

3.6.6 Caves, tunnels, mines and other confined spaces

There is frequently a need for countryside staff to enter caves, tunnels, mines and similar confined spaces for work such as bat surveys, industrial archaeology, or geological surveys. The hazards of such work are considerable, and the precautions necessary to reduce risk will be extensive.

Hazards

The principal hazards are:

- being struck by falling rock;
- contact with rock and other obstructions (head injury);
- asphyxiation from a build-up of dangerous gases or lack of oxygen;
- explosion from ignition of flammable gases;
- falls from height from the collapse of the floor, or through openings in the floor;
- drowning;

- trips and falls on the same level;
- hypothermia, arising from long periods underground, or following trapping underground by flooding or rock falls;
- exposure to radon (although this is only likely to be significant where work underground is extensive).

Precautions

The primary precautions are:

Where possible, avoid entering a cave, mine or tunnel.
No person should go underground unless there is a clear need to do so to carry out the work required.
No person should go underground alone.

Planning:

- Obtain plans of the mine workings in advance, where available;
- Note weather conditions for at least 24 hours before going underground, particularly into caves or mine systems prone to flooding after heavy rain;
- Entry should only take place under a written permit-to-work system;
- The minimum size of the party entering the mine should be four persons (in the event of injury, one person should remain with the injured person, while two persons go for assistance);
- A minimum of two persons are required as back-up at the mine entrance;
- At least one person in the party should be experienced in the work;
- At least one person in the party underground should be a qualified first-aider;
- Hazards should be identified in advance;
- The capabilities of the members of the party should be taken into account;
- Monitoring for dangerous gases/lack of oxygen should take place where these are identified as potential hazards;
- Expert geological advice should be sought on the stability of strata in abandoned mines;
- The need for shoring, particularly at the entrance, should be considered;
- Training would be required where harnesses and ropes have to be used;
- Extra time should be allowed for the exit from the mine;
- Written emergency procedures should be prepared.

Equipment:

- Gas monitoring equipment should be used to warn of dangerous gases;
- Vapour-sealed (to prevent ignition of flammable gases) electric headlamp units should be worn, and a spare lamp of a different type carried by each person going underground;
- Lifelines (where required by the nature of the mine and length of the expedition) should be provided;
- Ropes and harnesses may be required for access to parts of the mine;
- Survival bags (when a long period underground is contemplated) should be taken;
- Spare food and drink should be carried;
- Waterproof watches should be worn;
- First-aid kits should be carried.

Protective clothing:

- Safety helmets to BS EN 397 should be worn;
- Eye protection to BS EN 166 should be worn if hammers and chisels are used for taking rock samples;
- Safety boots;
- The need for wet suits and/or waders should be considered;

- Adequate clothing should be worn for a cold, wet environment.

Exposure:

Exposure can occur very rapidly underground in the cold, wet conditions (in winter, it could also affect those waiting at the mine entrance). If exposure is suspected, take the following action:

- find a dry location away from draughts;
- huddle together for warmth, and cover the head and hands;
- place the exposed or injured person in the survival bag, ideally with another person;
- use ropes and other equipment for insulation from the floor;
- give out some of the spare food;
- two persons should go for assistance, leaving the exposed person and one other together.

Legislation:

Mines and Quarries Act 1954;
Wildlife and Countryside Act 1981;
Management and Administration of Safety and Health at Mines Regulations 1993;
Confined Spaces Regulations 1997.

Guidance:

HSE Approved Code of Practice L101 - *"Safe work in confined spaces"*;
Institute of Biology - *"Safety in biological fieldwork - guidance notes for codes of practice"*;

3.6.7 Urban Environments

Many of the risks in countryside management work are faced wherever the work is taking place. However, some risks are significantly higher for urban work due to the population density, the built environment and other work taking place.

Rubbish and pollution

Urban sites often contain domestic or flyblown rubbish ranging from cans and cigarette packets to used syringes. Waste material from building sites and other fly tipped material can contain split timbers, derelict cars and hazardous materials such as asbestos. Removal of material is now covered by the Environmental Protection (Duty of Care) Regulations 1991 and the Controlled Waste (Registration of Carriers and Seizure of Vehicles) Regulations 1991, and advice may be necessary before large amounts are taken away to commercial tips. Pollution is the despoiling of a site's natural environment by liquid or gases.

Before starting work:

- Check the site for any waste or hazardous materials before starting work
- If material is to be removed as part of the work, ensure skips are sufficiently large for the expected amount of rubbish to be collected.
- Ensure the skip provider is licensed under the Waste Management Regulations, and that waste transfer notes are completed.
- Any remaining hazardous material or waste left on site must be adequately fenced off and marked.

- If pollution is suspected, ensure soils and water are sampled to check for contaminants before starting work. Seek advice from the Environment Agency or the Environmental Health Department of the Local Authority.
- Only carry out work on a site if all waste and pollution are reduced to levels that do not present a significant risk to workers.

Dogs

There has been an increased awareness of the risk from both large and small dogs over recent years, and many urban sites are well used for dog exercising. The warning signs of dog aggression are well known - head down and forward, ears flattened, stiff posture, hackles raised, growls, lips curling or teeth bared.

- If the site is commonly used by dog walkers, erect signs to inform the public and exclude them from the work area.
- Avoid inviting dogs into the work area, or rewarding and encouraging those that approach.
- Stop work if dogs come close to the work, as they can divert attention and cause unsafe working conditions.
- If a dog does look threatening, do not make sudden movements but back away slowly, talking calmly to the dog.

The risks from toxacara are covered in section 2.2.5.

Traffic and vehicles

Particular care must be taken in urban settings when any part of the work, including delivery of materials, is adjacent to a road.

- Use cones and signs to warn oncoming traffic if work or unloading must be at the roadside. If a lane is required to be narrowed or closed completely, permission must be gained from the Highways Authority and the standards laid out in the booklet "Safety at Street Works and Road Works – A code of practice 2013" must be followed.
- If the work involves building a structure within the highway boundaries, e.g. a small barrier to prevent vehicles parking on a roadside verge nature reserve, a licence for these "streetworks" may be necessary. Contact the Highways Authority for details.
- If roadside working, everyone must wear hi-visibility or reflective vests/jackets, and a safe working area established inside barrier tape.
- Plan where vehicles will park and inform everyone beforehand. Ensure the side door of a vehicle is on the nearside before unloading of materials or people starts.
- If any vehicle has to move around on site, ensure safe traffic routes, and clear signs and instructions for all those using the site.
- Do not cook or brew up inside the vehicle.
- Place all valuables out of site when vehicles are parked and locked, as theft and damage to vehicles can have safety consequences.

Other people on site

Other visitors to the site, e.g. local residents, can present a risk to both their own and the workers' safety. If the work is not fully understood, local people may challenge workers or attempt to interrupt the work. The way work is conducted must not present a risk to other users of the site, whether legitimate or not, and the site must be left safe at the end of each working day.

To avoid potential conflict situations arising:

- Ensure full permission for all works has been obtained
- Ensure all interested people have been informed of the work, its reasons and consequences and how they can communicate their views on it.
- Brief all workers in the reasons for any work, and ensure they can share this with any interested people.
- Cordon off the site and place appropriate signs and/or look-outs to prevent unauthorised access when work is taking place.
- Ensure all tools and personal belongings are under close supervision or locked away.
- Do not work alone or without prompt recourse to assistance (see Section 3.2)

Underground Services.

The greatest risks are from electrical services, gas and high pressure mains water supplies. Urban sites are more likely to have underground supplies from a range of utilities passing through them, including some private ones under licence from the Highways Authority. Contact with underground electrical services can result in shock, fire and burns, and physical injuries from recoil. Gas leaks could lead to explosions, both during and after any damage has been caused. Fracturing high pressure water mains could lead to physical injuries from the water jet released. Telephone cables, and the increasing advent of cables for TV, may cause little injury but could leave you with a large bill for damages.

Safe systems of work have three main elements - plans, cable and pipe locating devices and safe digging practices.

- Assume there are underground services until proven otherwise.
- Contact all utilities and the Local Authority to obtain plans of any services, or other buried hazards associated with the previous use of the site.
- Plans of services are often unreliable. If any digging or ground penetration is needed within 3 metres of the line of the service shown on the plan, contact the utility company for an accurate site marking of the line.
- Use suitable cable and pipe locating devices in conjunction with the plans, if the latter show a likelihood of buried services within the proposed work area. Anyone using a cable or pipe locator must receive adequate training in its use.
- Mark the line of the services on the ground using waterproof paint.
- No digging by hand or other ground penetration e.g. using a crowbar to pilot a post hole, should take place within 0.5 metres of this marked line, and no digging with power tools within 1 metre.
- Hand digging using spades, gently eased into the ground, is the safest method of working when near to buried cables.
- Seek further guidance from the recommended reading at the end of this section.

Overhead services

Contact with live overhead lines is the cause of serious personal injuries and accidents each year, with approximately one third of them fatal. Overhead lines are not normally insulated, and if contact or near contact is made, an electric current will discharge, with a risk of shock and burns. The main risks for countryside staff are when working with vehicles which may come into contact with overhead lines as they move around a site, or felling and building work underneath or close to overhead lines.

- Inspect the site to identify any overhead services.
- Where there is no need for plant to pass under the lines, erect barriers to prevent all plant coming within 6 metres of the overhead line.

- If plant needs to pass under the line, or work closer to the line, the guidance in HSE Guidance Note GS6 should be followed (see below).
- For work at ground level under the line, the safe clearance should be ascertained from the electricity supplier.
- Plan all work to prevent tools, materials, people and vehicles from coming within 3 metres of overhead lines.
- Pay particular attention to the use of ladders or the erection of scaffolds under or close to the lines.

Further guidance

Safety at Street Works and Road Works – A code of practice. The Stationary Office
Avoidance of danger from overhead power lines GS6 4th edition 1997 HSE Books
Avoiding danger from underground services HS(G)47 HSE Books
Workplace transport safety INDG199 HSE Books