

### **Optical equipment (including night vision)**

**Alana Ecology Ltd** (see p.158)

#### **Gadgets.co.uk**

6 Greenhill Crescent  
Watford Business Park  
Watford

Herts WD18 8RF

Tel: 0870 0806666

Fax: 0870 0805555

E-mail: sales@gadgets.co.uk

Web site: www.gadgets.co.uk

Supplies include a few cheaper night-vision scopes.

#### **In Focus**

The Wildfowl and Wetland Trust

London Wetland Centre

Queen Elizabeth Walk

Barnes

London SW13 9WT

Tel: 020 8409 4433

Fax: 020 8409 4441

Web site: www.at-infocus.co.uk

Good range of binoculars, etc. Eight shops nationally. Will discuss night-vision equipment.

### **Ringling and marking**

**Alana Ecology Ltd** (see p.158)

#### **Biotrack Ltd**

52 Furzebrook Road

Wareham

Dorset BH20 5AX

Tel: 01929 552992

Fax: 01929 554948

E-mail: info@biotrack.co.uk

Web site: www.biotrack.co.uk

Supplies radio tags.

#### **Holohil Systems Ltd**

112 John Cavanagh Road

Carp. Ontario

Canada K0A 1L0

Tel: +613 839 0676

Fax: +613 839 0675

E-mail: info@holohil.com

Web site: www.holohil.com

Supplies radio tags.

#### **Labtrac Ltd**

PO Box 19. Uckfield

East Sussex TN22 3TF

Tel: 01825 791069

Fax: 01825 791006

E-mail: sales@avidplc.com

Web site: www.avidplc.com

Supplies AVID microchip equipment (PIT tags).

#### **Mariner Radar**

Bridleway

Wood Lane

Campsheath

Oulton

Lowestoft

Suffolk NR32 5DN

Tel: 01502 567195

Email: sales@mariner-radar.com

Supplies receivers and antennae.

#### **Porzana Limited**

Elms Farm

Pett Lane

Icklesham

East Sussex TN36 4AH

Tel: 01797 226374

Fax: 01797 226374

E-mail: porzana@wetlandtrust.org

Supplies bat rings in alloy and incoloy metal.

UK batrings also available from

#### **The Mammal Society**

28 Inworth Street

London SW11 3EP

Tel: 020 7350 2200

Fax: 020 7350 2211

E-mail: enquiries@mammal.org.uk

Web site: www.mammal.org.uk

#### **Telonics**

932 Impala Avenue

Mesa. Arizona 85204-6699

USA

Tel: +480 892 4444

Fax: + 480 892 9139

E-mail: info@telonics.com

Web Site: www.telonics.com

Supplies receivers and antennae.

**Titley Electronics**

PO Box 19  
Ballina  
New South Wales 2478  
Australia  
Tel/Fax: +61 2 66866617  
E-mail: [titley@nor.com.au](mailto:titley@nor.com.au)  
Web site: [www.titley.com.au](http://www.titley.com.au)

Supplies radio tags.

**Other field equipment****Alana Ecology Ltd**

(see p.158)

**British Trust for Ornithology**

Ringling Office  
The Nunnery  
Thetford  
Norfolk IP24 2PU  
Tel: 01842 750050  
Fax: 01842 750030  
E-mail: [ringling.sales@bto.org](mailto:ringling.sales@bto.org)  
Web site: [www.bto.org](http://www.bto.org)

Suppliers of bird ringing equipment, including aluminium section poles, spring balances, calipers, end-stop rulers, 'bird' bags and mist nets.

**Electromail**

PO Box 33  
Corby  
Northants NN17 9EL  
Tel: 01536 204555  
Fax: 01536 405555  
Web site: <http://rswww.com>

A sister company of RS components, which deals with small orders and non-account customers. Suppliers of dial calipers, tally counters and digital thermometers.

**Bat boxes and bat bricks****Alana Ecology Ltd**

(see p.158)

Supply a range of Schwegler woodcrete bat boxes and traditional wooden bat boxes.

**Envisage**

(see p.158)

Supply a range of Schwegler woodcrete bat boxes and traditional wooden bat boxes.

**Jacobi Jayne & Co**

Wealden Forest Park  
Herne Common  
Canterbury  
Kent CT6 7LQ  
Tel: 01227 714314  
Fax: 01227 719235  
E-mail: [enquiries@jacobjayne.com](mailto:enquiries@jacobjayne.com)  
Web site: [www.jacobjayne.com](http://www.jacobjayne.com)

Supplies the full range of Schwegler woodcrete boxes.

**C. J. Wild Bird Foods Ltd**

The Rea  
Upton Magna  
Shrewsbury, Shropshire SY4 4UR  
Tel: 0800 731 2820  
Fax: 01743 709504  
E-mail: [orders@birdfood.co.uk](mailto:orders@birdfood.co.uk)  
Web site: [www.birdfood.co.uk](http://www.birdfood.co.uk)

Supplies some bat boxes and other items relevant to bats.

**Marshalls Clay Products**

Howley Park  
Quarry Lane  
Woodkirk, Dewsbury  
West Yorkshire WF12 7JJ  
Tel: 01132 203535  
Fax: 01132 203555  
Web site: <http://www.marshalls.co.uk>

Manufacture and supply a bat access brick and bat roost unit.

**Norfolk Bat Group**

The Barn Cottage  
Wheelers Lane  
Seething  
Norfolk NR15 1EJ  
Tel: 01508 550784  
Fax: 01508 550850  
E-mail: [john.golds@paston.co.uk](mailto:john.golds@paston.co.uk)  
Web site: <http://www.norfolk-bat-group.org.uk>

Supplies the BAT-zzz-BRICK for hibernation sites.

**Mealworms**

**Live Foods Direct Ltd**

Houghton Road  
North Anston Trading Estate  
Sheffield S25 4JJ  
Tel: 01909 518888  
Fax: 01909 568666  
E-mail: sales@livefoodsdirect.co.uk  
Web site: www.livefoodsdirect.co.uk

**Books, videos, stickers, novelties**

**Bat Bazaar**

c/o Alana Ecology (see p.158)  
Web site: www.batsnet.org/acatalog  
Bat books, tapes, slides, jewellery, novelties, etc.  
for sale to individuals and to bat groups for resale.

**The Bat Conservation Trust**

15 Cloisters House  
8 Battersea Park Road  
London SW8 4BG  
Tel: 020 7627 2629  
Fax: 020 7627 2628  
Web site: www.bats.org.uk

**The Mammal Society**

(see p.157)

**Natural History Book Service**

2-3 Wills Road  
Totnes, Devon TQ9 5XN  
Tel: 01803 865913  
Fax: 01803 865280  
E-mail: nhbs@nhbs.co.uk  
Web site: http://www.nhbs.com

A leading supplier of British and foreign books on natural history.

**Speleobooks**

PO Box 10  
Schoharie  
New York 12157-0010  
USA  
Tel: +518 295 7978  
Fax: +518 295 7981  
E-mail: speleobooks@speleobooks.com  
Web site: www.speleobooks.com

Wide range of bat and cave books, videos, posters, stickers, novelties, etc.



Whiskered bat in flight. © Frank Greenaway

# Appendix 7

## Bat workers' training syllabus

This syllabus is to be used as a checklist for both the trainee bat worker (conservation and scientific licences) and the trainer.

### Legal protection: Wildlife and Countryside Act 1981 & Conservation (Natural Habitats &c.) Regulations 1994 or equivalent

#### Basic protection

Bats are protected against intentional killing, injuring or taking. Their roosts are protected against damage, destruction or obstruction, and it is also an offence to deliberately disturb bats. There are variations in protection across the UK.

#### Limits to protection

Protection of both bats and their roosts is not absolute and in some situations is very weak.

#### Dwelling houses

In all parts of a dwelling house it remains illegal to kill, injure or take bats but their roosts may be obstructed, damaged or destroyed provided that the SNCO has been notified and allowed time to advise on how this may best be done. This requirement for consultation does not apply in the living area of the house. The existence of this defence means that householders do not have to have bats roosting in their house if they clearly do not want them, but they are not allowed to kill or injure them and they should consult the SNCO about the best way of getting rid of them.

#### Lawful operations

Bats may be killed or injured or their roosts damaged or destroyed provided that this is the 'incidental result of a lawful operation and could not reasonably have been avoided'. However, the SNCO should be consulted about the interpretation of this defence before any action is taken and will provide advice on how any adverse effects on the bats may reasonably be avoided.

#### Circumstances requiring consultation

It is important that this is clearly understood. The SNCO should be consulted about any proposed deliberate action against bats or their roosts in dwelling houses or about any operation that will incidentally but foreseeably affect bats or their roosts wherever these may be.

#### Limitations of advice by volunteers

The law requires that the SNCO is notified and allowed time to provide advice. Volunteers can assist the SNCO in providing the best possible advice but they must either refrain from giving advice themselves or explain that action should not be taken until the advice has been confirmed by the SNCO.

#### Licensing

##### Licensable activities

Most activities that are prohibited in the Act or Regulations are licensable in one way or another. The SNCO is the licensing authority for activities carried out for scientific, conservation or educational purposes (including marking and photography). The appropriate government department (see Appendix 6) is the licensing authority for preventing the spread of disease, preventing serious damage, preserving public health or public safety or other imperative reasons of overriding public interest.

Licences are not required for the exclusion of bats from dwelling houses or for anything which is covered by the 'lawful operation' defence. The only requirement is that the SNCO is notified and allowed a reasonable time to advise.

##### SNCO licences

The SNCOs provide a number of general types of licence, the most important of which are conservation (roost visitor), scientific (survey and monitoring), research and marking, and training. Endorsements can be added to any of these licences to permit a wide range of other activities.

Licence applications should normally be on the standard forms provided and the application should be endorsed by a licensed trainer once the trainee has reached the required standard. If a trainer is not available, the names of two referees will be acceptable as a second choice.

Licences normally restrict the licensee to work in a limited area, usually one or more counties. This is intended to prevent any friction between neighbouring bat workers and to cut down on the possibility of a number of people visiting the same roosts independently. However, even within a county, it is important that local bat workers liaise informally with each other in order to avoid misunderstandings and repeat visits to sites.

**Other licences**

Government departments issue licences under the Habitats Regulations for preventing the spread of disease, preventing serious damage, preserving public health or public safety or other imperative reasons of overriding public interest. The latter reason is the most common and these are often referred to as ‘development licences’ because they are most frequently issued to permit damage or destruction of bat roosts or disturbance of bats during development works. Applications must fit the purpose of ‘overriding public interest’ and also pass tests of ‘no satisfactory alternative’ and ‘no adverse impact of favourable conservation status’.

**Bat biology and ecology****Basic biology****Taxonomy****Relationships with other mammals****Characteristics of families**

Trainees should be aware that bats form a very distinctive zoological order and that the two families represented in Britain are quite distinctive.

**Physical adaptations for flight****Physiological specialisations**

The ability of bats to enter and arouse from daily torpor and seasonal hibernation is an extremely important feature of the order, and an understanding of this is vital when considering their life histories, sensitivity to disturbance, etc.

**Senses**

Trainees should be aware of the importance of sight and hearing to bats and should be able to give a simple account of the way in which their echolocation system operates.

**Basic ecology****Importance in ecosystems****Life histories****Lifespan****Breeding****Food and feeding****Seasonality****Social behaviour****Colony formation and composition****Mating systems and behaviour****Maternal behaviour****Juvenile behaviour****Habitat selection****Roosting****Range of roost sites****Seasonal changes in site selection****Feeding****Range of feeding habits****Diurnal rhythms in feeding behaviour**

It is important that trainees have a good understanding of the lives of bats so that they are able to deal convincingly with questions put to them by householders. The level of competence will obviously improve with experience, but everyone should at the very least have read one or two of the currently available books on bats and have discussed all the headings listed with his or her trainer.

**Bat conservation****Threats to bats**

It is very important that bat workers should be able to answer convincingly the very common question, ‘Why are bats protected?’.

**Historical evidence**

Some of our best evidence about the declines in bat numbers over the last century comes from studies of former and current distributions. The greater horseshoe bat is the best-studied example. Other evidence comes from the works of Victorian naturalists who recorded bats as apparently being much more common than today.

**Current threats****Habitat change/loss**

This is probably the single most important factor that has affected bat populations in the last 100 years. The intensification of agriculture, loss of woodlands and draining of wetlands have all had their effect, both in reducing the number of insects available to bats and in reducing the availability of roost sites.

**Loss of hibernacula****Loss of summer roost sites**

*Effects of modern farming*  
*Loss of insects*

### **Pesticides**

#### *Remedial timber treatment*

This has probably been implicated in population declines, because many of the treatment fluids in use until recently could kill bats, even some time after treatment. Modern treatments are much less toxic, but roosts should not be treated when bats are present.

#### *Agricultural pesticides*

These can affect bats either directly, by accumulation through the food chain, or indirectly, by reducing the numbers of insects available to the bats at critical times of the year.

### **Persecution and intolerance**

Many colonies have been, and probably continue to be, lost through direct persecution.

### **Sensitivity of bats to disturbance**

Training for all levels of licence should cover this section, because the guidelines are applicable to a wide range of circumstances.

#### *In winter*

Every time a bat hibernaculum is entered by a party of surveyors a proportion of the bats will invariably be disturbed and begin to arouse. If the survey is by a single careful person, the proportion arousing may be very low, and conversely a large careless party may arouse many of the bats. Repeated disturbance of individuals can reduce their survival by forcing them to use food reserves, which they may not replace easily.

Hibernating bats should, therefore, not be disturbed unnecessarily and should not be handled without a good reason for doing so. Areas known to be used by hibernating bats should not be repeatedly visited unless as part of an intensive survey or research project (which would need a survey or research licence). Further guidance on the frequency of visits is given in the section on survey work.

#### *In summer*

Excessive disturbance of breeding colonies can cause mothers to abandon their young or young to become separated from their mothers and so should be avoided. Some species seem more sensitive to

disturbance than others. Horseshoe bats are alert most of the time and will normally fly when approached to within 3 or 4 metres. Other species are more approachable and some, such as pipistrelles, can normally be picked up quite easily because they are most reluctant to fly.

## **Public relations**

### **Site visits**

Site visits are probably the major area of interest of all Bat Groups. Training for such visits is largely a matter of experience and trainees should accompany their trainer on at least half a dozen visits before being considered for their own licence. Training under the following headings should consist of both discussions and practical experience and the trainer should be confident that the trainee will be able to deal competently and sympathetically with householders before endorsing a roost visitor licence application.

### **Safety**

Ensuring that visits are carried out safely is an important aspect of training and time must be spent ensuring that the trainee is aware of the main safety issues. These are: personal safety on the visit; safe working practices when using ladders or other access equipment; potential hazards in buildings, particularly in roofs; and safety when handling bats. Trainees should be encouraged to undertake risk assessment as a matter of course when arranging visits. The SNCOs will have their own safety requirements for visits carried out at their request and these should always be adhered to.

### **Visits to householders who have discovered bats**

*Arranging the visit*

*Analysing the situation*

*Persuasion and education*

*Sensitivity to fears and phobias*

*Practical help and limits to advice*

*Follow-up action*

*Further visits*

*Recording and reporting*

*Consultation/liaison with the SNCO*

### **Visits to buildings requiring works that may affect bats**

*Arranging the visit*

*Analysing the situation*

*Inspecting the site*  
*Collecting relevant information*  
*Follow-up action*  
*Completion of report*  
*Suggestions for advice*  
*Liaison with the SNCO*

## **Presenting bats to the public**

### **Giving talks**

Trainers should check that those who are prepared to give talks about bats have a good understanding of bat biology and are not going to spread 'misinformation' about bats.

### **Dealing with the media**

Not all Bat Group members will need to deal with the media but all should be told of the basic rules.

## **Practical methods**

### **Health and safety in bat work**

#### **Health and first aid**

Trainees should be aware of necessary disease precautions, especially against rabies.

#### **Travel, and night or lone working**

Trainees should be aware of simple precautions to minimise any personal risk.

#### **Safety in and around buildings**

Visits to locate or inspect bat roosts may involve access to parts of buildings that present particular safety hazards. Trainees must understand the importance of being properly equipped for such work and with the concept of risk assessment.

#### **Safety underground**

Visits to caves and mines require particular attention to equipment and safe methods of working. Trainees should be familiar with the safety code in Chapter 2.

#### **Safety at tree roosts**

#### **Safety at public events**

### **Handling and examining bats**

#### **Handling**

All trainees for a handling licence (who should have received pre-exposure rabies vaccination) must be able to handle bats safely and comfortably.

This will necessarily involve practical experience, which could, perhaps, start with captive animals but must also include handling wild bats. Points to emphasise are that bats should be handled only for a good reason and when this can be done safely, that handlers should avoid being bitten and take appropriate action if they are, that bats should not be kept for longer than necessary and that bats should always be released close to the point of capture. Trainees will vary in their ability to handle bats, but, as a guideline, they should have handled wild bats on at least five occasions and should preferably have handled more than one species.

#### **Identification**

For roost visitor licences, trainees should be confident about identifying the common species in their area and should be familiar in theory, if not in practice, with the features that identify all British species. It is important to emphasise that all bats must be examined carefully before reaching a conclusion, because otherwise mistakes will be made. All trainees should be familiar with one of the published keys on British bats.

Trainees for survey licences should be able readily to identify a wider range of bats in a variety of situations.

#### **Examining**

Trainees should be able to handle bats for examination and should be able to sex bats and measure the forearm length. It is advantageous if trainees can distinguish juveniles, but this is not a requirement of the training scheme. It is neither necessary nor desirable that trainees are able to take a wide range of measurements, because these are required only for specialist projects.

#### **Catching bats**

Trainees for roost visitor licences need to be trained how to catch bats safely in roosts and at roost entrances. Trainees for survey licences who wish to carry out specialist research projects may need training in techniques of catching bats in the open or in large numbers at roosts, but this should not be generally encouraged.

#### **Inside roosts**

In some circumstances bats may simply be picked up carefully within roosts (assuming that there is a need to catch one) or, if likely to fly, they may be caught by placing a hand-net gently over them.

Bats should not be caught in flight or swiped at with a hand-net.

#### *At roost entrances*

The approved technique is to hold a hand-net directly below the roost entrance so that an emerging bat falls straight into it as it drops from the roost entrance. The bat can then be carefully extracted from the net. Emphasis should be placed on the need to keep the net still and the undesirability of disturbing the colony so that emergence is disrupted. This is a straightforward technique and trainees should be competent after perhaps five attempts. Cone-trapping is a specialised research technique and should not be used to catch small numbers of bats for identification.

#### *In the open*

All methods of catching bats in the open have the potential to harm bats if used carelessly. The most common methods are harp-trapping or mist-netting and licences for this will only be given to applicants who have received appropriate training and agree to follow SNCO guidelines.

#### **Survey work**

The majority of applicants for licences require a conservation (roost visitor) licence so that they can visit householders and disturb or handle bats associated with buildings. A small proportion of applicants will wish to extend their interest to survey work for bats and bat roosts and may require a licence to disturb or handle bats in hibernacula or to catch bats in the open.

#### **Hibernacula**

##### *Safety*

Working safely in underground sites such as caves, mines, ice-houses or tunnels requires a good understanding of the potential hazards and the basic safety rules that must always be observed. Good safety advice is provided by the various caving and mine history organisations.

##### *Frequency of survey*

The dangers of excessive disturbance have already been covered in a previous section because of their general applicability.

The acceptable frequency of survey will vary with the configuration of the site, the number of bats involved and the purpose of the survey. It is

impossible to give hard and fast rules but the following paragraphs give some guidance.

For intensive short-term (a few years) surveys to establish patterns of usage, a visit every 3 or 4 weeks by a careful individual or small party would probably be acceptable. Maximum party size should be related to the size of the hibernaculum and the density of bats.

Long-term surveys should normally require only one or two visits per winter, preferably at a time when the maximum number of bats is present. Again, party size should be related to the size of the hibernaculum and the density of bats.

Casual unplanned visits 'to see the bats' should be avoided, however strong the temptation. If you do wish to take trainees to see hibernating bats, try to arrange that they accompany you on planned survey trips and assist with counting the bats.

It should rarely be necessary to handle hibernating bats, because the great majority can be identified by close inspection. Horseshoe bats need be handled only as part of a research project.

#### *Liaison*

Although one individual or group may limit their visits to a site in a sensible way, it is clearly essential that there is not some other individual or group also visiting the same site and thus doubling the number of visits. Liaison between workers within an area is extremely important and should be given emphasis during training.

#### **Summer roosts**

##### *Frequency of survey*

Most of the remarks about winter surveys apply equally to summer surveys if visits inside the roost are necessary. However, most summer surveys should involve counting the bats as they emerge from the roost at dusk, with, perhaps, a few inspections inside to check on the agreement between internal counts and emergence counts. Provided that common-sense precautions are taken, there need be no limit placed on the number of emergence counts that are made.

If the species cannot be identified by careful inspection within the roost (horseshoe bats can normally be identified in this way), it will be acceptable to hand-net a bat as it emerges. Do not net more than a few bats, because this is unnecessary.

<b>Training checklist</b>	Tick
<b>Legal protection: Wildlife and Countryside Act 1981 &amp; Conservation (Natural Habitats &amp;c.) Regulations 1994 or equivalent.</b>	
Basic protection	
Limits to protection	
Dwelling houses	
Lawful operations	
Circumstances requiring consultation	
Limitations of advice by volunteers	
<b>Licensing</b>	
Licensable activities	
SNCO licences	
Other licences	
<b>Bat biology and ecology</b>	
Basic biology	
Taxonomy	
Relationships with other mammals	
Characteristics of families	
Physical adaptations for flight	
Physiological specialisations	
Senses	
Basic ecology	
Importance in ecosystems	
Life histories	
Lifespan	
Breeding	
Food and feeding	
Seasonality	
Social behaviour	
Colony formation and composition	
Mating systems and behaviour	
Maternal behaviour	
Juvenile behaviour	
Habitat selection	
Roosting	
Range of roost sites	
Seasonal changes in site selection	
Feeding	
Range of feeding habits	

<b>Training checklist (continued)</b>	<i>Tick</i>
Diurnal rhythms in feeding behaviour	
<b>Bat conservation</b>	
Threats to bats	
Historical evidence	
Current threats	
Habitat change/loss	
Loss of hibernacula	
Loss of summer roost sites	
Effects of modern farming	
Loss of insects	
Pesticides	
Remedial timber treatment	
Agricultural pesticides	
Persecution and intolerance	
Sensitivity of bats to disturbance	
In winter	
In summer	
<b>Public relations</b>	
Site visits	
Safety	
Visits to householders who have discovered bats	
Arranging the visit	
Analysing the situation	
Persuasion and education	
Sensitivity to fears and phobias	
Practical help and limits to advice	
Follow-up action	
Further visits	
Recording and reporting	
Consultation/liaison with the SNCO	
Visits to buildings requiring works which may affect bats	
Arranging the visit	
Analysing the situation	
Inspecting the site	
Collecting relevant information	
Follow-up action	
Completion of report	
Suggestions for advice	

<b>Training checklist (continued)</b>	<i>Tick</i>
Liaison with the SNCO	
Presenting bats to the public	
Giving talks	
Dealing with the media	
<b>Practical methods</b>	
Health and safety in bat work	
Health and first aid	
Travel and night or lone working	
Safety in and around building	
Safety underground	
Safety at tree roosts	
Safety at public events	
Handling and examining bats	
Handling	
Identification	
Examining	
Catching bats	
Inside roosts	
At roost entrances	
In the open	
Survey work	
Hibernacula	
Safety	
Frequency of survey	
Liaison	
Summer roosts	
Frequency of survey	