This course will introduce you to a range of advanced techniques for surveying and studying bats in woodlands, including full-spectrum acoustic monitoring, capture methods and radio-tracking using practical demonstrations. The application of each technique will be illustrated with specific examples from the tutor’s own experience of bat research and survey work in the UK and overseas.

Bats are fascinating animals, but elusive because they are invisible and inaudible to us most of the time. Bats are particularly difficult to survey and study in woodland habitats, which are arguably the most important for bat conservation. With basic bat detectors we can hear bats and get an indication of activity levels, but more advanced techniques are required for identification of woodland bat species and for studying their behaviour and ecology. This course will provide an introduction and demonstration of these advanced methods.

You will practise using a variety of equipment, including full-spectrum bat detectors (e.g. Pettersson D240x), and will learn how bat calls can be analysed. You will also be shown methods for catching bats, including harp traps, mist nets and acoustic lures, and how to identify bats in the hand (*). By the end of the course you should be familiar with the basics of species identification from calls and aware of the advantages and limitations of acoustic monitoring. You will also understand the basic principles underlying acoustic lures for bats and the relative advantages and limitations of acoustic monitoring and capture.

* This course provides an introduction to the capture and handling of bats and the use of acoustic lures. Long-term training is required before it is possible to obtain a licence to use these methods. Field demonstrations will be dependent on the weather.
### Course Overview

<table>
<thead>
<tr>
<th>Day</th>
<th>Activity</th>
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<tbody>
<tr>
<td><strong>Friday</strong></td>
<td>General introduction. Methods for identifying bats in the hand. Setting harp traps and recording bat activity with hand-held bat detectors.</td>
</tr>
<tr>
<td><strong>Saturday</strong></td>
<td>Conservation of bats in woodlands: the need for advanced survey techniques. Introduction to acoustic monitoring and species identification: potential and limitations.</td>
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<tr>
<td><strong>Saturday</strong></td>
<td>Acoustic lures: development and applications. Rest period (in preparation for night work).</td>
</tr>
<tr>
<td><strong>Evening</strong></td>
<td>Setting harp traps and manually recording bat activity. Demonstration of mist netting and handling bats (dependent on weather conditions and capture).</td>
</tr>
<tr>
<td><strong>Sunday</strong></td>
<td>Applications of radio-tracking for studying and surveying bats. Demonstration of acoustic lure and radio-tracking equipment.</td>
</tr>
<tr>
<td><strong>Sunday</strong></td>
<td>Discussion of the advantages and limitations of acoustic analysis vs capture - Why catch them at all?</td>
</tr>
</tbody>
</table>

NB: Details of the programme may be changed depending on the weather.

### About the Tutor

David Hill taught ecology and conservation at the University of Sussex for 15 years before becoming a professor at the Wildlife Research Center of Kyoto University in Japan. He has been studying and surveying bats for almost 20 years and has extensive experience with a range of advanced techniques, including acoustic monitoring, capture and radio-tracking. Much of his research has involved the development and applications of the Autobat, an acoustic lure that greatly enhances bat capture. This device has enabled him to do research on the population dynamics, vocal communication and diet of elusive bat species in England and Japan that would not otherwise have been feasible. He has also tested the Autobat in many other countries, including Australia, Malaysia, Thailand, South Korea and Taiwan.
**What to Bring**

- A good head torch (preferably with a red light setting)
- Notebook
- Warm clothing for night excursions (including hat and gloves)
- Lightweight folding chair or stool (optional)
- Waterproofs and Wellington boots (can be borrowed from the centre if necessary)
- Suitable footwear
- Lunch box, salad box and flask/drink bottle
- Bat Detector*
- Sound Recorder*
- Spare batteries for head torch, bat detector etc.

* If you have them

**Start and Finish Times**

Participants are requested to arrive on Friday 27th July at the Office Reception for registration between 1:00pm and 4:00pm; after this time self-directed arrival information will be posted on the front door. There will be an introductory talk with the Head of Centre typically at 5.30pm. Supper is usually at 6:30pm. Breakfast, for resident participants, will be from 8.00am. The course will end at 4:00pm on Sunday 29th July with departure soon after. On the final day please vacate your room by 9:00am, storage is provided for your luggage.

**How to Book**

You can check availability and make a provisional booking by telephoning the Centre on 01548 580466.

To confirm your booking please complete the form found in the FSC brochure or online at [www.field-studies-council.org](http://www.field-studies-council.org).